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# Economic and Social Development

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"Rethinking Management in the Digital Era: Challenges from Industry 4.0 to Retail Management"

## Book of Proceedings

Editors:

Humberto Ribeiro, Marco Costa, Ljerka Cerovic



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## THE SOCIAL WELFARE POLICY: COMPARATIVE ANALYSIS OF THE BUDGET EXECUTION EFFECTIVENESS OF THE RUSSIAN FEDERATION AND PORTUGAL

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### **ABSTRACT**

*A satisfactory and benevolent level of social welfare which turns out to be one of the primordial mandates and fundamental functions of any country is in some way dependent on a certain number of factors that have both direct and indirect impact on it. In this respect, one of the predominant mechanisms that provide for a decent boost of life quality is represented by the financial system of the country which, in its turn, is built upon the budget system. The objective of this research lies in the comparative analysis of the budget execution effectiveness of the Russian Federation and Portugal in terms of the social welfare policy implementation in a three-year dynamic – from 2015 to 2017. For the purpose of endorsing a scientific research method to identify the expenditures share in the GDP of the two countries, have been calculated the index of the public sector performance (PSP) and the index of the public sector efficiency (PSE) which comprise and string the underlying elements of social welfare and the budget expenditures sections of the analysed countries related to them. The results show that the state budget of Portugal maintains a more socially oriented policy, whereas the state budget of the Russian Federation is noticeably directed to the economic growth accomplishment and national defence stability. Apart from that, the state budget of Portugal is differentiated by a larger degree of effectiveness in terms of social welfare growth. The research work has certain distinguishing features of novelty as no similar analysis held upon the comparison of the state expenditures of the Russian Federation and Portugal from the perspective of social welfare policy implementation has ever been performed.*

**Keywords:** *Expenditures Effectiveness, Portugal, Social Welfare, State Budget, The Russian Federation*

### **1. INTRODUCTION**

One of the primordial objectives of the modern state budget policy of any country lies in the perpetual improvement of the budget system, its crucial elements that influence directly or indirectly the process of securing the progressive promotion of the social welfare quality of the population and social policy implementation. That is why it is of importance that the budget resources are to be executed diligently and effectively which led to the choice made on the topic of the final qualification paper, and the set objectives and mandates of the research. The main objective of the research is to perform a comparative analysis of the execution effectiveness of the federal budget of the Russian Federation and the state budget of Portugal from the perspective of social welfare policy implementation.

In order to achieve the aforementioned objective a literature review of Russian and European authors' scientific papers was made related to the respective topic as well as a review of the budget legislation of the Russian Federation and Portugal was considered. Besides that, the share of all items of expenditures in the total gross domestic product (GDP) of the two countries was calculated. Moreover, the indicator method introduced by the Portuguese scholars Afonso, Schuknecht and Tanzi was included in the research to estimate the effectiveness and to obtain the opportunity to compare the budget execution performance of the Russian Federation and Portugal from the point of view of social welfare growth. At its core two integral indicators are placed: the index of the public sector performance (PSP) and the index of the public sector efficiency (PSE) which comprise and string the underlying elements of social welfare and the budget expenditures sections of the analysed countries related to them. The practical value of the actual research entails the results in the form of a fundament that may be used for future comparative analysis of other countries as well as for more detailed analysis of the state budgets of the Russian Federation and Portugal.

## **2. LITERATURE REVIEW**

The maintenance of a high level of social welfare of any country by being one of its principal mandates and functions is in certain dependence on various factors that influence it directly and indirectly. In this regard, one of the fundamental mechanisms that allows a given country to improve the life quality of the population is represented by the financial system of the country which, in its turn, is based on the budget system composed of a certain number of centralized funds of financial resources that are called budgets (Komyagin, 2017). Nowadays, a whole variety of notions for the state budget are popular and all of them open up its meaning from the physical, economic and legislative perspective. According to Dement'ev (2017), the physical aspect characterizes the budget system as a financial resources fund that is subject to governmental management and public and legislative structures under it. Moskovtsev (2018) by observing budget as an economic category defines it as a set of economic relations that appear in the process of creation, allocation and execution of the state centralized funds of financial resources. From the point of view of Komyagin (2017), the budget, in the legal aspect, is a law developed by an executive body of state or municipal authority in accordance with current legislation, reviewed and approved by a representative state body, approved and signed by the head of a state or municipal entity. Thus, it can be emphasized that the state budget is a multifaceted concept, the diversity of interpretation of which is due to its multidimensional functional values. And it is important to note that over time there is a tendency to expand the concept of the budget by transferring its value from the expression of a form to the content (Dement'ev, 2017). The budget, by being the central element of the country's budget system and, as a consequence, concentrating the basis of its financial resources, performs a number of fundamental functions, one of which is to ensure the social welfare of the state (Averkieva, 2014). The concept of social welfare was first formulated in the 18<sup>th</sup> century by one of the founders of classical economic theory, A. Smith, who noted that the level of well-being depends on the level of labour productivity and is proportional to the needs of the population (Efimova, 2015). Subsequently, the definition of social welfare was modified depending on the emergence of new economic schools and, accordingly, new approaches. Thus, the representatives of the neoclassical school – A. Marshall, A. Pigou, G. Sedgwick – believed that social welfare is only a means to sustain a person's life, to satisfy their needs and develop their abilities and qualities. While utilitarian scholars, such as V. Pareto, P. Samuelson, I. Bentham, L. Nash, argued that social welfare is the welfare of individual members of society. Followers of the social approach, such as R. Stoltzmann, R. Stammmler, O. Spann, stressed that social welfare is a combination of non-economic factors that are fundamental for socio-economic development and progress (Brusova & Achylov, 2014).

Today, social welfare is closely related to the concept of public goods – education, health, economic regulation, law and order, protection of public interests, civil rights and freedoms, that is, services and functions that cannot be provided by the market and paid for by every citizen separately. Thus, the society actually “acquires” these benefits from the state, for funds that form budgets in the form of taxes and other payments (Efimova, 2015). Based on this, it will be considered the budget systems of the Russian Federation and Portugal as a whole, as well as from the point of view of the implementation of social welfare policy.

## **2.1. The budget system of the Russian Federation**

The structure of the budget system reflects the economic state of a country at a particular stage of its development and depends on its state structure (Moskovtsev, 2018). The Russian Federation, according to The Constitution of the Russian Federation (1993), is a democratic federative legal state with a republican form of government. Currently, the country consists of 85 regions – subjects of the Russian Federation. All this indicates that the modern budget system of the Russian Federation is based on the principles of administrative-territorial division.

### *2.1.1. General review of the budget system of the Russian Federation*

The budget system of the Russian Federation, according to the Budget Code (1998) of the main legal act regulating the budget system of the country, is based on economic relations and the state structure of the Russian Federation, the aggregate of the federal budget, budgets of the subjects of the Russian Federation, local budgets and state extrabudgetary funds regulated by law. Thus, the budget system of the country is a three-tier system. The draft federal budget, as well as the budget of a constituent entity of the Russian Federation, are drawn up for a period of three years – the next financial year and the planning period. The financial year in Russia corresponds to the calendar year. The interaction between the parts of the three-tier budget system of the Russian Federation is built on the basis of intergovernmental relations, which represent the relationship between public legal entities on the regulation of budget legal relations, the organization and implementation of the budget process. The key role of intergovernmental relations is the formation, distribution, redistribution and regulation of budgetary powers and sources of their support. The main instruments of inter-budget regulation in the Russian Federation are the established standards for tax deductions to local budgets, as well as intergovernmental transfers. Intergovernmental transfers are funds provided by one budget of the budget system of the Russian Federation to another budget. These transfers, in turn, are included in the budget expenditures items, the classification of which we will consider in more detail in the next section, as well as analyse how the federal budget funds are implemented to achieve growth of the social welfare (Budget Code of the Russian Federation of 31.07.1998 №145-FZ, 1998).

### *2.1.2. Expenditures of the federal budget of the Russian Federation*

According to the Budget Code of the Russian Federation (1998), the classification of expenditures of the federal budget involves the division of expenditures into the following groups: The classification of the state budget expenditures involves the division of expenditures into the following groups: (i) general public services; (ii) national defence; (iii) public order and safety; (iv) national economy; (v) housing and collective services; (vi) environmental preservation; (vii) education; (viii) culture and cinematography; (ix) health; (x) social services; (xi) sport; (xii) mass media; (xiii) public debt operations; (xiv) transfers within the general government. Considering the budget system of the Russian Federation from the point of view of implementing the concept of social welfare, it is worth noting that it is implemented through the main items of budget expenditures that were listed above, as well as through the state programs.

The state program, according to Единый портал бюджетной системы Российской Федерации (2019), is a strategic planning document which contains a set of planned activities that are interconnected in terms of objectives, implementation dates, performers and resources, and public policy instruments that ensure the achievement of the governmental policy priorities and objectives in the field of socio-economic development and national security of the Russian Federation. Today, the following five state programs are being implemented in the Russian Federation: (i) a new quality of life; (ii) innovative development and modernization of the economy; (iii) national security; (iv) balanced regional development; (v) an effective state (Портал государственных программ Российской Федерации, 2019).

## **2.2. The budget system of Portugal**

Portugal, according to the country's Constitution (1976), is a democratic state based on the rule of law, the sovereignty of the people, plural democratic expression and political organization, respect for and a guarantee of the effective exercise of fundamental rights and freedoms. The form of the government is a presidential-parliamentary republic, the form of the state is unitary. The country includes territory on the mainland of Europe, which historically includes Portugal, as well as the Azores and Madeira archipelagos, which are autonomous regions with their own political and administrative laws and institutions of self-government.

### *2.2.1. General review of the budget system of Portugal*

According to the main law governing the budget system of the state – Budget Law №151/2015 (2015) – the budget of Portugal is unitary, covers all revenues and expenditures of the entities that constitute the central management and social security subsector, and is implemented on the basis of eleven budget principles. The state budget of Portugal is the central part of the country's two-tier budget system, which also includes the social insurance budget and the budgets of autonomous institutions. The budget system of the country includes the budgets of the municipalities – the second level of the budget system – and the budgets of the autonomous regions of the country: the Azores and Madeira archipelagos – which, in turn, are subdivided into the regional budget and the budgets of the municipalities. The interaction between all parts of the budget system of Portugal is based on the observance of the principles of fiscal stability and mutual solidarity. In this regard, according to the Budget Law of Portugal, local budgets, as well as the budgets of the autonomous regions of the country may require funding from the state budget, subject to compliance with the commitments made by the state under the social protection system. Budget transfers are considered when drafting the state budget, that is, at one of the stages of the budget process, and are considered when planning expenditures, which we will take a closer look at in the next subsection.

### *2.2.2. Expenditures of the state budget of Portugal*

According to Article 49 of the Budget Law of Portugal №151/2015 (2015), the state budget expenditures, in terms of financial investments of the country, are associated with debt obligations, special allocations, financing of the state business sector, budget transfers. Expenditures of the state budget of Portugal can be classified according to the functional characteristics, as well as to the relevant governmental programs. Expenditures of the state budget of Portugal, according to the functional classifier, which we consider including in the empirical part of this study, are divided into: (i) general public services; (ii) national defence; (iii) public order and safety; (iv) education; (v) health; (vi) safety and social services; (vii) housing and collective services; (viii) cultural, recreational e religious services; (ix) agriculture and livestock, forestry, fishing and hunting; (x) industry and energy; (xi) transport and communication; (xii) trade and tourism; (xiii) other economic functions; (xiv) public debt operations; (xv) transfers within the general government; (xvi) not elsewhere classified.

Considering the issue of achieving a high level of social welfare in Portugal, it is important to note that the country, by being a member of the European Union, is implementing the Mediterranean European Social Model for economic progress and the development of social infrastructure on its territory (Mathieu & Sterdyniak, 2008). This model is characterized by the predominance of pension payments in social transfers, a high degree of segmentation of beneficiaries according to their status (Sapir, 2006).

### 3. RESULTS

In modern conditions, ensuring the sustainability of the state budget system, which is an important condition for the growth of social welfare, is directly dependent on the efficiency of the expenditures side, which is the primary task of this study. For its implementation, we define the share of expenditures of the federal budget of the Russian Federation and Portugal in the gross domestic product. Three years are taken for the analysed period – from 2015 to 2017.

*Table 1: The expenditures share of the federal budget of the Russian Federation in GDP  
 (Author's own elaboration on the base of Единый портал бюджетной системы  
 Российской Федерации (2019) & The World Bank Group (2019a))*

Type of expenditures	Executed, % of GDP			Change 2017 to 2015	
	2015	2016	2017	units	%
General public services	1,217	1,312	1,134	-0,083	93,184
National defence	3,494	4,521	2,782	-0,713	79,605
Public order and safety	2,297	2,274	1,871	-0,427	81,424
National economy	2,439	2,757	2,399	-0,040	98,351
Housing and collective services	0,138	0,087	0,117	-0,021	84,433
Environmental preservation	0,053	0,076	0,090	0,037	171,299
Education	0,678	0,716	0,600	-0,078	88,485
Cultural and cinematography	0,102	0,105	0,087	-0,015	85,627
Health	0,433	0,606	0,429	-0,004	98,978
Social services	4,738	5,495	4,868	0,130	102,742
Sport	0,081	0,071	0,094	0,013	115,972
Mass media	0,090	0,092	0,081	-0,009	90,394
Public debt operations	0,658	0,744	0,692	0,034	105,100
Transfers within the general government	0,687	0,805	0,771	0,084	112,177
Total	17,106	19,659	16,014	-1,092	93,615

*Note: Since the relative values of % are discreet, three digits after comma are used in this table*

Based on the data presented in Table 1, it can be concluded that from 2015 to 2017, the priority areas of the federal budget expenditures in the Russian Federation are on social policy, national defence and national economy, since their share is the highest in the total GDP value of the country. In addition, it is important to note that the financing of social policy tends to increase, which is a favourable sign from the point of view of the implementation of social welfare policy. This cannot be stated about such items of expenditures as education and health care, which are reduced during the period under review. In turn, in Portugal, the state budget shows the opposite trend: education and health are among the top three most funded items of expenditures after social policy (Table 2). However, as in the Russian Federation, the share of these costs from 2015 to 2017 is declining, giving primacy to production and economic areas of expenditures. Thus, it can be concluded that despite the fact that the share of expenditures of the federal budget of the Russian Federation in the country's GDP is significantly higher compared with the same indicator in Portugal, in general, the state budget of the second from 2015 to 2017 has a more socially oriented character, since more active financing of those areas is detected which makes up social welfare.

*Table 2: The expenditures share of the state budget of Portugal in GDP (Author's own elaboration on the base of Direção-Geral do Orçamento (2019) and The World Bank Group (2019a))*

Type of expenditures	Executed, % of GDP			Change 2017 to 2015	
	2015	2016	2017	units	%
General public services	0,743	0,749	0,752	0,009	101,148
National defence	0,829	0,782	0,740	-0,089	89,284
Public order and safety	1,412	1,369	1,307	-0,105	92,597
Education	2,998	3,095	2,965	-0,033	98,890
Health	3,780	3,800	3,562	-0,218	94,232
Safety and social services	6,047	5,880	5,560	-0,487	91,953
Housing and collective services	0,048	0,061	0,037	-0,011	76,860
Cultural, recreational and religious services	0,051	0,057	0,118	0,067	229,579
Agriculture and livestock, forestry, fishing and hunting	0,171	0,180	0,182	0,011	106,378
Industry and energy	0,005	0,048	0,006	0,001	120,248
Transport and communication	0,081	0,301	0,364	0,284	452,278
Trade and tourism	0,007	0,007	0,007	-0,001	90,553
Other economic functions	0,140	0,164	0,149	0,009	106,463
Public debt operations	3,147	3,183	2,897	-0,250	92,063
Transfers within the general government	2,119	2,112	1,941	-0,179	91,563
Not elsewhere classified	0,000	0,000	0,000	0,000	0,000
Total	21,579	21,788	20,586	-0,992	95,402

*Note: Since the relative values of % are discreet, three digits after comma are used in this table*

In order to evaluate the efficiency of using the funds of the state budgets of the analysed countries, it is necessary to calculate the PSP (Public Sector Performance Index), proposed by the Portuguese authors and based on the performance indicators of the following activities of the state: law and order, education, health stability and economic development. This index consists of two integral indicators: the indicator of "Opportunities" and the indicator of "Musgravian" – which are determined by seven areas of the governmental activity to ensure the growth of social welfare (Afonso, Schuknecht, & Tanzi, 2006). The database for their calculation was made with the help of studies conducted within the framework of the World Economic Forum and presented in reports on international competitiveness from 2015 to 2017: law enforcement agencies, organized crime, independence of the court, protection of property rights, quality of higher education, life expectancy, modernization of urban infrastructure. The "Musgravian" indicator includes indicators that characterize the income distribution of the population, the stability of the economic growth and the level of economic development: the Gini coefficient, the inflation rate, the rise in the value of the gross domestic product, the unemployment rate. The indicators used to calculate the PSP government expenditures performance index are given equal weight. Values are normalized, and the average is one.

*Table following on the next page*

*Table 3: Public sector performance indicators of the Russian Federation and Portugal (Author's own elaboration on the base of Schwab and Sala-i-Martin (2015; 2016; 2017), Federal State Statistics Service (2019) and Portdata (2019))*

Indicator	Sub-indicator	2015		2016		2017	
		RF	Portugal	RF	Portugal	RF	Portugal
Opportunity indicators	Administration	0,79	1,21	0,83	1,17	0,85	1,15
	Education	0,96	1,04	0,97	1,03	0,98	1,03
	Health	0,94	1,06	0,93	1,07	0,94	1,06
	Infrastructure	0,61	1,39	0,64	1,36	0,70	1,30
Musgravian indicators	Distribution	1,10	0,90	1,11	0,89	1,11	0,89
	Stability	-2,86	2,86	2,86	1,35	1,05	0,95
	Economic performance	-2,50	0,40	0,17	1,83	0,74	1,26
PSP		-0,14	1,27	1,07	1,24	0,91	1,09

Based on the data presented in Table 3, it can be concluded that the level of efficiency of public expenditures in Portugal is higher compared with the Russian Federation: the difference between the indices in 2015 was 1,41 units in favour of Portugal. However, by 2017, this difference decreased by 1,23 units or 87,23%. Considering, in particular, the dynamics of the indicators that make up the index, it is important to note that in 2015 Portugal showed more successful results in all the parameters studied. The only exception was the income distribution indicator based on the Gini coefficient. For the entire analysed period, this indicator in relation to the Russian Federation was higher compared with Portugal. In addition, in 2017, Russia “caught up” in yet another indicator – stability, since indicators such as inflation and GDP growth increased significantly in 2017 compared to 2015. The changes in the governmental expenditure's performance index in the Russian Federation are more dramatic compared to Portugal, where this indicator is changing more smoothly. However, in Portugal, changes are occurring in a downward trend. While in Russia we can see an increase of the indicator in a positive trend. However, it is important to note that the PSP index makes it possible to assess the results of the state's activities, ignoring the size of the state budget expenditures on the main directions of implementing social welfare policy. The PSP is a relative figure that only allows to compare results between countries or regions. In order to analyse the state budget expenditures from the point of view of their effective use in favour of improving the quality of life of the population, it is necessary to calculate an index that links the main indicators of social welfare and specific items of state budget expenditures. Such an index is the government expenditures efficiency index (PSE). This index as well as the governmental expenditures performance index consists of two integral indicators: the indicator “Opportunities” and the indicator “Musgravian” – which also include seven areas of government activity to ensure a high level of quality of life for the population (Afonso, Schuknecht, & Tanzi, 2006). In this regard, the effectiveness of public expenditures on law enforcement is calculated considering the item of expenditures on national security and law enforcement. Achievements in the field of education are associated with budgetary expenditures on education, a similar model works in relation to expenditures on health care. The provision of public infrastructure is compared with the cost of transport and communications. These indicators constitute the integral indicator of “Opportunities” In turn, the “Musgravian” indicator includes such indicators as expenditures on transfers and subsidies and total state budget expenditures.

To calculate the PSE index, the budget expenditures were normalized by country, taking the average value equal to one for each of the above-mentioned expenditures categories.

*Table 4: Public sector efficiency indicators of the Russian Federation and Portugal (Author's own elaboration on the base of Единый портал бюджетной системы Российской Федерации (2019), Direção-Geral do Orçamento (2019) and The World Bank Group (2019b))*

Indicator	Sub-indicator	2015		2016		2017	
		RF	Portugal	RF	Portugal	RF	Portugal
Opportunity indicators	Administration	-8,94	0,60	1,16	0,61	1,30	0,75
	Education	-2,66	1,29	0,35	1,31	0,37	1,52
	Health	-1,48	1,42	0,26	1,39	0,24	1,64
	Public infrastructure	-13,14	0,14	1,33	0,46	1,38	0,68
Musgravian indicators	Distribution	-3,54	1,19	0,51	1,17	0,63	1,31
	Stability	-6,38	0,88	0,88	0,85	0,96	1,03
	Economic performance	-2,49	1,31	0,36	1,30	0,41	1,49
PSE		-5,52	0,98	0,69	1,01	0,75	1,20

Based on the data in Table 4, we can conclude that Portugal more effectively executes the state budget in terms of expenditures on the main components of social welfare, since during the period under review the PSE index was significantly higher than in the Russian Federation. In addition, due to the low PSP in 2015, triggered by high inflation rates and low GDP growth rates, the government expenditures efficiency index also showed negative results. However, during the entire analysed period, this index increased, thus approaching the Portuguese value. In addition, the PSP index from 2015 to 2017 increased by 22,45%. Considering the areas of public expenditures that make up the PSE index, we note that in 2017 the Russian Federation was more effective in such areas as ensuring law and order and improving the quality of infrastructure. The state budget of Portugal was more effectively executed in such areas as education, health care, income distribution, stability and economic development.

#### 4. CONCLUSION

Summarizing the work, it can be concluded that the budget systems of the Russian Federation and Portugal have a number of certain differences. The distinctive components are, firstly, defined by countries with different state systems, the budget systems of the analysed countries are of different levels: in the Russian Federation it consists of three levels, and in Portugal – of two. Secondly, the draft budgets of the first level are prepared for different time frames: in the Russian Federation – for one regular year and two years of the planning period, in Portugal – for one regular year. Thirdly, at a time when in the Russian Federation one classifier of expenditures is envisaged, in Portugal, their number is two. Fourth, the main items of expenditures in the analysed countries differ not only in quantity – 14 versus 16 in the Russian Federation and Portugal, respectively – but also in the objective functions: however, 10 articles do possess similarity. From the point of view of budget expenditures for the implementation of social welfare policy, it is important to note that in both the Russian Federation and Portugal, social expenditures are the priority area. Moreover, in the Russian Federation, these expenditures occupy a larger share in GDP than in Portugal.

However, the state budget of Portugal is of a more socially oriented nature, since the items of expenditures following the social policy are expenditures on education and health care, while in the Russian Federation on public security and the economy. From the point of view of the effectiveness of the use of the budget funds for the growth of social welfare, it was found that Portugal is more successfully coping with this activity, as evidenced by the higher integral indicators of PSP and PSE. Thus, the task has been accomplished, and the results can be further used as a basis for a more detailed analysis.

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## LITERATURE:

1. Единый портал бюджетной системы Российской Федерации. (2019). Бюджет. Retrieved 08.06. 2019 from <https://clck.ru/G7ieP>
2. Afonso, A. S., Schuknecht, L., and Tanzi, V. (2006). Public sector efficiency: evidence for new EU member states and emerging markets. Germany: ECB.
3. Averkieva, E. S. (2014). Theoretical and methodological aspects of the social welfare analysis. *Journal of economic regulation*, 4(5), 44-61.
4. Brusova, A., and Achylov, M. (2014). Development of new approaches to the assessment of welfare. *Scientific enquiry in the contemporary world: theoretical basics and innovative approach*, 4, 19-26.
5. Budget Code of the Russian Federation of 31.07.1998 №145-FZ. (1998). Retrieved 15.06.2019 from <https://clck.ru/G7ida>
6. Constitution of the Portuguese Republic. (1976). Retrieved 12.06.2019 <https://dre.pt/constitution-of-the-portuguese-republic>
7. Dement'ev, D. V. (2017). Budget authorities and capabilities of municipalities. *Finance and credit*, 23(17), 974-989. doi: 10.24891/fc.23.17.974
8. Direção-Geral do Orçamento. (2019). Execução Orçamental. Retrieved 10.06.2019, from <https://www.dgo.pt/execucaoorcamental/Paginas/Sintese-da-Execucao-Orcamental-Mensal.aspx?Ano=2018&Mes=Dezembro>
9. Federal State Statistics Service. (2019). Retrieved 12.06.2019, from [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/en/figures/living/](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/en/figures/living/)
10. Efimova, L. A. (2015). Specifics of social welfare function in the economic system of Russia. *Finance and credit*, 2(626), 57-66.
11. Komyagin, L. V. (2017). Budget law. Moscow: Higher School of Economics.
12. Law №151/2015 of 11.09.2015 (Law governing the Budgetary Framework). (2015). Retrieved 12.06.2019 from [http://www.en.parlamento.pt/Legislation/Law151\\_2015.pdf](http://www.en.parlamento.pt/Legislation/Law151_2015.pdf)
13. Mathieu, C., and Sterdyniak, H. (2008). European social model(s) and social Europe. Paris: OFCE.
14. Moskovtsev, N. N. (2018). The interbudgetary relations and the principles of their organization in the Russian Federation. *Economic research*, 2, 50-56.
15. Pordata. (2019). Earnings: Gini index (%). Retrieved May 10, 2019, from [https://www.pordata.pt/en/Portugal/Gini+index+\(percentage\)-2166](https://www.pordata.pt/en/Portugal/Gini+index+(percentage)-2166)
16. Sapir, A. (2006). Globalization and the reform of European social models. *Journal of common market studies*, 44(2), 369-390.
17. Schwab, K., & Sala-i-Martin, X. (2015). The Global Competitiveness Report 2015-2016. Geneva: World Economic Forum.

18. Schwab, K., & Sala-i-Martin, X. (2016). The Global Competitiveness Report 2016-2017. Geneva: World Economic Forum.
19. Schwab, K., & Sala-i-Martin, X. (2017). The Global Competitiveness Report 2017-2018. Geneva: World Economic Forum.
20. The Constitution of the Russian Federation. (1993). Retrieved 15.06.2019, from <http://www.constitution.ru/en/10003000-02.htm>
21. The World Bank Group. (2019a). Data: GDP (current LCU). Retrieved 19.06.2019 from <https://data.worldbank.org/indicator/NY.GDP.MKTP.CN?end=2017&locations=PT-RU&start=2015>
22. The World Bank Group. (2019b). Data: Interest payments. Retrieved 19.06.2019 from <https://data.worldbank.org/indicator/GC.XPN.INTP.CN?end=2017&locations=PT-RU&start=2015>
23. Портал государственных программ Российской Федерации. (2019). Направления госпрограмм. Retrieved 17.06.2019 from <https://programs.gov.ru/Portal/>

## **INSIGHTS TOWARDS IFRS' LEGITIMATION AND INSTITUTIONALISATION BASED UPON PERCEPTIONS OF STATUTORY AUDITORS: THE PORTUGUESE CASE**

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### **ABSTRACT**

*Drawing upon the experience of adoption of an International Financial Reporting Standards (IFRS)' based model by Portuguese non-financial unlisted companies in 2010, designated Sistema de Normalização Contabilística (SNC), this research sheds light on the potential of the IFRS model to conform to countries and jurisdictions whose accounting system is remarkably disparate as it was Portugal's. From a vantage point in 2017, seven years after the formal implementation of the IFRS-based model, sixteen detailed interviews with statutory auditors were carried out to explore their perceptions regarding dimensions of relevance and suitability of the new accounting model to the Portuguese setting, major difficulties and benefits brought about. Evidence were gathered suggesting a significant level of legitimation and institutionalisation of the IFRS-based model: (i) the perceived motivations for SNC adoption are a good fit with the theoretically acknowledged motivations underlying accounting convergence; (ii) two major innovations introduced in the Portuguese accounting system by the IFRS model- the principle-based standards and the fair value, were largely perceived favourably; and (iii) in spite of criticisms concerning a set of in-country adaptations, SNC resembles the IFRS model at least close enough to have brought about a number of benefits that according to relevant literature would result from the application of such an accounting model: contextual benefits at the country and business levels, operational benefits, and benefits at the level of statutory auditors' profession. Despite all these encouraging evidence towards the success of the adoption process of the IFRS model in Portugal, this was not exempt from its early difficulties or problems, with some of them still ongoing such as those related to fair value implementation and Notes preparation.*

**Keywords:** *IFRS adoption, Institutionalisation, Legitimation, Perceptions, Portugal*

### **1. INTRODUCTION**

The diversity of accounting systems around the world bears economic consequences to the interpretation of financial reporting at the international level and, consequently, it impacts on the consolidation of business affairs. For this reason, a number of international organisations

have started a process of harmonisation of accounting standards in order to promote transparency and comparability of financial information, which culminated in the International Financial Reporting Standards - IFRS (Shima & Yang, 2012). Seeking this accounting harmonisation, the Portuguese Accounting Standards Board (known by its initials "CNC"- Comissão de Normalização Contabilística) developed an accounting model based upon the IFRS of compulsory adoption by Portuguese non-financial unlisted companies as of January 1, 2010, henceforth denominated IFRS-based model or SNC (Sistema de Normalização Contabilística). Accounting systems are shaped by economic and political forces and for that reason the pros and cons of IFRS are quite conjectural (Ball, 2006). Entities are not just passively constrained by external pressures and expectations (Oliver, 1991). They have interests, capacities and power that influence their choices (DiMaggio, 1988). Neo-institutional theory explains the interaction between organisations and their wider social environment and focuses on the role of the environment in shaping institutional practices (Albu, Albu, & Alexander, 2014; Dillard, Rigsby, & Goodman, 2004). A whole accounting revolution took place in Portugal as the new model, of Anglo-Saxon characteristics, implied an abrupt departure from the prior accounting regime, which the international community classified as a Continental Model. IFRS adoption is a great breakthrough whose worldwide effects are still somewhat uncertain (Ball, 2016). According to Albu et al. (2014), organisational interests and actions are important for IFRS implementation, and more empirical studies are needed. Moreover, countries are not homogeneous in terms of accounting practices (Dillard et al., 2004). Ball (2006, p.5) has drawn attention to the inevitable substantial differences among countries in implementation of IFRS and the risk of being concealed by "a veneer of uniformity". To obtain a deep understanding of the accounting change process from a code-law institutional logic to a common-law institutional logic, the Portuguese case study was under scrutiny following an interpretative and qualitative approach. Sixteen detailed interviews were conducted with statutory auditors, henceforth »auditors« for parsimony, on their perceptions regarding dimensions of relevance and suitability of the IFRS-based model to the Portuguese setting, major difficulties and benefits brought about. The remainder of this paper is organized as follows. Section 2 summarises relevant literature. Section 3 describes the research method employed. Section 4 reports the major empirical findings. Finally, section 5 presents concluding remarks and avenues for future research.

## **2. LITERATURE REVIEW**

### **2.1. Institutional theory**

Institutional theory has become a dominant theoretical perspective in accounting research (Dillard et al., 2004), and has been applied to explain some form of change in accounting systems (Deephouse, Bundy, Tost, & Suchman, 2017). Institutional theorists have contributed significantly to a better understanding of the relationship between organisational structures and practices and the institutional environment in which organisations operated (Beckert, 1999). Within the neo-institutional framework, organisations are open systems that operate and are embodied in a social framework of institutional rules, norms, values and beliefs that shape their behaviours and with which they need to conform to legitimize their existence (DiMaggio & Powell, 1983; Meyer & Rowan, 1977) Legitimacy is defined as "the perceived appropriateness of an organization to a social system in terms of rules, values, norms, and definitions" (Deephouse et al., 2017, p.32). Organisations tend to adopt structures, technologies, techniques and methods that are valued in their wider social environment in order to create, maintain and manage legitimacy in the eyes of stakeholders to received their continued support and to secure the resources that are essential for their survival (Dillard et al., 2004; Ribeiro & Scapens, 2006). To the extent the accounting system is both legitimated and legitimising, it must encompass and represent the rationalities of the social and cultural system (Alawattage & Alsaied, 2018).

Accounting systems and practices constitute organisational rules and routines (Burns & Scapens, 2000). More specifically, from an institutional perspective, accounting systems are inextricably linked to the prevailing rules and norms which structure social and organisational life (Burns & Scapens, 2000). Institutionalisation is "the process whereby practices are developed and learned" (Dillard et al., 2004, p.508) and starts "by encoding where principles are encoded into rules and routines" (Järvenpää & Lämsiluoto, 2016, p.156). This process may be subject to resistance if the rules and routines challenge the prevailing institutions and may fail to become institutionalised (Burns & Scapens, 2000; Järvenpää & Lämsiluoto, 2016). After enactment, "the production and reproduction of established habits of action and thought" (Burns & Scapens, 2000, p.6) become "new ways of doing things" (Järvenpää & Lämsiluoto, 2016, p.156). The effects of fields on homogenizing organisations through isomorphic pressures has been addressed utilizing coercive, mimetic and normative pressures identified by DiMaggio and Powell (1983). Coercive isomorphism results from both formal and informal pressures exerted on organisations by other actors upon which they are dependent, and by cultural expectations of the society within which they are located. In turn, mimetic isomorphism takes place under environment uncertainty when organisations model themselves on other actors and normative isomorphism stems primarily from professionalisation. The concept of isomorphism results from the idea that organisations compete for political power and legitimacy (Albu et al., 2014) and can be used to reflect the intrinsic benefits components of the perceived value of IFRS and the new accounting model. But organisational fields are increasingly heterogeneous, and organisations are not unitary and do not make univocal decisions. They are complex and pluralistic entities composed of various groups with different values, goals and interests that may respond differently to heterogeneity (Kraatz & Block, 2017). Oliver's (1991) seminal work already suggested that organisations could respond strategically to institutional pressures. The author posited that, when an organisation foresees that conformity to institutional pressures will result in economic or legitimacy benefits, it will be more willing to acquiesce to external pressures. In contrast, when organisations anticipate that conformity will result in low legitimacy and economic benefits, they will possibly adopt more active resistance strategies (Oliver, 1991).

## **2.2. The implementation of IFRS in the Portuguese context – a paradigm shift**

Until 2010, Portuguese organisations had their values and accounting practices anchored on a code-law logic that has shaped their practice over the years, deeply linked to rules of conduct, governed by concepts of justice and morality and characterised by detailed regulation (Ding, Hope, Jeanjean, & Stolowy, 2007). The implementation of a new accounting system (the SNC) based on IFRS required a considerable adjustment effort to move from a code-law institutional logic to a common-law institutional logic. The new accounting system based on principles presents great differences regarding the issues of measurement and disclosure of financial information, representing a complete change of philosophy that places immense responsibility on professional judgment (Caria & Rodrigues, 2014). According to Carmona and Trombetta (2008), IFRS have already gained a high level of acceptance and global implementation, both in countries whose accounting systems are embodied in the rule-based Continental Model and in principles-based Anglo-Saxon Model countries. However, the adoption of the same accounting methods and rules is a too simplistic solution to deal with a set of fundamental differences between the various countries to the most diverse levels (Shil & Pramanik, 2009). Empirical evidence shows that at least some of the features of the previous model are still noticeable (Ball, 2016; Caria & Rodrigues, 2014). Guerreiro, Rodrigues and Craig (2012) argue that the adoption of an accounting system based on an Anglo-Saxon institutional logic and focused on a principle-based approach will only be possible if it is accompanied by a gradual transformation of the structures of legitimation in the social environment, whose agents are the

Portuguese State, individual organisations and accounting professionals. Many countries have noted that IFRS are too complicated and expensive for SMEs - especially standards dealing with financial instruments, fair value accounting and impairment (Rodrigues & Craig, 2007). Adoption of uniform rules does not by itself lead to uniform reporting behaviour (Ball, 2016). Christensen, Lee, Walker, & Zeng (2015) argue that reporting incentives dominate accounting standards in determining accounting quality and it is unwarranted to infer that IFRS per se improves accounting quality. At this respect, Ball (2016, p.545) claim "for many of the claimed benefits of IFRS adoption to be realized, uniform implementation would have to occur in a wide range of countries, which seems unlikely and requires more than simply creating regulatory enforcement mechanisms". Rodrigues and Craig (2007) suggest that international accounting standards are chosen not just on efficiency grounds, but often to improve the reputation of an organisation for being rational, modern, responsible and legally compliant. Guerreiro et al. (2012) claimed that organisations assess the net benefits of change after considering the legitimacy they attain with IFRS, as well as the consistency of IFRS with their goals and institutional context. The authors argue that the predisposition of companies to adopt IFRS is not a blind response to institutional pressures, but rather the result of the inherent nature and importance of such institutional pressures to them.

### **3. RESEARCH METHOD**

To seek a deep understanding of the accounting change process from a code-law institutional logic to a common-law institutional logic, the Portuguese case study was under scrutiny following an interpretative approach based upon qualitative research methods. The face-to-face interview was the data collection instrument selected. The interview script was structured, though flexible, containing mostly open-ended questions. Advantages of such a structured script include the possibility to keep some control over its progress and contents, and the potential to answers' comparison. A major concern throughout the whole interviewing process was to refrain from influencing interviewees' responses; thus, invariably, spontaneous answers were invited and privileged during analysis. The personal contact and resemblance in a natural conversation by reordering questions as appropriate, put interviewees at ease to express their true perceptions (Quivy & Campenhoudt, 2013). Sixteen interviews were carried out between May and November 2017, and they were one and a half hours length on average. Sample size was determined by saturation considerations. Interviewees included 12 statutory auditors at Portuguese owned auditing firms and 4 statutory auditors at multinational auditing firms. The study sample exhibits intentionally homogeneous features (Ellis, 2017) as interviewees' choice was driven by considerations of level of accounting and auditing knowledge. As a result, 94% (15 out of 16) of the interviewed auditors had more than 15 years of auditing practical experience, all of them held at least a bachelor's degree and passed highly demanding professional entry exams. Furthermore, the accounting supervisory role played by this professional group make it well positioned to provide rich insights on the phenomenon under research. All interviews were recorded and fully transcribed prior to analysis.

### **4. EMPIRICAL EVIDENCE**

To support the reader in following our narrative, we provide in Appendix a table that summarises perceptions of intervieweed auditors regarding adoption of the IFRS-based model in Portugal. Importantly, most interviewees (n=14; 88%) perceived the IFRS-based model to be at least reasonably relevant / suitable to the Portuguese setting. On freely expressing themselves about this theme, the words most frequently cited were harmonisation, comparability, globalisation and standardisation, providing good support for the acclaimed reasons legitimating international accounting convergence (e.g. Shima & Yang, 2012). This may be seen in statements such as the following: "The aim of SNC adoption should have been

international harmonisation in terms of recognition, measurement, presentation and disclosure procedures because nowadays international comparability is a key issue in accountability" (A- "auditor" no. 1); "(...) harmonisation is an advantage because it favours international trade" (A 15). Internationalisation was largely perceived as a contextual benefit at the business level from IFRS adoption (n=10; 63%), and international comparability between companies was also significantly perceived as an operational benefit thereof (n=13; 81%). In the wording of auditor 15, "Firms were able to strike up more partnerships at the international level". Other arguments in favour of the relevance and suitability of the IFRS-based model to the Portuguese environment dwelled upon the taken-for-granted credibility of IFRS favouring international credibility of adopting countries, both in terms of commercial relations and capital markets, consistently with the legitimacy postulate, thereby reinforcing the arguments of institutional theorists (e.g., Dillard et al., 2004; DiMaggio and Powell, 1983; Oliver 1991). The most widely acknowledged benefit from adoption of the IFRS-based model was national legitimacy (n=15; 94%), followed by improved business reputation (n=13; 81%): by adopting an independent, worldwide renowned accounting model as it is IFRS', Portugal harmonised its accounting practices with the rest of the world and the EU in particular, which resulted in social acceptance by other countries (A 4, 5, 8, 11, 16). This evidence is consistent with the institutional isomorphism described by DiMaggio and Powell (1983). In the wording of auditors, "Adoption of an IFRS-based model improves the country's rating and investors' perception" (A 4); "As a result of an improved country's image, financial upper hands could access credible and high-value financial information for investments" (A 16); "Companies who employ such an accounting model [IFRS-based model] show a concern with 'doing well', with providing a true and fair view of their financial and economic position" (A 4). SNC, by emphasising comprehensibility of financial statements, helps build up a company's image and may facilitate some businesses (A 2, 13). On digging into the extent to which interviewees perceived the IFRS-based model to be more relevant to certain types of business, a dominant view emerged of greater disclosure and enhanced reliability being perceived as major features of financial statements prepared in accordance with IFRS. Specifically, reliability and credibility of accounting information were mostly perceived to have been enhanced by the implementation of SNC (n=12; 75%). Interviewees linked this perception with a claimed better fit of the new accounting model with the larger, internationalised companies, with widespread ownership. Particularly, larger firms, unlike the smaller, besides benefiting from enough administrative resources to prepare all required disclosures, need to present a true and fair view to investors and managers to minimise decision-making uncertainty. In the same line, financial statements are an important control mechanism for widespread capital holders, who therefore welcome the greater disclosure and enhanced reliability under IFRS. Likewise, increased transparency fosters investors' confidence thereby facilitating investment attraction. These were the grounds behind two interviewees' perception of a misfit of the IFRS-based model with the Portuguese environment in that it was geared, in the main, to be applied in countries with strong and dynamic capital markets (A 15), and large firms (A 2). Consistently, narrowing down from the national environment to the specific context of (non-financial) unlisted companies, a smaller majority of auditors (n=10; 63%) perceived the IFRS' model to be suitable, and the remaining six auditors who disagreed with its suitability highlighted size-related constraints, namely, the "heavy accountability and disproportionate bureaucratic burden squeezing small businesses, lacking administrative capacity to meet the new accounting model requirements" (A 14). Invariably, the (dominant) favourable perception towards adequacy of the IFRS-based model at the business level dwelled on the coexistence of three different standardisation levels within SNC: the full set of 28 standards, the simplified standard for small entities, and the even further simplified standard for micro entities. Since its formal adoption in 2010, the SNC is an adaptation of the EU-endorsed IFRS to the Portuguese setting and particularly, its small

business structure. Further simplifications were implemented in 2016 by Decree-law (DL) no. 98/2015, which transposed the EU Directive 2013/34, aimed at reducing the administrative burden on SMEs and simplifying financial reporting procedures. These simplifications were mostly perceived favourably: the SNC as of 2010 was too demanding in terms of disclosures, and it is currently more adjusted to most enterprises (A 5, 6, 8); as desirable, the basic principles were harmonised, but adequacy should take into account size of Portuguese enterprises (A 8). In the wording of interviewee 13: "In Portugal there are around 30 companies that stand out in terms of size and internationalisation of their business affairs; thus, while these need an accounting model that offers more information and greater comparability at the international level, the bulk of companies that landscape the Portuguese business structure need an adjusted, simplified model". Disclosure and Notes preparation emerged as important difficulties in the accounting change process: despite acknowledgement that Notes are deemed to be the most important piece to stakeholders containing much qualitative and quantitative information in a more disaggregated form (A 4, 7, 11), this financial statement is not yet properly done. The Notes is far too descriptive a document containing too much text and lacking meaningful contents (A 1, 3, 9, 10, 12, 14, 16): "(...) disclosures are almost standard, copied from competitors' and/or from previous years, with very little adaptation" (A 14). This evidence is consistent with Christensen et al. (2015) in their contention that it is unwarranted to infer that IFRS per se improves accounting quality, and with Rodrigues and Craig's (2017) argument that IFRS are too complicated and expensive for SMEs in many countries. The earliest difficulty of SNC adoption was resistance to change as adoption of the new accounting model involved the internalisation and implementation of brand-new concepts and practices (A 3, 10, 12). For example, "For unlisted companies, goodwill is a very difficult concept to grasp as this sort of companies purchase another business once in a lifetime or, say, each ten years, so they lack the necessary experience" (A 13). Despite a high level of consensus was found regarding the general appropriateness of in-country adjustments (n=13; 81%), on debating further the issue with interviewees, a few caveats came out. First, and while mostly acknowledged as an inevitability, coexistence of three normative within the Portuguese accounting system was not exempt from criticism, particularly, for arguably detracting from the comparability and harmonisation precepts underlying accounting convergence. As put by auditor 2, "SNC looks more like a patchwork (...) adoption should be 'tout court' (...) the set of standards should be unique". In Portugal, every simplified normative under SNC is optional, and besides that, any enterprise, regardless of size and upon the condition of having accounts certified by a statutory auditor, may choose to adopt the EU-endorsed IFRS rather than SNC, which generates several vertical options. Illustrating the perceived reduced comparability and harmonisation by cause of simplified normative, two interviewees mentioned over their discourse that firms belonging to international groups may adopt the EU-endorsed IFRS rather than SNC to achieve the required comparability level underlying their accountability, and two others argued image enhancement may be the catalyst to elect EU-endorsed IFRS instead of SNC, mainly amongst larger enterprises wishing to provide more information to potential investors, thereby differentiating from competitors. Again, this evidence support the theoretical argument of Oliver (1991) that accounting choices are motivated by anticipated economic or legitimacy benefits. Second, the adequacy of the thresholds laid down to define a micro entity, or a small entity is yet to be demonstrated: "What is a small entity? What is a micro entity? The issue of boundaries setup is not easy because countries are different, they face different economic realities" (A 11). This remark conveys Ball's (2006) cautioning about differences among countries in IFRS implementation. Third, some interviewees were critical of a too literal translation into the Portuguese language based upon a word-for-word interpretation of international standards (n=4; 25%). Accordingly, a literal translation of concepts results in awkward, unfamiliar language difficult to understand, which may hinder full adoption of the

standards and consequently harm accounting convergence. For example, "(...) impairment was translated into SNC as 'imparidade', a whole new word in the Portuguese lexicon that gave rise to some discord amongst professionals" (A 6). This comment illustrates enduring difficulties Rodrigues and Craig noted as early as 2007 concerning impairment. In an even more critical perspective, financial statements became less understandable than under the prior accounting model due to a very technical language, based upon literal translations (A 8, 9). This corroborates the need to consider countries' idiosyncrasies as far as IFRS worldwide implementation is concerned. Fourth, IFRS evolve at a faster pace than in-country adjustments take place, which hampers harmonisation (n=6; 38%). SNC remained unchanged between 2010 and 2015, while in the meantime IFRS were evolving (A 12, 13, 14). The following statement highlights this point: "When SNC underwent a number of adjustments implemented by DL no. 98/2015, all changes meanwhile operated on the IFRS should have been endorsed, and a timetable for periodic reviews of SNC should have been agreed upon; at the moment no one knows whether SNC is undergoing further updates, and if so, within what time frame" (A 13). There is a risk that in a few years' time the Portuguese accounting system will be based on principles that have nothing to do with IFRS (A 2, 6, 7, 12, 14). In the wording of auditor 12: "It was a process of convergence that is becoming one of divergence". Six of the interviewees (38%) spontaneously addressed the amortisation of goodwill as one example of remarkable difference between SNC and IFRS: goodwill is not amortisable under IFRS, whereas one of the amendments resulting from DL no. 98/2015 was the implementation of its mandatory amortisation over useful life, or over a maximum time period of 10 years where useful life is indefinite. As a result, many firms abandoned SNC in favour of EU-endorsed IFRS (A 3, 12, 14). Some auditors were very critical of this in-country adjustment, arguing that impairment losses depict reality much more faithfully than stipulating at the outset a maximum useful life of 10 years that may prove quite a misfit in many instances (A 5, 6, 7). Despite the IFRS model differing remarkably from the previous Portuguese rule-based accounting model, embedding a prudent measurement approach, an outstanding majority of interviewees were supportive of principle-based standards (n=14; 88%), and favourable to fair value adoption (n=13; 81%). Interviewees' arguments embodied in their discourses and addressed below, were consistent with the unanimously perceived operational benefit from IFRS adoption at the level of accounting information - information usefulness (n=16; 100%). Illustrative quotations of perceptions of principle-based standards are the following: "To act according to principles implies having to decide and to take on responsibility" (A 2); "Principles make everything more flexible" (A 13); "Under rule-based standards, market players will always come up with new situations unforeseen by such rules, thereby opening the door to big financial scandals; to the contrary, under principle-based standards there are guiding principles that apply to every situation at hands, thereby acting as a deterrent to financial scandals" (A 7). Nevertheless, a minority of two auditors perceived negatively principle-based standards arguing rules leave no room for arbitration, they are tighter, quicker and easier to implement; moreover, accounting professionals are keen on adhering to rules and they are not yet predisposed to act according to principles. The dominant argument around fair value as the most appropriate measurement basis was that it brings more security and certainty to measurement, thereby increasing reliability and relevance of financial statements vis-à-vis stakeholders: by resembling closer the real value of the company, the fair value promotes less risky economic and financial decisions (A 1, 12, 14). Despite mostly welcoming fair value as a measurement basis, auditors highlighted several problems associated with its practical implementation. First, there is poor availability and reliability of market values for the fair value. Second, and related to the former, the fair value is difficult to apply because it entails a great deal of subjectivity and may be subject to manipulation, aspects that cause resistance to its adoption (A 13, 15). To illustrate this subjectivity, interviewee 13 provided the example of two large cellulose companies in Portugal:

“one of them claims it cannot reliably measure the fair value of its eucalyptus plantations, and therefore adopts the cost method; the other one adopts the fair value and claims it is assigning the real value to its forest. If the assets are equal, why the measurement basis adopted is not the same?”. What is more, the fair value is often adopted with a view to manipulating accounts: to leverage financial autonomy or coverage ratios vis-à-vis the bank, thereby not mirroring the real value of a company (A 1, 3, 5, 11). A similar argument was put forth by the three auditors who perceived IFRS adoption not to have resulted in increased comparability between companies, as illustrated by the following statement: “Principle-based standards and the use of fair value may open up more room for manipulation because there are fewer rules and greater subjectivity, thereby causing comparability loss” (A 8). Evaluating experts are a related concern: who are they, whether they are professionalised, or who trains them is yet to be clarified (A 3, 4, 6, 12, 13, 15). Third, another deterrent to the use of fair value is the unfavourable cost / benefit ratio, particularly critical for the smaller, resource constrained companies: evaluations entail high costs, which are not paid off by tax benefits (A 6, 12). Reflecting these problems, a minority of three interviewees did not welcome fair value adoption. Accordingly, the historical cost promotes greater stability because it represents an amount that has already occurred and is not subject to fluctuation, thereby becoming more reliable and adjusted to accountability, especially amongst the resource constrained micro entities and small entities, which find it difficult to afford to adopt the fair value (A 11, 15). Finally, the impact of IFRS adoption to the profession of statutory auditors was appraised. Outstandingly, none of the interviewees considered the impact had been negative, and the majority (n=11; 69%) perceived a positive overall impact. The benefits were more keenly felt in terms of reputation and visibility of the auditors’ work (n=12; 75%), and in the quality of such work (n=10; 63%). Improved visibility was brought about by standards’ complexity leading other professionals, notably accountants, to turn to auditors for explanations and help, for example on preparing the Notes. Therefore, the auditor has been taking on a pedagogical role that conveys security and credibility to clients (A 2, 6, 7, 8, 10, 13, 16). This is consistent with Guerreiro et al. (2012) argument that adoption of the IFRS-based model demands a gradual transformation of the structures of legitimation in the social environment, whose agents include professionals. Overall interviewed auditors acknowledged adoption of the IFRS-based model brought increased contingency, more responsibility both in terms of preparation of staff members and the work (n=7; 44%). None of the interviewees perceived the IFRS-based model to favor celerity in the accomplishment of tasks: unlike rule-based standards which are of straightforward application, the subjectivity entailed by the IFRS-based model, particularly on the themes requiring professional judgement, becomes very time-consuming (A 1, 3, 4, 5). Analysis has therefore become more demanding (A 5, 6). Besides, there is a greater deal of financial information, greater disclosure, which requires more time to analyse (A 7, 11, 12).

## 5. CONCLUSION

This research contributes to the literature on IFRS adoption, because it provides empirical evidence from a country who posited an *a priori* adverse context to the related accounting change process: Portugal’s prior accounting model followed a code-law institutional logic opposite to IFRS common-law’s, it has a small capital market, and its predominant business structure is small-sized and mostly bank-financed. Notwithstanding, encouraging evidence was gathered that may arguably inspire other countries, particularly those with similar traits, to undergo such an accounting change process. This research highlights that the perceived motivations for SNC adoption are a good fit with the theoretically acknowledged motivations underlying accounting convergence. Two major innovations introduced in the Portuguese accounting system by the IFRS model- the principle-based standards and the fair value, were largely perceived favourably.

Furthermore, in spite of criticisms concerning a set of in-country adaptations, SNC resembles the IFRS model at least close enough to have brought about a number of benefits that according to relevant literature would result from the application of such an accounting model: contextual benefits at the country and business levels, operational benefits, and benefits at the level of statutory auditors' profession. Despite the Portuguese adoption process of the IFRS-based model experienced several difficulties, some of them still enduring such as those related to fair value implementation and Notes preparation, a significant level of legitimation and institutionalisation of the new accounting model is suggested to have been achieved seven years after its adoption. Our findings on the enduring problems associated with adoption of the IFRS-based model should be of interest to both Portuguese regulators (CNC and the Portuguese Securities Market Commission) and Portuguese professional associations (The Portuguese Certified Accountants Association and the Auditors Association) to the extent they may inspire them to devise strategies to cope with them. International institutions such as the International Accounting Standards Board and the Accounting Regulatory Committee may also consider our findings to improve the future of the international accounting convergence process. Lastly, while a research of qualitative nature allows extracting richer, deeper insights about the phenomenon under study, it must be acknowledged generalisation of results cannot be claimed. Therefore, future research could validate generalisation of our findings on a larger sample. Also, perceptions of other professional groups, namely accountants, could be studied. Statutory auditors are particularly experienced with larger companies, so their perceptions could possibly have been more optimistic than those of external accountants whose clients are mostly small.

## LITERATURE:

1. Alawattage, C., & Alsaid, L.A. (2018). Accounting and structural reforms: A case study of Egyptian electricity. *Critical Perspectives on Accounting*, 50, 15-35.
2. Albu, C. N., Albu, N., & Alexander, D. (2014). When global accounting standards meet the local context—Insights from an emerging economy. *Critical Perspectives on Accounting*, 25(6), 489–510.
3. Ball, R. (2006). International Financial Reporting Standards (IFRS): pros and cons for investors. *Accounting and Business Review*, 36(Special Issue), 5-27.
4. Ball, R. (2016). IFRS – 10 years later. *Accounting and Business Research*, 46(5), 545-571.
5. Beckert, J. (1999). Agency, entrepreneurs, and institutional change. The role of strategic choice and institutionalized practices in organizations. *Organization studies*, 20(5), 777-799.
6. Burns, J., & Scapens, R. (2000). Conceptualizing management accounting change: an institutional framework. *Management Accounting Research*, 11, 3-25.
7. Carmona, S., & Trombetta, M. (2008). On the global acceptance of IAS/IFRS accounting standards: The logic and implications of the principles-based system. *Journal of Accounting and Public Policy*, 27(6), 455-461.
8. Caria, A.A., & Rodrigues, L.L. (2014). The evolution of financial accounting in Portugal since the 1960s: A new institutional economics perspective. *Accounting History*, 19(1-2), 227-254.
9. Christensen, H. B., Lee, E., Walker, M., & Zeng, C. (2015). Incentives or standards: What determines accounting quality changes around IFRS adoption?. *European Accounting Review*, 24(1), 31-61.
10. Deephouse, D.L., Bundy, J., Tost, L.P., & Suchman, M.C. (2017). Organizational legitimacy: Six key questions. In Greenwood, R., Oliver, C., Lawrence, T., & Meyer, R. (Eds.), *The Sage Handbook of Organizational Institutionalism* (pp. 27-54). 2nd edition. Thousand Oaks, CA: Sage.

11. Dillard, J.F., Rigsby, J.T., & Goodman, C. (2004). The making and remaking of organization context, Duality and the institutionalization process. *Accounting Auditing and Accountability Journal*, 17(4), 506–542.
12. DiMaggio, P.J. (1988). Interest and agency in institutional theory. In L. J. Zucker (Ed.), *Institutional patterns and organizations. Culture and environment* (pp. 3-21). Cambridge: Ballinger.
13. DiMaggio, P.J., & Powell, W.W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48, 147-160.
14. Ding, Y., Hope, O.-K., Jeanjean, T., & Stolowy, H. (2007). Differences between domestic accounting standards and IAS: Measurement, determinants and implications. *SSRN Electronic Journal*, 26(1), 1-38.
15. Ellis, P. (2017). *Language of research (part 12) -- research methodologies: grounded theory*. 13(1), 102.
16. Guerreiro, M. S., Rodrigues, L. L., & Craig, R. (2012). Voluntary adoption of International Financial Reporting Standards by large unlisted companies in Portugal—Institutional logics and strategic responses. *Accounting, Organizations and Society*, 37(7), 482-499.
17. Järvenpää, M., & Lämsiluoto, A. (2016). Collective identity, institutional logic and environmental management accounting change. *Journal of Accounting & Organizational Change*, 12(2), 152-176.
18. Kraatz, M. S., & Block, E. S. (2017). Institutional Pluralism Revisited. In Greenwood, R., Oliver, C., Lawrence, T. B., & Meyer, R. E. (Eds.) *The Sage handbook of organizational institutionalism*. Sage, 532-557.
19. Meyer, J.W., & Rowan, B. (1977). Institutional organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340-363.
20. Oliver, C. (1991). Strategic Responses to Institutional Processes. *Academy of Management Review*, 16(1), 145-179.
21. Quivy, R., & Campenhoudt, L. V. (2013). *Manual de investigação em ciências sociais* (S. A. Gradiva Publicações Ed. 6.<sup>a</sup> edição ed.). Lisboa.
22. Ribeiro, J., & Scapens, R. (2006). Institutional Theories in management accounting change – Contributions, issues and paths for development. *Qualitative Research in Accounting & Management*, 3(2), 94-111.
23. Rodrigues, L. L., & Craig, R. (2007). Assessing international accounting harmonization using Hegelian dialectic, isomorphism and Foucault. *Critical Perspectives on Accounting*, 18, 739-757.
24. Shil, N. C. D., Dr. Bhagaban; Pramanik, Alok Kumar. (2009). Harmonization of Accounting Standards through Internationalization. *International Business Research*, 2, 194-200.
25. Shima, K. M., & Yang, D. C. (2012). Factors affecting the adoption of IFRS. *International Journal of Business*, 17(3), 276-298.

## APPENDIX

Table 1: Perceptions of the IFRS-based model

	Agree		Reasonably agree /Undecided		Disagree	
	n = 16	%	n = 16	%	n = 16	%
<b>Dimensions of relevance and suitability</b>	5	31,00	9	56,50	2	12,50
• Relevance and suitability to the Portuguese setting						
• Relevance and suitability to non-financial unlisted firms	10	62,50	0	0	6	37,50
• Relevance by type of enterprise:						
- Larger companies	15	93,75	0	0	1	6,25
- Internationalized companies	12	75,00	1	6,25	3	18,75
- Companies with widespread ownership	12	75,00	2	12,50	2	12,50
• Adjustments to the Portuguese setting	13	81,25	2	12,50	1	6,25
<b>Major innovations</b>	14	87,50	0	0	2	12,50
• Principle-based standards						
• Fair-value	13	81,25	0	0	3	18,75
<b>Contextual benefits</b>						
• At the country level:						
- Foreign investment attraction	9	56,25	0	0	7	43,75
- National legitimacy	15	93,75	0	0	1	6,25
- Accounting profession legitimacy	8	50,00	6	37,50	2	12,50
• At the business level:						
- Improved reputation	13	81,25	0	0	3	18,75
- Internationalisation	10	62,50	3	18,75	3	18,75
- Improved capital access	10	62,50	2	12,50	4	25,00
<b>Operational benefits– accounting information</b>						
• Information usefulness	16	100,0	0	0	0	0
• Comparability over time	10	62,50	6	37,50	0	0
• Comparability between national companies	11	68,75	2	12,50	3	18,75
• International comparability	13	81,25	3	18,75	0	0
• Comprehensibility of financial statements	10	62,50	2	12,50	4	25,00
• Contents of financial statements	11	68,75	2	12,50	3	18,75
• Reliability and credibility of accounting information	12	75,00	2	12,50	2	12,50
<b>Impact to the profession of statutory auditing</b>						
• Overall impact	11	68,75	5	31,25	0	0
• Multidimensional impact:						
- Quality of work	10	62,50	6	37,50	0	0
- Celerity in the accomplishment of the tasks	0	0	8	50,00	8	50,00
- Reputation and visibility of work	12	75,00	4	25,00	0	0
- Responsibilities	7	43,75	7	43,75	2	12,50

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### ABSTRACT

*Change of production technology under the influence of technical progress over the time leads to a potential change in technical coefficients. In order to get a better insight of the impact and importance of the certain sector of interest to the national economy over observed period, comparison of multiplier effects of particular productive sector based on two input-output tables is of great benefit. The aim of this paper is to estimate type I and type II output, gross value added and employment multipliers of Croatian ICT sectors. The comparison of output, gross value added and employment multipliers of ICT sectors was based on input-output tables for Croatian economy for the year 2010 and 2015. Open input-output model was used in direct and indirect effects determination. Induced effects were quantified based on closed input-output model. In 2015, all Croatian ICT sectors recorded lower type I and type II output and gross value added multipliers in comparison with 2010, with the exception of sector J61 - Telecommunications services. In terms of employment, only sector J58 - Publishing services recorded type I and type II multipliers growth. Lower multipliers are result of more intensive international integration of Croatian ICT sectors after accession of the Republic of Croatia to the European Union.*

**Keywords:** *employment multipliers, gross value added multipliers, ICT sectors, input-output analysis, output multipliers*

### 1. INTRODUCTION

Input-output (IO) analysis is a quantitative macroeconomic method that analyzes the structural relations among productive sectors of the national economy for a given period (Jurčić, 2000; ten Raa, 2005; Miller and Blair, 2009). IO analysis is the commonly approach that quantifies direct, indirect and induced effects of a sector of interest to the national economy. It is used to estimate significance of the sector of interest and to analyze the interdependence among sectors of national economy. In IO table, which is a basic information-statistical basis of the IO analysis, total economy is divided to a number of productive sectors. According to the European Union (EU) Regulation (European Union, 2013) every EU member is obligatory to compiled IO table in every five years according to the methodology of the European system of national and regional accounts, ESA 2010 (Eurostat, 2013). Information and communication technology (ICT) is considered as a key factor of economic activities in ensuring economic growth and sustainable development of almost every national economy (Pohjola, 2002). ICT implementation enables creation of more efficient models for stimulating economic growth and

development both at the national and global levels. ICT brings together all productive sectors promoting productivity growth, competitiveness and innovation of total economy (Dedrick, Kraemer and Shih, 2013; Dewan and Kraemer, 2000). As an advanced type of general purpose technology (Qiu and Cantwell, 2015), ICT provides greater efficiency in existing production (Strauss and Samkharadze, 2011; Miller and Atkinson, 2014) and ensures higher productivity of economic inputs (Ceccobellia, Gittoa and Mancuso, 2012; O'Mahony and van Ark, 2003). International Standard Industrial Classification of All Economic Activities (ISIC) Rev. 4 (United Nations, 2008) defines ICT economic activities as follows: "The production (goods and services) of a candidate industry must primarily be intended to fulfill or enable the function of information processing and communication by electronic means, including transmission and display." According to this definition, ICT economic activities are divided into three main groups: ICT manufacturing industry, ICT trade industry and ICT service industry. According to the 2007 National Classification of Activities, the productive sector of IO table that complies with ICT manufacturing industry is sector code C26 - Computer, electronic and optical products. Productive sector of IO table related with ICT trade industry is sector code G46 - Wholesale trade services, except for motor vehicles and motorcycles. Productive sectors of IO table that are included in ICT service industry are sector code J58 - Publishing services, sector code J61 - Telecommunications services, sector code J62\_J63 - Computer programming, consultancy and related services, information services and sector code S95 - Repair services of computers and personal and household goods. A detailed overview of the relevant literature points that limited number of domestic and international research analyzed effects of ICT sectors to the national economy by using IO analysis. For this reason, in this paper direct, indirect and induced effects of above mentioned six ICT sectors are empirically quantified by using IO approach. This paper is organized as follows. The introduction is followed by an overview of the literature of ICT sectors multipliers. Section 3 describes the research methodology and data sources. Section 4 presents the empirical results of the type I and type II multipliers of the Croatian ICT sectors for the year 2010 and 2015. Finally, in the conclusion final remarks are provided.

## 2. LITERATURE REVIEW

Despite the fact that IO analysis is a very powerful analytical tool, the review of the relevant literature indicates that a number of researches quantifying economic effects of ICT sectors to the national economy is relatively modest. Based on the IO methodology, the most common approach analyzing economic effects of ICT sectors is type I and type II multipliers calculation. Literature review of ICT sectors multipliers calculation is given in the continuation. It can be noticed that effects of the ICT sectors via multipliers were analyzed for several European and Asian countries. Keček, Žajdela Hrustek and Dušak (2016) applied IO methodology for output and value added multipliers calculation for Croatian ICT sectors. In 2004, sector Radio, television and communication equipment and apparatus had the highest type I output multiplier which amounted to 1.80 and highest type I value added multiplier of 1.88. In 2010, sector Publishing services had the largest type I output multiplier with the value 1.69 and largest type I value added multiplier of 1.84. The same authors conducted multipliers analysis of ICT sectors for old and new EU members. Results of the analysis indicate that old EU members better utilized the potential of ICT sectors for economic growth and development. Economic effects of the ICT sector to the Italian economy were quantified by Di Carlo and Santarelli (2010). Output multiplier for ICT sector in 2005 amounted to 1.83 and for non-ICT sector 1.87. Authors concluded that ICT sector has a strong effect on economic growth of Italian economy and classified ICT sector as the key sector for economic growth and development of the Italian economy. Rohman (2013) analyzed the contribution of the ICT sector to 10 European economies.

Determined output multiplier values for ICT sector were higher in the period 1995-2000 compared to obtained output multiplier values in the period 2000-2005 as a consequence of export advantages loss and rapid technological changes. Output multipliers were calculated for Indonesian economy for the year 1990, 1995 and 2005 (Zuhdi, 2014). Output multiplier values for sector Construction and installation on electricity, gas, water supply and communication for the observed years were 2.48, 2.34 and 2.49 respectively, while for sector Communication services they amounted to 1.52, 1.53 and 1.41 respectively. Based on the results, author concluded that ICT sector was not economic driver for growth and development of Indonesian economy. Based on the IO table for 2005, Irawan (2014) analyzed economic effects of ICT Manufacturing sector and ICT Services sector for Indonesia, Singapore, Malaysia and Thailand. The highest output multiplier for ICT Manufacturing sector was calculated for Indonesia and amounted to 1.68, while the lowest, of 1.23, was measured for Singapore. Malaysian ICT Services sector had the highest output multiplier (1.81), while Indonesian had the lowest output multiplier value (1.27). Singapore had the lowest output multiplier, while Indonesia, which had the lowest per-capita income of all observed countries, had the highest value of output multiplier. Author concluded that ICT sector affects the national economy depending on the intensity of ICT use and the structure of the ICT sector.

### 3. RESEARCH METHODOLOGY AND DATA SOURCES

IO analysis quantifies direct, indirect and induced effects of a certain productive sector to the national economy in terms of the most important economic indicators of success and competitiveness of the national economy, i.e. in terms of output, gross value added (GVA) and employment. Indicators for determining these effects are called multipliers (Miller and Blair, 2009). Two types of multipliers differ: type I and type II multiplier, depending on the IO model applied, open or closed. IO model in which the final consumption is treated as an exogenous variable is called open IO model. In the open IO model total effects are defined as the sum of direct and indirect effects. Type I multiplier is defined as ratio of total (direct and indirect) effects and an initial effect related to the change of final demand. IO model in which some components of final consumption are endogenous, mainly personal consumption of households, is called closed IO model (McLennan, 2006; Miller and Blair, 2009; Burrows and Botha, 2013). In the closed IO model total effects are defined as direct, indirect and induced effects. Type II multipliers are defined as ratio of total (direct, indirect and induced) effects and initial effect. Generally, type I multipliers underestimate total economic effects, since the effects of personal consumption growth due to income growth are not included in their calculation. On the other side, type II multipliers overestimate total effects, because of the strict assumptions on income and household sector consumption, i.e. simultaneous transformation of consumption income, i.e. the assumption of unchanged saving preference (Miller and Blair, 2009; Grady and Muller, 1988). According to Oosterhaven (1986), the actual indirect effect is in the interval  $I$  in which the type I multiplier is lower bound and type II multiplier upper bound.

#### 3.1. Type I multipliers

Let matrix  $A = \begin{bmatrix} a_{11} & \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{n1} & \cdots & a_{nn} \end{bmatrix}$  be square  $n$ -by- $n$  matrix. Technical coefficients  $a_{ij} = \frac{x_{ij}}{x_j}$ ,  $i, j = 1, \dots, n$  are defined as a ratio of a product from sector  $i$  that is required by sector  $j$  in order to produce one unit of its product. Let  $I$  be  $n$ -by- $n$  identity matrix. Elements  $\alpha_{ij}$ ,  $i, j = 1, \dots, n$  of matrix  $L = (I - A)^{-1}$ , known as Leontief inverse matrix, represent direct and indirect output of sector  $i$  per one unit of final demand for goods and services produced by sector  $j$ .

More detailed description of Leontief inverse matrix and IO model can be found in ten Raa (2005), Miller and Blair (2009) and Mikulić (2018). Type I output multiplier for sector  $j$  is defined as:

$$m(o)_j = \sum_{i=1}^n \alpha_{ij}, j = 1, \dots, n \quad (1)$$

Type I output multiplier is therefore an indicator of total increase in output resulting from the increase in final demand for a unit of output of a particular sector. Type I GVA multiplier for sector  $j$  equals to the GVA in the total economy which is directly and indirectly conditioned by the unit of final demand of sector  $j$  and GVA directly realized in sector  $j$ :

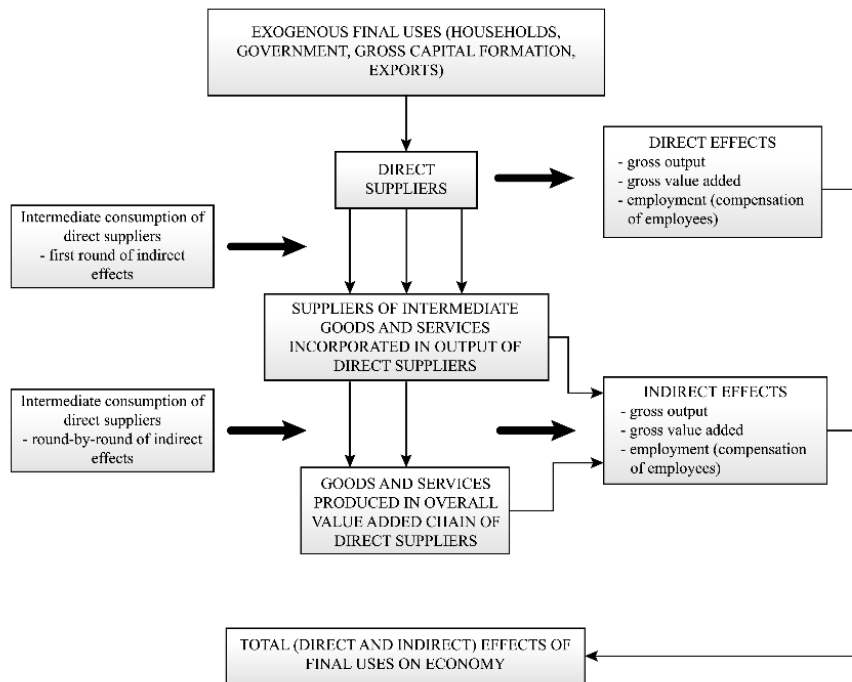
$$m(v)_j = \frac{\sum_{i=1}^n \tilde{v}_i \alpha_{ij}}{\tilde{v}_j}, j = 1, \dots, n \quad (2)$$

where coefficients  $\tilde{v}_j = \frac{v_j}{x_j}, j = 1, \dots, n$ , represent the share of GVA in output of sector  $j, j = 1, \dots, n$ . Type I employment multipliers for sector  $j$  is defined as the ratio of total employment increase including direct and indirect effects in final consumption and ratio of number of employees and output of sector  $j$ :

$$m(e)_j = \frac{\sum_{i=1}^n \tilde{e}_i \alpha_{ij}}{\tilde{e}_j}, j = 1, \dots, n \quad (3)$$

where coefficients  $\tilde{e}_j = \frac{e_j}{x_j}, j = 1, \dots, n$ , represent the share of the number of employees of sector  $j$  in its output. The distribution of direct and indirect effects of exogenous final demand on output, GVA and employment of the total economy is shown in Figure 1.

*Figure 1: Direct and indirect effects of exogenous final demand on output, GVA and employment of the total economy*



Source: Authors' according to Mikulić (2018)

### 3.2. Type II multipliers

To calculate type II multipliers, matrix of technical coefficients  $A$  is expanded with one more row representing compensation of employees coefficients and one more column representing household consumption coefficients. Matrix  $\bar{A}$  is obtained. Matrix  $\bar{L} = (I - \bar{A})^{-1} = \begin{bmatrix} \bar{L}_{11} & \bar{L}_{12} \\ \bar{L}_{21} & \bar{L}_{22} \end{bmatrix}$ , a square  $(n + 1) \times (n + 1)$  matrix, except direct and indirect includes induced effects which are related to output increase of each sector. To calculate induced effects for the original  $n$  sectors, a square  $n \times n$  matrix  $\bar{L}_{11}$  is used (McLennan, 2006; Miller and Blair, 2009). Elements  $\bar{\alpha}_{ij}$  of matrix  $\bar{L}_{11}$  represent direct, indirect and induced effects on the increase in sector's  $i$  production as a result of the unit growth of final demand by the sector  $j$ .

Type II output multiplier, in addition to direct and indirect effects, also includes induced effects that explain the production increase induced by income increase. Type II output multiplier for sector  $j$  is defined as:

$$\bar{m}(o)_j = \sum_{i=1}^n \bar{\alpha}_{ij}, j = 1, \dots, n \quad (4)$$

Type II GVA multiplier includes, beside direct and indirect changes in GVA, GVA that is provided during increase in household consumption by income increase. Type II GVA multiplier of sector  $j$  is defined as a ratio of direct, indirect and induced GVA growth stimulated by the unit increase of final demand in sector  $j$  and GVA in the output of sector  $j$ :

$$\bar{m}(v)_j = \frac{\sum_{i=1}^n \bar{v}_i \bar{\alpha}_{ij}}{\bar{v}_j}, j = 1, \dots, n \quad (5)$$

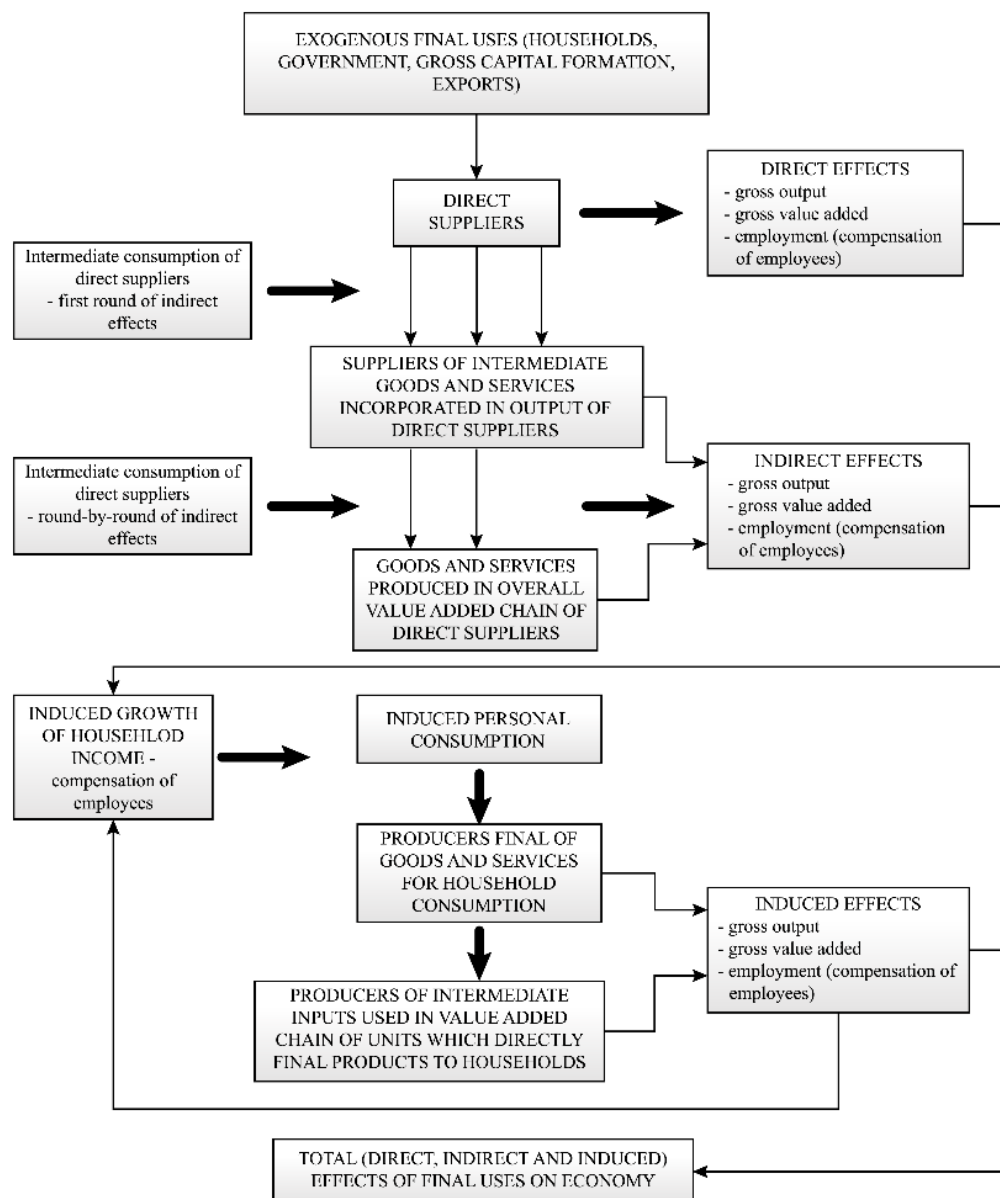
Type II employment multiplier is defined as a ratio of total employment growth in the sector  $j$  which includes direct, indirect and induced effects in the change of final demand and the ratio of the number of employees and output of sector  $j$ :

$$\bar{m}(e)_j = \frac{\sum_{i=1}^n \bar{e}_i \bar{\alpha}_{ij}}{\bar{e}_j}, j = 1, \dots, n \quad (6)$$

The distribution of direct, indirect and induced effects of endogenous final demand on output, GVA and employment of the total economy is shown in Figure 2.

*Figure following on the next page*

*Figure 2: Direct, indirect and induced effects of endogenous final consumption to output, GVA and employment of total economy*



*Source: Authors' according to Mikulić (2018)*

In this research, the main data sources are IO tables for Croatian economy for the year 2010 (Croatian Bureau of Statistics, 2019) and for the year 2015 (Eurostat, 2019a). Furthermore, required data for type I and type II GVA multipliers calculation of ICT sectors are downloaded from the Eurostat National accounts aggregates by industry (nama\_10\_a64) (Eurostat, 2019b). Data of the number of employees required for type I and type II employment multipliers of ICT sectors calculation are downloaded from the Eurostat National accounts employment data by industry (nama\_10\_a64\_e) (Eurostat, 2019c).

#### 4. RESEARCH RESULTS

According to the methodology and data sources described in previous chapter, in this chapter results of output, GVA and employment multipliers of Croatian ICT sectors for the year 2010 and 2015 are provided.

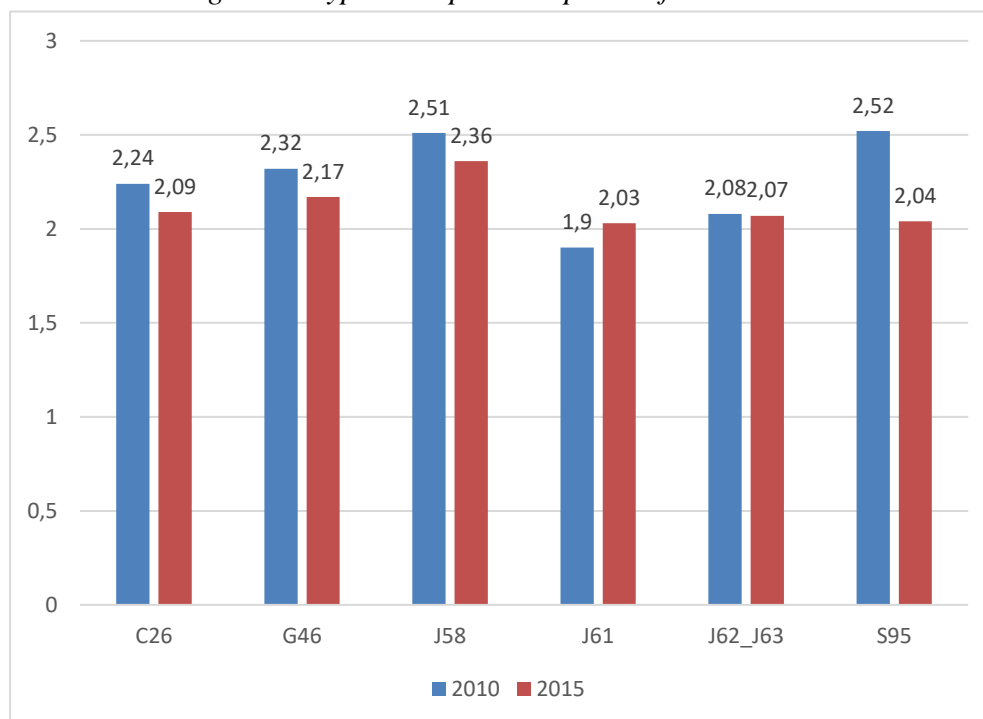
*Table 1: Type I and type II output multipliers of ICT sectors*

ICT sector code	2010		2015	
	Type I multiplier	Type II multiplier	Type I multiplier	Type II multiplier
<b>C26</b>	1.58	2.24	1.51	2.09
<b>G46</b>	1.60	2.32	1.53	2.17
<b>J58</b>	1.69	2.51	1.58	2.36
<b>J61</b>	1.48	1.90	1.58	2.03
<b>J62_J63</b>	1.47	2.08	1.42	2.07
<b>S95</b>	1.46	2.52	1.42	2.04

*Source: Authors' calculation*

Of all observed ICT sectors, the highest type I output multiplier was detected for sector code J58 and amounted to 1.69 in 2010 (Table 1). This value suggests that if the final demand for the products of this sector, i.e. software production, increases by 1 kuna, the total output in the Croatian economy is increased by 1.69 kuna. By including induced consumption, type II output multiplier for sector code J58 amounted to 2.51. The lowest type I output multiplier was attributed to sector code S95 with the value 1.46. It should be noted that type I output multipliers of sector codes J61, J62\_J63 and S95 do not differ significantly in 2010. However, type I output multiplier for telecommunication increased in 2015 and reached 1.58, the same value as recorded for sector J58. The lowest value of type II output multiplier was recorded for sector code J61 with a value 1.90. By comparing type I and type II output multipliers in 2015 with those calculated for 2010, it can be noticed that type I and type II output multipliers in 2015 recorded lower values for all ICT sectors except for sector code J61. Type I and type II output multipliers for sector code J61 were in 2015 higher by about 7 % compared to 2010.

*Figure 3: Type II output multipliers of ICT sectors*



*Source: Authors' calculation*

In Figure 3 is graphically presented comparison of type II output multipliers of Croatian ICT sectors for observed period.

*Table 2: Type I and type II GVA multipliers of ICT sectors*

ICT sector code	2010		2015	
	Type I multiplier	Type II multiplier	Type I multiplier	Type II multiplier
<b>C26</b>	1.69	2.58	1.60	2.35
<b>G46</b>	1.57	2.29	1.48	2.12
<b>J58</b>	1.72	2.65	1.59	2.41
<b>J61</b>	1.45	1.86	1.53	1.97
<b>J62_J63</b>	1.41	1.95	1.36	1.91
<b>S95</b>	1.63	2.90	1.35	1.92

*Source: Authors' calculation*

In 2015, all ICT sectors recorded lower type I and type II GVA multipliers than in 2010, with the exception of the sector code J61 (Table 2). The highest type I GVA multiplier in observed period was attributed to sector code J58. The largest type II GVA multiplier in 2010 was found for sector code S95 and in 2015 for sector code J58. The least additional kunas of the GVA in the total economy, regarding increase in production for 1 kuna, were realized in sector code J61 in 2010, for which the lowest type II GVA multiplier was detected, amounting to 1.86 and in 2015 for sector code J62\_J63

*Table 3: Type I and type II employment multipliers of ICT sectors*

ICT sector code	2010		2015	
	Type I multiplier	Type II multiplier	Type I multiplier	Type II multiplier
<b>C26</b>	2.01	3.32	1.60	2.35
<b>G46</b>	2.00	3.23	1.48	2.12
<b>J58</b>	1.57	2.30	1.59	2.41
<b>J61</b>	1.85	2.84	1.53	1.97
<b>J62_J63</b>	1.53	2.39	1.36	1.91
<b>S95</b>	1.44	2.04	1.28	1.69

*Source: Authors' calculation*

Based on the results shown in Table 3 it can be noticed that the highest total number of employees in the Croatian economy in 2010 increased by 2.01 persons if the number of employees in sector code C26 increased by 1. With induced consumption it increased by 3.32 persons. Sector code C26 had also the highest type I employment multiplier in 2015 (1.60), but with induced effects included the highest type II employment multiplier was recorded for sector code J58. The lowest type I and type II employment multipliers in both years was detected for sector code J62\_J63 and S95, respectively.

## 5. CONSLUSION

Total effects of unit change in final demand for ICT sectors generally induce less domestic output and value added in 2015 in comparison to 2010. It could be result of more intensive international integration of Croatian ICT sectors after the accession of the Republic of Croatia to the EU and increased imported value added. It is especially related to computers and software production where domestic producers are both on the supply and demand side more connected to international than domestic market. However, relative to other sectors of the national economy, type I and type II multipliers of ICT sectors are above average and ICT sector can be viewed as one of the key sectors of the Croatian economy. The main limitation of this research is the assumption of the constant technical coefficients. Namely, this assumption is acceptable only in shorter period and if the structure among sectors over time is changing slowly.

For further research it is expected to apply the alternative model of ICT sectors extraction in the IO system to determine direct, indirect and induced effects of ICT sectors to the Croatian economy. Total effects calculation will be based on the IO table for the year 2015 which would allow total effects comparison to 2010. Despite lower multiplier effects, total effects may increase.

## LITERATURE:

1. Burrows, L. R., Botha, A. P. (2013). Explaining the changing input-output multipliers in South African: 1980-2010. In: The Biennial Conference of the Economic Society of South Africa. Bloemfontein, (p. 1-32).
2. Ceccobellia, M., Gittoa, S., Mancuso, P. (2012). ICT capital and labour productivity growth: A non-parametric analysis of 14 OECD countries. *Telecommunications Policy*, 36(4), (p. 282-292).
3. Dedrick, J., Kraemer, K. L., Shih, E. (2013). Information Technology and Productivity in Developed and Developing Countries. *Journal of Management Information Systems*, 30(1), (p. 97-122).
4. Dewan, S., Kraemer, K. L. (2000). Information Technology and Productivity: Evidence from Country-Level Data. *Management Science*, 46(4), (p. 548-562).
5. Di Carlo, C., Santarelli, E. (2010). Contribution of ICT to economic growth in Italy: Input Output analysis. Ministry of Economic Development: Department of Communications.
6. Croatian Bureau of Statistics. (2019). *Input-output table for 2010 supply and use tables for 2010*. Retrieved 10.05.2019 from [www.dzs.hr](http://www.dzs.hr).
7. European Union. (2013). Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013 on the European system of national and regional accounts in the European Union. *Official Journal of the European Union*, 56, (p. 1-727).
8. Eurostat. (2013). *European system of accounts ESA2010*. Luxembourg: Eurostat.
9. Eurostat. (2019a). *Supply, use and input-output tables*. Retrieved 15.05.2019 from <http://ec.europa.eu/eurostat/data/database>.
10. Eurostat. (2019b). *Eurostat National accounts aggregates by industry*. Retrieved 15.05.2019 from <http://ec.europa.eu/eurostat/data/database>.
11. Eurostat. (2019c). *Eurostat National accounts employment data by industry*. Retrieved 15.05.2019 from <http://ec.europa.eu/eurostat/data/database>.
12. Grady, P., Muller, R. A. (1988). On the use and misuse of input-output based impact analysis in evaluation. *The Canadian Journal of Program Evaluation*, 3(2), (p. 49-61).
13. Irawan, T. (2014). ICT and economic development: Comparing ASEAN member states. *Int Econ Econ Policy*, 11, (p. 97-114).
14. Jurčić, Lj. (2000). Razvitak input-output analize u Hrvatskoj. *Ekonomski pregled*, 51(11-12), (p. 1313-1333).
15. Keček, D., Žajdela Hrustek, N., Dušak, V. (2016). Analysis of multiplier effects of ICT sectors - a Croatian case. *Croatian Operational Research Review*, 7(1), (p. 129-145).
16. McLennan, W. (2006). *Information paper: Australian national accounts: Introduction to input-output multipliers* (No. 5246.0). Australian Bureau of Statistics.
17. Mikulić, D. (2018). *Osnove input-output analize s primjenom na hrvatsko gospodarstvo*. Zagreb: Ekonomski institut.
18. Miller, R. E., Blair, P. D. (2009). *Input-Output Analysis: Foundations and Extensions*. New York: Cambridge University Press.
19. Miller, B., Atkinson, R. D. (2014). Raising European Productivity Growth Through ICT. *The information technology & innovation foundation*, (p. 1-43).

20. O'Mahony, M., van Ark, B. (2003). EU Productivity and Competitiveness: An Industry Perspective. Can Europe Resume the Catching up process? Luxembourg: European Commission/Enterprise Publications.
21. Oosterhaven, J., Gerrit, P., Stelder, D. (1986). Theory and Practice of Updating Regional versus Interregional Interindustry Tables. *Papers of the Regional Science Association*, 59, (p. 57-72).
22. Pohjola, M. (2002). The New Economy in Growth and Development. *Oxford Review of Economic Policy*, 18(3), (p. 380–396).
23. Qiu, R., Cantwell, J. (2015). Revisit the Classification of General Purpose Technologies (GPTs) in Corporate Innovation Research Using Patent and Patent Citation Data. *International Information Management Association*, (p. 87-105).
24. Rohman, I. K. (2013). The globalization and stagnation of the ICT sectors in European countries: An input-output analysis. *Telecommunications Policy*, 37, (p. 387-399).
25. Strauss, H., Samkharadze, B. (2011). ICT capital and productivity growth. *EIB Papers*, 16(2), (p. 9-28).
26. ten Raa, T. (2005). *The Economics of Input-Output Analysis*. Cambridge: Cambridge Univeristy Press.
27. United Nations. (2008). International standard industrial classification of all economic activities. Statistical papers, Series M No. 4/Rev.4, Revision 4, New York: Department of Economic and Social Affairs, (p. 278).
28. Zuhdi, U. (2014). Using multipliers analysis in order to get another perspective related to the role of ICT sectors in national economy of Indonesia: 1990-2005. *Journal of Physics: Conference Series*, 495, (p. 1-8).

## RIVER CRUISE INDUSTRY: TRENDS AND CHALLENGES

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### **ABSTRACT**

*International river cruises have a symbolic share in the overall cruise market. Nevertheless, this market is expanding rapidly and is one of the fastest-growing segments of tourism with an annual growth rate of 10 to 15%. At this moment, Europe has the leading role and the largest share in world river cruise market where the most frequent cruises take place on the Danube River and its tributaries and the canal of Rhein - Maine - Danube. There are several reasons for this sudden growth in river cruises, such as the upgrading of ships and the launch of new ones, younger generations becoming more interested in river cruising, high-value experience for the price and rivers as new attractive destinations. Therefore, the aim of this paper is to examine and determine the basic features of the river cruise market with a special emphasis on the analysis of tourism offer and demand, current trends, incentives and limiting factors for future development of river cruises and challenges of the river cruise industry. The theoretical elaboration of the described issues includes the documentation analysis method, the method of analysis and synthesis, as well as the comparative method, while the analysis of data on the websites of the largest riverboat operators is applied for the purpose of collecting primary data. The contribution of the paper will be shown as an identification of key determinants for future development of river cruise tourism in conditions of strong market competition and challenging demand under the influence of new technologies, with a strong need for adventure travel and discovery of the new and unknown.*

**Keywords:** *cruise market, river tourism, tourism trends*

### **1. INTRODUCTION**

Over the last few years, international river cruise market has recorded a significant growth in tourist demand, closely followed by the construction of new ships, introduction of new higher-quality contents and the expansion onto new destinations/rivers. Therefore, the questions arise as to what expectations there are for the river cruise industry in the future, who are the main subjects in the river cruise market, which are the key challenges, what are the current trends in the creation of the tourist offer and what will happen with the demand for river cruising. The answers to the questions posed will enable the creation of business strategies that are suitable for the further development and advancement of the river cruise industry. Moreover, the questions posed also serve as the foundation for the creation of a competitive advantage of main subjects in the river cruise market – from shipping companies, through ports, to tourist agencies that organize mainland excursions as a part of their tourist products/cruise experiences.

### **2. DEFINITION OF RIVER CRUISES AND KEY FEATURES**

According to the Dictionary of Travel, Tourism and Hospitality, the term cruise has the meaning of "a voyage by ship for pleasure – commonly by sea but also on lakes, rivers and canals – of varying duration, which may but need not depart from and return to the same port or include scheduled calls at ports en route" (Medlik, 2003, p. 47). In his considerations Gibson (2006, p.14) points out that a cruise is a vacation which includes travels to seas, lakes or rivers.

Moreover, cruise can be defined as sailing for fun, entertainment, i.e. a sail from-to or from place to place, on a boat, ship or motor yacht for satisfaction, usually by sea (more often), but also on lakes and rivers (less)" (Vukonić, Čavlek, 2001, p.183). Consequently, the concept of a cruise includes sailing or a voyage by ship for pleasure, which can take place on a sea or some of internal waterways mainly for the purpose of recreation and leisure, and in this context, river cruise is also a part of the "cruise industry." River cruising is a form of cruising on inland waterways which includes river cruising on natural and artificial channels and lakes that are associated with a particular river, cruises along the seacoast and at the estuaries of rivers or at the junction of channels with the sea (Bosnić, 2015, 69). River cruising is a highly developed form of tourism, and the cruiser companies and crew provide all the comfort and entertainment aboard the cruiser during the voyage and organize excursions to elite and high-quality destinations (Gržetić, Luković, Božić, 2013, p. 149). River cruises are similar to sea cruises. Both are based on sailing by boat on a water route, which consists of navigation and stops in ports along the route with the purpose of sailing being rest, leisure and entertainment on board a ship where passengers, among other things reside during the trip. All of the mentioned comprises the basic content of the cruise (Ban, 1998, p. 251). Nevertheless, river cruises have certain distinctions when compared to sea cruises which arise from the characteristics of the means of transport, characteristics of the transport routes, the content on board and the tour program. The main distinctions of river cruises are:

- Ships intended for river cruising are considerably smaller than the ships intended for sea cruises due to the limited depth of river flows. For example, ocean cruise vessels have 200 meters in length, 26 meters in breadth and would accommodate up to 1,300 passengers, while a typical river cruise boat (in Europe, the leading river cruise region) would be 130 meters in length and 11 meters in breadth and would accommodate up to 200 passengers (Grammerstorf, 2013).
- Smaller ships have an influence on the offer of the ship, as well as on the content and other services offered to passengers on board for the purpose of rest, leisure and entertainment during their travels. River cruise vessels do not have a wide range of leisure and entertainment facilities which are available on ocean cruise ships and emphasis is generally placed more on itineraries than on the ships themselves, so sightseeing is an important element in the river cruising experience (Jones, Comfort, Hillier, 2016, p. 62).
- Passengers on river cruises can also tour attractive sites along the rivers (cities, national parks ...) from the comfort of the ship, which is especially attractive to older travellers, who are (at this moment) the main segment of the river cruise market (Goeldner, Brent Ritchie, 2009, p. 147).
- The sea cruise industry can change and adjust the itineraries so as to correspond to the tourist demand and to take place in politically stable regions of different parts of the world, while the river cruise industry does not have such flexibility. For example, political instability in Egypt during 2011 had a devastating influence on the market of river cruises of the United Kingdom. The unattainable position of the Nile as the most popular destination for river cruises was seriously damaged since the demand for cruises on the Nile more than halved and many companies and operators specialized in river cruises ceased to sell arrangements for cruises on the Nile (UK River Cruise Market – 2011; referenced by Bosnić, 2015, p. 70)

Taking into consideration the definitions and the particularities of river cruises, it can be concluded that the unique experience of river cruising includes sailings on rivers, enjoying the content of the boat that sails on the river, but also enjoying the surrounding landscapes, visiting the cities along the rivers as well as the surrounding destinations.

### **3. RIVER CRUISE MARKET**

#### **3.1. Methodology**

The basic objective of the subject research is to examine and determine the fundamental characteristics of the river cruise market<sup>1</sup> with a special emphasis on the analysis of tourism supply and demand, current trends, incentives and limiting factors for the future development of river cruises and challenges of the river cruise industry. For the purpose of collecting primary data, the method of documentation analysis was used, including the analysis of the website content of the largest<sup>2</sup> cruiser companies. The research was conducted during the period from May 15<sup>th</sup> to June 18<sup>th</sup> 2019. What is more, a certain part of the primary data is an integral part of the author's primary research within the PhD thesis on the topic of Marketing of River Tourism, conducted in the period from 1 July 2015 to 30 September 2015. The qualitative analysis of the collected data from the web pages included methods of description and comparison, as well as methods of analysis, synthesis, specialization and generalization.

#### **3.2. Analysis of supply and demand for river cruises**

In the river cruise market, the main role is played by large companies, specialized riverboat operators (shipping companies) and tour operators (Ban, 1998, p. 263). A number of companies currently operate river cruises and the market is far less concentrated than in ocean cruising.<sup>3</sup> There are several major operators dominating the riverboat market and a number of smaller ones, which are struggling for survival and for which a gradual disappearance is being predicted in the future, i.e. merging with bigger operators (Horak, Sever, Marušić, 2013, p.14). Some of the larger operators are Viking River Cruises (currently the largest river cruise company in the world), French CroisiEurope, Avalon Waterways, AmaWaterways and Uniworld (Table 1).

*Table following on the next page*

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<sup>1</sup> The currently available data on the river cruise market used in the literature and periodicals are not complete, and methodologies are often unadjusted and incomparable. Therefore, this paper will put emphasis on the analysis of the European river cruise market as the world's leading river cruise market, which offers relevant and encompassing statistical data.

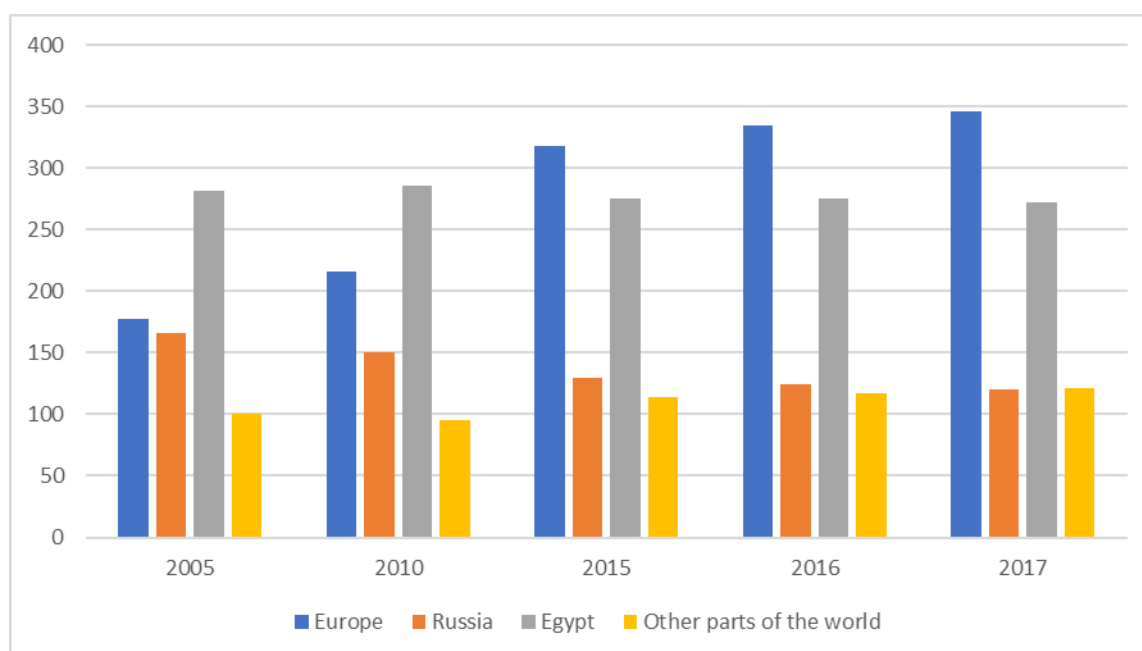
<sup>2</sup> The research was carried out on a sample of 5 cruiser companies which had the largest number of ships (a fleet) in 2019, i.e. on the following companies: Viking River Cruise, Avalon Waterways, AmaWaterways, Uniworld and CroisiEurope.

<sup>3</sup> where the two largest operators (The Carnival Corporation and Royal Caribbean Cruises) accounted for some 70% of cruise passengers (Market Realist 2015; referenced by Jones, Comfort, Hillier, 2016, p. 63)

*Table1: Leading riverboat operators in European and American markets*  
 (<https://www.croisieurope rivercruises.com/>, <https://www.vikingrivercruises.co.uk/>  
<https://www.avalonwaterways.com/>, <https://www.amawaterways.com/>,  
<https://cruiseosity.uniworld.com/en/> )

<b>RIVERBOAT OPERATORS</b>	<b>RIVERBOAT FLEETS (2019)</b>	<b>CRUISE OFFER BY REGION</b>
<b>CroisiEurope</b>	44	European rivers (the Danube, the Rhine, the Main, the Moselle, the Douro, the Guadalquivir, the Guadiana, the Po, the Elbe, the Volga.), French rivers (the Seine, the Garonne, the Loire, the Rhône, the Saône), the French channels, the river Mekong (Vietnam and Cambodia) and Lake Kariba park (Southern Africa).
<b>Viking River Cruises</b>	74	European rivers (the Danube, the Rhine, the Main, the Elba, the Rhône, the Dordogne or Gironde, the Seine, the Douro), Russian rivers (the Volga, the Neva, the Svir), Asian rivers (the Yangtze, the Mekong) and the Nile (Egypt)
<b>Avalon Waterways</b>	19	European rivers (the Danube, the Rhine, the Main, the Moselle, the Rhône, the Saône, the Seine), Asian rivers (the Mekong, the Ganges) and the Amazon (South America)
<b>AmaWaterways</b>	23	European rivers (the Rhône, the Seine, the Danube, the Main, the Rhine, the Moselle, the Douro, the Dordogne, the Garonne), Dutch and Belgian waterways, the Mekong (Asia), the river Chobe (Africa)
<b>Uniworld</b>	21	European rivers (the Danube, the Main, the Rhine, the Moselle, the Seine, the Garonne, the Loire, the Rhône, the Saône, the Dordogne or Gironde, the Garonne, the Douro, the Po), Russian rivers (the Volga, the Neva, the Svir), Asian rivers (the Yangtze, the Mekong, the Ganges) and the Nile (Egypt).

The supply of river cruises, i.e. the supply of boat capacities, is mainly related to an individual river and its tributaries, and is widespread on all continents (Ban, 1998, p. 263). The largest share of the global market of river cruises currently belongs to Europe, followed by Egypt on the river Nile, while the lowest share of the river cruise market belongs to Russia and other parts of the world (Chart 1). A closer look at other parts of the world, and particularly rivers in Asia and the Americas, shows that the US fleet is gaining in importance (the Columbia and Mississippi rivers), but also in China a growing fleet can be observed (the Yangtze river) and in Southeast Asia (the Mekong river) the fleet is constantly growing (CCNR Market Observation - Annual report 2018).

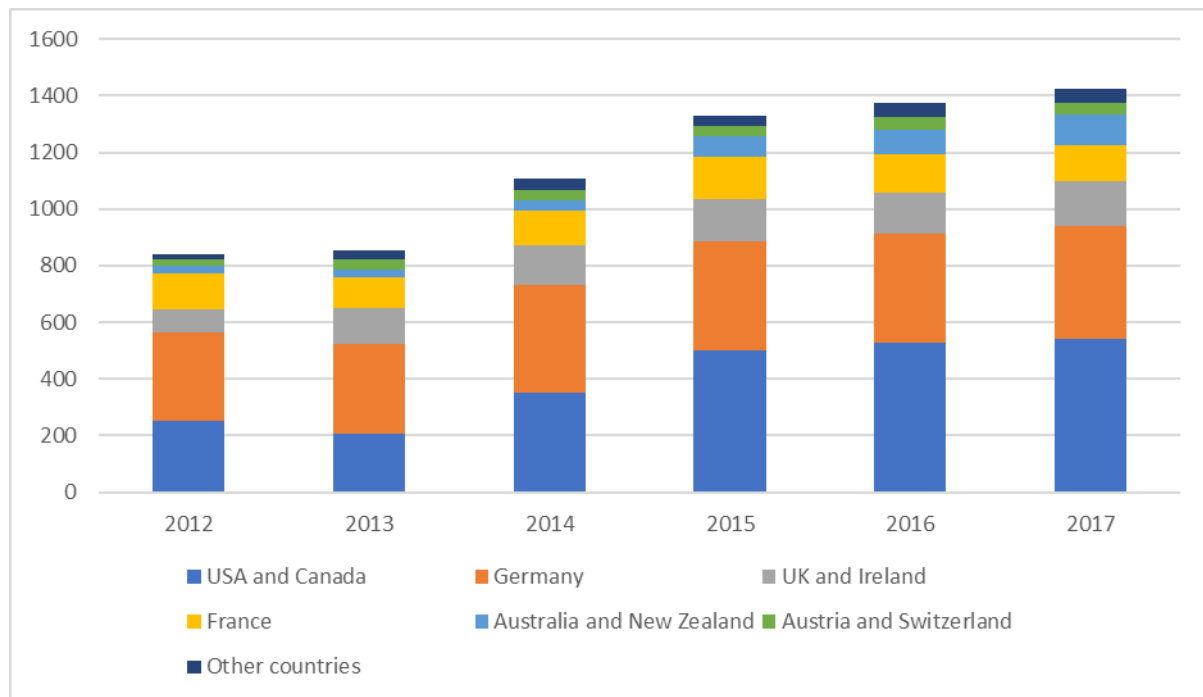


*Chart 1: Distribution of river cruise vessels per region worldwide (number of vessels)  
 (Hader,2016;referenced by CCNR Market Observation - Annual report 2017/  
 Hader,2017;referenced by CCNR Market Observation - Annual report 2018)*

Europe<sup>4</sup> has the largest river cruise fleet. In 2016, the fleet of the EU region amounted to 335 active cruise vessels which represents 39% of the worldwide river cruise fleet, while in the season of 2017, the fleet amounted to 346 active cruise vessels and 50,616 beds. According to CCNR Market Observation - Annual report 2017, the river cruise vessels active on the Rhine (including tributaries), Danube and Elbe represent 75% of active vessels in Europe. The vessels active on rivers in France account for 16%, while the vessels on Portuguese rivers (Douro) have a share of almost 5%, with a rising trend. On the other hand, in the last few years there has been a continuous rapid growth in the demand for river cruises, especially on European rivers. The demand for river cruises in the world and Europe, viewed individually according to the countries of origin of passengers, is largely generated by the United States and Canada, followed by passengers from Germany, Great Britain, France and Australia, while passengers from other countries make a significantly smaller share (Chart 2).

*Chart following on the next page*

<sup>4</sup> The European river cruise fleet, as it is defined in this report, comprises the fleet in the EU and in Switzerland.



*Chart 2: Number of Passengers on European Cruise Vessels by Nationality (In 1000)( IG River Cruise / German Travel Association (DRV) / SeaConsult; referenced by CCNR Market Observation - Annual report 2018)*

Of 1.4 million passengers who took a river cruise trip in Europe in 2017, 38% of them were US-Americans or Canadians. In 2016, their growth rate had been 5%, but in the years 2014 and 2015, much higher growth rates were observed. In 2017, German tourists were ranked second, and their number also increased by 3%. The British and Irish source markets were again the third largest category of passengers. Compared to previous year, their stake even increased by 10%. The number of passengers showing the strongest relative growth, however, are Australians and New Zealanders. Their share increased by 22% in 2017, after an almost equally strong increase (23%) in the previous year (CCNR Market Observation - Annual report 2018). The Danube, the Rhein, French rivers (the Rhône/the Seine) and the Portuguese river Douro were the most popular European rivers for river cruises in 2016 and 2017 (especially among the passengers from the UK). According to Mintel (2015), Baby Boomers (persons born between 1946 and 1964) represent the dominant demographic for river cruises and they like having comfortable (if not luxury) accommodation, good food and diversions (from trips ashore to on-board lectures) that are not merely entertaining but also educational. These 50-years-plus passengers are a sophisticated group who primarily enjoys a slow pace, historic ambience and ecological wonders. It is expected that further stable growth in the demand for river cruises will continue in the future, especially when taking into consideration the existing trend of population aging in the main markets of river cruises (Germany, the USA and the UK).

### 3.3. Trends and future challenges of river cruises

The river cruise market is versatile but still less dramatically versatile than the ocean cruise market. There are a few key trends in the market of international river cruises that play an important role in the competitive market contest – from an increase in the number of vessels, through their size and quality, to the advancements in the products in general which lead to the growth of the demand and the emergence of new markets. The river cruise fleet in Europe grew by 182 vessels from 2004 to 2017, which is an increase of 111%. The greatest increase in the number of new vessels was seen in the period from 2012 to 2012 when 135 new vessels were

released. Also, the year 2017 was characterised by a stronger regional diversification: seven out of 17 new vessels (35% of the new bed capacity) were deployed on relatively “newcomer rivers” (Seine, Rhône, Douro) (CCNR Market Observation - Annual report 2018), which are becoming increasingly popular in the past years and record a continuous growth in the number of passengers. Apart from the increase in the number of vessels, there is also an increase in the construction of vessels with bigger capacities, as well as an improvement in the standard and quality of the accommodation but also in other services on board the vessels. The new-generation vessels offer multiple dining areas, spa content and larger cabins with balconies (The cruise review, 2014). For example, the new line of vessels by the company Viking River Cruise called “Longship” (which is 135 m long and has 95 cabins with the capacity of 190 passengers), has the largest suites in relation to all river boats in Europe, with separate sleeping and living rooms (<http://www.ship-technology.com/projects/viking-longship-river-cruise-us>). On the other hand, there is an increasing trend of the emergence of smaller boutique vessels for river cruises. In France, for instance, a small vessel with two crew members called Absoluut 2 was launched and it includes four air-conditioned cabins, two junior suites and one larger suite. The vessel will sail on the route Dijon-Vandenesse only according to the charter model (Horak, Sever, Marušić, 2013, p.13). Moreover, green features are being introduced in the construction of the vessels. For example, new vessels by Viking River Cruise have new energy-efficient, quieter and environmentally acceptable hybrid motors which lower the vibrations and noise, as well as solar panels and an organically-grown garden on a big sunny platform (<http://www.ship-technology.com/projects/viking-longship-river-cruise-us>), while CroisiEurope<sup>5</sup> emphasizes that they are “Eco-Friendly” and that their dedication to the environment surpasses the conditions proposed by law – all of their vessels are equipped with waste-water disposal systems, as well as with motors that conform to the latest and strictest European standards of pollution control; they sort and recycle the waste, and they also formed a partnership with UNESCO in order to improve the sustainable and ecologically healthy development of river ports in Africa, etc. Along with the general trends in the tourist market which point to the transition towards the experience economy as well as with the diversification of tourist products, the offer of river cruises has also seen the trend of enhancing the tourist travelling experience in collaboration with several land destinations. The river cruise industry has started to introduce themed cruises which strive to satisfy certain consumer segments, but also in order to lengthen the cruise season at the rivers where the season is limited to a few months due to winter conditions and the inability of relocating the vessels in the way that it is done with ocean cruises. Precisely these themed itineraries are of crucial importance among 75% of the passengers in river cruises who decide to go on a cruise (Horak, Sever, Marušić, 2013, p.13). For example, Avalon Waterways (<https://www.avalonwaterways.com/>) offers 13 themed cruises (special interest river cruise) with main themes including themes such as art (Photography River Cruise), gastronomy (Culinary River Cruises, Beer River Cruise, Wine Appreciation River Cruise), history (Jewish history River cruise), Active & Discovery River Cruises and alike. The Uniworld (<https://cruiseosity.uniworld.com/en/>) offers 7 themed cruises (such as Family-friendly cruises in Europe, Journeys for lovers of French food & wine, Jewish history & culture along the rivers Showcasing Europe’s Christmas Markets), while CroisiEurope’s offer of themed cruises includes, among other content, a combination of cruise and sport activities (Hiking Cruises and Biking Cruises). From the viewpoint of the tourist demand, one of the most significant trends is the rapid growth of the demand for river cruises. The number of passengers on river cruises grows by an annual rate of 16%. The analysis of passenger structure has shown that the US, Canada, Germany, the UK, Australia and France stand as the main emissive markets when it comes to river cruises.

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<sup>5</sup> CroisiEurope is proud to be a pioneer in this field since these practices have become the norm (<https://www.croisieurope.com/information/respect-environment-total-commitment>)

Australians and New Zealanders are the source market with the strongest percentage growth in the European river cruise market – +23% in 2017. Also, operators report growing numbers of Chinese tourists, and expect their share to grow to a significant level in the future (CCNR Market Observation - Annual report 2018). The baby-boom generation and pensioners with above-average incomes who seek peace and true historical and cultural experience that can be felt on a cruise along the European rivers present the dominant target market for river cruises. Although the trend of population aging in main emissive markets speaks in favour of the further stable growth of the demand for river cruises, some companies also strive to turn to new market segments. In this sense, according to River Cruise Advisor (2015), AmaWaterways has concluded a partnership with Adventures by Disney and designed a cruise offer specifically intended for families with small children along the Danube river in the vessel named AmaViola, which is designed and adjusted for family cruises. Also, Uniworld have launched brand U by Uniworld specifically intended for 21 to 45-year-olds. The brand is much more flexible with a lower pricing structure and more free time to spend at your leisure, something which will appeal to a younger audience (Smith, 2018). According to Horak, Sever and Marušić (2013, p.17), in the future, the application of new technologies will have a significant impact on the demand market of river cruises, especially in terms of its function in sharing the current travelling experiences. In accordance with that, many companies are introducing the possibility of downloading various online guides for the visited cruise destinations or the possibility of one guide that encompasses all the destinations included in the itinerary. What is more, the demand for adventure travel and the demand for exploring new destinations with authentic cultures and natural heritage will become even more prominent. We also expect a further growth in themed cruises which can present the tourists with new and unique experiences in accordance with their interest, but we also predict a growth in the demand for cruises that combine various activities during the visit such as hiking, trekking or biking. In the circumstances of growing competitiveness, the cruise companies need to be innovative, so they are beginning to develop new itineraries and experiences intended for certain target segments in cooperation with several land destinations, which discern them from their competitors and allow them to create a unique offer. Therefore, they are continuously searching for new market niches and strive to adapt quickly to their needs, also striving to find an offer concept which would differentiate them from other companies. For instance, East-European rivers stand as a potentially new great market for river cruises on European rivers (Mintel, 2010; referenced by Horak, Sever, Marušić, 2013, p.16) while the popularity of Asian rivers grows at the international level. In addition to the abovementioned facts, there are some further challenges in the market of international river cruises that need to be taken into consideration due to their impact on the further development of the market of river cruises. Rules and regulations continue being highly versatile from country to country, certain touristic hotspots are facing signs of congestion, recruiting good crew is getting increasingly difficult, and security is a critical issue in river cruising as much as in ocean cruising (Tore, 2017). Also, according to Lucas Sandmeier, General Manager Operation, Scenic Luxury Cruises & Tours, "The challenge is to find ways to not compromising the very arguments that lead to the success of river cruise. Combine this with the ever increasing demands to provide security to its travellers, the equally increasing number of regulations and desires from authorities, regulators, governments and unions as well as the introduction of technology to deliver a guest experience, and the mix may produce a product that has little resemblance to the so successful river cruise of today" (referenced by Tore, 2017).

#### **4. CONSLUSION**

The existing trends in the international tourist market shape the style of travelling and vacation, as well as the diversification of the vacation activity, and they impose the need for the constant research and management of the tourist product. In the river cruise market, there is a trend of

seeking new destinations and vacation forms by the tourist demand. This trend contributes to the development of the river cruise market in terms of the increase in the number of vessels, the diversification of the offer on the vessels, the growth in the quality of the content and services on the vessels, the expansion of cruise offers to new less-known rivers, as well as in terms of the development of themed cruises tailored to the special interests of tourists that will enable them to gain new experiences as well as to combine the cruises with other activities in the destinations that they are visiting. Despite certain existing challenges, especially in terms of cruise and traveller security, the river cruise industry possesses many opportunities for an optimistic further development with new vessels, new capacities, new destinations which present the tourists with a dose of attractiveness and innovativeness and conform to the current demand but are also oriented towards new target segments, especially towards younger generations. Designer innovations will play the crucial role in creating unique values that would surpass the consumers' expectations, technology will conform to the needs of contemporary consumers for advancing their travelling experiences and sharing their experiences with their loved ones, and the technological advancements in vessel design will contribute to the sustainability and preservation of the ecological and biological value of rivers. The application of the marketing concept will also be of crucial importance for the future development of river cruises and the creation of the competent position of river cruises in the dynamic and versatile market. In addition to larger marketing efforts, diversification will be strengthened, and the strategy for product development as well as the strategy for market development will become the most important strategies for achieving competitive advantages.

## LITERATURE:

1. *Adventures by Disney and AmaWaterways Partner on Family River Cruises*. (2015). Retrieved 8.10.2015. from <http://www.rivercruiseadvisor.com/2015/04/adventures-by-disney-and-amawaterways-partner-on-family-river-cruises/>.
2. *AmaWaterways*. Retrieved 28.06.2019. from <https://www.amawaterways.com/>.
3. *Avalon Waterways*. Retrieved 28.06.2019. from <https://www.avalonwaterways.com/>.
4. Ban, I. (1998). Krstarenje rijekama. *Ekonomska misao i praksa*, 7 (2), 249-270.
5. Bosnić, I. (2015). *Marketing riječnog turizma* (doctoral dissertations). Ekonomski fakultet u Osijeku.
6. *CCNR Market Observation - Annual report 2018* (2018). Retrieved 21.05.2019. from <https://www.inland-navigation-market.org/>.
7. *CCNR Market Observation - Annual report 2017* (2017). Retrieved 21.05.2019. from <https://www.inland-navigation-market.org/>.
8. *CroisiEurope*. Retrieved 28.06.2019. from <https://www.croisieurope rivercruises.com/>.
9. Gibson, Ph. (2006). *Cruise Operations Management*. Burlington USA: Elsevier.
10. Goeldner, Ch. R., Brent Ritchie J.R. (2009). *Tourism: Principles, Practices, Philosophies*. New Jersey: John Wiley & Sons, Inc.
11. Grammerstorf, H.H. (2013). *European River Cruising*. Retrieved 23.04.2019. from [http://www.ccr-zkr.org/files/documents/workshops/wrshp081013/6\\_HGrammerstorf\\_en.pdf](http://www.ccr-zkr.org/files/documents/workshops/wrshp081013/6_HGrammerstorf_en.pdf).
12. Gržetić, Z., Luković, T., Božić, K. (2013). Nautical Tourism Market Suppliers in Continental Europe and Black Sea. In T. Luković, *Nautical Tourism* (p. 140-155). Oxford: CABI.
13. Horak, S., Sever, I., Marušić, Z. (2013). *Međunarodna krstarenja Dunavom: Trendovi, faktori uspjeha i benchmark*. Zagreb: Institut za turizam.
14. Jones P., Comfort, D., Hillier, D. (2016). European River Cruising and Sustainability. *International Journal of Sales, Retailing and Marketing*, 5(1), 61-71.

15. Medlik, S. (2003). *Dictionary of Travel, Tourism and Hospitality* (Third edition). Oxford: Butterworth-Heinemann.
16. *Respect for the Environment*. Retrieved 28.06.2019. from <https://www.croisieurope rivercruises.com/information/respect-environment-total-commitment>.
17. River Cruising - March 2015. (2015). Retrieved 21.05.2019. from <https://store.mintel.com/river-cruising-march-2015>.
18. Smith, E. (2018). *CLIA reveals river cruise trends for 2018*. Retrieved 10.06.2019. from <http://www.rivervoyages.com/news/clia-river-cruise-trends-2018/>.
19. The cruise review (2014). Retrieved 14.8.2014. from [http://proof.cruiseexperts.org/media/2131/clia\\_uk\\_\\_\\_ireland\\_cruise\\_review\\_published\\_march\\_2014.pdf](http://proof.cruiseexperts.org/media/2131/clia_uk___ireland_cruise_review_published_march_2014.pdf).
20. Tore, O. (2017). *The new trend: Europe's river cruises*. Retrieved 10.06.2019. from <https://ftnnews.com/cruise-travel/32853-the-new-trend-europe-s-river-cruises>.
21. *Uniworld*. Retrieved 28.06.2019. from <https://cruiseosity.uniworld.com/en/>.
22. *Viking River Cruise*. Retrieved 28.06.2019. from <https://www.vikingrivercruises.co.uk/>.
23. *Viking Longship Series, Viking River Cruises*. Retrieved 10.3.2015. from <http://www.ship-technology.com/projects/viking-longship-river-cruise-us>.
24. Vukonić, B., Čavlek, N. (2001). *Rječnik turizma*. Zagreb: Masmedia

## STRENGTHENING OF LINGUISTIC AND COMMUNICATIVE COMPETENCE BY E-LEARNING

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### ABSTRACT

*The aim of the paper is to present fundamental theoretical background to E-learning, with the focus on strengthening communicative competence of college students in relation to learning English as a means of communication in today's world. E-learning through electronic media and the Internet is nowadays widely used in education and is popular with younger generations used to the new media and electronic communication in general. Results of a survey on using multimedia and modern technology for learning English are presented and analysed, showing college students' attitudes towards E-learning. Recommendations on using E-learning and multimedia for learning English are given.*

**Keywords:** *communication, communicative competence, E-learning, English*

### 1. INTRODUCTION

E-learning has become increasingly popular in contemporary society because it provides learners with a wide range of topics that can be learnt at various levels of difficulty, it is either a lower-cost, or even a free version of courses which can be taken in a conventional way, i.e. at schools or institutions of higher education, and it allows learners to communicate and interact with other learners or teachers from all over the world. Having grown up in the digital age, young people today are familiar with contemporary technologies and find them more appealing and stimulating than more conventional learning methods and learning in the traditional school environment. Today, young people communicate mostly through electronic, i.e. social media so the question arises whether modern technologies and electronic media would be a desirable learning environment where students could strengthen their linguistic and communicative competence outside of traditional learning environment. Therefore, the aim of the paper was to present E-learning as a method, with its most prominent features, advantages and disadvantages, and to establish to which extent first year students of Virovitica College have used it as a way of learning English language by using a survey method focusing on students' E-learning experiences and attitudes towards such learning. The first part of the paper focuses on defining and describing E-learning, whereas in the second part analysis of the results of the survey on learning English through contemporary technologies and attitudes on such a way of learning is presented. Finally, some recommendations are given as to using the research results in future language teaching practice.

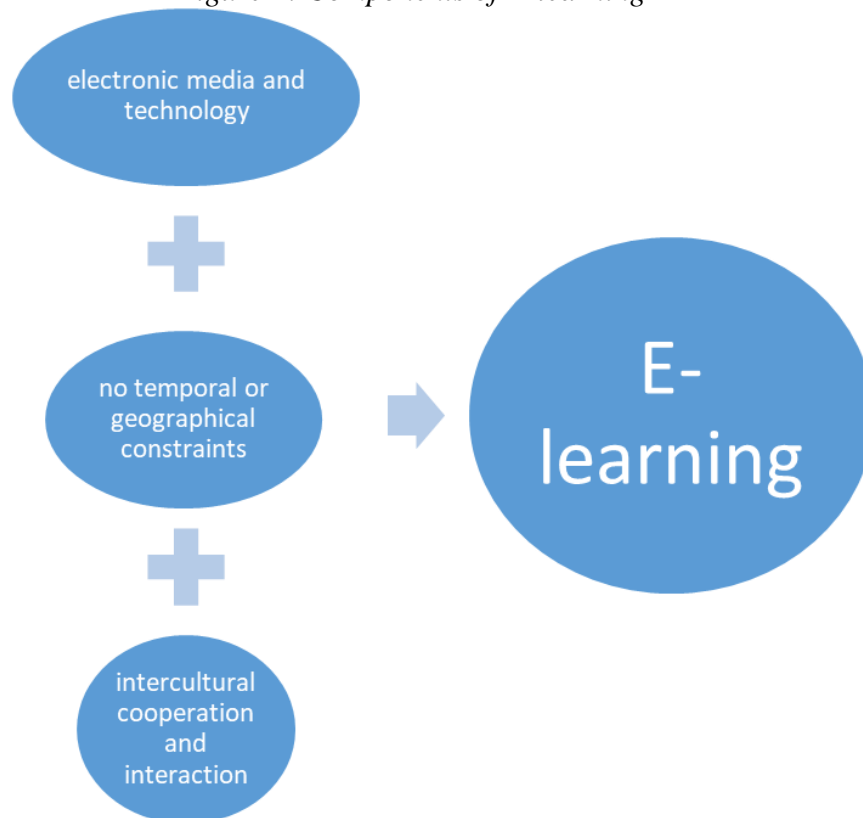
### 2. E-LEARNING

When it comes to the very definition of E-learning, there are not only various definitions to be found, but the spelling of the term itself varies with different authors. According to Čukušić and Jadrić (2012), there is no single definition of E-learning, but what is common to all definitions that appear is that E-learning is defined as learning with the help of electronic media, especially computers and the Internet, and that apart from E-learning technology itself, it provides both cooperation and interaction for the participants.

E-Learning can be synchronous or asynchronous. Synchronous eLearning is done in real-time with a live instructor. The synchronous eLearning experience is similar to that of a regular classroom, except learners can take courses anywhere in the world as long as they have a computer, Internet connection, and access to audio or video conferencing. Some of the tools associated with synchronous eLearning are instant messaging, application sharing, and polling. While synchronous eLearning has the value of having a real instructor and ability to communicate with other participants in the course, it requires learners to virtually attend the course at a specific time. Many instructional designers and distance learning educators find synchronous eLearning challenging to design. Since there is no face-to-face communication, online teaching requires a lot of effort not only from the individual attention, instructors must recognize various types of learners who are clearly leaders; they always post comments and responses to other people's questions. (...) In order for a synchronous online course to be successful, it must be interesting and engaging to learners. It must also follow adult learning theories and principles (Arshavskiy, 2017, pp. 9-10) However, asynchronous e-learning, commonly facilitated by media such as e-mail and discussion boards, supports work relations among learners and with teachers, even when participants cannot be online at the same time. It is thus a key component of flexible e-learning. In fact, many people take online courses because of their asynchronous nature, combining education with work, family, and other commitments. Asynchronous e-learning makes it possible for learners to log on to an e-learning environment at any time and download documents or send messages to teachers or peers (Hrastinski, 2008). Čukušić and Jadrić (2012), according to Cheong (2002), give some advantages of e-learning, such as removing geographical and time constraints, the fact that e-learning environment allows easy access to all available references on the Internet and the potential of online discussions to connect participants of different cultures and nationalities. As for the disadvantages of e-learning, the most prominent one is the very manner in which it is delivered, i.e. virtually. Even though eLearning is a popular solution for many performance problems, it is mostly appropriate for increasing knowledge and developing cognitive skills. Even if course follows the most solid instructional design principles, it cannot teach people how to drive a car, for example, because driving is psychomotor skill, which requires real-life practice for best results (Arshavskiy, 2017, p. 13). Another very important feature of E-learning, according to Arshavskiy (2017), is personalization. That is another excellent way to motivate learners and it refers to the act of customizing, for example how the content appears to the learner - font sizes, colours, backgrounds, themes; the learning content itself - audio, video, textual, graphical; the interaction between facilitator, learner and the learning content - mouse, stylus, tap/swipe, keyboard etc. Therefore, as can be seen in Figure 1, if all above mentioned characteristics of E-learning are taken into account, it can be defined as learning through electronic media and technology, without geographical and temporal constraints, with intercultural cooperation and interaction as its main features and benefits.

*Figure following on the next page*

*Figure 1: Components of E-learning*



*Source: the authors*

Palloff and Pratt (1999) state the following as key elements, i.e. principles of E-learning:

- separation of teachers and attendees during most of the tuition
- the use of educational materials for the re-unification of teachers and attendees, and for the delivery of the teaching content of the course or the programme
- providing two-way communication between the teacher or the educational institution and the attendees
- separation of participants in space and time
- control of the learning process that is higher on the side of the learner than on the teacher side (Ćukušić and Jadrić, 2012, p. 22).

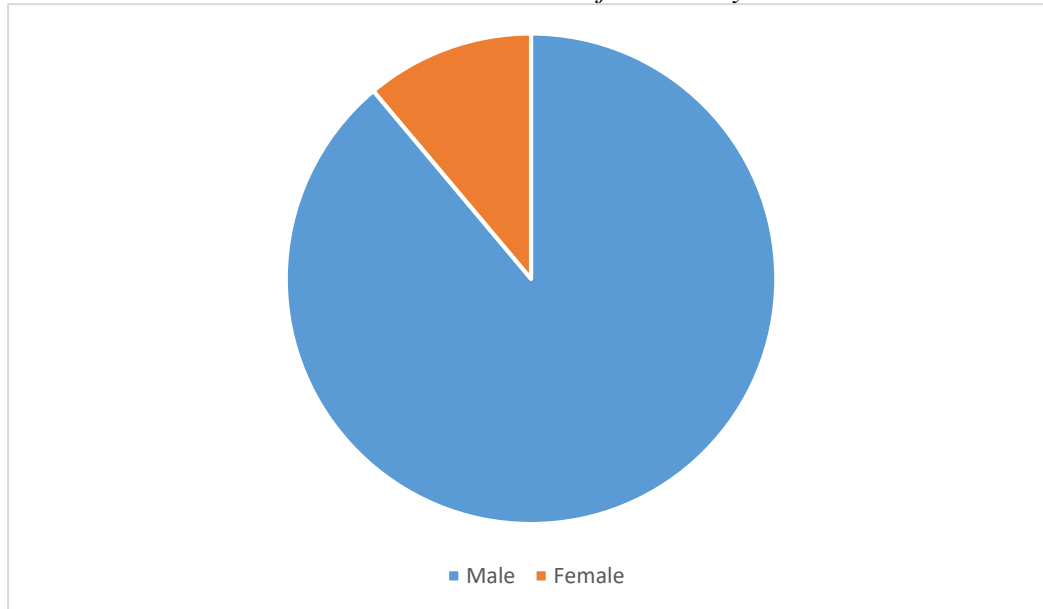
### **3. METHODOLOGY**

Survey method is a procedure in which, based on a questionnaire, data, information, attitudes and opinions on the subject matter of the survey are researched and collated (Zelenika, 2000, p. 338). In its narrower sense, survey refers to a written collection of the given data on a representative sample of surveyees through a questionnaire. Method of data collection in this research was an anonymous questionnaire which included questions with given answers listed. The surveyees were to answer the questionnaire with 11 questions in which they were able to answer the given questions anonymously, while six of the questions appraised as relevant to the aim of the paper are interpreted in this analysis. The survey was conducted in June 2019, with experiences and attitudes of students on learning a foreign language, i.e. more specifically English language, as its main topic. The sample group consisted of 50 undergraduate students of Virovitica College of both genders and different ages. The aim of the conducted survey was to establish the ways in which students learned English, whether they used modern technologies for learning a foreign language, and what their attitude towards E-learning in general was.

#### 4. RESULTS OF THE SURVEY

Ensuing from the acquired data, the results were interpreted and shown in the following five graphical charts respectively. Chart 1 shows the gender structure of the surveyees where it is clearly visible that 89% of the participants were male, and only 11% female, due to the gender structure of the largest group of surveyed students consisting of first year students of Software Engineering with predominantly male students.

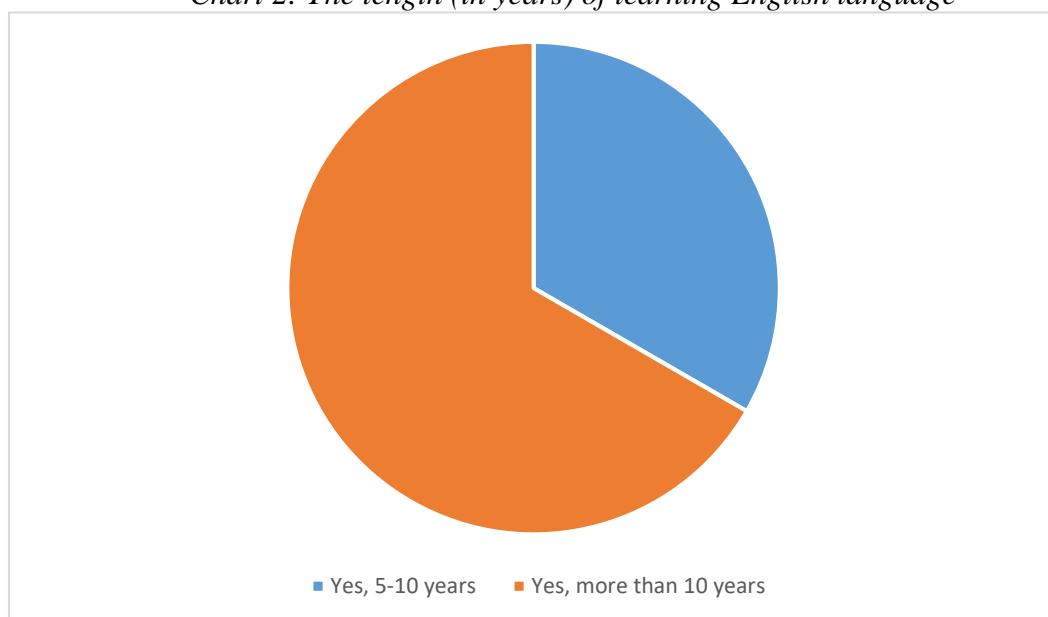
*Chart 1: Gender of the surveyees*



*Source: the authors*

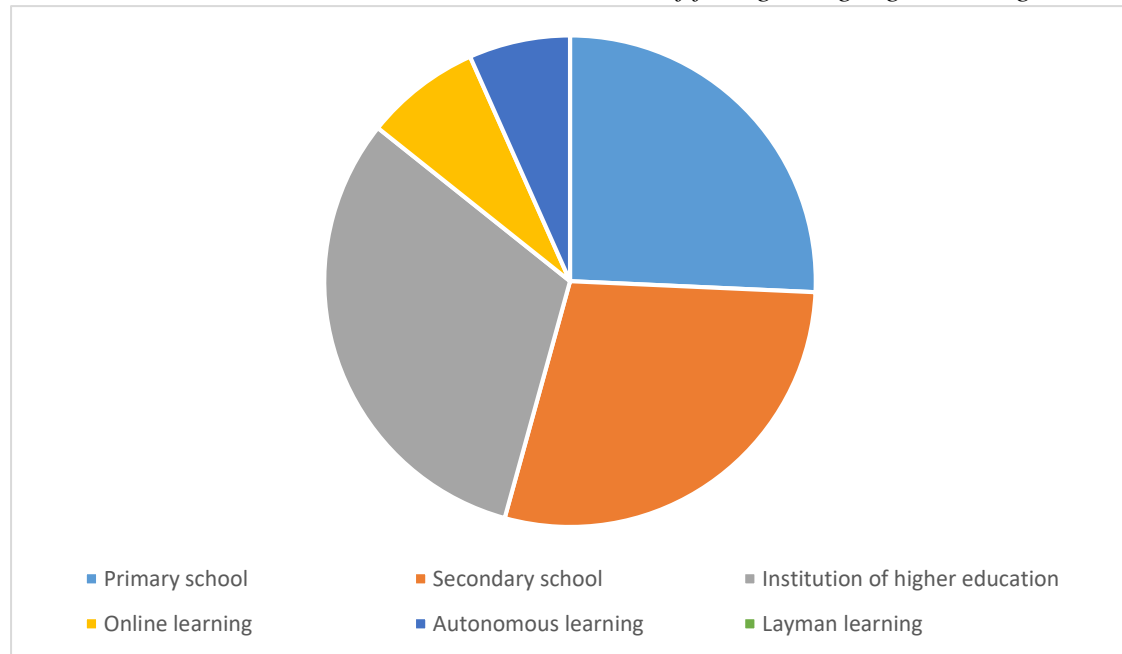
The second chart depicts the answers to the question whether the participants have learnt English so far and if yes, for how long, where all participants answered affirmatively, with 33% claiming to have been learning English from 5 to 10 years, and the majority, i.e. 67% answering that they have been learning English for 10 years or longer.

*Chart 2: The length (in years) of learning English language*



*Source: the authors*

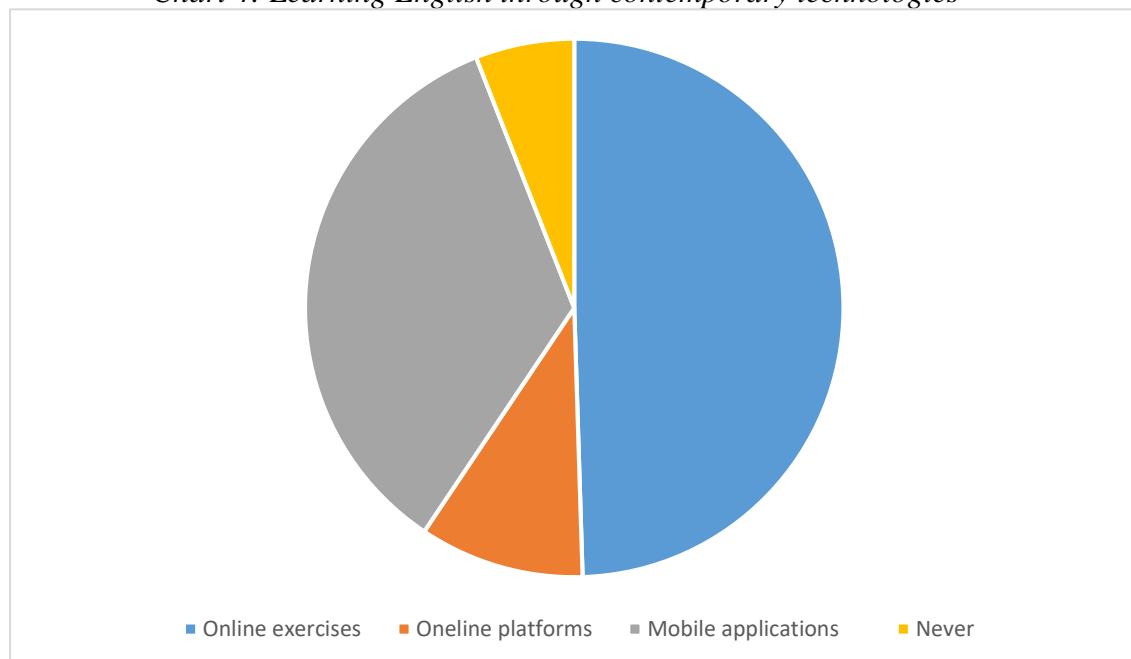
*Chart 3: Educational and other institutions of foreign language learning*



*Source: the authors*

The most common answer to the question as to where and in which way the surveyees have learnt English, shown in Chart 3, was as follows: 31% at an institution of higher education, 29% at secondary school, 26% at primary school, 8% online learning (exercises, courses, mobile applications, etc.), and 8% autonomously, i.e. without a teacher. What is worth mentioning here is that the participants were given the option of choosing multiple answers, but none of the surveyees chose the layman option stating that they have 'picked up' some English words and phrases although they have never formally learnt it, which is consistent with the affirmative answer to the question about learning English so far, depicted in Chart 2.

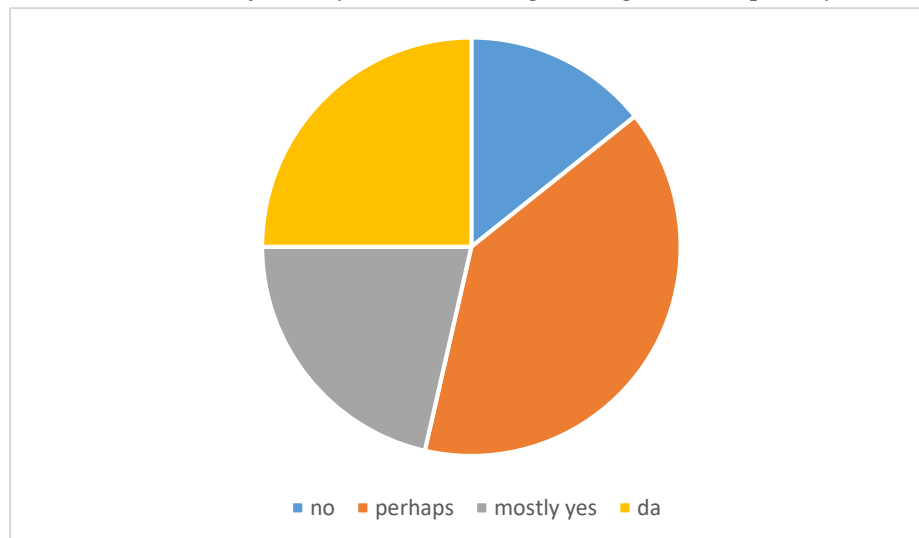
*Chart 4: Learning English through contemporary technologies*



*Source: the authors*

As regards the question on learning a foreign language through contemporary technologies, as many as 50% of surveyees answered they have done it in the form of online exercises (on different language learning web sites), 35% answered to have learnt through mobile applications, 10% through various online platforms, such as Moodle, and 10% claimed they have never learnt English in such a way, i.e. through contemporary technologies.

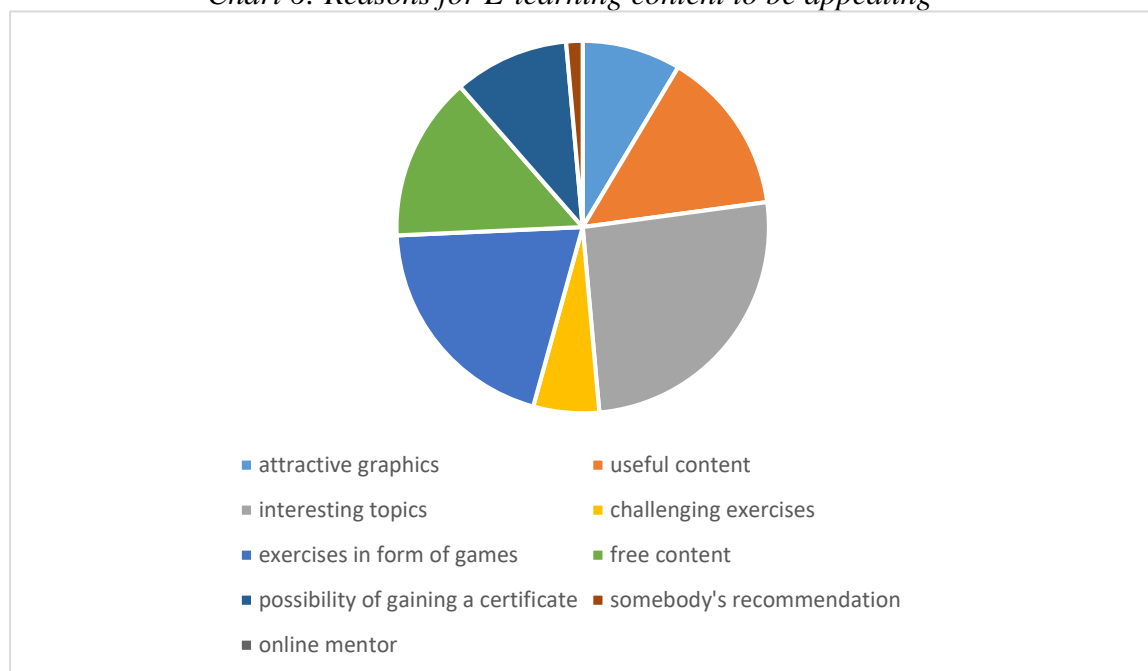
*Chart 5: The attitude of surveyees to learning through contemporary technologies*



*Source: the authors*

Chart 5 shows the attitude of surveyed students to learning through contemporary technologies, where 39% stated they would perhaps do it, 25% said they would learn in this way, 21% would mostly do it, and 14% answered they would not learn in this way, which is indicative of a positive attitude that students show towards modern technology used as a means of learning a foreign language.

*Chart 6: Reasons for E-learning content to be appealing*



*Source: the authors*

Chart 6 depicts the factors which would make learning in online environment more appealing for the surveyees. Most predominantly chosen appeal factor was interesting topic (26%), followed by exercises in form of games (20%), free and useful content (14%), possibility of gaining a certificate (10%), attractive graphics (9%), challenging exercises (6%) and somebody's recommendation (1%). Possibility of having an online mentor was not considered important, which might be an indication that online learning is considered to be an autonomous activity for which an actual person one could contact is not necessarily needed.

## 5. CONCLUSION

The aim of the paper was to present fundamental theoretical background to E-learning, and to present the results of a research done on a focus group of 50 college students surveyed on their experiences and attitudes to learning English through E-learning methods. The aim of the survey was to focus on strengthening communicative competence of college students in relation to learning English as a means of communication in today's world. Results obtained indicate that most students have some experience with E-learning and are willing to use it in the future as a way to learn a foreign language, depending on various factors which would make e-learning of a foreign language more appealing to them. This information can be used as a guideline for shaping future foreign language practice classes at college level, taking into consideration that modern technologies and the opportunities they provide are advancing at a rapid pace, making it highly likely that future language learning classes at institutions of higher education will, at least partially, be delivered in an online form, enabling a more personalized, custom-made learning.

## LITERATURE:

1. Arshavskiy, M. (2017). *Instructional design for ELearning: essential guide to creating successful eLearning courses*. 2nd edition. S.l. Amazon
2. Ćukušić, M., Jadrić, M. (2012). *e-učenje [koncept i primjena]*. Zagreb: Školska knjiga
3. Hrastinski, S. (2008). *Asynchronous and Synchronous E-Learning*. *EDUCAUSE Quarterly*, vol. 31, no. 4 (October–December 2008), retrieved 22.6.2019. from <https://er.educause.edu/-/media/files/article-downloads/eqm0848.pdf>
4. Dovedan, Z., Seljan, S., Vučković, K. (2002). *Multimedia in Foreign Language Learning*. (pp.72-75). MIPRO.
5. Šafhalter, A. (2013). *Učionica u oblaku*. (pp. 45-54). Media, culture and public relations
6. Zelenika, R. (2011). *Metodologija i tehnologija izrade znanstvenog i stručnog djela: znanstvena, znanstvenostručna i stručna pisana djela*. Rijeka: Ekonomski fakultet

## ASSOCIATION BETWEEN HIV AWARENESS AND RISKY HEALTH BEHAVIOR AMONG RESIDENTS OF LATVIA

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### ABSTRACT

*During last decades the HIV/AIDS problem became as one the most important issue not only in Latvia but worldwide. In Latvia HIV treatment is available for all infected patients from the first day as virus was diagnosed, also blood test possibilities free of charge are available on anonymous or confidential basis around the country, as well as there is a joint cooperation between governmental and non-governmental health organizations in order to educate public on HIV/AIDS issues. But, despite preventive measures taken Latvia still takes the leading position in a rate of newly diagnosed cases among European Union countries. This negative tendency indicates that possibly society lacks information about infection risks and how to protect itself from it. The aim of the study is to analyze how awareness about HIV impact risky health behavior. Four outcomes related to risky health behavior were examined among residents of Latvia: if participants had ever had sex, consistent condom use during the sex, if participants had ever have sex when themselves or their partner were under influence of alcohol or drugs, if participants had ever made HIV blood test. In study such methods as content analysis, survey and correlation analysis methods are used. Its findings are based on the data obtained during the survey of residents of Latvia. The findings of the study indicates that respondents are tend to practice some risky health behavior patterns despite their knowledge of the risk to which they are exposed, but the same time there is a lack of information among respondents to prevent all kinds of examined outcomes related to risky health behavior. Authors believe that study findings in the future will help to improve marketing communication in order to achieve its social effectiveness with the aim to reduce risky health behavior practices of public.*

**Keywords:** *health behavior, HIV/AIDS, marketing communication, social efficiency, social marketing*

### 1. INTRODUCTION

During last decades the HIV/AIDS (Human Immunodeficiency Viruses / Acquired Immune Deficiency Syndrome) problem became as one the most important issue in Latvia. In order to prevent the spread of HIV and other sexually transmitted infections (STI) Latvian government approved the Action Plan for Preventing the Prevalence of HIV, Sexually Transmitted Infections, Hepatitis B and C for 2018– 2020 which includes wider availability of early diagnostics, treatment for already infected patients and encourage of interinstitutional cooperation ensuring greater involvement of non-governmental organizations in the field of HIV prevention (Act No. 630 of Cabinet of Ministers of Latvia, 2017). According to the Centre for Disease Prevention and Control of Latvia today blood for HIV testing can be transferred to

any laboratory with or without a doctor's referral as well as HIV testing can also be done free of charge and anonymously at one of the HIV prevention points; the treatment of infected patients is available at the moment when HIV is diagnosed without any limitations (The Centre for Disease Prevention and Control of Latvia: HIV infection, 2018). Also there are several governmental and non-governmental organizations operating in Latvia as an information and resource centre for all interested stakeholders, educating the society in the field of HIV, as well how to protect yourself from virus and improving the quality of life of people living with HIV/AIDS. But still the second year in a row Latvia takes a leading position among European Union countries in a rate of newly diagnosed HIV cases per 100 000 inhabitants (European Centre for Disease Prevention and Control, World Health Organization, 2018). This negative tendency can indicate that perhaps public lacks of information about HIV and its preventive measures. The aim of the study is to analyze how awareness of HIV impact risky health behavior patterns. Thus, the authors of the paper formulate research hypothesis as follow: (H1) there is a statistically significant correlation between awareness of HIV and risky health behavior patterns. To achieve the aim of the study and to prove or deny the research hypothesis, the following tasks are set:

- To analyze academic and specialized literature on the theoretical aspects of social marketing communications and its peculiarities in the healthcare sector.
- To evaluate the results of previous studies of implemented HIV spread control measures and marketing communications addressed to society.
- To conduct a survey of residents of Latvia with the aim to find out the actual awareness of HIV and practices of risky health behavior patterns.
- To analyze the data obtained during the survey of residents of Latvia.
- Based on the results of the study draw conclusions and develop proposals for improving marketing communications to raise awareness of HIV and reduce practices of risky health behavior patterns among residents of Latvia.

The object of the research is awareness of HIV infection. The subject of the study is the impact of awareness of HIV to use of risky health behavior patterns. Such methods as content analysis and survey are used in the research. For analyses of survey results correlation analysis and indicators of central tendency or location – arithmetic mean, median and mode are applied. Study findings are based on the data obtained during the survey of residents of Latvia. Theoretical background is based on the review of specialized literature and regulatory acts on the peculiarities of social marketing communications in the healthcare sector.

## **2. THEORETICAL BACKGROUND**

Social marketing is a process that applies marketing principles and techniques to create, communicate and deliver value in order to influence target audience behaviors that benefit society (public health, safety, the environment, and communities) as well as target audience (Kotler, Lee, 2008, p. 7). Thus, the social marketing is about: (a) influencing behaviors, (b) utilizing a systematic planning process that applies marketing principles and techniques, (c) focusing on priority target audience segments, and (d) delivering a positive benefit for society (Deshpande, Lee, 2013, p. 8). A key issue in assessing the effectiveness of social marketing is whether social marketing programmes actually achieve behaviour change on a consistent basis. Programmes employing mass media or interpersonal communication channels may raise the target audience's awareness and intentions to use products and services. These behavioural factors – improved attitudes, knowledge or perceived self-efficacy – may facilitate the end goal of social marketing, but do not provide sufficient evidence that social marketing interventions have achieved their stated purpose (Firestone, Rowe, Modi, Sievers, 2016, p. 111). Public health is concerned with preserving, promoting and improving health, with an emphasis on prevention.

A common call today by health and social policy professionals is for “a public health approach” to almost every health and social ill, from the obesity problem, violence, adolescent substance use and increasing physical activity to reducing medical mal-practice errors. Much of this has arisen from the success of the public health approach in controlling infectious diseases. (Donovan, Henley, 2010, p. 15). Nowadays social marketing approaches have been adopted by a wide range of organizations, like the Center for Disease Control and Prevention of United States of America, as well as state and local governments and a significant number of non-profit organizations. Also UNAIDS has recently invoked social marketing as a primary tool in its fight against HIV / AIDS (Andreasen, 2002, p. 3). The involvement of non-governmental organizations in strengthening the health system can contribute to the development of an effective healthcare system. In order to achieve this, close cooperation between non-governmental organizations and the public sector must be ensured (Ejaz, Shaikh, Rizvil, 2011). Also the Declaration of Commitment on HIV / AIDS determines that strong management at all levels of society is crucial to an effective response to the epidemic. In turn, government leadership in the fight against HIV / AIDS is very important and their efforts should be complemented by the full and active participation of civil society, the business community and the private sector (United Nations, 2001). During the last years non-governmental organizations in cooperation with governmental healthcare organizations have carried out dozens of social marketing communication campaigns with the aim to raise the awareness of HIV among residents of Latvia, also to educate the society on preventive measures recommended by World Health Organization can be taken to protect yourself from virus such as consistent condom use during the sex, HIV blood testing, antiretroviral drug use, elimination of mother-to-child transmission of HIV (World Health Organization, 2019). Based on the findings of carried out social marketing communication campaigns a survey of residents of Latvia was developed in order to find out the association between HIV awareness and risky health behavior among residents of Latvia.

### **3. RESEARCH RESULTS AND DISCUSSION**

The survey among Latvian residents took place in October 2018 and 526 respondents participated. The survey was disseminated online through the tested websites, thus, ensuring confidentiality and privacy of respondents what was absolutely necessary during this research as it was related to some sensitive personal and ethical issues and there were concerns that true answers won't be received if respondents would be interviewed in person. Additionally the online survey enabled the possibility to distribute it to a large number of potential respondents at low cost. All respondents were asked to answer the same questions what allowed to compare the data with each other and perform correlation analysis (Neuman, 2006, p. 302). According to Central Statistical Bureau of Latvia the population of Latvia in October 2018 was 1934379 people (Central Statistical Bureau of Latvia, 2018). According to this population, the required sample size with confidence level 95% and confidence interval 5 is 384. Considering that 526 respondents participated in the survey, the authors may consider that its results are attributable to all residents of Latvia. However, the research is limited by online survey and potentially important segments of the population of small towns and rural communities could be excluded from its results.

#### **3.1. Socio-demographic profile of respondents**

370 female (70.3%) and 136 male (25.9%) participated in the survey (20 respondents did not indicate their gender) in different age groups from 13 to 64 years. The split of respondents by age groups is summarised in Table 1.

*Table 1: The split of respondents by age group  
 (authors' construction based on the survey data, October, 2018)*

Age group	Number of respondents	Share of respondents, %
13 – 17	4	0.76%
18 – 24	248	47.15%
25 – 34	142	27.00%
35 – 44	58	11.03%
45 – 54	28	5.32%
55 – 64	14	2.66%
Not indicated	32	6.08%
Total	526	100.00%

In order to understand if there is a difference in risky health behavior patterns within the country respondents were asked to indicate the place of residence by statistical region. The data of respondents' place of residence is summarised in Table 2.

*Table 2: The split of respondents by place of residence  
 (authors' construction based on the survey data, October, 2018)*

Place of residence	Number of respondents	Share of respondents, %
Riga city	260	49.43%
Riga suburb	70	13.31%
Vidzeme region	34	6.46%
Kurzeme region	34	6.46%
Zemgale region	28	5.32%
Latgale region	42	7.98%
Other	20	3.80%
Not indicated	38	7.22%
Total	526	100.00%

In addition respondents were asked to indicate their level of education, data summarized in Table 3.

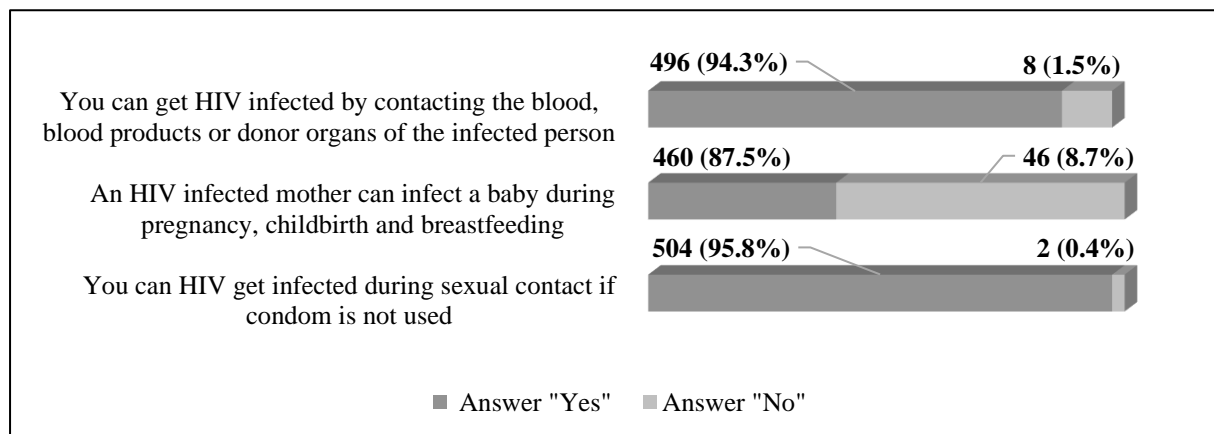
*Table 3: The split of respondents by level of education  
 (authors' construction based on the survey data, October, 2018)*

Level of education	Number of respondents	Share of respondents, %
Primary education	20	3.80%
Vocational primary education	8	1.52%
Secondary education	142	27.00%
Vocational secondary education	42	7.98%
Vocational education after secondary education (undergraduate education)	26	4.94%
College Education Program	44	8.37%
Bachelor or Professional Education	148	28.14%
Master or professional education	74	14.07%
Doctoral education	2	0.38%
Not indicated	20	3.80%
Total	526	100.00%

Besides the gender, age group, place of residence and education level, respondents were asked to indicate their sexual orientation and answers were divided as follows: heterosexual – 390 (74.14%), homosexual – 50 (9.51%), bisexual – 48 (9.1%) and 38 (7%) respondents did not indicate their sexual orientation.

### 3.2. Results and discussion

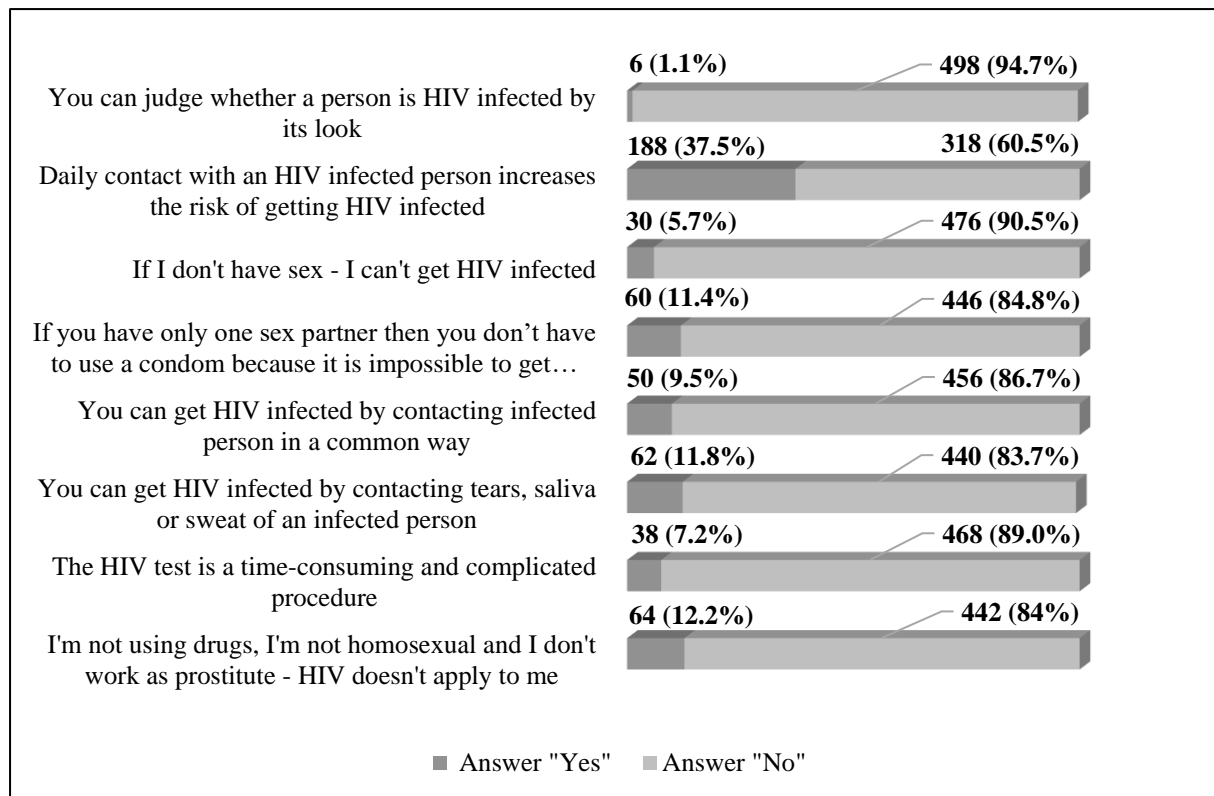
Based on the content analysis of previously implemented marketing communication campaigns addressed to society 11 statements about HIV were derived. 3 of derived statements were true and 8 were false. In order to understand actual awareness of HIV among respondents they were asked to evaluate each statement by answering “yes” if respondent agrees to the statement or “no” if respondent disagrees to the statement. In the survey all statements were ranked alphabetically so the respondents did not get the impression that their responses were affected. The distribution of valid answers of evaluation of true statements about HIV among respondents is summarised in Chart 1.



*Chart 1: The distribution of valid answers of respondents' of evaluation of true statements about HIV (authors' construction based on the survey data, October, 2018)*

Chart 1 shows that the majority of respondents are able to indicate the true statements about HIV, which the same time also serve as statements about possible ways of transmission of HIV. Thus it can be concluded that majority of respondents are able to identify all possible risks of infection of HIV. The same time 11.4% of respondents believe that if there is a sexual intercourse only with one partner then condom may not be used during the sex (see Chart 2). But, this completely does not match the truth because also the partner may not be aware of being infected. Also respondents' evaluation of statement that daily contact with an HIV-infected person increases the risk of infection (35.7% of respondents marked answer “yes”) confirms that respondents do not have a complete understanding of possible ways of HIV infection. Thus, it can be concluded, that despite the fact that majority of respondents are able to indicate true statements about HIV, there is a lack of full understanding of real risks of possible ways to get infected by HIV. Such understanding and perception among respondents hinder the integration of HIV-infected people into society and boost their reluctance to disclose their HIV positive status to others, what, in turn, may impede the initiation of preventive measure like HIV treatment.

*Chart following on the next page*



*Chart 2: The distribution of valid answers of respondents' evaluation of false statements about HIV (authors' construction based on the survey data, October, 2018)*

Performed correlation analysis has shown that there is a statistically significant correlation between the gender of the respondents and their evaluation that HIV-positive mother could infect her baby during pregnancy, breastfeeding or during childbirth with a probability higher than 99%, or a significance level below 0.01. Such correlation indicates that women more than men are aware of the risk of infecting their children through vertical transmission. Also there were observed statistically significant correlations with a probability higher than 95%, or a significance level below 0.05 which indicate that the level of education of respondents and their age can influence their ability to distinguish the truth and myth about HIV. And statistically significant correlation with a probability higher than 99%, or a significance level below 0.01, indicate that the lower is the age of the respondents, the more often respondents believe that a condom may not be used during the sex if a sexual intercourse is only with one partner, what could be explained by the fact that caring for your health and full confidence in your life partner goes hand in hand with life-long experience. In order to analyze how awareness of HIV impact risky health behavior four outcomes related to risky health behavior were examined among residents of Latvia: if participants had ever had sex, consistent condom use during the sex, if participants had ever have sex when themselves or their partner were under influence of alcohol or drugs, if participants had ever made HIV blood test. 462 respondents (87.8%) indicated that they had sex at least once, 44 respondents (8.4%) indicated that they never had sex and 20 respondents (3.8%) did not indicated any answer. Unprotected sex is one of the risky health behavior pattern, as well as having sex under alcohol or drugs influence as people under toxic substances are tend to lose control over themselves, that's why respondents who answered that they ever had sex were asked to evaluate on a scale from 1 to 10 (where 1 – never, 10 – always) how often they have unprotected sex, and how often respondent or his / her partner during the sex was under alcohol or drugs influence, data summarized in Table 4.

*Table 4: The respondents' evaluation on a scale from 1 to 10 (where 1 – never, 10 – always) how often they have unprotected sex, how often respondent or his / her partner during the sex was under alcohol or drugs influence (authors' construction based on the survey data, October, 2018)*

	Valid answers	Arithmetical average	Median	Mode
How often do you have unprotected sex	462	5.82	6	10
How often during the sex you were under alcohol influence	460	3.99	3	1
How often during the sex you were under drugs influence	456	1.64	1	1
How often during the sex your partner was under alcohol influence	458	3.78	3	1
How often during the sex your partner was under drugs influence	452	1.52	1	1

As shown in Table 4 respondents more often have unprotected sex than protected. At the same time respondents and their partners rather are not than are under alcohol or drugs influence during the sex, what means that respondents practice unprotected sex consciously. To understand if there is an impact of awareness of HIV on risky health behavior pattern like unprotected sex correlation analysis was performed. It has shown that there is no statistically significant correlation between unprotected sex frequency and knowledge that it's possible to get infected by HIV during unprotected sex. The absence of such correlation and the fact that 95.8% of respondents know that it's possible to get infected during unprotected sex indicates that respondents tend to practice some risky health behavior patterns despite their knowledge of the risk to which they are exposed. As well correlation analysis has shown that there is statistically significant correlation with a probability higher than 99%, or a significance level below 0.01, between gender and unprotected sex frequency – men more often than women practice it. There is statistically significant correlation with a probability higher than 99%, or a significance level below 0.01, that shows that women more often have sex when their partner is under alcohol influence. Also statistically significant correlation with a probability higher than 99%, or a significance level below 0.01 shows that the lower is age of respondents the more often they have sex with partner who is under alcohol influence, what can affect usage of condom during the sex thus increasing risky health behavior pattern practices. In Table 5 is summarised the distribution of respondents' answers about forth examined risky health behavior outcome.

*Table 5: The split of respondents' answers about performance of HIV blood test frequency (authors' construction based on the survey data, October, 2018)*

	Number of respondents	Share of respondents, %
I've never done an HIV test	264	50.19%
At least once every 3 months	18	3.42%
At least once every 6 months	24	4.56%
At least once a year	50	9.51%
Less than once a year	146	27.76%
Not indicated	24	4.56%
Total	526	100.00%

The data in Table 5 show that more than a half of respondents never performed HIV blood test or do it less than once a year that does not coincide with World Health Organization recommendations on how to prevent the spread of HIV.

Also there is no statistically significant correlation between the frequency of HIV test and knowledge that HIV test is not a time-consuming and complicated procedure. Thus it would be suggested that people are lack of information where and how they can make HIV blood test. This suggestion is also proved by survey results. 136 respondents (51.52%) out of 264 who's never done HIV test said that they do not know where to go for HIV testing and 128 respondents (48.48%) of those who never performed HIV test answered that they know where to go for HIV testing. There is a statistically significant correlation with a probability higher than 99%, or a significance level below 0.01, which shows that people with lower level of education rarely do HIV test. Also a statistically significant correlation with a probability higher than 99%, or a significance level below 0.01 shows that people living in Riga city and Riga suburb more often do HIV blood test than people living out of these areas. Such correlation may indicate that there are difficulties to access places where HIV test may be done or people living out of Riga city and Riga suburb lack of information where to go to make HIV test. Thus there could be possibility that early diagnostics possibilities are not available outside the capital of the country and its surrounding area. Thus, summarizing existing respondents' knowledges about HIV it can be deduced that despite the fact that majority of respondents almost fully are able to identify all risks related to infection of HIV they deliberately are tend to practice some risky health behavior patterns like unprotected sex. Also more than a half of respondents do not know how to apply for HIV blood test, especially this is common in areas outside the Riga city and Riga suburb statistical regions. It means that governmental and non-governmental health care organizations must pay more attention to make these tests not only available outside the capital of Latvia, but also to raise awareness among population where and how to apply for HIV blood test. Also the bigger attention must be paid to younger and less educated inhabitants as study results show that age and education level affects almost all tested risky health behavior patterns. It also means, that marketing communication messages must be specially created to convey the correct message to this group of people to achieve set social goals. Also the awareness of risks of no-use of condom during sex not only in context of HIV problem but in context of all STI should be raised among residents of Latvia.

#### **4. CONSLUSIONS**

The test of four outcomes related to risky health behavior in association with awareness of HIV has shown that respondents are tend to practice some risky health behavior patterns despite their knowledge of the risk to which they are exposed. Despite the fact that knowledges about HIV and potential risk among respondents are relatively high respondents consciously practices unprotected sex with their partners. The same time in some regions of Latvia there is a lack of information about possibilities of such important preventive measure of limitation of spread of HIV as blood test. More than a half of respondents who never did HIV blood test before indicated that they do not know where and how to apply for HIV blood test. Correlation analysis has shown that there is no statistically significant correlation between knowledges about HIV and risky health behavior patterns what means that research hypothesis was not proved. However, it must be noted that correlation analysis indicated that there are statistically significant correlations between respondents' socio-demographic characteristics, knowledges about HIV and risky health behaviour patterns. This is especially observed among young and low-educated respondents.

#### **5. RECOMMENDATIONS**

Taking into account research results authors recommend to health organizations, both governmental and non-governmental, in the future before to carry out the social marketing communication campaign to pay more attention to the segmentation of target audience by socio-demographic characteristics.

Also communications creators need to pay more attention to its contents and selected communication channels considering habits of target audience so that the communication message reaches the target audience correctly and encourage its social efficiency.

## LITERATURE:

1. Act No. 630 of Cabinet of Ministers of Latvia. (2017). *Action plan for limiting the spread of HIV infection, sexual transmission infections, hepatitis B and C, 2018-2020*, 630. Retrieved 31.03.2019. from <https://likumi.lv/ta/id/294753-par-hiv-infekcijas-seksualas-transmisijas-infekciju-b-un-c-hepatita-izplatibas-ierobezosanas-ricibas-planu-2018-2020-gadam>.
2. Andreasen, A. R. (2002). Marketing Social Marketing in the Social Change Marketplace. *Journal of Public Policy and Marketing*, 2002 (21 (1)), pp. 3 – 13.
3. Central Statistical Bureau of Latvia. (2018). *The population in Latvia*. Retrieved 30.03.2019. from <https://www.csb.gov.lv/lv/statistika/statistikas-temas/iedzivotaji/iedzivotaju-skaitis/galvenie-raditaji/iedzivotaju-skaitis-ta-izmainas-un-blivums>.
4. Deshpande, S., Lee, N. R. (2013). *Social Marketing in India*. Los Angeles; London; New Delhi; Singapore; Washington DC: Sage Publications.
5. Donovan, R., Henley, N. (2010). *Principles and Practice of Social Marketing: an international perspective*. New York: Cambridge University Press.
6. Ejaz, I., Shaikh, B. T., Rizvil, N. (2011). *NGOs and government partnership for health systems strengthening: A qualitative study presenting viewpoints of government, NGOs and donors in Pakistan*. Retrieved 27.03.2019. from <https://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-11-122>. [Accessed 08 December 2018].
7. European Centre for Disease Prevention and Control, World Health Organization. (2018). *HIV / AIDS surveillance in Europe 2018: 2017 data*. Retrieved 30.03.2019. from [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0004/386959/HIVAIDS-surveillance-in-Europe-2018.pdf](http://www.euro.who.int/__data/assets/pdf_file/0004/386959/HIVAIDS-surveillance-in-Europe-2018.pdf).
8. Firestone, R., Rowe, C. J., Modi, Sh. N., Sievers, D. (2016). The effectiveness of social marketing in global health: a systematic review. *Health Policy and Planning*, 2017 (32), pp. 110 – 124.
9. Kotler, Ph., Lee, N. R. (2008). *Social Marketing: Influencing Behaviors for Good* (3<sup>rd</sup> ed.). Los Angeles; London; New Delhi; Singapore: Sage Publications.
10. Neuman, W. L. (2006). *Social Research Methods: Qualitative and Quantitative Approaches*. 6th edition. Boston: Pearson.
11. The Centre for Disease Prevention and Control of Latvia. (2018). *HIV infection*. Retrieved: 30.03.2019. from <https://www.spkc.gov.lv/lv/tavai-veselibai/infekcijas-slimibas/hiv>.
12. United Nations. (2001). United Nations. Declaration of Commitment on HIV/AIDS. Retrieved: 28.03.2019. from [https://www.unaids.org/sites/default/files/sub\\_landing/files/aidsdeclaration\\_en\\_0.pdf](https://www.unaids.org/sites/default/files/sub_landing/files/aidsdeclaration_en_0.pdf).
13. World Health Organization. (2019). HIV / AIDS. Retrieved 30.03.2019. from <https://www.who.int/news-room/fact-sheets/detail/hiv-aids>.

## USING MULTI-LEVEL DEA MODEL AND VERIFYING ITS RESULTS WITH LOGIT MODEL

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### **ABSTRACT**

*In this paper the following research problem was addressed: Is DEA (Data Envelopment Analysis) method a suitable alternative in evaluating financial health of businesses? In relation to research problem the aim of the paper was formulated: To evaluate financial health of businesses with the use of DEA method and to compare its results with the results of logit model. The research was carried out on a sample of 343 businesses operating in Slovak heat industry. To create the DEA model we used selected inputs and outputs and then we formulated additive multi-level DEA model. We compared the results of DEA model with the results of logit model. The application of these methods is a great benefit to the evaluation of business financial health. It also enables us to predict bankruptcy of selected sample of businesses for the future.*

**Keywords:** *business, Data Envelopment Analysis, financial health, model*

### **1. INTRODUCTION**

The precondition for competitiveness of businesses is their financial health. Therefore it is necessary to pay more attention to evaluating businesses' financial health and predicting their bankruptcy (Štefko et al., 2012). In practice, different financial ratios are used to analyze the financial health of businesses. Calculating these indicators is simple, however, they can only capture some of the areas of the overall financial health. Scientific studies pay close attention to tools that are able to design various multicriterial diagnostic models. The most used ones are discriminatory analysis, logistic regression, decision trees and various types of neural networks (Mendelová, Bieliková, 2017). Data Envelopment Analysis (DEA) has recently come to the forefront with regard to financial health and bankruptcy prediction tools. There are several authors who use the DEA method in their studies, financial health analyses or in bankruptcy prediction. This method was first applied by Charnes, Cooper and Rhodes (1978) as a managerial approach to performance evaluation/efficiency evaluation in different organizations in the public as well as private sectors (Sueyoshi, Sekitani, 2007). Tavares (2002), Cooper, Seiford and Tone (1999) applied DEA to compare the performance and efficiency. The first authors to apply the DEA method to predict bankruptcy include Simak (1997), as well as Cielen, Peeters and Vanhoof (2004). In their research, they confirmed that in the area of bankruptcy prediction, the DEA has a high estimation accuracy. The overall estimation accuracy of the DEA model was 78%, which is better than that of decision trees. Paradi, Asmild and Simak applied the additive DEA model in 2004, achieving a 100% success rate in predicting bankruptcy of the analyzed sample of businesses. In this regard, it is not possible to leave out Premachandra, Bhabra and Sueyoshi (2009), who, like previous authors, applied the DEA additive model in the area of bankruptcy prediction, and compared the results with the logistic regression model. They confirmed that the DEA has higher estimation accuracy in the area of bankruptcy prediction and lower estimation accuracy in the assessment of corporate financial health. This issue was also dealt with by Slovak authors like Mendelová, Bieliková (2017); Klieščík (2009); Mihalovič (2016); Ševčovič, Halická and Brunovský (2001), as well as Czech

authors like Jablonský, Dlouhý (2015). The paper deals with the non-oriented additive DEA model with constant returns to scale. Using the results of this model, we have identified businesses whose financial health is at risk or are threatened with bankruptcy. We compared the results of the DEA model with the logistic regression model. We set the following research problem: Is DEA method a suitable alternative in evaluating financial health of businesses? In relation to research problem the aim of the paper was formulated: To evaluate financial health of businesses with the use of DEA method and to compare its results with the results of logit model.

## 2. LITERATURE REVIEW

DEA is a relatively new, data-oriented mean of multi-criteria management. It is a model that allows comparisons of performance, efficiency, financial health, and bankruptcy predictions for a group of decision-making units (DMUs). The DEA theory was first presented in the 1970s and relied on Farrell's article from 1957. In the DEA model theory, there are two possible approaches to determining efficiency - multiplicative and dual. In this paper, we will focus on the dual approach. This approach uses the concepts of efficiency frontier and production possibility set. It is based on the application of linear programming. On the basis of existing data on the values of inputs and outputs of  $n$  formations and general properties of production possibility sets, a certain approximation of a production possibility set containing data of  $n$  DMUs can be constructed. The frontier of production possibility set is defined as an efficiency frontier, and the objects lying on it are defined as efficient DMUs. Efficiency can be defined based on Pareto-Koopmans definition which says that "full (100%) efficiency is attained by any DMU if and only if none of its inputs or outputs can be improved without worsening some of its other inputs or outputs" (Cooper, Seiford, Zhu, 2011, p. 3). Since in most management or social science applications the theoretically possible levels of efficiency could not be known, we can replace the previous definition by relative definition of efficiency: "A DMU is to be rated as fully (100%) efficient on the basis of available evidence if and only if the performances of other DMUs does not show that some of its inputs or outputs can be improved without worsening some of its other inputs or outputs" (Cooper, Seiford, Zhu, 2011, p. 3). In the case of inefficient DMUs, this inefficiency needs to be measured. The level of inefficiency is not clearly defined. However, with the DEA dual model, we can assign each inefficient unit a peer-unit. Peer-unit for an inefficient unit is an efficient unit with a similar combination of inputs and outputs. An efficient unit is considered to be without a twin – a unit that would achieve the same output using a smaller number of inputs/which would produce more outputs using the same number of inputs (Novosádová, Dlouhý, 2007). An efficient DMU has the efficiency rate of 1. The basic DEA models are CCR, BCC and additive model (AD). The first two models belong to the category of oriented models, which is related to a certain preference for inputs or outputs when selecting an efficient DMU. The CCR model is linked to constant returns to scale and the BCC model is analogous to variable returns to scale. The AD model is used in both versions, CCR and BCC, but belongs to a group of non-oriented models as it does not have any preference for inputs and outputs. Additive model of Charnes et al. (1985) focuses on the estimation of Pareto-Koopman's efficient empirical production functions (Premachandra, Bhabra, Sueyoshi, 2009). The main reason for its application is its simplicity as well as its possible non-orientation. At the same time, we applied this model because of the negative values of input and output indicators found in the analyzed sample of businesses. A unique feature of additive model is that the efficiency of a specific DMU is determined only by examining slacks (Premachandra, Bhabra, Sueyoshi, 2009). The additive model searches for an efficient DMUs to maximize the sum of all additional variables (slacks).

We have  $n$  DMUs, which utilize inputs  $x_{ij}$  for  $i=1, \dots, m$ , to produce the outputs  $y_{rj}$  for  $r=1, \dots, s$  and  $j=1, \dots, n$ . Let  $X = (x_{ij}) \in R^{m \times n}$  is a matrix of  $m$  inputs and  $n$  DMUs,  $Y = (y_{rj}) \in R^{s \times n}$  is a matrix of  $s$  outputs and  $n$  DMUs,  $\lambda_j \in R^n$  is an intensity variable vector connecting inputs and outputs,  $s_i^-$  is a vector of input slacks,  $s_r^+$  is a vector of output slacks.

AD with variable returns to scale is formulated as follows:

$$\begin{aligned} \max \quad & \sum_{i=1}^m s_i^- + \sum_{r=1}^s s_r^+ \\ \text{s.t.} \quad & \sum_{j=1}^n x_{ij} \lambda_j + s_i^- = x_{ik}; \quad i = 1, \dots, m \\ & -\sum_{j=1}^n y_{rj} \lambda_j + s_r^+ = -y_{rk}; \quad r = 1, \dots, s \\ & \sum_{j=1}^n \lambda_j = 1 \\ & s_i^- \geq 0; \quad s_r^+ \geq 0; \quad \lambda_j \geq 0; \quad \forall i; \forall r; \forall j \end{aligned}$$

The  $DMU_o$  is efficient when  $s_{io}^- = 0, s_{ro}^+ = 0$ , in other words when the objective function equals zero. Otherwise  $DMU_j$  is not efficient.

To confirm the estimation accuracy of DEA, we chose logit model. Logit models have been used by many researchers to predict business failure (Li, Wang, 2014; Chen, 2011; Premachandra, Bhabra, Sueyoshi, 2009; Li, Sun, Wu, 2010; Araghi, Makvandi, 2012; Min, Jeong, 2009, Mendelová, Stachová, 2016; Kováčová, Klieštík, 2017). This models predict the ranking of every business from the analysed sample by allocating some weights to independent variables. This ranking is used to determine membership likelihood in a definite group. Success or failure likelihood in this model is calculated based on the following formula (cumulative logistic function) (Araghi, Makvandi, 2012):

$$P_1 = \frac{e^Z}{1 + e^Z} = \frac{1}{1 + e^{-Z}} = \frac{1}{1 + e^{-(a + b_1 x_1 + \dots + b_n x_n)}}$$

where

$X_i$  ( $i = 1, \dots, n$ ) are explanatory variables,  $a$  and  $b_i$  ( $i = 1, \dots, n$ ) are estimated parameters of the model,  $P_1$  is probability of the default of the company and  $P_0 = 1 - P_1$  is the probability of no default of the company.

According to Hebák (2015, In: Kováčová, Klieštík 2017) the Logit can be defined as:

$$\text{Logit}(P_1) = \ln\left(\frac{P_1}{1-P_1}\right) = f(\alpha + \beta x_i)$$

This formula represents the odds ratio of the two possible alternatives ( $P_1, P_0$ ) and is called logit. The aim of the logistic regression is the estimation of odds ratio ( $\frac{P_1}{1-P_1}$ ) and  $\ln$  of this relationship represents logit transformation. The null hypothesis for the overall model states that all  $b_i$  are equal to zero. A rejection of the null hypothesis states that at least one  $b$  does not equal to zero (Peng, Lee, Ingersoll, 2002). The interpretation of the results is based on cut-off score (usually 0.5). When  $P_1 = 0.5$ , the possibility of bankruptcy and non-bankruptcy is equal. The closer is this likelihood to 0, the more bankruptcy likelihood increases. The closer is this likelihood to 1, the more bankruptcy likelihood decreases (Araghi, Makvandi, 2012). Two types of misclassification can occur when evaluating business failure. The type I error arises when the bankrupt company is classified as non-bankrupt, and the type II error arises when the non-bankrupt company is classified as bankrupt (Kováčová, Klieštík, 2017).

Logit models have the advantage of not needing strict assumptions; for example, they don't need to assume that the independent variables are normally distributed, the covariance between the two groups doesn't need to be equal. There is also no need to assume linear relationship between the independent variables and depend variable and it is not necessary to test the importance of individual variables prior to the analysis (Li, Wang, 2014; Mendelová, Stachová, 2016; Gundová, 2015). Several researchers compared the results of additive DEA model and logit model. We already described research of Premachandra, Bhabra and Sueyoshi (2009) in Introduction. The comparison of these two models was performed also by Slovak researchers Mendelová and Stachová (2016, p. 103) who based on their research concluded that „in general, they cannot say that one method is better than the other one, the accuracy and suitability of the method depends on particular data, its size and proportions“. The results of additive DEA model, logit and probit model compared also Araghi and Makvandi (2012). They found out that DEA is an effective tool for predicting business bankruptcy, but not as efficient as logit and probit models - DEA achieved a weak performance in identifying the bankrupt and non-bankrupt companies. Comparing the results of 3 applied models, the accuracy and predictability of logit model was higher than other 2 models.

### **3. VARIABLE SELECTION AND DATA**

The research sample consisted of 343 businesses running a business in the field of heat supply. The database of the data from financial statements of these companies for the year 2016 was obtained from the Slovak analytical agency CRIF – Slovak Credit Bureau, s.r.o. When creating DEA model, financial indicators which have relatively good discriminatory ability need to be prioritized (Mendelová, Bieliková, 2017). In our research we selected 9 financial indicators, 8 of them were the same indicators which were used by Premachandra, Bhabra and Sueyoshi (2009). As output variables we applied indicator TDTA – total debt / total assets used as a leverage measure which indicates long-term financial obligation and indicator CLTA – current liabilities / total assets which indicates a lack of cash flow to fund business operations. As input variables we applied 6 indicators: CFTA – cash flow / total assets, NITA – net income / total assets, WCTA – working capital / total assets, CATA – current assets / total assets, EBTA – earnings before interest and taxes / total assets, EBIE – earnings before interest and taxes / interest expense. Due to the lack of the data necessary for the calculation, we replaced the last Premachandra's indicator by similar one ETD – equity / total debt, which was used by Altman (1983). For the creation of additive DEA model we used software EMS (Efficiency Measurement Systems). We divided the results of DEA model into 6 zones according to (Mendelová, Bieliková, 2017):

Zone 1 – businesses in financial distress on financial distress frontier

Zone 2 – businesses in financial distress in grey zone

Zone 3 – businesses in financial distress in financial health zone

Zone 4 – financially healthy businesses in financial distress zone

Zone 5 – financially healthy businesses in grey zone

Zone 6 – financially healthy businesses in financial health zone

For the creation of logit model, it was necessary to divide businesses into bankrupt and non-bankrupt. When choosing dependent binomial variable in this model, we selected the status of businesses in terms of bankruptcy or non-bankruptcy occurrence. When choosing the appropriate conditions for bankruptcy occurrence evaluation we studied conditions of Bod'a and Úradníček (2016). We have evaluated businesses as bankrupt or non-bankrupt based on the value of equity, net income and cash flow. Companies which achieved negative values of at least two of these parameters were classified as bankrupt. We have detected exactly 54 bankrupt businesses.

The third parameter cash flow differed from the criterion of Boďa and Úradníček (2016) who used current ratio. It was caused by the fact that we evaluated business failure with the use of 9 financial indicators selected for the formation of DEA model. These 9 financial indicators were also used as initial independent variables for the logit model.

*Table 1: Descriptive statistics for bankrupt and non-bankrupt businesses (authors)*

Financial indicators	CFTA	NITA	WCTA	CATA	EBTA	EBIE	ETD	TDTA	CLTA
<i>Bankrupt businesses (54)</i>									
Mean	-0.015	-0.122	-0.118	0.241	-0.075	-4.679	1.072	0.406	0.359
Median	-0.008	-0.069	-0.052	0.155	-0.037	-0.335	-	0.418	0.239
Standard deviation	0.170	0.183	0.368	0.248	0.144	13.460	7.852	0.409	0.363
Skewness	-3.335	-4.746	-1.995	1.757	-3.665	-4.108	7.237	0.284	1.752
<i>Non-bankrupt businesses (289)</i>									
Mean	0.128	0.050	-0.056	0.287	0.080	843.173	0.612	0.346	0.343
Median	0.110	0.029	-0.022	0.190	0.060	2.306	0.221	0.354	0.239
Standard deviation	0.150	0.140	0.330	0.260	0.150	11610.880	1.340	0.290	0.340
Skewness	8.187	10.480	-3.361	1.497	9.114	16.436	6.426	0.084	3.528

Table 1 shows descriptive statistics for bankrupt and non-bankrupt businesses. In the case of indicators CFTA, NITA, EBTA, EBIE and ETD median of bankrupt businesses is negative, while median of non-bankrupt businesses is positive. These indicators were considered as parameters when determining the status of businesses in terms of bankruptcy or non-bankruptcy occurrence. Medians in the case of bankrupt and non-bankrupt businesses are both negative only in the case of indicator WCTA. It is caused by the fact that some businesses from the analysed sample achieved negative working capital and when choosing parameters for bankruptcy determination we gave priority to negative cash flow. Based on Table 1 we can also say that median of the indicator CLTA for both groups of businesses is the same. It means that the debt of bankrupt and non-bankrupt businesses is about the same. When building logit model, we used one of the recommendations of Sperandei (2014). Firstly we tested all 9 explanatory (independent) variables using model with just one explanatory variable at a time – univariate model. Afterwards we included in the multivariate model all variables which have shown a relaxed P-value (in our case we used  $P \leq 0.25$ ). For the creation of logit model we used software Statistica 13.1.

#### 4. RESULTS AND DISCUSSION

During the research process presented in this paper, we created two models. One was developed based on Data Envelopment analysis – additive DEA model and another one was based on logistic regression – logit model. The comparison of the results of DEA model with the initial prediction of bankruptcy is shown in Table 2. DEA model has confirmed our assumption about non-bankrupt business at 92%, which can be considered as high estimation accuracy. In the case of bankrupt businesses the estimation accuracy is 49%.

*Table 2: Estimation accuracy of the DEA (authors)*

	Predicted: no	Predicted: yes	% correct
Observed: no	257	23	92
Observed: yes	32	31	49

Following the procedure outlined in Chapter 3, we selected 7 financial indicators for the logit model. We estimated the following logit function coefficients (Table 3).

*Table 3: Estimated logit function coefficients (authors)*

	Estimate (b <sub>i</sub> )	Standard error	Wald Stat.	Df	p
Constant	2.3376	0.7328	10.1763	1	0.0014
CFTA	6.6666	4.2108	2.5066	1	0.1134
NITA	90.8834	16.2473	31.2899	1	0.0000
WCTA	-1.7429	1.1302	2.3780	1	0.1231
CATA	0.3039	1.1855	0.0657	1	0.7976
EBTA	-41.6650	12.2702	11.5302	1	0.0007
EBIE	0.0001	0.0012	0.0153	1	0.9015
TDTA	1.9330	0.9290	4.3304	1	0.0374

Based on Table 3 we can say that statistically significant indicators ( $p < .05$ ) in logit model are EBTA, NITA and TDTA, The highest weight has the explanatory indicator NITA. The possibility of bankruptcy is negatively related to EBTA and positively related to NITA and TDTA. Based on the estimated coefficients, we can calculate the possibility that business will go bankrupt with the use of the following equation:

$$\text{Logit}(P_1) = -2.3376 + 6.6666 \times \text{CFTA} + 90.8834 \times \text{NITA} - 1.7429 \times \text{WCTA} + 0.3039 \times \text{CATA} - 41.6650 \times \text{EBTA} + 0.0001 \times \text{EBIE} + 1.9330 \times \text{TDTA}$$

Much more significant result of the logistic regression is the calculation of the odds ratio with the use of the following formula:

$$\text{Odds ratio} = \exp(-2.3376 + 6.6666 \times \text{CFTA} + 90.8834 \times \text{NITA} - 1.7429 \times \text{WCTA} + 0.3039 \times \text{CATA} - 41.6650 \times \text{EBTA} + 0.0001 \times \text{EBIE} + 1.9330 \times \text{TDTA})$$

An Odds ratio quantifies the strength of the association between two events (for us bankruptcy and no bankruptcy).

The resulting logit function providing the probability of business bankruptcy is:

$$P_1 = \frac{1}{1 + e^{-(2.3376 + 6.6666 \times \text{CFTA} + 90.8834 \times \text{NITA} - 1.7429 \times \text{WCTA} + 0.3039 \times \text{CATA} - 41.6650 \times \text{EBTA} + 0.0001 \times \text{EBIE} + 1.9330 \times \text{TDTA})}}$$

Hosmer-Lemeshow test signalize good conformity of the final model with given data, the P-value is 0.9379. According to Nagelkerke's R Square the model explains 71.99% variability of binary dependent variable.

*Table 4: Estimation accuracy of the logit model (authors)*

	Predicted: no	Predicted: yes	% correct
Observed: no	280	9	97
Observed: yes	17	37	69

Estimation accuracy of the logit model is 97% for non-bankrupt businesses and 69% for bankrupt businesses (see Table 4).

The ROC curve shows the relationship between sensitivity and specificity. The more the ROC curve is convex and approaching the upper left corner, the better discrimination has the particular model (Gajowniczek, Zabkowski, Szupiluk, 2014). Area under the ROC curve (AUC) measures overall performance of the model. It can take on any value between 0 and 1. The closer AUC is to 1, the better is the overall performance of the model (Park, Goo, Jo, 2004). In our case AUC is 0.9666 (see Figure 1), we consider it highly positive.

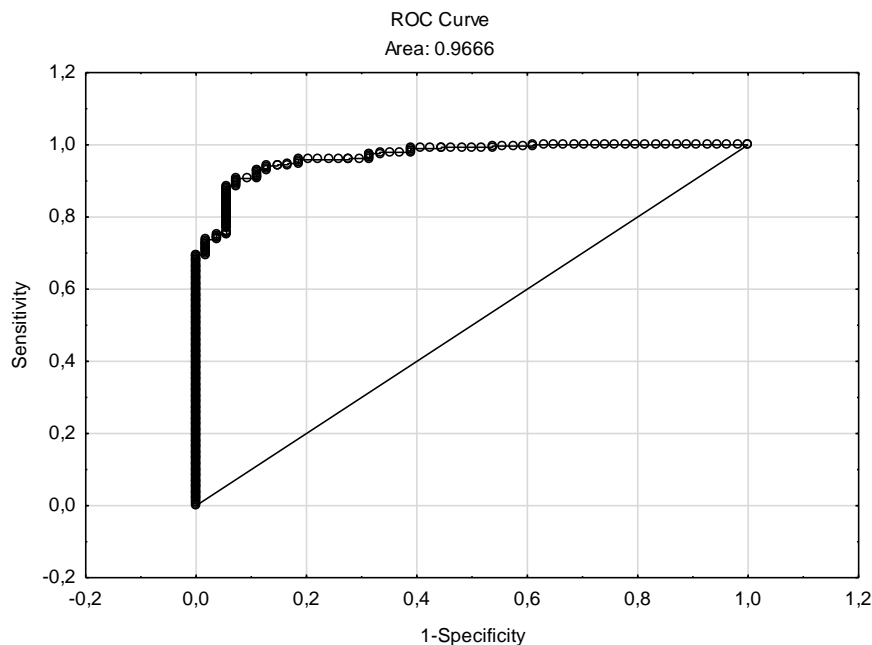


Figure 1: ROC curve (authors)

Based on the resulting logit function, we calculated the probability of bankruptcy. We divided businesses according to achieved values of probability of bankruptcy into 6 zones (according to Mendelová, Bielíková, 2017). Based on the application of the multi-level additive DEA model, there are 13 businesses in the Zone 1, representing businesses in financial distress on financial distress frontier. Compared to the logit model, which located 31 companies in this zone, we achieved a lower result in the DEA model. Based on the theoretical background, we can conclude that in Zone 1 of the DEA model are located businesses with extreme values, so it is more appropriate to solve the Zone 2 of DEA model and then compare the results. The number of businesses in Zone 1 and Zone 2 of DEA model is 33. With this number of businesses, we are getting closer to the results we have achieved from logit model.

Table 5: Comparison of the results of DEA and logit model (authors)

DEA zone	1	2	3	4	5	6
Number of businesses	13	20	30	37	55	188
Logit zone	1	2	3	4	5	6
Number of businesses	31	11	10	29	18	244
Match in the number of equally identified businesses at each level	23%	19%	30%	3%	28%	69%

Table 5 shows the results of additive DEA model and logit model in all analysed zones. The highest match between the methods applied to predict bankruptcy occurred in Zone 6, which represents financially healthy businesses in financial health zone.

## 5. CONCLUSION

The issue of bankruptcy prediction is studied worldwide. Many prediction models are used to examine whether businesses are threatened with bankruptcy, but these models cannot be accepted in general. It is necessary to process models which will take into account the conditions of Slovak environment and economy. This task is very important in relation to ensuring the competitiveness of Slovak businesses. That's why we are of the opinion that DEA model is a very suitable model to fill this gap in bankruptcy prediction models. In this paper we applied two models: additive DEA model and logit model. Our aim was to find out whether DEA method is a suitable alternative in evaluating financial health of businesses and predicting their bankruptcy. The match between initial prediction for financially-healthy businesses and the results achieved in multi-level DEA model has been confirmed in the case of 257 businesses, it means that estimation accuracy of DEA model for non-bankrupt businesses is 92%. In the case of bankruptcy, initial prediction classified 54 businesses as bankrupt, while additive DEA model confirmed 31 businesses, which means 49% estimation accuracy. Estimation accuracy of the logit model is 97% for financially-healthy businesses and 69% for businesses threatened with bankruptcy. The results of the DEA model were confirmed by logit model. The highest match was confirmed when predicting business financial health – DEA (Zone 4, 5, 6) and logit model showed 96% match. Based on these results we can conclude, that DEA is a very useful tool for evaluating financial health and predicting bankruptcy.

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## LITERATURE:

1. Altman, E. I. (1983). *Corporate Financial Distress. A Complete Guide to Predicting, Avoiding, and Dealing with Bankruptcy*. Wiley Interscience, John Wiley and Sons.
2. Araghi, K. and Makvandi, S. (2012). Evaluating Predictive power of Data Envelopment Analysis Technique Compared with Logit and Probit Models in Predicting Corporate Bankruptcy. *Australian Journal of Business and Management Research*, 2(9), 38-46. Retrieved 10.01.2019 from <https://pdfs.semanticscholar.org/8f45/3a426e86abf328e836bfb9216eff2dac75d.pdf>.
3. Boďa, M. and Úradníček, V. (2016). The portability of Altman's Z-score model to predicting corporate financial distress of Slovak companies. *Technological and Economic Development of Economy*, 22(4), 532-553. doi:10.3846/20294913.2016.1197165.
4. Cielen, A., Peeters, L., and Vanhoof, K. (2004). Bankruptcy prediction using a data envelopment analysis. *European Journal of Operational Research*, 154(2), 526-532. [https://doi.org/10.1016/S0377-2217\(03\)00186-3](https://doi.org/10.1016/S0377-2217(03)00186-3).
5. Cooper, W. W., Seiford, L.W. and Tone, K. (1999). *Data Envelopment Analysis*. Kluwer Academic Publishers.
6. Cooper, W. W., Seiford, L. M. and Zhu, J. (2011). Data Envelopment Analysis: History, Models, and Interpretations. In: Cooper, W.W., Seiford, L.M. and Zhu, J., Eds., *Handbook on Data Envelopment Analysis*, Springer US, New York, pp. 1-39. [http://dx.doi.org/10.1007/978-1-4419-6151-8\\_1](http://dx.doi.org/10.1007/978-1-4419-6151-8_1).
7. Farrell, M. J. (1957). The Measurement of Productive Efficiency. *Journal of the Royal Statistical Society, Series A*, 120(3), 253–90. doi:10.2307/2343100.
8. Gajowniczek, K., Zabkowski, T. and Szupiluk, R. (2014). Estimating the ROC curve and its significance for classification models` assessment. *Quantitative Methods in Economics*, 15(2), 382-391.

9. Gundová, P. (2015). Verification of the selected prediction methods in Slovak companies. *Acta academica karviniensia*, 14(4), 26-38. Retrieved 13.05.2019 from <ftp://193.87.31.84/0200141/Gundova.pdf>.
10. Hebák, J. (2015). *Statistické myšlení a nástroje analýzy dat*. Prague: Informatorium.
11. Charnes, A., Cooper, W. W. and Rhodes, J. E. (1978). Measuring the Efficiency of Decision Making Units. *European Journal of Operational Research*, 2(6), 429–444. DOI:10.1016/0377-2217(78)90138-8.
12. Charnes, A., Cooper, W. W., Golany, B., Seiford, L. M. and Stutz, J. (1985). Foundations of Data Envelopment Analysis for Pareto-Koopmans Efficient Empirical Production Functions. *Journal of Econometrics*, 30(12), 91–127. [https://doi.org/10.1016/0304-4076\(85\)90133-2](https://doi.org/10.1016/0304-4076(85)90133-2).
13. Chen, M. Y. (2011). Predicting corporate financial distress based on integration of decision tree classification and logistic regression, *Expert Systems with Applications*, 38(9), 11261–11272. DOI: <https://doi.org/10.1016/j.eswa.2011.02.173>.
14. Jablonský, J. and Dlouhý, M. (2015). *Modely hodnocení efektivnosti a alokace zdrojů*. Praha: Professional Publishing. ISBN: 978-80-7431-155-0.
15. Klieštík, T. (2009). Kvantifikácia efektivity činností dopravných podnikov pomocou Data Envelopment Analysis. *Ekonomie a management*, 12(1), 122-145. Retrieved 10.01.2018 from [http://www.ekonomie-management.cz/download/1331826707\\_1add/13\\_kliestik.pdf](http://www.ekonomie-management.cz/download/1331826707_1add/13_kliestik.pdf)
16. Kováčová, M. and Klieštík, T. (2017). Logit and Probit application for the prediction of bankruptcy in Slovak companies. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 12(4), 775–791. doi: 10.24136/eq.v12i4.40.
17. Li, H., Sun, J. and Wu, J. (2010). Predicting business failure using classification and regression tree: an empirical comparison with popular classical statistical methods and top classification mining methods, *Expert Systems with Applications*, 37(8), 5895–5904. DOI: <https://doi.org/10.1016/j.eswa.2010.02.016>.
18. Li, S. and Wang, S. (2014). A financial early warning logit model and its efficiency verification Approach. *Knowledge-Based Systems*, 70, 78-87. DOI: <http://dx.doi.org/10.1016/j.knosys.2014.03.017>.
19. Mendelová, V. and Stachová, M. (2016). Comparing DEA and logistic regression in corporate financial distress prediction. *Book of proceedings of International Scientific Conference FERNSTAT 2016*, pp. 95-104. Banská Bystrica Slovakia.
20. Mendelová, V. and Bieliková, T. (2017). Diagnostikovanie finančného zdravia podnikov pomocou metódy DEA: aplikácia na podniky v Slovenskej republike. *Politická ekonomie*, 65(1), 26–44. doi:10.18267/j.polek.1125.
21. Mihalovič, M. (2016). Performance comparison of multiple diskriminant analysis and Logit models in bankruptcy prediction. *Economics and sociology*, 9(4). DOI: 10.14254/2071-789X.2016/9-4/6.
22. Min, J. H. and Jeong, C. (2009). A binary classification method for bankruptcy prediction, *Expert Systems with Applications, Part I*, 36(3), pp. 5256–5263. DOI: <https://doi.org/10.1016/j.eswa.2008.06.073>.
23. Novosádová, I. and Dlouhý, M. (2007). Evaluation of technical efficiency of acute hospitals and its relation to wages of health personnel. *Ekonomický časopis*, 55, (8), 783-792. Retrieved 10.01.2018 from <https://www.sav.sk/journals/uploads/0929112908%2007%20Novos%C3%A1dov%C3%A11-Dlouh%C3%BD.pdf>.
24. Paradi, J. C., Asmild, M. and Simak, P. C. (2004). Using DEA and worst practice DEA in credit risk evaluation. *Journal of productivity analysis*. 21(2). pp 153-165. Retrieved 19.2.2019 from <https://www.jstor.org/stable/41770152>.

25. Park, S. H., Goo, J. M. and Jo, Ch. (2004). Receiver Operating Characteristic (ROC) Curve: Practical Review for Radiologists. *Korean Journal of Radiology*, 5(1), 11-18. DOI: 10.3348/kjr.2004.5.1.11.
26. Peng, Ch., J., Lee, K. L. and Ingersoll, G. M. (2002). An Introduction to Logistic Regression Analysis and Reporting. *The Journal of Educational Research*, 96,(1), 3-14, DOI: 10.1080/00220670209598786.
27. Premachandra, I. M., Bhabra, G. S. and Sueyoshi, T. (2009). DEA as a tool for bankruptcy assessment: A comparative study with logistic regression technique. *European Journal of Operational Research*, 193, 412-424. DOI: 10.1016/j.ejor.2007.11.036.
28. Rajnoha, R., Štefko, R., Merková, M. and Dobrovič, J. (2016). Business intelligence as a key information and knowledge tool for strategic business performance management, *E&M Ekonomika a Management*, 19(1), 183-203. DOI: 10.15240/tul/001/2016-1-013.
29. Simak, P. C. (1997). DEA Based Analysis of Corporate Failure, Master Thesis, Faculty of Applied Sciences and Engineering, University of Toronto, Toronto.
30. Sperandei, S. (2014). Understanding logistic regression analysis. *Biochemia Medica*, 24(1), 12-18. DOI: <http://dx.doi.org/10.11613/BM.2014.003>.
31. Sueyoshi, T. and Sekitani, K. (2007). Measurement of returns to scale using a non-radial DEA model: A range - adjusted measure approach. *European Journal of operational research*. 176(3), 1918-1946. <https://doi.org/10.1016/j.ejor.2005.10.043>.
32. Ševčovič D., Halická, M. and Brunovský, P. (2001). DEA analysis for a large structured bank branch network. *Central European Journal of Operations Research*, 9(4), 329-342. Retrieved 10.03.2019 from: <http://www.iam.fmph.uniba.sk/institute/sevcovic/papers/c119.pdf>.
33. Tavares, G. (2002). A Bibliography of Data Envelopment Analysis (1978-2001). Rutcor Research Report, Rutgers University, 640 Bartholmew Road, Piscataway, NJ, USA.

## DOES THE ORDER OF EVALUATION MATTER? THE BIASED REVIEWS IN MANAGING FUNDS

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### **ABSTRACT**

*Many decision on how to allocate funds are based on the reviews conducted by the experts. Unfortunately expertise doesn't immune from the susceptibility to cognitive biases and counteract for the response style that may influence the final score and thus the decision. In three research tasks we examined the impact of response style and the order of evaluating objects on their score. In task 1, differences between reviewers in terms of the average and variance of grades issued were confirmed in 5 different data set. Reviewers differ significantly in their response style - some are less and others more severe, which means that the random factor associated with the choice of the reviewer significantly affects the assessment of the grant proposal. In task 2 analysis was carried out on a set of assessments of 673 abstracts competing for grants covering the costs of participation in an international conference. Abstracts rated among the first fifteen had a significantly lower average, than those evaluated later. In task 3 two hypotheses were tested in an experimental study showing that the influence of the serial position effect on the assessment depends on the quality of the object: weak objects gain when are evaluated at the beginning of the series, but good lose. An attempt to eliminate this effect by introducing a break in one of the groups (during which the participants of the research performed an additional task of assessing the aesthetics of logotypes) ended in failure.*

**Keywords:** *managing funds, evaluation, serial position effect, response style*

### **1. INTRODUCTION**

Evaluation tools are used in almost every area of management. Their main purpose is to provide objective ratings and to assist with decision making by quantifying proposed criteria, like for e.g. task performance. However, usage of such tools may be prone to errors associated with the construction of the tool (Marsh, Jayasinghe & Bond, 2008) or with the evaluators themselves (Johnson & Lin, 2009) as their assessment may be biased by their physiological state, personality traits, cognitive schemas, or the current content of the working memory (see review in: Kahneman, 2011). Studies show (Marsh, Jayasinghe & Bond, 2008; Lee et al., 2013; Clair, 2015; Robson, Pitt & West, 2015) that the expert's decisions are influenced by such factors as: prestige of an academic unit, person submitting the project, its gender, age, position and nationality. Although experts assess anonymous applications, most of the time it is not a hard effort for them to guess researcher's affiliation. Evaluation also depends on the processing strategy chosen by the evaluator: direct access, motivated, heuristic or substantive (Forgas & Williams, 2005). Differences may also arise due to the person's specific evaluation style (Hoyt, 2000). Construction of the evaluation process per se constitutes another issue. Evaluating series of objects might lead to serial position effect where evaluations of the same performance when it is at the beginning of a series differ systematically from evaluations when it is at the end (Unkelbach & Memmert, 2014). The following paper focus on the two latter problems: evaluation style and serial position effect.

#### **1.1. Evaluation Style**

The evaluation style can manifest itself through: (1) too severe (or lenient) assessment (Hoyt, 2000), (2) lack of differentiation of partial dimensions of evaluation - the halo effect (Landy,

Vance & Barnes-Farrell and Steele, 1980). In one of the studies the experts evaluated the work of aircraft mechanics. The severity/ leniency effect of the evaluator proved to be an important factor explaining the differences in assessments (Borman & Hallam, 1991). In another study, 174 examiners evaluated candidates for doctors. The results showed systematic individual differences in the level of severity leniency (Dewberry, Davies-Muir & Newell, 2013). Similar differences were found when analysing assessments conducted by police officers, nurses and social workers (Kane, Bernardin, Villanova & Peyrefitte, 1995). The evaluation style is explained by the differences in information processing, personality traits, individual characteristics and situational conditions (Dewberry, Davies-Muir & Newell, 2013; Judge & Ferris; 1993 Haunstein, 1991). In many assessment tools experts mark their opinion on a response scale provided by the researcher, which in turn requires that they map their private response scales onto the provided one. This transposition determines their response style, which can be universal, i.e. relatively independent of the object of assessment (Wieczorkowska, 1993; Wierzbinski, Kuzminska & Krol, 2014). The fact that usually at least two people review the work does not protect against "drawing" two harsh or two lenient reviewers. Therefore, it should be recommended that competing objects (i.e. projects, participants) should be evaluated by the same set of reviewers. In such an evaluation scheme, the "strict" reviewer will be equally harsh to all competing participants. However using same reviewers do not solve all the problems, like the serial position effect, that is presented in details in further part of this article.

## 1.2. Serial position effect

There are situation in which evaluators need to assess a series of objects in a short period of time (i.e. students performance), so they assess one object after another. Studies on serial position effect showed that at the Queen Elizabeth Classical Music Competition, musicians performing in later days received higher scores (Flores and Ginsburgh, 1996), in culinary competition „Das Perfekte Dinner” people cooking on Friday won more often than on Monday (Haigner, Jenewein, Müller & Wakolbinger, 2010), figure skaters that performed later received better scores in the first and in the second round (Bruine de Bruin, 2006). This effect occurred regardless of the knowledge of the object being evaluated and the evaluation criterion (Skład & Wieczorkowska, 2001). Previously evaluated objects become the context for the next ones and set the standard of judgment for them. After evaluating couple of objects at the beginning, a pattern (prototype of evaluation) will emerge. When crystallized with the lapse of time it manifests in the change of the average value. This effect is called calibration. Fasold, Memmert & Unkelbach (2013) describe it as a process when judges try to establish a psychological range, while trying to be consistent with their own previous judgments. Unkelbach & Memmert (2014) underline that at the beginning of the evaluation series people are more prone to avoid extreme categories in order to preserve their judgmental degrees of freedom and to avoid violations of consistency. In one of the studies (Unkelbach et al., 2012) good performances presented at the beginning were evaluated less favourably than the same performances presented at the end of a series, while poor performances presented at the beginning of the series were evaluated more favourably than the same performances presented at the end. How to minimize the occurrence of the effect remains an open question. In the conducted experiment a “break task” was introduced to counteract the serial position effect. In line with the above arguments three research tasks were conducted. The aim of the first research task presented in this paper was to assess the differences in reviewers evaluation style in terms of their average and variance of grades. In the second task an analysis of serial position effect was carried out on a set of assessments of 673 abstracts competing for grants covering the costs of participation in an international conference. The following hypothesis was tested:

- H1a “Conference abstracts rated at the beginning receive lower grades than other abstracts”.

The aim of the third task was to examine weather quality of the performance and object position influence its evaluation and if introducing a break will minimize that effect. The following hypothesis were tested:

- H1b: "Weak grant proposals gain when are evaluated at the beginning of the series"
- H1c: "Good grant proposals lose when are evaluated at the beginning of the series"
- H1d: "Introducing a break during the evaluation process minimalizes the occurrence of serial position effect"

## 2. RESEARCH TASKS

### 2.1. Research task 1: Evaluation style

In order to determine the evaluation style of the reviewers five datasets, coming from different experiments conducted at the Faculty of Management in 2018 year, were used (Kowalczyk, 2019). In all of the experiments respondents either took on the role of the evaluators assessing projects or were real evaluators assessing conference abstracts. The differences in evaluation style were indicated by the level of leniency/severity (average grade) and the degree of object differentiation (coefficient of variation). Chart 1 and Chart 2 present the differences in the level of leniency/severity among 33 reviewers evaluating conferences abstracts (more details about the dataset describes tasks 2). For 33 reviewers the average changed from 3.44 to 8.40 on a 10 points scale.

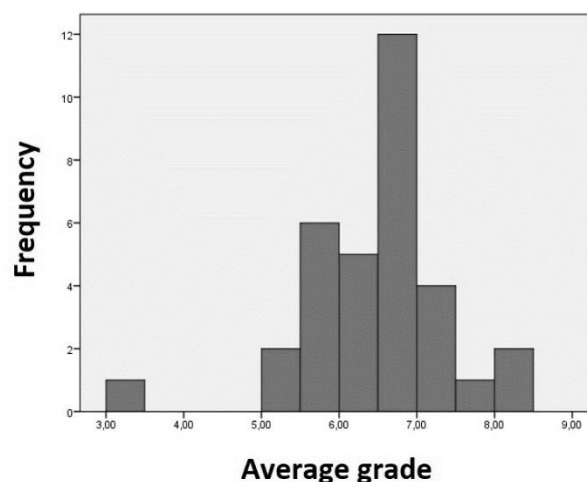


Chart 1: Level of leniency/severity: average grade for all of the 33 reviewers (Kowalczyk, 2019)

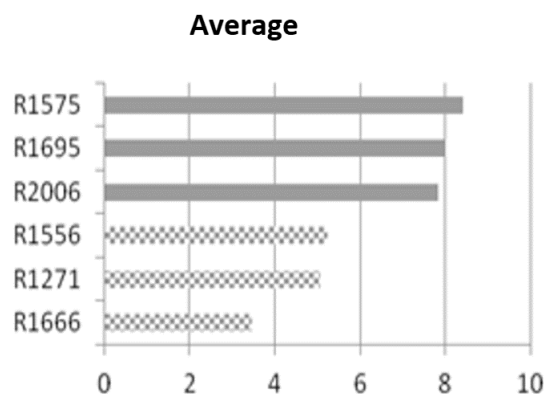


Chart 2: Level of leniency/severity (average grade) for three most lenient and sever reviewers (Kowalczyk, 2019)

Chart 3 and Charts 4 present the differences in the degree of differentiation of assessed objects. For 33 reviewers the coefficient of variation vary from 0.12 to 0.46.

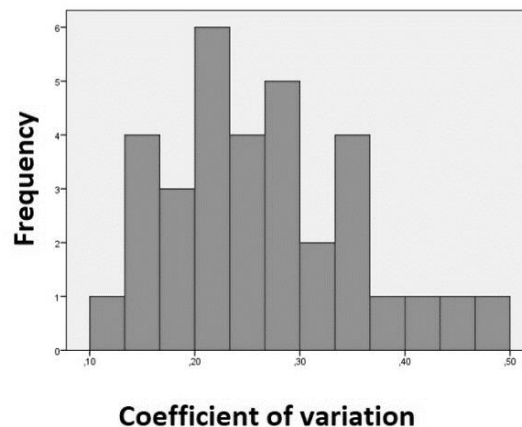


Chart 3: Coefficient of variation for 33 reviewers (Kowalczyk, 2019)

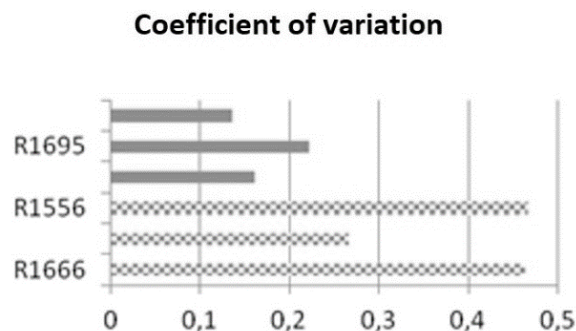
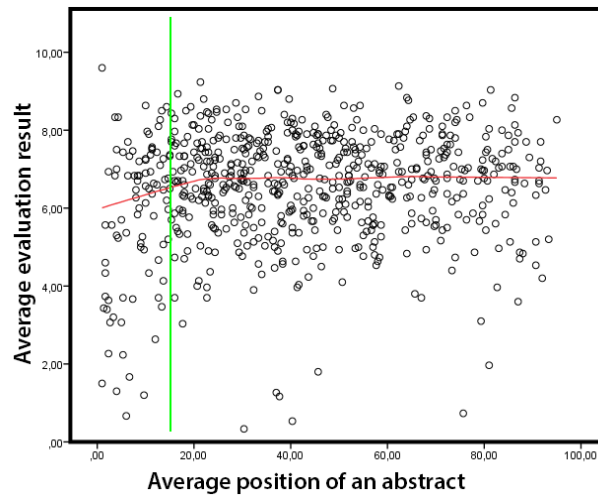


Chart 4: Coefficient of variation for three most and least lenient reviewers (Kowalczyk, 2019)

The comparisons run on another datasets (Kowalczyk, 2019) present the same pattern. Reviewers differ significantly in their response style. Some were less and others more severe, which means that the random factor associated with the choice of the reviewer significantly affects the assessment.

## 2.2. Research task 2: Serial position effects in conference abstract evaluation

In the next study (Krol & Kowalczyk, 2014) we used secondary data derived from an international conference on healthcare. Based on literature, we hypothesized that abstracts evaluated at the beginning will be assessed in more strict manner than those evaluated later. We used dataset with evaluations of 673 conference abstracts, submitted to an international conference. Evaluators were representatives from international non-governmental organizations, and scientists. Abstracts were presented to them anonymously, randomly, maintaining control on conflict of interest. Each of the evaluators assessed around 61 abstracts on six dimensions, on a scale from 0 to 10. In order to check whether object position affects its evaluation, we aggregated the data by ascribing each abstract an average position in which it was evaluated. Conducted analysis have shown nonlinear relationship between grading and position. Abstracts that were evaluated at the beginning have received assessment lower by 0.84 point, which confirmed the hypothesis 1a.



*Chart 5: Average evaluation of an abstract depends on average abstract position (Krol & Kowalczyk, 2014)*

### **2.3. Research task 3: Serial position effects - experimental study**

As the last study an on-line experiment was conducted. It was based on a design by Unkelbach (Unkelbach et al., 2012) and aimed to find whether the quality of the performance and object position influence its evaluation. We hypothesized that good performances presented at the beginning will be evaluated less favourably than the same performances presented at the end of a series, while poor performances presented at the beginning of the series will be evaluated more favourably than the same performances presented at the end. In the second part of the study a break was introduced to minimize the serial position effect. The respondents (N=88, aged 19-29) played the role of reviewers and evaluated 15 abstracts submitted for a conference on the stress factors in the workplace. During the evaluation one of the groups performed an additional task of assessing the aesthetics of conference logotypes. Participants were randomly assigned to one of three experimental conditions:

- E1 - the group evaluating abstracts from the weakest to the strongest - without a break;
- E2 - the group evaluating abstracts from the weakest to the best with a break preceding the last four strongest abstracts;
- E3 - the group evaluating abstracts from the strongest to the weakest, without interruption.

The experiment was preceded by a pilot study that helped to prepare the materials. Performed analysis (Kowalczyk, 2019) confirmed the H1b and H1c hypothesis. Weak objects gain when are evaluated at the beginning of the series, but good lose (Chart 6).

*Chart following on the next page*

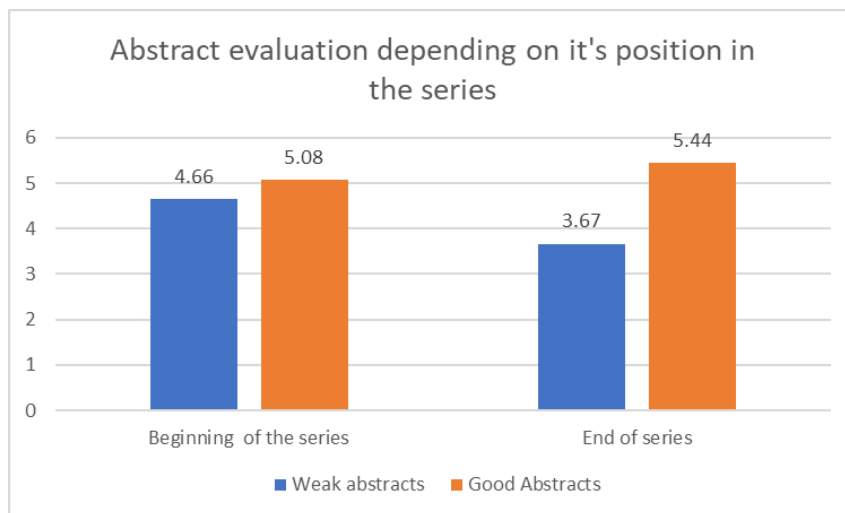


Chart 6: The quality and the order of grant proposal and its evaluation (Kowalczyk, 2019)

Introduction a break task had not minimalized the effect, thus the H1d hypothesis was not confirmed.

### 3. CONCLUSION

In the following paper we present the results of the studies examining two biases that might influence the reviews and thus the decision on where to allocate the money: evaluation style and serial position effect. Performed analysis indicated that reviewers differ in terms of their evaluation style. Some are less and others more severe, which means that the random factor associated with the choice of the reviewer significantly affects the evaluation of the object. It should be recommended that competing objects (i.e. grant proposals) shall be evaluated by the same set of reviewers. In such evaluation scheme, all competing participants will be equally understated by the “strict” reviewer. However, this solution may lead to serial position effect, where the order of evaluated objects influences their assessment. Especially in a situation, where the reviewer cannot return to previously assessed objects. Performed analysis showed the occurrence of serial position effect in the evaluation of conference abstract and grant proposals. Abstracts presented at the beginning of a series were evaluated less favourably than those presented later, receiving 0.84 point less, on average. The effect depends as well on the quality of the object: weak objects gain when evaluated at the beginning of the series, but good lose. This result can be interpreted in terms of shaping the latent comparative pattern in the reviewers mind during evaluation process. After evaluating several abstracts, the pattern stabilizes (calibrate). This manifests in the increased average rating for the abstracts evaluated later. We can therefore conclude that the assessment of more than one object creates a latent comparative pattern in the reviewer’s mind (see more in Krol & Kowalczyk, 2014). Due to the fact that many decisions (e.g. how to allocate the resources, whether to promote a given person or to accept an abstract) are based on evaluation results, the important question is how to make the decision makers aware of the issue and prevent the bias. The break introduced in one of the groups didn’t work – perhaps the task was too short to clear the working memory. The logotype assessment should be replaced with some other task, more engaging but not to overloading. One of the possible solution to serial effect would be to avoid construing a sequence of stimuli or performances as a series. If each performance is evaluated on its own, calibration effects should disappear. Providing judges with the possibility to alter their evaluations after observing other performances could also prevent from this bias (Fasold, Memmert & Unkelbach, 2014). Another solution could be “anchoring” the evaluators so that each of them would start their evaluations with couple of objects with known values (e.g. 3 best projects vs 3 worst of research

projects in the previous contest). This should ensure similar latent comparative pattern and minimize the impact of latent comparative patterns specific to each reviewer (Krol & Kowalczyk, 2014).

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## LITERATURE:

1. Bornmann, L, Mutz, R, Daniel, H, D. (2010). A Reliability-Generalization Study of Journal Peer Reviews: a Multilevel Meta-analysis of Interrater Reliability and Its Determinants. *PLoS ONE*, 5 (12), e14331. doi:10.1371/journal.pone.0014331
2. Bruine de Bruin, W. (2006). Save the last dance II: Unwanted serial position effects in figure skating judgments. *Acta Psychologica*, 123, p.299-311.  
<http://dx.doi.org/10.1016/j.actpsy.2006.01.009>.
3. Clair, J.A. (2015). Procedural Injustice in the System of Peer Review and Scientific Misconduct. *Academy of Management Learning & Education*, 14(2), p.159–172.
4. Dewberry, C, Davies-Muir, A, Newell, S. (2013). Impact and Causes of Rater Severity/Leniency in Appraisals without Postevaluation Communication Between Raters and Ratees. *International Journal of Selection and Assessment*, 21 (3), p.286-293.
5. Fasold, F, Memmert, D, Unkelbach, C. (2013). Calibration processes in a serial range frequency talent test. *Psychology of Sport and Exercise*, 14, p.488–492.
6. Flôres, R. G., Jr, Ginsburgh, V. A. (1996). The Queen Elisabeth musical competition: how fair is the Wnal ranking? *The Statistician*, 45, p.97–104.  
<http://dx.doi.org/10.2307/2348415>.
7. Forgas, J.P, Vargas, P.T. (2005). Wpływ nastroju na społeczne oceny i rozumowanie. In: M. Lewis, Haviland-Jones, M. (red.), *Psychologia emocji*. Gdańsk: GWP.
8. Hainger, S, Jenewein, Müller H-C, Wakolbinger, F. (2010) The first shall be last: Serial position effects in the case contestants evaluate each other. *Economics Bulletin*. Access Econ, 30(4), p.3170-3176.
9. Haunstein, N. M. A. (1991). An information-processing approach to leniency in performance judgments. *Journal of Applied Psychology*, 77, p.485-493.
10. Hoyt, W.T. (2000). Rater bias in psychological research: When is it a problem and what can we do about it? *Psychological Methods*, 5, 64-86,  
<http://dx.doi.org/10.1037/1082989X.5.1.64>.
11. Johnson, J. S, Lim, G. S. (2009) The influence of rater language background on writing performance assessment. *Language Testing*, 26, p.485-505.
12. Judge, T. A, Ferris, G. R. (1993). Social context of performance evaluation decisions. *Academy of Management Journal*, 36, p.80-105.
13. Kahneman D, (2012). *Thinking Fast and Slow*. London: Penguin Books.
14. Kane, J.S, Bernardin, H.J, Villanova, P, Peyrefitte, J.(1995). Stability of Rater Leniency: Three Studies. *The Academy of Management Journal*, 38 (4), p.1036-105.
15. Kowalczyk, K.K.(2019). The role of peer reviews in managing research funds. Unpublished doctoral dissertation. University of Warsaw, Poland.
16. Król, G, Kowalczyk, K. (2014). Ewaluacja projektów i abstraktów - wpływ indywidualnego stylu ewaluacji na oceny. *Problemy Zarządzania*, 12/1, p.137-155.
17. Landy F. J, Vance R.J, Barnes-Farrell J.L, Steele J .W. (1980) Statistical Control of Halo Error in Performance Ratings, *Journal of Applied Psychology*, 65 (5), p.501-506,  
<http://dx.doi.org/10.1037/0021-9010.75.3.290>.

18. Lee, C. J, C. Sugimoto, G. Zhang, Cronin, B. (2013). "Bias in Peer Review". Advances in Information Science. *Journal of the American Society for Information Science and Technology*, 64 (1), p.2 – 17.
19. Marsh H.W, Jayasinghe, U.W., Bond N.W.(2008) Improving the Peer-Review Process for Grant Applications. Reliability, Validity, Bias, and Generalizability, *American Psychologist*, 63 (3), p.160-168, <http://dx.doi.org/10.1037/0003-066X.63.3.160>.
20. Robson, K., Pitt, L, West, D.C. (2015). Navigating the Peer-Review Process: Reviewers' Suggestions for a Manuscript Factors Considered before a Paper Is Accepted or Rejected for the Journal of Advertising Research. *Journal of Advertising Research*, 1, 9-1, DOI: 10.2501/JAR-55-1-009-017.
21. Skład, M.,Wieczorkowska, G. (2001). Sztuka układania ankiet ewaluacyjnych. W: *Psychologia społeczna: Jednostka – społeczeństwo – państwo*, p.250-266, Wydawnictwo: GWP.
22. Unkelbach, C, Ostheimer, V, Fasold, F, i Memmert, D. (2012). a calibration explanation of serial position effects in evaluative judgments. *Organizational Behavior and Human Decision Processes*, 119, p.103–113. doi:10.1016/j.obhdp.2012.06.004
23. Unkelbach, C. i Memmert, D. (2014). Serial-Position Effects in Evaluative Judgments. *Current Directions in Psychological Science*, 23(3), p.195–200. [http://dx.doi.org/ 10.1177/0963721414533701](http://dx.doi.org/10.1177/0963721414533701)
24. Wieczorkowska-Wierzbńska, G.(2014). Diagnoza psychologiczna predyspozycji pracowników, *Problemy Zarządzania*, 45, p.81-88.
25. Wierzbński, J, Kuźmińska, A. Król, G. (2014). Konsekwencje wyboru typu skali odpowiedzi w badaniach ankietowych. *Problemy Zarządzania*, 1/2014 (45), s. p.113-136.

## IMPACT OF BLOCKHOLDING ON CORPORATE DISTRESS- EVIDENCE FROM COMPANIES LISTED ON SINGAPORE EXCHANGE (SGX)

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### **ABSTRACT**

*Corporate distress has gained significant importance since the global financial crises and the default of global companies like Enron, WorldCom, American Airlines, Merrill Lynch. Keeping in view the scope of this study, block holding in the companies are considered an important driver for corporate default. This study aims to find out whether block holding may have any contribution towards a firm heading to default, although block holding has been supported earlier for solving the agency problem and value maximization for shareholders. The study also addresses the block holding for its influence on the company's performance which may lead to corporate default. The study has been conducted on the Singapore public listed companies and found that the defaulted companies have high concentration of shares as compared to non-defaulted companies. Moreover, this paper provides useful information on the impact of ownership concentration and block holders on firms' default risk.*

**Keywords:** *block holders, corporate default, firm performance*

### **1. INTRODUCTION**

The ownership structure and the concentration effect on the firms' health and performance is the known area in the study of finance. Different researchers proposed different studies regarding the impact of ownership structure and concentration on the firms in both favorable and non-favorable ways. Shleifer and Vishny (1986) says that the concentration of ownership enhances the performance of the firm. However, it may other way around that there is the chances that the shareholders and especially the block holders (who owns at least 5% of shares) use their power and control authority for their own personal benefits. So, ownership structure and concentration is the important factor that may affect the firms' health and could use to predict the probability to default. In the research of Berle and Mean's (1932) it is enlightened that the ownership and control separation are aroused by the agency problem. It's the agency problem that the distribution of shares or higher concentration like block holders may affects the corporate governance as Holdeness (2009) found in his research that 96% of the US firms contain at least one block holder. It is vital to study the role of block holder in corporate governance. Heschman (1970) share that the block holders exercise the corporate governance in two ways that is "voice" and "exit". The both ways are and used to enhance the performance of the firm. Voice is direct ways for intervention within the firms and raise voice for different changes recommended for the next level betterment as well as get rid of the black sheep. Exit is the known as the way in which block holders trades the firms share, it like "voting with your feet" (Alex Edmans 2013). In this way the shareholders sell the shares to down the stock price if the managers destroy the value of the firm and didn't pursue the main goal of the job that is increasing the wealth. This paper aims to see another side of the block holder other than solving the agency problem. First, the firms value maximization enhances by the block-holders intervention but there is possibility that their intervention may cause the problems in taking

decision by the management. Subsequent, the block holders may have the private personal benefit for which they enforce the firm to act in their favor which in long term may be take firm to the corporate default. Narrowly this study will examine that how the change in numbers of block holders and the change in the percentage of block holding could take the firm to corporate distress.

## **2. LITERATURE REVIEW**

Studying through the block holders and their intervention in the firms is area of research which is not as widely researched as the ownership structure is. So, the literature found about the shareholders concentration or block holders have views in contrast. Berle and Means (1932) argues that the block holders influence the management to increase the organizational performance, but the priority would be their own private benefits. Demestz (1983) says that the performance of the firm and its decision shows the influence of shareholder but there is no logical relationship between the changes in ownership structure and its effect in terms of change in firms' performance. Afterwards Demestz and Lehn (1985) had proven their pervious study that there is no relationship between firm's profitability and concentration of share. While Shleifer and Vishny (1986) confirmed the study of Berle and Means (1932) that there is the effect of concentration of share on the firms' health, the more concentration the more profit. Large amount of share holds by an institution gives positive impact on the firms' profitability rather than the individual major shareholder. Agrawal and Mandelker (1990) support the study of Shleifer and Vishny (1986) and empirically shows that the one large block holder that is institution increase the performance of the organization n decrease the risks to default. Ownership structure of the firm affects the profitability of the firm because of the separation of ownership and control, this study was proposed by Leech and Leachy (1991) and analysis was done on the United Kingdom firms. Burkart and Panunzi (1997) proposed, other than the block holders voice and exit which enhance the performance of the firm but this direct and indirect intervention also decrease the performance of management because the decision for the potential projects are not seriously taken for the reason that of the private benefits of the block holders are not achieved by the project. So, ownership concentration and block holders have major impact on the firm value and profitability and risk to default. Mudambi and Niclosia (1998) supports with their research finding that there is negative and significant impact of block holders or ownership concentration on performance. Himmelberg, Hubbard and Palia (1999) did addition in the study of Demsetz and Lehn (1985) and study the variation in ownership structure. They found that the insider ownership (by management) has negative relationship with capital-to sales ratio but positive relation with advertising to sale and operating income to sales ratio. These results show the variation in ownership concentration did not impact on the firms' performance. Wu and Cui (2002) also worked on the ownership structure and the ownership concentration or block holders. In their research findings they found that there is mixture of positive and negative relationship of ownership concentration or block holders with the firm's health. By measuring ROA and ROE they come across with positive relationship between ownership concentration and accounting profits. By measuring price earning ration (P/E) and market price to book value ratio (M/B) they discover negative relation to the market value and ownership concentration. They also uncover that block holders have positive impact on profits and negative and significant impact on the market value of firms. Corporate performance and default are also reliant on the ownership concentration or block holder type.

### **2.1. Institutional Ownership Concentration**

Taylor (1990) found that in US 40 years from 1950 to 1990 ownership by institutions increased by 8% to 45%. Hand (1990) says, institutional shareholders are sophisticated than other shareholders and are more professional towards businesses and capital markets and carry more

information. Pound (1988) and Hand (1990) also discussed the negative effects of institutional block holders and concentration of ownership known as institutional myopia argument, intends that the institutional owners are focused on the short-term benefit and force the management to work to gain the short term gains or profit which in long run are very critical to handle and increase the risk to default.

## **2.2. Government Ownership Concentration**

Meade (1948) discussed that word 'socialization' transformed worldwide after the financial shocks, government start intervening in the market economy to reduce the societal cartel cost. Nevertheless, now privatization is more involved around the globe to reduce the involvement of government in the economic activities. Atkinson and Stiglitz (1980) disclosed the positive side of the government ownership and proposed that government ownership helps to treat the health of the firm from market failure. It also helps to increase the buying power of citizen when the cartel of firms increases the social cost. Slutz (1988), Shleifer and Vishny (1994) shows the negative side of the government based ownership. The government tends to involve directly on the decision making and all the profit are owed to the firms or national budget.

## **2.3. Family Ownership Concentration**

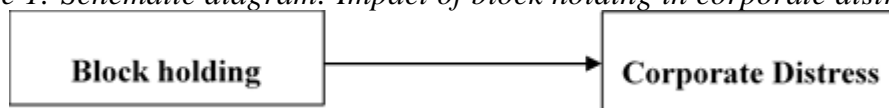
Family owned businesses are witnessed around the Globe. Positive and negative influence of the family ownership or block holding business is studied by many researchers. Hsu and Chen (2009) Studies find the positive impact of family owned business like it reduce the principal-agent conflict and performance of the family owned business is comparatively good whose family members also act as managers along with ownership because they have long term commitment with the firm for which they do invest large amount investments as well and they are not like other managers who merely focused on profit maximization. Smith and Amoako-Adu (1999) figured out the negative effects of the family ownership or block holders. He found that the conflict between the family owners and other shareholders rose because of power and control. So other shareholders have insecurities regarding shares and the family owners or block holders enjoys the private benefits as well while managing and controlling whereas the other hired managers disappoints because of being a remote toy who are not able to improve his/her efficiency. Villalonga and Amit (2006) concluded the family ownership or block holding in total three terms that is ownership, control and management and found the firms only progress when the founder serves as the CEO because founder has intense affiliation, inspiration and intimation with the firm than the others, and others could have been interested in the private benefits which gives risk to the firm. Countries differ in the governance and it is seen that the Japanese firms have high block holding but Prowse (1992) empirical research study on Japanese firms says there is no impact and relationship of the block holder and profitability. While in contrast Kaplan and Minton (1994) And Mork, Nakamura and Shivdasani (2000) proposed by their research there is a significant correlation between block holding and performance. After empirical research on Hong Kong Chen, Cheung and Stouraiti (2000) found that there is a negative association between block holding and firm value. Xu and Wang (1997) study on Chinese market and found that the block holding does impact significantly on firms' performance and block holders especially government shareholding impact negatively and significant on the firm's performance. Holderness (2003) conclude in his study that block holders emerge to have little impact on firm value, affect the leverage and have incentive to consume the corporate resources. Gilson (1990) corporate defaults create significant changes in block holding remaining state and in the distribution of rights to deal with corporate resources. Parker, et.al (2002) accomplished in this research that the corporate governance characteristic persuades the probability of survival, when there is the change in the block holding the firms move two steps ahead toward the default stage and the block holders have

direct impact on the survival of the firm. Basically, the survival of the firm is mainly governed by the discipline of the market place, block holders and the governance structure. Larner (1996) use the profit/equity ratio as a look of risk to default and the block holding. By taking the result from 187 of the largest 500 US firms, they found that insignificant positive relation which reflects that the lower the block holding higher the risk. In support of this study Radice (1971) also find the positive strength of block holding on firms' growth. Many studies give positive impact because the block holders have the power to control the management by 'voice' and 'exit' to work in accordance of their favor. But normally the costs of block holders are avoided where they tend to get the private benefits by influence. Pagano (1998) and Burkart (1997) advocate over-monitoring puts negative effect through the continuous intervention and control of the block holders results in the decrease of self-recognition of managers and high level of discouragement. Dyck & Zingales (2004), Burkat (1997) and Zingales (1994) argues that because of excessive information and higher control by the block holders than other shareholders they exploit their position and power to gain private benefits. Fama and Jensen (1938a) introduced another negative impact of block holder on the firms known as cost of capital. Barclay & Holderness (1989), Bolton & Von Thadden (1998) study the cost of capital argument and proposed that the block holders lower the liquidity of shares as the major shares are hold by the block holders and are concentrated so less shares float in the market which also decrease the market value and risk of shares increases. Study of Beaver et al. (1970), Rosenberg (1976), Thompson (1976) and Hartzell and Starks (2003) empirically support the argument. So, the whole literature tends to move around the block holding impact on the firms positively and negatively, this study has its significance as it enlightens the one of the most important aspect to determining the default of the companies. This paper intends to figure the impact of change in the block holders and the block holding percentage which influence the firm to move towards the risk to default.

### 3. THEORETICAL FRAMEWORK

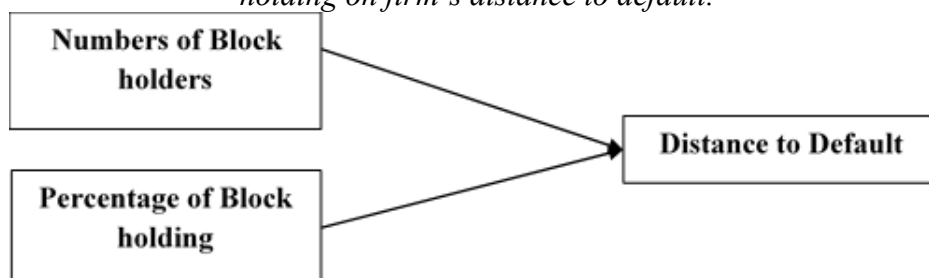
The theoretical frame work has been drawn basis of the review of relevant literature (figure 1). Two variables have been considered for investigation.

*Figure 1: Schematic diagram: Impact of block holding in corporate distress.*



The independent variable which is block holding has two dimensions in this paper i.e., number of block holders and percentage of block holding. Dependent variable has only one dimension which is distance to default.

*Figure 2: Schematic diagram: Impact of number of block holders and percentage of block holding on firm's distance to default.*



### 3.1. Hypothesis

Based on the theoretical framework following hypothesis is developed:

- **H<sub>1</sub>:** Number of block holders impact significantly and positively on the company's distance to default.
- **H<sub>2</sub>:** Number of block holders impact significantly and negatively on the company's distance to default.
- **H<sub>3</sub>:** Percentage of block holding impact significantly and positively in the company's distance to default.
- **H<sub>4</sub>:** Percentage of block holding impact significantly and negatively in the company's distance to default.

### 4. METHODOLOGY

The strategy for research, time horizon of study, population and sample and the strategy selected to carry out the research is discussed below.

- Research strategy: The secondary data is taken from the Singapore public listed companies which face the corporate distress.
- Time Horizon of study: Time horizon of the study is "longitudinal study".
- Scope of the study: Scope of the study is limited to Singapore.
- Population and sample size: Total 17 public listed companies were selected and 5 years data before the corporate distress is taken.
- Strategy of 'trend analysis' was carried out in the research as it is the most appropriate way to perform this research study. The data is categorized in four trends later which is increasing trend, decreasing trend, consistent trend and volatile trend. It is observed in the study that how the block holding changes when companies came near to the default and to what percentage it changes.
- Significance: As it is supported by the literature that the study of block holding is now essential for the field of corporate governance. This study surely contributes in the literature of corporate governance pragmatically by figure out the one another important way to predict the distance to default or corporate distress of the companies.

This study would also help the shareholders to see the trend that how the companies is going to face the corporate distress situation through viewing the trend of block holding of the company. So, the investors also get knowledge about the investment and buying the company's shares.

### 5. FINDINGS, CONCLUSION, AND DISCUSSION

By the trend analysis for 5 years before distance to default of 17 public listed companies of Singapore following outcomes achieved.

*Table following on the next page*

COMPANIES NAME	TD5	TD4	TD3	TD2	TD1	N-TD5	N-TD4	N-TD3	N-TD2	N-TD1
COMPANIES WITH INCREASING TREND										
ASJ HOLDINGS	68.82	62.09	67.55	66.58	68.8	4	3	4	4	4
MIYOSHI PRECISION LIMITED	54.56	52.88	57.03	57.09	57	3	3	4	4	4
SCINTRONIX CORPORATION	28.88	26.78	27.62	79.61	74.7	2	1	1	3	3
COMPANIES WITH DECREASING TREND										
CHINA OILFIELD	52.5	52.55	52.58	52.34	57.39	4	4	4	3	3
EUCON LIMITED	34.68	31.52	26.01	29.98	32.87	3	3	2	2	2
EUROPTRONIC	59.02	46.64	50.06	40.06	14.41	3	2	2	2	1
MATEX INTERNATIONAL	77.98	72.88	72.88	69.48	37.92	4	3	3	3	2
COMPANIES WITH CONSISTENT TREND										
AMPLIFIELD LIMITED	50.75	50.73	45.87	45.86	46.77	2	2	2	2	2
CHINA HONGCHENG HOLDINGS	68.69	68.69	68.69	68.69	68.69	3	3	3	3	3
NIPPECRAFT	63.69	63.69	63.69	63.69	63.69	1	1	1	1	1
YONG XIN INTL HOLDING	64.65	67.01	66.18	66.22	66.42	2	2	2	2	2
COMPANIES WITH VOLATILE TREND										
ACMA	62.5	54.86	59.69	73.42	44.19	5	5	3	6	5
ASIA SILK/ CHASWOOD	56.9	26.63	86.47	94.4	95.31	1	2	1	3	3
ALLIED TECHNOLOGY	60.88	65.5	65.4	61.28	60.92	3	3	2	4	2
HL GLOBAL ENTERPRISE	60.5	66.67	61.87	62.42	66.67	2	7	2	7	2
HUAN HSIN HOLDINGS	62.1	58.23	51.23	50.28	53.78	5	5	4	4	5
CHINA SING INVESTMENT HOLDING	66.63	71.91	66.63	66.62	66.63	2	3	2	2	2

*Table 1: Companies 5 years data of percentage of block holding and numbers of block holders. (Author)*

The data of companies were categorized in four categories on the bases of trends they shown from data. First category is the category in which companies' shows increasing trend of block holding when they come near to default. In increasing category, it is observed that the numbers of block holders are either largely consistent or declining. Block holders acquire more shares near the time of default so the percentage of block holding increases over the time. So, the share revolves inside the existing block holders no new company or other existing shareholding company comes under block holding criteria. It infers that the existing block holders increase their block holding percentage. Second category is in which companies' shows decreasing trend of block holding when they come near to default. In the decreasing category it is observed that the block holding percentage is decreased and number of block holders also decreasing in a same time. This shows that the risk averse block holding companies detect that the company will default soon so they set out their share at the right time, so they will not face any crisis. The mixed trend is also seen when block holding percentage decreases. Because some of the companies' block holding members increase, it could be because the companies who are risk takers and made the calculation that might company don't face the default stage which in the end proven wrong. The third category is in which companies' shows the consistent trend of block holding when they come near to stage of default. Companies show more consistent trend then increasing trend. Company's block holders hold their share and expect that the company will raise the performance and afterward increase their shareholding. The last category is the volatile category in which company's block holding change frequently. This could be because of the short-term benefits taken by the block holders they remain with the company till they found it profitable and left when found some other company working better than the existing, most of the companies fall in the volatile category and the major block holding type found in this category is institutional category.

*Figure following on the next page*

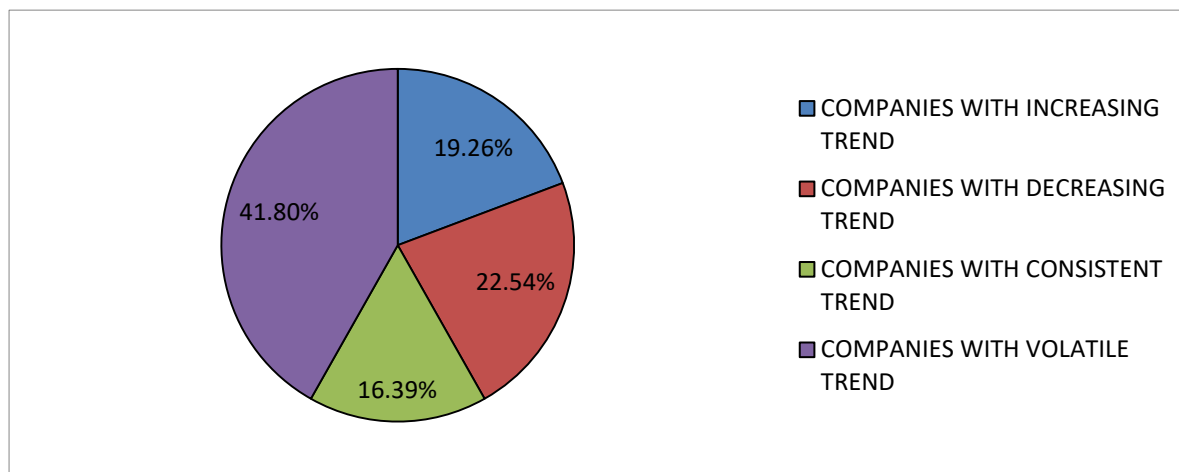


Figure 3: Illustration of number of block holders in percentage (Author)

The when companies comes to distress, data represents that in the total data highest numbers of block holders in percentage is for companies within the category of volatile trend is 41.80% and the lowest numbers of block holders in percentage is for companies within the category of consistent trend that is 16.39%. Whereas the number of block holders for companies with increasing trend and decreasing trend is 19.26% and 22.54% respectively.

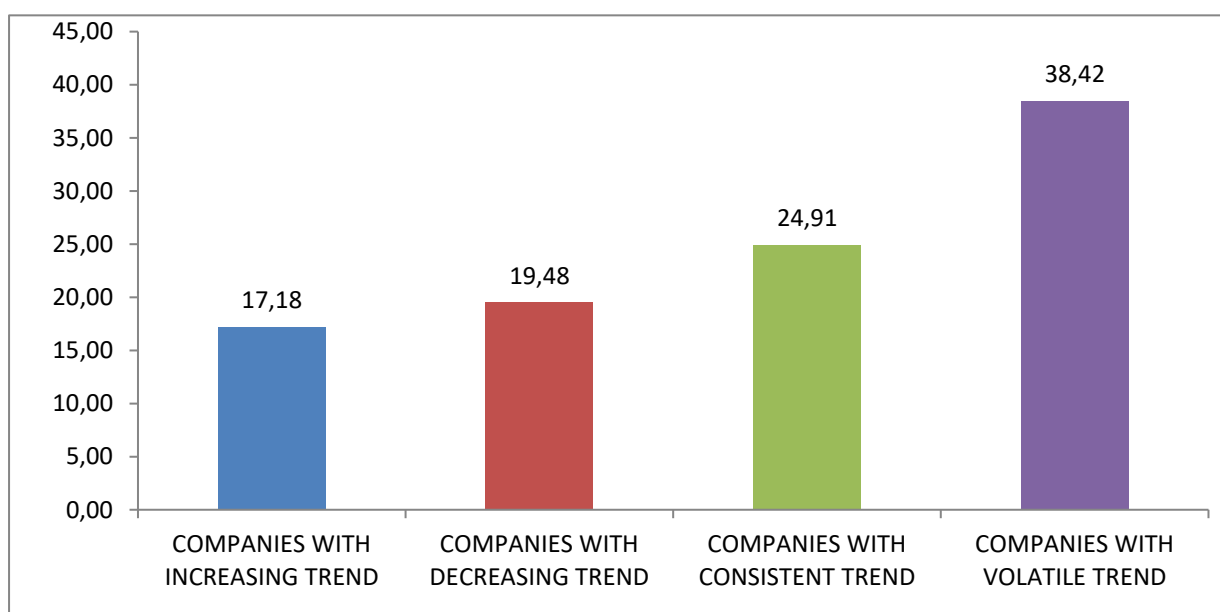


Figure 4: Illustration of percentage of block holding. (Author)

The data represents that the percentage of block holding in each category evidently varies when it companies comes to financial distress. The majority percentage of block holding is observed in companies with volatile trend that is 38.42% whereas the least percentage of block holding is percentage is observed in companies which fall in the category of companies with increasing trend that is 17.18%. Whereas the companies with decreasing trend and companies with consistent trends shows the 19.48% and 24.91% percentage of block holding. Mix trend of block holding type is found in the sample of distressed companies. It is also observed that the companies who are distressed usually from the family owned and institutional block holding type. It is also discussed in the literature that the institutional block holders known as institutional myopia argument, intends that the institutional owners are focused on the short-term benefit and force the management to work to gain the short-term gains or profit which in

long run are very critical to handle and increase the risk to default. In the family owned block holding type the conflict between the family owners and other shareholders rose because of power and control. So other shareholders have insecurities regarding shares and the family owners enjoys the private benefits as well while managing and controlling whereas the other hired managers disappoints because of being a remote toy who are not able to improve his/her efficiency. It is in addition found the firms only progress when the founder serves as the CEO because founder has intense affiliation, inspiration and intimation with the firm than the others, and others could have been interested in the private benefits which gives risk to the firm.

## 6. LIMITATION

The study has theoretical, methodological, and sampling limitations listed below.

- Theoretical Limitation: A precise literature about block holding is discussed in this study, which could be increased, and other aspects of block holding may have been considered.
- Methodological Limitation: This study has used trend analysis as the basis for inferring the results, which could have been linked with the performance of the companies through the accounting ratios which help more to predict the performance of the company in addition to block holding effect.
- Sampling Limitation: Data is limited to the Singapore companies and is based on the 17 distressed companies of Singapore. The sample size could be increased but due to time constraint and access only 17 companies' data is considered in this study.

## LITERATURE:

1. Agrawal, A. & Mandelker, G.N. (1990). "Large Shareholders and the Monitoring of Managers: The Case of Antitakeover Charter Amendments", *The Journal of Financial and Quantitative Analysis*, vol. 25, no. 2, pp. 143.
2. Atkinson A.B., and Stiglitz J.E., (1980). *Lectures on Public Economics*, London, Mc-Graw Hill.
3. Barclay MJ, Holderness CG. (1989). Private benefits from control of public corporations. *J. Financ. Econ.* 25(2):371–95
4. Beaver, W., Kettler, P. & Scholes, M. (1970). "The Association Between Market Determined and Accounting Determined Risk Measures", *The Accounting Review*, vol. 45, no. 4, pp. 654.
5. Berle A, Means G. (1932). *The Modern Corporation and private property*. New York: Macmillan.
6. Bolton, P. & Von Thadden, E. (1998). "Liquidity and Control: a Dynamic Theory of Corporate Ownership Structure", *Journal of Institutional and Theoretical Economics*, vol. 154, pp. 177.
7. Burkart M, Gromb D, Panunzi F. (1997). "Large shareholders, monitoring, and the value of the firm", *Q.J. Econ.* 112(3):693–728.
8. Chen, H. L., & Hsu, W. T. (2009). Family ownership, board independence, and R&D investment. *Family business review*, 22(4), 347-362.
9. Demsetz, H. (1983). "The Structure Of Ownership And The Theory Of The Firm", *Journal of Law and Economics*, vol. 26, no. 2, pp. 375-390.
10. Dyck, A. & Zingales, L. (2004). "Private Benefits of Control: An International Comparison", *The Journal of Finance*, vol. 59, no. 2, pp. 537.
11. Demsetz H, Lehn K. (1985). The structure of corporate ownership: Causes and consequences. *J. Polit. Econ.* 93(6):1155–77.
12. Edmans, A. (2013). *Blockholders and corporate governance* (No. w19573). National Bureau of Economic Research.

13. Fama, E.F. & Jensen, M.C. (1983). "Separation of Ownership and Control", the Journal of Law & Economics, vol. 26, no. 2, pp. 301-325.
14. Hand, J.R.M. (1990). "A Test of the Extended Functional Fixation Hypothesis", *The Accounting Review*, vol. 65, no. 4, pp. 740.
15. Holderness C. (2009). The myth of diffuse ownership in the United States. *Rev. Financ. Stud.* 22(4):1377–408.
16. Holderness, C.G.G. (2003). "A Survey of Blockholders and Corporate Control", *Economic Policy Review*, Vol. 9, No. 1, Pp. 51-63.
17. Himmelberg, C.P., Hubbard, R.G. & Palia, D. (1999). "Understanding the determinants of managerial ownership and the link between ownership and performance", *Journal of Financial Economics*, vol. 53, no. 3, pp. 353.
18. Hirschman, A. O. (1970). *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states* (Vol. 25). Harvard university press.
19. Kaplan, S and B. Minton (1994). "Appointments of Outsiders to Japan Boards Determinants and Implication for Managers" *Journal of Financial Economics*, 36, pp.225-258.
20. Larner, R.J. (1966). "Ownership and Control in the 200 Largest Nonfinancial Corporations, 1929-1963", *The American Economic Review*, vol. 56, no. 4, pp. 777.
21. Leech and Leahy (1991). Ownership structure, control type classification and performance of Large British companies. *The Journal of Economic*, pp. 1418-1437.
22. Meade, J.E. (1948). *Planning and the price mechanism: The liberal-socialist solution*, George Allen&Unvin Ltd., London.
23. Morck, R., M. Nakamura, et al. (2000), "Banks, Ownership Structure, and Firm Value in Japan", *Journal of Business*, Vol. 73, pp. 539-67.
24. Mudambi, R. and C. Niclosia (1998), "Ownership Structure and Firm Performance: Evidence from the UK Financial Services Industry", *Applied Financial Economics*, Vol. 8, pp. 175-80.
25. Pagano M, Röell A. (1998). The choice of stock ownership structure: Agency costs, monitoring, and the decision to go public. *Q. J. Econ.* 113(1):187–225
26. Parker, S., Peters, G. F., & Turetsky, H. F. (2002). Corporate governance and corporate failure: a survival analysis. *Corporate Governance*, 2(2), 4-12.
27. Prowse, S. (1992). The Structure of Corporate Ownership of Japan. *The journal of finance*, 47 (3), pp. 1121-1140.
28. Pound, J. (1988). "The Information Effects Of Takeover Bids and Resistance", *Journal of Financial Economics*, vol. 22, no. 2, pp. 207.
29. Radice, H. (1971). "Control Type, Profitability and Growth in Large Firms: An Empirical Study", *The Economic Journal.*, September, pp. 547-562.
30. Gilson, S. C. (1990). Bankruptcy, boards, banks, and blockholders: Evidence on changes in corporate ownership and control when firms default. *Journal of Financial Economics*, 27(2), 355-387.
31. Gillan, S. L., Hartzell, J. C., & Starks, L. T. (2003). Industries, investment opportunities, and corporate governance structures. *Unpublished working paper*.
32. Rosenberg, B. (1976). "Prediction of Beta from Investment Fundamentals: Part One, Prediction Criteria", *Financial Analysts Journal*, vol. 32, no. 3, pp. 60.
33. Shleifer A, Vishny R. (1986). Large shareholders and corporate control. *J. Polit. Econ.* 94(3):461–88.
34. Stulz, R.M. (1988). "Managerial Control of Voting Rights: Financing Policies and the Market for Corporate Control", *Journal of Financial Economics*, vol. 20, no. 1,2, pp. 25.
35. Smith, B.F. & Amoako-Adu, B. (1999). "Management succession and financial performance of family controlled firms", *Journal of Corporate Finance*, vol. 5, no. 4, pp. 341.

36. Taylor, W. (1990). "Can Big Owners Make a Big Difference?", *Harvard business review*, vol. 68, no. 5, pp. 70.
37. Thompson, D.J. (1976). "Sources of Systematic Risk in Common Stocks", *The Journal of Business*, vol. 49, no. 2, pp. 173.
38. Villalonga, B. & Amit, R. (2006). "How do family ownership, control and management affect firm value?", *Journal of Financial Economics*, vol. 80, no. 2, pp. 385
39. Wu, S. and H. Cui (2002), Consequences of the Concentrated Ownership Structure in Mainland China - Evidence of Year 2000, working paper.
40. Xu, X. and Y. Wong. (1997). "ownership structure and Corporate Governance in Chinese Stock Companies". *China Economic Review*, 10(1), pp. 75-98.
41. Zingales, L. (1994). "The Value of the Voting Right: A Study of the Milan Stock Exchange Experience", *Review of Financial Studies*, vol. 7, no. 1, pp. 125.

## DEFERRED TAX, AS A MEANS OF ACCOUNTING FOR THE OBJECTIFICATION OF PROFIT AFTER CORPORATE INCOME TAX

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### ABSTRACT

*It is the responsibility of the accounting entity in the Slovak Republic to keep accounting so that the financial statements give a true and fair view of the facts that are subject to accounting and of the financial position of the accounting entity. To ensure compliance with this fundamental principle of double-entry bookkeeping by an accounting entity in a market economy, it must also keep accounting for corporate income tax and recognize it correctly in the financial statements. The income tax is included in the entity's expenses and is divided into current income tax (payable for current period and tax period) and deferred income tax (deferred to future accounting period and tax period). The paper will be devoted to the deferred income tax, as an accounting tool that objectifies the profit/loss after corporate income tax in the double-entry accounting system. Its aim is to reflect in the accounting the future tax effects of current business transactions. The main objective of the paper will be to examine the impact of deferred income tax accounting on the profit or loss of a selected business entity in the Slovak Republic after taxation. After processing the theoretical part of the issue, an analysis of the impact of deferred tax asset and deferred tax liability on the financial result of the selected business entity will be performed, in the period under review (years from 2013 to 2017). By the appropriate mathematical-statistical method will be also examined the relationship between the deferred tax and the legal form of a business entity, between the deferred tax and the sector in which it operates. Based on the results of the research, the consequences and proposed measures will be deduced.*

**Keywords:** *expense, current tax, deferred tax asset, deferred tax liability, profit or loss*

### 1. INTRODUCTION

According to Suhányiová (2016), it is the responsibility of the accounting entity in the Slovak Republic to keep accounting so that the financial statements give a true and fair view of the facts that are subject to accounting and of the financial position of the accounting entity. To ensure compliance with this fundamental principle of double-entry bookkeeping by an accounting entity in a market economy, it must also keep accounting for corporate income tax and recognize it correctly in the financial statements. The income tax is included in the entity's expenses and – pursuant to § 10 section 2 of the Measures of the Ministry of Finance of the Slovak Republic no. 23054/2002-92 – is divided into:

- current income tax – income tax payable for current period and tax period,

- deferred income tax – income tax deferred to future accounting period and tax period.

Current income tax represents an external netting relationship to the state budget through a local tax office (relationship with the tax administrator). Current income tax is governed by the Income Tax Act and is calculated from the tax base through the applicable tax rate. Deferred income tax is the accounting entity's internal netting relationship (relationship between accounting periods). Its calculation is one task when preparing the financial statements. Deferred income tax reflects the part of the income tax expenses that arises as a result of the obligation to pay future income tax and is accounted in the accounting period to which it relates (Korečko, 2012). The aim of this paper is to characterize the theoretical basis of deferred income tax and examine its application in selected accounting entities.

## **2. THEORETICAL BACKGROUND OF THE DEFERRED TAX**

In general, we can say that the deferred income tax is an accounting instrument that objectifies the profit after taxation by income tax. The issue of the formation and application of deferred taxes was identified in the US. American Institute of Certified Public Accountants declared (in Opinion No. 11 in 1967) the principal opinion on the application of deferred taxes (Baštincová 2002, p. 293). The first international accounting standard dealing with the issue of deferred income tax was adopted only in 1979, with the effect from 1981, it was entitled IAS 12 – Accounting for income taxes. This standard has undergone various changes over the years and the title of this standard has changed. Currently it is entitled IAS 12 – Income Taxes. In European Union legislation, the deferred income tax was only regulated indirectly in the Fourth EU Council Directive (from 25.7.1978) on the annual financial statements of certain types of entities (Baštincová, 2011). In the Slovak Republic, the mainly the following regulations regulate the deferred taxes:

- Act no. 431/2002 Coll. on Accounting, as amended (hereinafter the Act on Accounting),
- Measure of the Ministry of Finance no. 23054/2002-92, which lays down the details of accounting procedures for entrepreneurs with double-entry bookkeeping (hereinafter the Accounting Procedures).

The obligation to keep accounting on deferred income tax is related to accounting entities that are required to have audited the financial statements, under the Accounting Act. In other accounting entities, the deferred tax may be accounted for voluntarily, at the decision of the accounting entity. Based on the above-mentioned measure the deferred income tax is accounted for (Suhányiová, 2017):

- temporary differences between the book value of the assets and the book value of the liabilities recognized within the balance sheet and their tax base: (book value of assets and liabilities) – (tax base of assets and liabilities)
- the possibility of carry forward the tax loss, which means the possibility of deducting the tax loss from the tax base in the future,
- the possibility of carry forward (to future periods) the unused tax deductions and other tax claims.

The book value of the assets and the book value of the liabilities are considered as the carrying amounts at which they are valued and reported in the balance sheet. The tax base is the value of the assets and the value of the liabilities determined under the Income Tax Act. In terms of how the deferred income tax is recognized, two approaches are theoretically possible, the deferral method and the liability method. In terms of the calculation method, the liability method has two modifications that result in the same result, namely the result approach and the balance sheet approach.

### Methods of calculating the deferred income tax

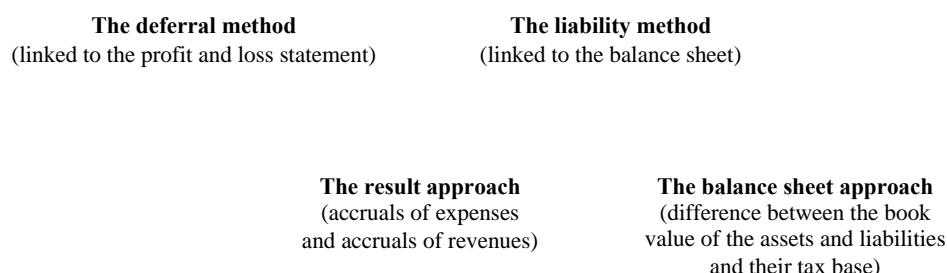


Figure 1: Methods of calculating the deferred income tax (Janoušková, 2007)

The balance sheet approach of the liability method is used in the Slovak Republic, which is in accordance with the IAS 12 - Income Taxes. This method is based on the calculation of deferred tax coming out of temporary differences, i.e. differences between the book value of assets and liabilities and their tax base. Temporary differences are the basis for calculating the deferred income tax, which is multiplied by the income tax rate applicable to the following accounting periods and tax periods, divided by 100. Deferred Income Tax may have the following character (under the Accounting Procedures):

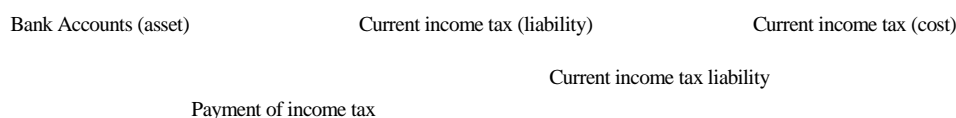
- deferred tax asset,
- deferred tax liability.

Table 1: Determining the form of the netting relationship from deferred tax  
 (Šlosárová, 2010, p. 11)

Comparison of book value and tax base	Form of netting relationship
The book value of the asset is higher than the tax base	Deferred tax liability
The book value of the asset is lower than the tax base	Deferred tax asset
The book value of the liability is higher than the tax base	Deferred tax asset
The book value of the liability is lower than the tax base	Deferred tax liability

The deferred tax liability relates to taxable temporary differences. The deferred tax asset relates to deductible temporary differences; the possibility of carry forward the tax loss in the future, which means the possibility of deducting tax loss from the tax base in the future; the possibility of carry forward (to future periods) the unused tax deductions and other tax claims. Accounting for income tax in the double-entry bookkeeping system is as follows:

#### Current income tax



#### Deferred income tax

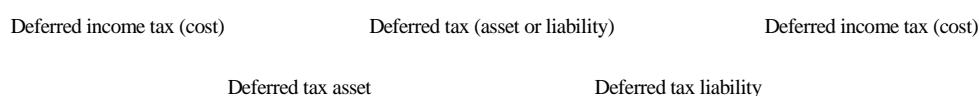


Figure 2: Accounting for income taxes in the Slovak Republic  
 (own processing according to the Accounting Procedures)

The figure shows that the deferred tax liability is recognized as an increase in costs and an increase in the deferred tax liability. A deferred tax asset is recognized as a cost reduction and an increase in the deferred tax asset. Thus, deferred taxes affect the economic result (profit or loss) through costs – increase in the case of deferred tax liabilities or decrease in the case of deferred tax assets.

### **3. RESEARCH OF DEFERRED INCOME TAX OF LEGAL ENTITIES IN THE SLOVAK REPUBLIC**

#### **3.1. Investigating the Impact of Deferred Income Tax on the Profit/Loss of the accounting entity Energyco Ltd.**

The following case study examines the effects of accounting or non-accounting for deferred income tax on the total income tax (corporate tax) and on the after-tax profit/loss in the accounting entity Energyco Ltd. The period under review is within the years 2013-2017. The impact study uses a comparative analysis method. The Table 2 shows that the company Energyco Ltd. annually recognises positive results in the indicator Profit Before Tax, in the examined period. Profit increases in the accounting entity every year, except for 2017, when there was a decrease of 24,232 €. The largest increase was reported in 2015 compared to 2014, an increase by 166,004 €. In the examined period, the entity reports a deferred tax liability with the exception of 2016, when there was a deferred tax asset in the amount of 82,623 €. The deferred tax liability was the highest in 2015 and the lowest in 2014. Accounting for deferred tax does not affect the amount of current income tax, therefore the tax payable remains yearly the same whether the deferred tax is accounted or not. We can therefore conclude that the accounting for deferred tax in individual years in the examined period does not affect the amount of the corporate income tax liability towards the tax administrator. When examining the amount of the net profit/loss (after tax), we can conclude that the deferred tax affects the net profit/loss, namely in the amount equal to the deferred tax asset (increase) or to the deferred tax liability (decrease).

*Table following on the next page*

*Table 2: Effect of deferred income tax on the total income tax and on the profit/loss of the accounting entity Energyco, in the years 2013-2017 (in €) (own processing)*

Indicator	2013		2014		2015	
	Non-accounting for deferred tax	Accounting for deferred tax	Non-accounting for deferred tax	Accounting for deferred tax	Non-accounting for deferred tax	Accounting for deferred tax
Revenue	28 581 016	28 581 016	37 827 543	37 827 543	193 043 136	193 043 136
Expenses	28 436 167	28 436 167	37 623 786	37 623 786	192 673 375	192 673 375
Profit/loss before tax	144 849	144 849	203 757	203 757	369 761	369 761
Corporate income tax per year	- 35 946	- 53 700	- 96 123	- 99 389	- 107 683	- 215 948
Current income tax	- 35 946	- 35 946	- 96 123	- 96 123	- 107 683	- 107 683
Deferred income tax	-	- 17 754	-	- 3 266	-	- 108 265
Net profit/loss (after tax)	108 903	91 149	107 634	104 368	262 078	153 813

Indicator	2016		2017	
	Non-accounting for deferred tax	Accounting for deferred tax	Non-accounting for deferred tax	Accounting for deferred tax
Revenue	125 602 400	125 602 400	153 519 588	153 519 588
Expenses	125 089 701	125 089 701	153 031 121	153 031 121
Profit/loss before tax	512 699	512 699	488 467	488 467
Corporate income tax per year	- 311 379	- 228 756	262 065	273 128
Current income tax	- 311 379	- 311 379	262 065	262 065
Deferred income tax	-	+ 82 623		11 063
Net profit/loss (after tax)	201 320	283 943	226 402	215 339

When comparing the five accounting periods in Energyco Ltd., we have examined how significant is the impact of accounting for deferred income tax on the profit/loss. We also decided to evaluate this impact through statistical evaluation of the hypothesis. We therefore determined the following Hypothesis 1: We assume that accounting for deferred income tax has also increased the current income tax in the accounting entity. In the Hypothesis 1 we used the statistical method, which belongs to the group of parametric tests. We performed the evaluation of the Hypothesis 1 using the two-choice F-test, in which we compiled the necessary pivot table. We used the necessary data from the double-entry bookkeeping of the company Energyco Ltd.

*Table following on the next page*

*Table 3: Verifying the Hypothesis 1 using the statistical method – Two-Sample F-test and Two-Sample t-Test with equal variances (own processing)*

<b>Zero hypothesis <math>H_0</math></b>	The accounting entity has paid the <b>same</b> income tax on both the accounting and non-accounting for deferred tax over a 5-year period
<b>Alternative hypothesis <math>H_1</math></b>	The accounting entity has paid a <b>higher</b> income tax on accounting for deferred tax than on non-accounting for deferred tax over a 5-year period

Significance level 0,05 (5 %)

<b>Current tax</b>	8655734074
<b>Income tax</b>	13876193379

F-Test two-Sample for Variances

	Variable 1	Variable 2
Mean	162639,2	174184,2
Variance	1,3876E+10	8,66E+09
Observations	5	5
df	4	4
<b>F</b>	<b>1,6031215</b>	
P(F<=f) one-tail	0,32934063	
<b>F Critical one-tail</b>	<b>6,38823291</b>	

F is less than F crit

t-Test two Sample Assuming Equal Variances

	Variable 1	Variable 2
Mean	174184,2	162639,2
Variance	8,656E+09	1,39E+10
Observations	5	5
Pooled Variance	1,127E+10	
Hypothesized Mean Difference	0	
df	8	
<b>t Stat</b>	<b>0,1719807</b>	
P(T<=t) one-tail	0,4338618	
t Critical one-tail	1,859548	
P(T<=t) two-tail	0,8677236	
<b>t Critical two-tail</b>	<b>2,3060041</b>	

t Stat is less than t Crit

We do not reject the Hypothesis  $H_0$

In hypothesis 1, we have determined the zero hypothesis  $H_0$ : We assume that the accounting entity has paid the same income tax on both the accounting and non-accounting for deferred tax over a 5-year period. And the alternative hypothesis  $H_1$  where: We assume that the accounting entity has paid a higher income tax on accounting for deferred tax than on non-accounting for deferred tax over a 5-year period. We determined the level of significance of 0.05 (5%) and determined the variances of the two investigated datasets, i.e. income tax and current tax. By the use of the Two-Sample F-test we have calculated the value of  $F = 1.6031215$  and  $F_{crit} = 6.3882329$ . Since the F value is less than the F crit value, we will use the Two-Sample t-test with equal variances as the main test. As with the F-test, with the t-test we have also calculated the value of  $t_{Stat} = 0.1719807$  and  $t_{Crit} = 2.3060041$ . Since the value of t Stat is less than the value t Crit, we do not reject the hypothesis  $H_0$ . The result of the verification of the hypothesis 1 is therefore the fact that the accounting entity has paid the same income tax in the 5-year accounting period even when the deferred income tax was accounted or not, i.e. there is no significant difference between them. However, since the difference in the two values is completely negligible, we can deduce that accounting for deferred income tax in the company Energyco Ltd. does not significantly affect the profit/loss, therefore neither the overall profitability.

### 3.2. Examination of Selected Factors in Relation to Deferred Income Tax on a Selected Sample of Accounting Entities in the Slovak Republic

In connection with the achievement of the objectives, we are examining, in the following section, the number of entities reporting deferred tax in the financial statements depending on the legal form and the type of industry in which the accounting entities operate. According to Kravčáková (2016), the legal form is a form provided by the legislation. Most often, the term is used in relation to organizations, especially businesses. The sector of the national economy is a set of production and services that are fulfilling the same economic or other social functions resulting from the social division of labour from the opinion of the most general technical, technological, organizational or purposeful criteria, e.g. industry, agriculture, transport, or public administration. To examine the parameters, the data have been obtained from the purchased Finstat database for 2017. We have already stated above that to account for deferred tax are obliged the accounting entities in the Slovak Republic that are obliged to have audited the financial statements. For this reason, the selected sample of accounting entities consists of the following types of legal form: joint-stock company, limited liability company, cooperative and budgetary organization. We examined a sample of 90 accounting entities. Hypothesis 2 relates to the examination of the effect of the type of entity's legal form on the amount of deferred income tax. We have examined a sample of 90 accounting entities within 5 types of legal form selected from the Finstat database. We have used statistical the methods – Pearson's Chi-square Test of Good Match.

Table 4: Verifying the Hypothesis 2 using the statistical method – Pearson's Chi-square Test of Good Match (own processing)

by Good Match (OWN processing)

Pearson's Chi-square Test of Good Match						
Zero hypothesis $H_0$		The number of entities accounting for deferred income tax <b>does not depend</b> on legal form				
Alternative hypothesis $H_1$		The number of entities accounting for deferred income tax <b>depends</b> on the legal form				
Significance level 0,05 (5 %)						
Legal form	Joint Stock Company	Limited Liability Company	Cooperative	State Enterprise	Budgetary Organization	Arithmetic mean
Number	8	7	11	5	2	6,6
Calculation of test criteria	2,933333	0,29697	0,387879	3,206060606	0,024242	
Test criterion			Critical value from the table			
6,848485			9,487729037			
6,84848 > 9,487729037						
We do not reject the Hypothesis $H_0$						

To verify the hypothesis 2 we have set the hypothesis  $H_0$ : We assume that the number of entities accounting for deferred income tax does not depend on legal form. The alternative hypothesis  $H_1$ : We assume that the number of entities accounting for deferred income tax depends on the legal form. To verify this hypothesis, we have used Pearson's chi-square test of good fit and we chose a significance level of 0.05 (5%). We determined the appropriate degree of freedom according to the relation  $(k-1)$  and compiled the corresponding pivot tables. The calculations resulted in the test criterion  $\chi^2=6.84848$ . We determined the respective critical value from the table  $\chi^2=9.487729037$ . Since the test criterion value is lower than critical value from the table ( $6.84848 < 9.487729037$ ), we do not reject the zero hypothesis  $H_0$ . Based on this test, we can confirm that the number of entities accounting for deferred income tax does not depend on the

legal form. In hypothesis 3, we tried to confirm that the amount of deferred income tax and the number of entities accounting for deferred income tax depend on the industry in which the entity operates. In this hypothesis, we have chosen from the database a sample of 300 accounting entities. Using a pivot table, we have selected from the sample ten types of accounting entities regarding the character of their business activity. After evaluating the financial data from the pivot table, we have chosen a Pearson's Chi-square Test of Good Match, to evaluate the hypothesis 3. The Pearson Chi-square test of good match is based on a frequency table and it tests the zero statistical hypothesis that claims that the abundance in each category equals the expected (theoretical) abundance (Frankovský, 2016). If the P-value is lower than the selected significance level (usually 5% = 0.05), the zero hypothesis is rejected (Šebová, 2013). This means that the difference between the frequencies found in the sample and the expected frequencies is too large to be only a consequence of random sampling, i.e. statistically significant. If the P-value is equal to or higher than the selected significance level, the null hypothesis cannot be rejected. This means that the difference between the frequencies found in the sample and the expected frequencies may be due to random sampling, i.e. not statistically significant (Rimarčík, 2010).

*Table 5: Verifying Hypothesis 3 Using the Statistical Method - Pearson's Chi-square Test of Good Match (own processing)*

Pearson's Chi-square Test of Good Match											
Zero hypothesis $H_0$			The number of entities accounting for deferred income tax <b>does not depend</b> on the industry								
Alternative hypothesis $H_1$			The number of entities accounting for deferred income tax <b>depends</b> on the industry								
Significance level 0,05 (5 %)											
Industry	Agriculture	Business Mediation	Finance	Designing	Real Estate	Wholesale	Metal Industry	Building and Construction	Retail	Mech Engineering	Arithmetic mean
Number	23	2	1	2	11	6	8	8	13	10	8,4
Calculation of test criteria		25,3762	4,87619	6,51905	4,8761905	0,80476	0,68571	0,0190476	0,01905	2,51905	0,30476
Test criterion			Critical value from the table								
46			16,9189776								
46 > 16,9189776											
We reject the Hypothesis $H_0$ and accept the Hypothesis $H_1$ .											
Hypothesis evaluation:						The number of accounting entities depends on the industry.					

In order to verify the hypothesis 3, we have set the zero hypothesis  $H_0$ : We assume that the number of entities accounting for deferred income tax does not depend on the industry in which the entity operates. Compared to the alternative hypothesis  $H_1$  where: We assume that the number of entities accounting for deferred income tax depends on the industry in which the entity operates. To verify this hypothesis, we used Pearson's chi-square test of good match and chose a significance level of 0.05 (5%). We determined the appropriate degree of freedom according to the relation  $(k-1)$  and compiled the corresponding pivot tables. The calculations resulted in a test criterion value of  $\chi^2=46$ . We determined the corresponding critical value from the table  $\chi^2=16.9189776$ .

Because the test criterion value is higher than the critical value from the table ( $46 > 16.9189776$ ), we reject the zero hypothesis  $H_0$  and accept the alternative hypothesis  $H_1$  which implies that a significant difference has been confirmed. Based on this test, we can confirm our deduction that the number of entities accounting for deferred income tax depends on the industry in which the entity operates.

#### 4. CONSLUSION

The financial statements are intended to provide a true and fair view of the financial position and profit/loss, and the deferred tax is one of the entity's instruments to optimize it. In the Slovak Republic, as of 1 January 2003, the deferred tax shall be accounted for by those entities that are required to have audited financial statements. The main objective of this paper was to examine the impact of deferred income tax accounting on the profit or loss of a selected business entity in the Slovak Republic after taxation. The findings also covered the impact of the legal form of entities and of the national economy sector to which the examined accounting entities belong. The results of the investigation have shown that in the entities that account for deferred income tax there is an impact of the deferred tax on the profit/loss. The deferred tax liability will draw attention to the future increased tax burden and based on the principle of prudence will be reduced the amount of profit to be redistributed. The deferred tax asset has the opposite effect. Thus, we can conclude that the financial statements of these entities provide better information about the current financial situation and future effects on the entity's tax liability, and thus it may also be relevant to a potential investor in assessing the value of the company. Verifying the second hypothesis in the paper we confirmed that the number of entities accounting for deferred income tax does not depend on the legal form. This result is also related to the fact that to account for deferred tax are obliged the accounting entities in the Slovak Republic that are obliged to have audited the financial statements, whereas each of the examined legal forms could contain such entities. On the other way, the last hypothesis tested in the paper showed, that the number of entities accounting for deferred income tax depends on the industry in which the entity operates. So, we can assume that there should be also some relation between the sector of industry and the number of accounting entities obliged to have audited the financial statements.

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#### LITERATURE:

1. Act no. 431/2002 Coll. on Accounting, as amended
2. Baštincová, A., (2002). Nadnárodná harmonizácia odloženýých daní a ich implementácia v podmienkach Sloveskej republiky (Supranational harmonisation of deferred taxes and their implementation under conditions in the Slovak Republic). In: *Ekonomický časopis = Journal of economics: časopis pre ekonomickú teóriu, hospodársku politiku, spoločensko-ekonomické prognózovanie*. Bratislava: Slovak Academic Press, 2002, 50(2), 293-316. ISSN 0013-3035.
3. Baštincová, A., Tužinský, M., (2011). *Splatná daň z príjmov podľa národnej a nadnárodnej úpravy účtovníctva (Current income tax under national and international accounting arrangement)*. Bratislava: Iura Edition. 170 p. ISBN 978-80-8078-410-2.
4. Frankovský, M., Birknerová, Z., Zbihlejová, L., (2016). Assessment of Occurrence Predictors of Cognitive Distortions in Managerial Decisions. In: *Polish Journal of Management Studies*, Vol.14, No 2 (2016), p. 61-70. ISSN 2081-7452.

5. Janoušková, J., (2007). *Odložená daň z príjmu: dle českých i mezinárodních účetných standardu (Deferred Income Tax: According to Czech and International Accounting Standards)*. Praha: Grada. 88 p. ISBN 978-80-247-1852-1.
6. Korečko, J., Suhányiová, A., (2012). *Daňový systém Slovenskej republiky a jeho postavenie v rámci Európskej únie (Tax system of the Slovak Republic and its position within the European Union)*. Prešov: Bookman, 141 p. ISBN 978-80-89568-52-9.
7. Kravčáková Vozárová, I., Kotulič, R., Vavrek, R., (2016). Legal form as a determinant of the evaluation of agricultural entities in Slovakia using the topsis method. *In: Journal of environmental management and tourism* Vol. 7, No. 2(14), pp. 347-354. ISSN 2068-7729.
8. Measures of the Ministry of Finance of the Slovak Republic no. 23054/2002-92 from December 16, 2002, laying down details of accounting procedures and framework for the chart of accounts in double-entry bookkeeping
9. Rimarcík, M., (2010). *Jednorozmerná induktívna štatistika (One-dimensional inductive statistics)*. [On-line]. Retrieved 26.04.2019 from: <http://rimarcik.com/navigator/chi.html>
10. Suhányiová, A., Korečko, J., Mokrišová, M., (2016). *Postupy v podvojnom účtovníctve podnikateľov (Double entry bookkeeping procedures for entrepreneurs)*. Prešov: Bookman, 223 p. ISBN 978-80-8165-215-8.
11. Suhányiová, A., Mokrišová, M., Korečko, J., (2017). *Účtovníctvo (Accounting)*. Prešov: Bookman, 198 p. ISBN 978-80-8165-187-8.
12. Šebová, M., Džupka, P., (2013). Meranie ekonomického a finančného vplyvu majstrovstiev sveta v hokeji (Measuring the economic and financial impact of the World Hockey Championship). *In: E + M Ekonomie a management*. Vol. 16, No. 2 (2013), pp. 41-53. ISSN 1212-3609.
13. Šlosárová, A., (2010). *Odložená daň z príjmov v individuálnej účtovnej závierke podnikateľa (Deferred income tax in the individual financial statements of the entrepreneur)*. Bratislava: Iura Edition, 87 p. ISBN 978-80-8078-338-9.

## **ARTIFICIAL INTELLIGENCE IN THE RECRUITMENT & SELECTION: INNOVATION AND IMPACTS FOR THE HUMAN RESOURCES MANAGEMENT**

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### **ABSTRACT**

*The objective of the article was to investigate the use of Artificial Intelligence (AI) in recruitment and selection (R&S) and impacts on Human Resource Management (HRM). The study used a survey of scientific papers and conferences materials indexed to the database of Web of Science and Scopus and published between the period 2000 and 2018. In addition, it was decided to make an opinion survey conducted with professionals and managers on the use of the tool as facilitator of the recruitment and selection process and impacts on HRM, contributing to the strategic positioning of the area within the organizations. Data was collected, through survey questionnaires applied between March and May 2019. A total of 150 questionnaires were collected. A quantitative descriptive analysis was performed to analyse the perception of the professionals about AI in HR, as well as the use of this technology in the automation of processes and contributions when used in R&S processes. Of the 150 respondents, 74% are female, 61% are over 36 years old, 67.3% works in the service sector, and about 49% perform functions in the area of Human Resources. It was also observed that around 63% of respondents' companies have never used AI and about 19% use or have already used AI in the area of customer service. The lack of solid research lines in the subject was verified and it was concluded that the practice is still very embryonic, although the view of the respondents, ones is positive about the benefits that the AI can bring to the recruitment and selection of candidates. It is hoped that the questions pointed out in this essay elicit new theoretical and empirical studies that show the interactions between AI and HR.*

**Keywords:** Artificial Intelligence, Human Resource Management, Recruitment and Selection

### **1. INTRODUCTION**

Technological advances have contributed to the remodeling of organizational practices. According to Leite and Albuquerque (2013), technological changes, the globalization of the economy, the intensification of competition between organizations and between countries and

the diversity of the workforce are some factors that significantly influence the change in the management of organizations. The context requires the insertion of advanced management technologies, the attraction and retention of skilled labor and increasingly solid production processes, in order to increase efficiency and economic-financial gains. The relationship between technology and human action is recognized as authentic and necessary, as this alliance emerges as a means of supporting and enhancing strategic goals and objectives. Technology is the tool of support and development of management and decision-making systems. To the extent that the talents, which make up the workforce, work in the search for new solutions and in the execution of the processes. Artificial Intelligence (AI), according to Bellman (1978), is the process of activity automation that is associated with human thinking, activities such as decision making, problem solving and learning. The area of Artificial Intelligence is currently widely used in various fields of application, assisting human capacity in projects and the development of new systems and products, and also replacing many repetitive and boring activities of human operators in various productive functions (Lima, Pinheiro, & Santos, 2014). AI allows faster and more effective decisions, contributing to the company's development and to bringing people closer together (De Mendonça, et al., 2018). This raises the belief that, if properly applied, AI practices can be used to streamline and make HRM more effective. Understanding that this area encompasses, in addition to employment policies and practices, the process of recruiting and selecting talents. It is important to note that this area has been greatly impacted by changes and new market trends. According to Van Esch and Mente (2018), in the quest for talent, several organizations begin to adopt different technological platforms as a strategy of attraction and selection of candidates. This has contributed to the use of AI in recruitment and selection (R&S) processes. Recruitment and selection activities are, according to good practices, developed by the Human Resources (HR) area. These activities are associated to the individual-job adequacy paradigm, that is, at the same time that it communicates and disseminates the job opportunity, attracts the candidate to the selection process (Chiavenato, 1999). Thus, the use of AI provides, through its intrinsic values, the accomplishment of tasks in a shortest possible time (Van Esch, Black, & Ferolie, 2019). This need for agility is reinforced by the current scenario, characterized by increased access to the internet and globalization, impelling new technologies to emerge and develop, highlighting the human resources management, which provide greater competitiveness for companies. Organizational managers and HR professionals have been faced with the challenge of transforming their human resources into a source of competitive advantage for the organization (Cintra, Barbosa, Barbosa, & Franco, 2017). And the technologies applied to the HR subsystems function as a decision support information system, giving the HR manager a series of data pertinent to their work in a more precise way. Because it is a relatively new field of research, the importance of this essay is admitted in the search to discuss the implications of AI in the area of Human Resources, specifically in R&S processes. For this, it is pertinent to identify how the AI has been applied in this sector of the administration so important for the good functioning of organizations, as HR, and how has been the practice in companies.

## **2. ARTIFICIAL INTELLIGENCE**

Artificial Intelligence (AI) is one of the newest branches of computer science that provides computers with ever-increasing levels of intelligence. A very widespread concept for AI is that developed by scientist John McCarthy (1965) at the Massachusetts Institute of Technology (MIT), arguing that it is an area of Computer Science that aims to make computers behave and think like humans (Harasim, 2015). Rich and Knight (1991) argue that AI is the study that gives computers the ability to do things that humans at first do best. Haugeland (1985), conceptualizes AI as an exciting endeavor to get computers to think. Considering machines with minds, in the full and literal sense.

It is no longer strange to understand why Artificial Intelligence relates to science fiction, given the definitions of that term in times whose computers were still seen as participants in a very distant future and far from the everyday application in the life of humanity. These fictional aspects are disappearing as scientists and the public themselves perceive and utilize the advances made by Computer Science in the area of Artificial Intelligence (Harasim, 2015). The evolution of AI, both its importance and its application, should be highlighted for a better scaling of its applicability in the present day. According to Muller (1998), the history of AI begins in the 1940s, after World War I. At that time, when relations between nations were still under intense tension, already triggering the actions of World War II, the technological search was focused on weapon technologies. Already in this period, psychology begins to believe that computers would acquire capacities for thinking and understanding of language. Between the 1970s and 1980s, robotics, in which robots are analyzed to replace the human workforce, takes the lead in Artificial Intelligence studies, such as the Japanese robot Wabot 2<sup>1</sup>. From the 1990s, the focus is on the development of applications and models of artificial neural networks (ANN)<sup>2</sup> - computational models capable of performing machine learning and pattern recognition based on the animal brain. The progress of this scientific field has been significant, accelerated and unpredictable, even sixty years after its origin. The AI currently encompasses a huge variety of subfields, ranging from general (learning and perception) to specific, such as playing chess, proving mathematical theorems, writing poetry, driving a car on a busy street, and diagnosing illnesses. AI is relevant to any intellectual task; is truly a universal field (Russel & Norvig, 2010). Thus, AI encompasses academic study and the generation of technologies with a profound impact on everyday life (Mesquita, 2018). Much attention has been given to the machine learning theme, probably due to the innumerable possibilities of automation brought by recent advances in Artificial Intelligence (Nascimento & Queiroz, 2017). AI has already been used a lot, being part of the daily life of many people who, when using websites or browsing applications, whether to watch movies or to shop online, allow this use to offer future recommendations, map daily routines and, consequently, influence consumption. Naming examples in this branch passes through well-known companies like Google, Facebook, Netflix, Amazon and so many other big corporations that progress having the AI as strategic support. According to Brynjolfsson and McAfee (2015), as the full impact of digital technologies is felt, we will realize immense wealth in the form of personal technologies, advanced infrastructure and almost borderless access to cultural items that enrich our lives.

### **3. RECRUITMENT & SELECTION (R&S)**

Recruitment and selection of people (R&S) is one of the main processes of Human Resources Management (HRM), since its activity involves the choice of individuals, taking into account the identification of their characteristics, competencies, values and motivations, which necessarily should be aligned with the strategic goals of the companies, helping to implement actions that lead organizations to success, through these chosen people. Bitencourt (2005) defines skills as the set of qualifications that the person has to perform a job with a higher level of performance. Before undertaking the recruitment and selection stage, the company must define the profile of the vacancy that will be offered, carrying out the description of the vacancy and informing the minimum requirements that the candidate must have to file a petition. Admission of the position should be elaborated in a simple and clear way so that someone who does not know a certain position can understand it. Chiavenato (2010) adds that the description should identify the tasks and activities performed by the position, the periodicity, the interaction

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<sup>1</sup> Wabot 2 - Japanese robot developed to resemble the maximum possible of the human being, developed by Waseda University.

<sup>2</sup> Artificial Neural Network - Branch of artificial intelligence. These computational systems are inspired by biological neurons and aim to solve complex problems, from a set of independent variables, such as the recognition of patterns and approximations of functions (Principe, Euliano & Lefebvre, 1999).

between people, equipment, materials, data and information. The recruitment of professionals consists of a set of procedures that seeks among a number of candidates, the one who best presents potential qualifiers to fill a position, attracting talents, internally and externally to the organization, in order to provide the people needs for the organization (Marras, 2011). It has the function of informing the candidates about the company and the necessary qualifications for the vacancy available, being the connection between the company and the job market (Bohlander & Snell, 2010). Poorly performed recruitment, ie not meeting the actual needs of the organization, will lead to problems for the entire HRM subsystem. Every recruitment process involves costs, sometimes difficult to measure, but can be calculated by the number of hours, for example, that the recruiter spends to register the job, inform and contact candidates, and solve the many doubts they may have about the vacancy in question at the time of their application. Even today, manual mechanisms are used for this activity, such as having a telephone, e-mail and an exclusive employee to perform this function. This involves costs and requires time from the human workforce, moreover it could be focusing on more strategic activities. According to Marras (2011), the capture of people can be done internally or externally. Internal recruitment is the movement of employees between different positions in the organization (Millkovich & Boudreau, 2000). Marras (2011) adds that Internal Recruitment is one that privileges the company's own human resources, publicizing open positions, recruiting within its own staff. Regarding External Recruitment, this occurs when the company does not have employees with the desired profile for the desired position or when it chooses to bring someone from the market with other knowledge that it judges to add value to the organization, depending on the type of job in question. For Marras (2011), external recruitment is the process of capturing human resources in the market, starting from a decision-making process regarding two variables: cost and time. According to Mazon and Trevisam (2010), the External Recruitment has the advantages of creating new ideas, increases the level of knowledge, renews and enriches the human resources of the company. The decision to carry out internal or external recruitment is pertinent to each company, which must have in its recruitment and personnel management policies all the information that guides its actions and procedures. For this, the organization must have a database containing the number of people necessary to achieve its objectives and offer methods that select the candidates that fit the desired profile (Chiavenato, 2010). After recruitment, the organization needs to select the candidate that best fits the needs of the organization. For Chiavenato (2010), the selection of people is a task of classification and decision, having the central objective to classify the candidates most appropriate to the needs of the position and the company. The author also add that this process can be carried out using different methods, such as preliminary screening of resumes, interview in the selection unit, information of reliable people, technical-professional tests, psychological tests, group dynamics, knowledge tests, personality tests , simulation techniques, as well as interviews conducted by future managers and information on previous jobs, registration information and medical examinations. The important thing is to have as a mission the realization of a recruitment and selection process with seriousness and ethics, since the selection of an individual without the characteristics determined for the position can bring innumerable damages to the company.

#### **4. RECRUITMENT & SELECTION WITH USING THE AI**

The HR area should make use of AI as an aggregation tool, which will allow the manager to know the organization, make processes more agile, better known the profile of positions and workers as a means that will enable greater organizational development (Mendonça et al. 2018). In this context of boosting progress, the applied AI in the R&S processes consists in the use of the computer and the learning of the machine, through an organization of information pertinent to the processes of selection of the company, aiming at the automation of tasks commonly done

by people, giving the he has the autonomy to exercise them. Companies have the perception that hiring the best employees produce a competitive advantage that is difficult for their competitors to duplicate (Harris, 2018). According to Nespoli (2004), the use of AI can bring benefits in organizational effectiveness, such as: error reduction, considering the application of multiple calculations under the most diverse data variables; reduction of problem resolution times; greater productivity and flexibility in which the possibility of the preservation of information and better use of human action is considered. Therefore, specifically in HR, the AI allows, in addition to many others, the evolution of postures and pertinence/responsibilities in companies and improvements in their processes and procedures (Mendonça, et al, 2018). Thus, the use of AI in R&S processes can be a strong strategy as a decision support system, helping in the mapping and searching of the most appropriate professional profiles to fill the open position, reducing the average time of completion of the activity , in line with the market scenario, which requires greater agility of all stakeholders. And according to Almeri, Martins and De Paula (2014), the tools developed by information technology professionals have greatly aided human resource management processes, shortening distances, time and costs. In general, AI provides a series of techniques, such as Fuzzy Logic, Artificial Neural Networks, Case-Based Systems, Expert Systems and Genetic Algorithms (Rosa & Luz, 2009). These different forms of machine learning (AI) with different approaches can be applied in the development of a decision support system in R&S and the steps that make it up. The AI makes it possible, for example, for a virtual assistant to answer questions from candidates at the time of their application in the selection process. It can also be used to assess the behaviors and skills of candidates in real situations. In addition to that, artificial intelligence can help in the match<sup>3</sup> and union between candidates and companies. This is possible because AI in recruitment and selection allows the cross-referencing of previously profiled company profile information in order to create an ideal candidate model. Thus, the candidates for new vacancies are compared to this model, with respect to the tests, experience, general information of the curriculum, in order to verify the similarity with the ideal profile. It is an analysis of how favorable each candidate is in being the ideal to fill a vacancy in the organization. It was highlight the use of artificial neural network AI, since it "can predict candidates who would be suitable for a job, and those jobs that meet the expectations of a person who is actively seeking work" (Rocabert, 2017, p. 24). This can make recruiters' routines easier and helps the HR department to position itself more and more strategically within their company, channeling effort and time into activities that can not be replaced by the machine. In addition, it facilitates the relationship with candidates of the new generations, accustomed to relate to the machine, as a facilitator of the day to day. Therefore, those companies that wish to stand out and reach competitive differentials, will have to be attentive to the new forms of attraction of talents. GRH technology supports the scenario of social change and market behavior. However, changes such as those brought about by the insertion of new technologies can bring a lot of insecurity and/or demotivation to the employees. It is of the utmost importance that the organization prepare itself for this new moment. And transparent communication is a determining factor in success, guaranteeing commitment and commitment of all in order to advance the company.

## 5. METHODOLOGY

The present work used the quantitative, descriptive research method, that is, considered a set of variables in the search to identify the correlation with the object of the investigation. Thus, the study conducted an opinion survey to reveal the perception of HR professionals and managers of Brazilian and/or multinational companies about AI in HR, as well as the use of this

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<sup>3</sup> Match - verb in English that means to live up to; to correspond to something; match; to combine (Linguee, English language dictionary).

technology in the automation of processes and contributions when used in R&S processes. The Google Forms tool was used to apply the data collection and a structured questionnaire was conducted with multiple choice questions about the knowledge of human resources professionals (at all hierarchical levels), as well as managers of companies, that is, people who manage sectors and teams, about Artificial Intelligence. The purpose of the questionnaire was to identify the level of knowledge of the respondents about this area of science, when used in the area of HR applied to R&S; besides the influence of the AI to reduce the time of the R&S process, as well as, a supporter in the strategic repositioning of the human resources sector. The questionnaire was released to the target audience via email and via multiplatform mobile application - whatsapp so they could respond to opinion polls. The random sample, for convenience, that is, participated in the study volunteers who accepted to answer the questionnaire, applied between March and May 2019, totaled 150 people. As criteria of inclusion: human resources professionals, professionals who hold leadership positions, Brazilians, working in Brazilian and/or multinational companies. As exclusion criteria: professionals who do not exercise management positions, except professionals in the area of human resources. The variables studied were of two natures. Table 1 presents the characterization of the respondent's profile. Table 2 elucidates the questions of the questionnaire to assist the analysis and discussion of the object of the study. As a theoretical support for the investigation, the main academic publications (Journals and proceedings) indexed to the Web of Science and Scopus database were published between the years of 2000 and 2018. Regarding the ethical aspects, since it was an opinion survey carried out by electronic means and without the identification of the participants, approval was dispensed with the Research Ethics Committee (REC). As a result of the research, 150 people were interviewed. Of the total, 74% are female, 61% are over 36 years of age, 67% work in the service sector and around 49% perform functions in the Human Resources area, as shown in Table 1.

*Table 1: Characterization of the respondent's profile.*

Variable	n	%
<b>Gender</b>		
Female	111	74%
Male	39	26%
<b>Total</b>	<b>150</b>	<b>100%</b>
<b>Age</b>		
18 - 29 years old	18	12%
30 - 35 years old	41	27%
36 - 40 years old	49	33%
41 - 50 years old	29	19%
More than 50 years old	13	9%
<b>Total</b>	<b>150</b>	<b>100%</b>
<b>Company branch</b>		
Industry field	19	13%
Trade	30	20%
Services	101	67%
<b>Total</b>	<b>150</b>	<b>100%</b>
<b>Do you work in Human Resources area?</b>		
Yes.	73	49%
No.	54	36%
I acted, but for the moment I am engaged in another activity	23	15%
<b>Total</b>	<b>150</b>	<b>100%</b>

In Table 2, it is possible to verify that: the use of AI in organizations is still very low, since about 63% never used it, leading to the empirical belief that there is little investment in this type of technology and 19% of companies that use or already used the AI is in the area of customer service. The AI applied to the R&S is still inexpressive, since 90% of respondents never had the experience to recruit and/or select people. It is inferred the lack of knowledge of the advantage in using the AI in order to streamline R & S processes, since 80% of the sample does not think it is capable of responding if this use reduces the time spent recruiting and selecting people. The majority of respondents (87%) believe that AI is important for the evolution of the HR area.

*Table 2: Support questions for the study object.*

Variable	n	%
<b>What is Artificial Intelligence (AI)?</b>		
It is an area of Computer Science that aims to make computers behave and think like humans.	111	74%
It is the use of the computer for intelligent activities	33	22%
It is a computer game designed to simulate situations and problems	5	3%
It is an area that develops software for people with high IQ.	1	1%
<b>Total</b>	<b>150</b>	<b>100%</b>
<b>Does your company use or have already used Artificial Intelligence in any management process?</b>		
Marketing	9	6%
Finance/Administrative	11	7%
Customer service	28	19%
Human Resources	8	5%
Do not use	94	63%
<b>Total</b>	<b>150</b>	<b>100%</b>
<b>Have you had the experience of using Artificial Intelligence in the R&amp;S process?</b>		
Yes	15	10%
No	135	90%
<b>Total</b>	<b>150</b>	<b>100%</b>
<b>If you said yes, do you think the use of Artificial Intelligence in Recruitment &amp; Selection brought gains / benefits in your work?</b>		
Yes	24	16%
No	6	4%
Not applicable	120	80%
<b>Total</b>	<b>150</b>	<b>100%</b>
<b>Do you agree that using Artificial Intelligence helps reduce the time spent on Recruitment &amp; Selection?</b>		
Yes	83	55%
No	4	3%
Perhaps	63	42%
<b>Total</b>	<b>150</b>	<b>100%</b>
<b>Do you think that Artificial Intelligence in Recruitment &amp; Selection is an important tool for the evolution and growth of Human Resources?</b>		
Yes	130	87%
No	20	13%
<b>Total</b>	<b>150</b>	<b>100%</b>
<b>Do you believe that the use of Artificial Intelligence in Recruitment &amp; Selection will help the Human Resources area in your strategic positioning within the company?</b>		
Yes	126	84%
No	24	16%
<b>Total</b>	<b>150</b>	<b>100%</b>

## 6. CONCLUSION

Thus, the present study shows us the need for continuity in the clarifications about the concepts of AI applied to HRM and the low use of AI in companies, and it is empirically inferred that this is justified by the high cost and necessity of specialized teams, besides cultures organizations are not yet ready for insertion of activities of this nature. It is believed that the application of AI in the R&S is inexpressive and has not promoted a rupture in HR practices, legitimized by the costs involved in the implementation and by the little knowledge of the gains, in terms of organizational competitive advantage. Another empirical proposition is the possible resistance of the professionals in the area, due to the fear of losing jobs, due to the insertion of technology, since about 64% of the sample work or have already worked in the area in question,

but never had experience with AI. In this way, it becomes extremely relevant to understand that the machine will not solve everything alone, that it will function as a support system and that, at the end of the process, there will be the personal interview stage. The machine then acts as an accelerator, increasing the efficiency of the R&S. The research also reinforces that AI applied to HRM, specifically in R&S processes, contributes to the strategic positioning of the area, since teams will be more willing to dedicate themselves to activities of a strategic nature, in order to achieve organizational goals. Instead of interviewing a large number of candidates, the HR technician will only need to focus on those profiles that are in line with the values and principles of the organization. This can even contribute to reducing people turnover. The study also reveals, by surveying the Web of Science and Scopus indexed surveys, the lack of solid lines of research on the subject and concluded that the practice is still very embryonic, although the view of the respondents, positive about the benefits that AI can bring to the recruitment and selection of candidates. Therefore, it is expected that the issues raised in this essay will elicit new theoretical and empirical studies that show the interactions between AI and HR. As limiting factors, it is necessary to increase the size of the sample and the possible segmentation among the respondents belonging to the HR area of the other managers. For future study suggestions, it is possible to include: the extension of the questionnaire to provide more in-depth data treatment on AI linked to HR processes.

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#### **LITERATURE:**

1. Almeri, T. M., Martins, K. R., & Paiva de Paula, D. D. S. (2013). O uso das redes sociais virtuais nos processos de recrutamento e seleção. *Revista de Educação: Educação, Cultura e Comunicação* (p.77-93). Brasil: Faculdades Integradas Teresa D'Ávila, (Fatea).
2. Bellman, R. (1978). *An introduction to artificial intelligence: Can computers think?*. Thomson Course Technology. San Francisco, USA: Boyd & Fraser Pub. Co, Illustrated edition.
3. Bitencourt, C. C. (2005). A gestão de competências—uma reflexão histórica e conceitual. *Gestão de competências e aprendizagem nas organizações* (p.19–38). São Leopoldo: Editora Unisinos. doi:10.5700/rausp1001.
4. Bohlander, G., & Snell, S. (2010). *Principles of Human Resource Management*. Mason, OH: South Western: Cengage Learning.
5. Brynjolfsson, E., & McAfee, A. (2015). *A segunda era das máquinas: Trabalho, progresso e prosperidade em uma época de tecnologias brilhantes*. Brasil: Alta Books.
6. Chiavenato, I. (2010). *Gestão de Pessoas: o novo papel dos recursos humanos nas organizações*. 3.ed. Brasil, Rio de Janeiro: Elsevier.
7. Chiavenato, I., & de Pessoas, G. (1999). *O novo papel dos recursos humanos nas organizações*. Brasil, Rio de Janeiro: Campus.
8. Cintra, L. P., Barbosa, J., Barbosa, A. C. Q., & Franco, D. (2017). Recursos Humanos, Competências e Desempenho: (Im) Possível Articulação em Fundação de Minas Gerais. *Revista de Administração: FACES Journal*. (p.27–44). Brasil: Universidade FUMEC/FACE. doi:10.21714/1984-6975FACES2017V16N4ART4128
9. De Mendonça, A., Paulo, A., Rodrigues, A., Anderson, B., De Aragão, S., Amora, C., & Couras Del Vecchio, R. (2018). Inteligência artificial-recursos humanos frente às novas tecnologias, posturas e atribuições. *Revista Contribuciones a la Economía*. ISSN: 1696-8360.

10. Harris, C.G. (2018). Making Better Job Hiring Decisions using "Human in the Loop" Techniques. USA: University of Northern Colorado, Greeley, CO.
11. Haugeland, J. (1985). Artificial Intelligence: The Very Idea . (1ed.). Cambridge, Massachusetts. London, England: MIT Press.
12. Harasim, L. (2015). Educação online e as implicações da inteligência artificial. Revista da FAEEBA-Educação e Contemporaneidade. (p.25–39). Brasil: Salvador.
13. Leite, N. R. P., & Albuquerque, L. G. (2013). Gestão estratégica de pessoas, estratégia de retenção de profissionais e comprometimento organizacional em uma estrutura organizacional remota. Revista de Administração da Universidade Federal de Santa Maria, (p.808–822). doi: 10.5902/198346597217
14. Lima, I., Pinheiro, C. A., & Santos, F. A. O. (2016). Inteligência artificial. São Paulo, SP: Elsevier Brasil.
15. Loebbecke, C., & Picot, A. (2015) Reflections on societal and business model transformation arising from digitization and big data analytics: A research agenda. The Journal of Strategic Information Systems. (p.149–157). doi: 10.1016/j.jsis.2015.08.002.
16. Marras, J. P. (2017). Administração de recursos humanos. (15 ed.) São Paulo, SP: Editora Saraiva.
17. Milkovich, G. T., & Boudreau, J. W. (2000) Administração de recursos humanos. São Paulo, SP: Atlas.
18. Mazon, L. & Trevizan, M. A. (2000). Recrutamento e seleção de recursos humanos em um hospital psiquiátrico de um município paulista. Rev. Latino-am enfermagem. (p.81–87). doi: 10.1590/S0104-11692000000400012.
19. Mesquita, L. D. (2018) O Consumidor "Artificial": Aproximações entre a Inteligência Artificial e o Marketing. Encontros da ANPAD – Enanpad. Curitiba, PR-Brasil.
20. Muller, D.N (1998). Definições Básicas sobre IA. Professor da Faculdade de Informática da Universidade Luterana do Brasil. Brazil. Retrieved 13.11.2018 from <http://www.ulbra.tcche.br/~danielnm/ia/defbas/de.html>.
21. Nascimento, M. A., & Queiroz, M. C. A. (2017) Panorama das pesquisas sobre Inteligência Artificial em Administração no Brasil. Encontros da ANPAD – Enanpad. São Paulo, SP-Brasil.
22. Nespoli, Z. B. (2004). Ciência, inteligência artificial e Pós-modernidade. Revista Diálogo Educacional, (p. 31–42). doi:10.7213/rde.v4i13.7004.
23. Principe, J. C., Euliano, N., & Lefebvre, C. (1999). Neural and adaptive systems systems: fundamentals through simulations. New York: Wiley.
24. Rich, E. & Knight, K. (1991). Artificial Intelligence. Nova Iorque, NY. McGraw-Hill.
25. Rocabert, F. I. (2017). Artificial Neural Network system applied to Human Resource Management (Bachelor's thesis, Universitat Politècnica de Catalunya). (p.24).
26. Rosa, T. D. O., & Luz, H. S. (2009). Conceitos básicos de algoritmos genéticos: Teoria e prática. XI Encontro de Estudantes de Informática do Tocantins (p.27-37). Brasil.
27. Russel, S.J & Norvig, P. (2010). Artificial Intelligence: A modern approach. (3 ed.). Upper Saddle River, New Jersey: Prentice Hall: Pearson Education, Inc.
28. Van Esch, P., Black, J. S., & Ferolie, J. (2019). Marketing AI recruitment: The next phase in job application and selection. Computers in Human Behavior (p.215-222). doi: 10.1016/j.chb.2018.09.009
29. Van Esch, P., Northey, G., Heller, J., Duffy, S., & Striluk, M. (2018). The moderating influence of country of origin information seeking on homophily and product satisfaction. Journal of Promotion Management (p.332–348). doi:10.1080/10496491.2018.1378300.

## THE DIGITAL TAX – WHY AND WHEN?

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### ABSTRACT

*Digital economy is in growth every day, as well as number of digital firms, digital transactions and services. However, when tax for digital economy is mentioned, there are many questions, because digital companies pay much less tax than traditional businesses, even when they make the same profit. Are they paying a fair amount of taxes and charges to the states for online advertising, e-commerce, social platforms, digital intermediary activities and sales? Which tax rate is appropriate for those companies, which criteria need to be fulfilled by the company to become taxpayer of digital tax? During the last year and a half, the European Union is in process of preparing a digital taxation package. According to their predictions, that new package of digital tax with a 3% rate, will bring approximately €4 to €5 billion per year. Also, the digital tax would be collected in those countries where the users are located. The loudest opponents of EU's new package are Ireland, Denmark and Sweden. It is known that Ireland has attracted the digital giants into their country with low tax rates and it's not unexpected that they are against this new digital tax, while Denmark and Sweden are most technology-literate countries. The most of non-Europe countries think this is actually just indirect attack on "GAFA", the biggest four digital firms – Google, Amazon, Facebook and Apple. It may be partly true, but this new tax would also include every digital firm which fill out the terms. In this paper, authors will give responses to the main questions, an overview of positive and negative effects of new digital tax. The importance of digital tax will be explained and confirmed in the paper.*

**Keywords:** *digital economy, online services, taxation, European Union*

### 1. INTRODUCTION

The classical economy, from the point of view of normative existence of companies and their business activities, is defined in terms of the existence of regulations, laws and obligations. The development of industry and technology shapes further changes in regulations, laws and obligations, which is now evident in the fact that the classical economy is inevitably and dynamically changing because the world is a subject of daily changes and innovations. With the emergence and development of the Internet, the technological revolution began, which had a multidimensional impact on the changes of traditional economic paradigms of work, types of jobs and new forms of service delivery. Consequently, in a conceptual sense, the digital economy emerged and developed. With the emergence of the digital economy, the first problems appeared with compliance or non-compliance with all regulations and laws related to

business operations. The market has gradually accepted some forms of the digital economy, not harmonizing the speed of adjusting regulatory and legal solutions with the speed of growth of the digital economy. It can be said that there has been a reconstruction of global trade and economy, without a clear regulatory and business framework which would determine the rules of digital business. Information and communication technologies (ICT) have not only changed the internal organization. ICT also changed the way potential clients and customers communicate, collaborate and coordinate their activities. "Consumers now routinely use computer networks to identify sellers, evaluate products and services, compare prices, and exert market leverage. Businesses use networks even more extensively to conduct and re-engineer production processes, streamline procurement processes, reach new customers, and manage internal operations." (Mesenbourg, 2001, p.2). How to define digital economy? "As a term, it seems to describe a formation that intersects on the one hand with the postmodern cultural economy (the media, the university, and the arts) and on the other hand with the information industry (the information and communication complex). Such an intersection of two different fields of production constitutes a challenge to a theoretical and practical engagement with the question of labor, a question that has become marginal for media studies as compared with questions of ownership (within political economy) and consumption (within cultural studies)." (Terranova, 2000, p.35) According to Malecki & Moriset (2007): „The digital economy represents the pervasive use of IT (hardware, software, applications and telecommunications) in all aspects of the economy, including internal operations of organizations (business, government and non-profit); transactions between organizations; and transactions between individuals, acting both as consumers and citizens, and organizations.“ As the most simple definition – digital economy is modern economy based on the digitalization, new technology and on new type of data. Entrepreneurs prefer this type of working, but governments are in problems with prescribing of new laws and regulations. They had to define new laws for new type of economy, with different methodology and different structure. It was necessary to regulate digital firms. But, today the biggest question about digital firms is taxation. The current tax systems of the individual states are uneven and do not have a unified position on the form of taxation, given that the digital economy is primarily focused on the global markets and only secondarily focused on the tax systems of the individual states. The European Union is considering a new digital tax, but there are a lot of barriers and complications about it. The paper is organized as follows: After the introduction, where the digital economy is defined, there follow the statistical figures about today's digital economy and its power and meaning in the world economy. Next, the biggest digital firms are analyzed and reviewed, with a special emphasis on Google, Amazon, Facebook and Apple. Following, there is an analysis and discussion about the need for new digital tax and the actions of the European Union, which is the main topic of this paper. The paper concludes with a brief summary.

## **2. DIGITAL ECONOMY TODAY – IN NUMBERS**

Today everyone is included in the digital economy – businesses, consumers, governments. They are obtaining services, goods and information from each other. Generally speaking, digital economy is not different from the typical economy. The subjects are the same, and so are the types of transactions – Business2Business, Business2Consumer, Consumer2Consumer and Business2Government. According to Andersen & Wong (2013) the main competitive advantages of digital economy are relational optimality, firm strategy and positioning, radical innovation and first mover advantages, intangible resources and competencies, organizational ambidexterity, network effects and externalities, and transaction cost efficiency. Digital economy grows every day, and it seems there is no limit for it. In recent years, the average annual growth of digital companies is 14%, while on the other hand, average annual growth of typical companies is about 3%.

According to Carlsson (2004): “in the old economy, information flow was physical: cash, checks, invoices, bills of lading, reports, face-to-face meetings, analog telephone calls or radio and television transmissions, blueprints, maps, photographs, musical scores, and direct mail advertisements. In the new [digital] economy, information in all its forms becomes digital - reduced to bits stored in computers and racing at the speed of light across networks.” Partly, this is a result of the great power of the internet. The power of the internet is shown in the following table.

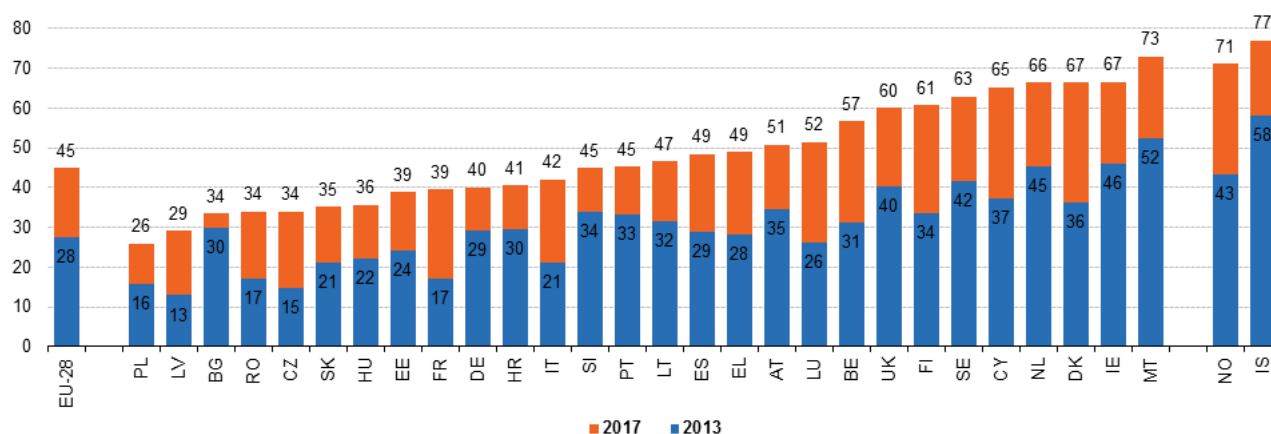
*Table 1: The power of the internet (<https://www.internetlivestats.com/>, 4th June, 2019)*

<b>4<sup>th</sup> June, 2019</b>	<b>17:36</b>	<b>17:37</b>	<b>Changes in 1 min.</b>
<i>Internet users in the world</i>	4,245,155,867	4,245,156,434	567
<i>Total numbers of Websites</i>	1,691,214,209	1,691,214,355	146
<i>Emails sent today</i>	184,834,915,723	184,997,663,134	162,747,411
<i>Google searches today</i>	4,747,697,539	4,751,878,452	4,180,913
<i>Blog posts written today</i>	4,511,713	4,515,686	3,973
<i>Tweets sent today</i>	539,808,593	540,283,911	475,318
<i>Videos viewed today on YouTube</i>	5,009,798,451	5,014,209,812	4,411,361
<i>Photos uploaded today on Instagram</i>	58,237,192	58,288,474	51,282
<i>Tumblr posts today</i>	97,501,594	97,587,455	85,861
<i>Facebook active users</i>	2,237,494,157	2,237,494,619	462
<i>Google+ active users</i>	711,040,220	711,040,414	194
<i>Twitter active users</i>	347,884,398	347,884,421	23
<i>Pinterest active users</i>	238,056,260	238,056,350	90
<i>Skype calls today</i>	244,627,698	244,843,161	215,463
<i>Websites hacked today</i>	92,093	92,174	81
<i>Internet traffic today (GB)</i>	4,658,757,249	4,662,860,974	4,103,725
<i>Electricity used today for the Internet (MWh)</i>	2,866,924	2,869,449	2,525

The table shows how many digital changes happen on the internet in 60 seconds, indicating a huge turnover of information and data. The Europe is in the last few years in a major transition to the digital economy and digital business. The most affected sectors are ICT sector, finance, insurance, and after them follows manufacturing and trade (as retail and wholesale). Today, all companies that want to be competitive are trying to adopt some technological and digital innovations into their strategies. Today, in Europe, 89% of the population has access to the internet, 85% of the population has access to a personal computer and more than 9 out of 10 enterprises has access to the internet in each of the developed and developing countries. Due to the development of new technology, the number of ICT experts in companies is also growing. Internet payment services emerge as important payment tools, where most used software services are PayPal, Apple Pay (87 million users), WeChat Pay (600 million users), Alipay (400 million users), etc. The number of registered PayPal users, according to Statista.com, has increased from 2010, when there were 94.4 million users, to 277 million users in 2019. Enterprises accept platforms that are a priority in the digital economy, both for increased sales and business sustainability. Therefore, companies are increasingly present on social networks, which is shown below in Figure 1.

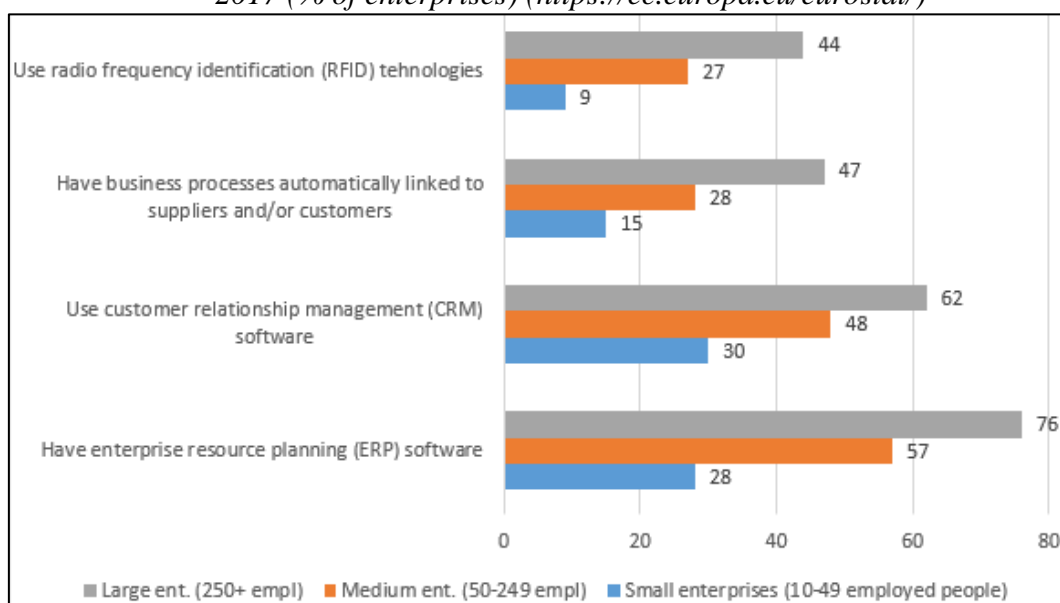
*Figure following on the next page*

*Figure 1: Enterprises using social networks, in 2017 and 2013 (% of enterprises)*  
 (<https://ec.europa.eu/eurostat/>)



The number of companies using social networks is growing significantly in all EU countries, especially in Ireland and the Scandinavian countries. Also, it is interesting to see how many and which companies accept and adopt technology.

*Figure 2: Enterprises adopting technologies for e-business, by enterprise size, EU-28, in 2017 (% of enterprises)* (<https://ec.europa.eu/eurostat/>)

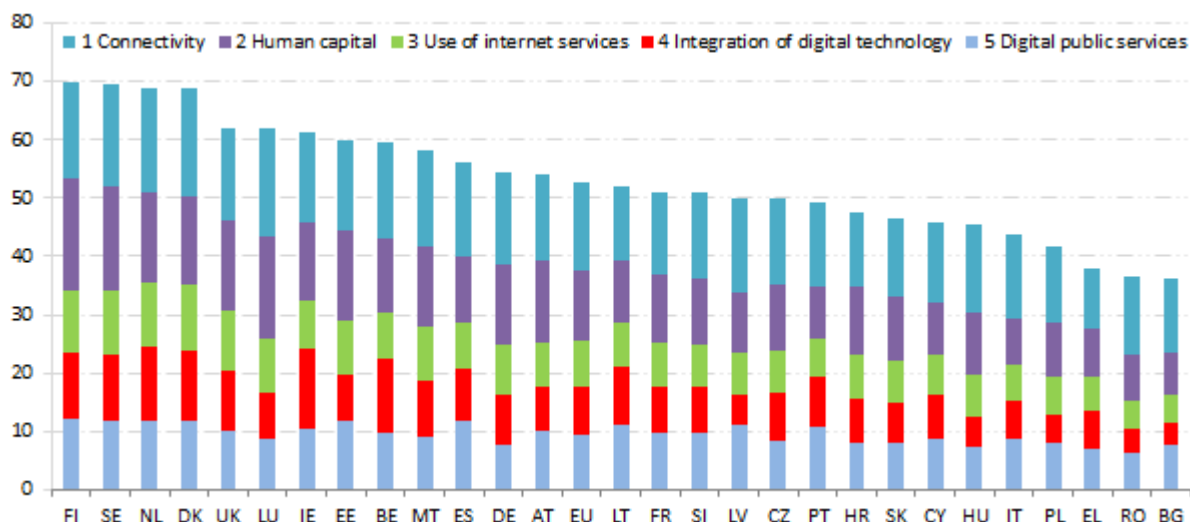


Of all EU countries, Finland, Sweden, Netherlands, Denmark and Ireland are leaders in digitalization and therefore the most recognized by digital economy and digital firms. Also, European Commission is performing measurement of DESI<sup>1</sup> and the following figure shows ranking for 2019.

*Figure following on the next page*

<sup>1</sup> DESI overall index, calculated as the weighted average of the five main DESI dimensions: 1 Connectivity (25%), 2 Human Capital (25%), 3 Use of Internet (15%), 4 Integration of Digital Technology (20%) and 5 Digital Public Services (15%)

*Figure 3: The Digital Economy and Society Index (DESI) 2019 ranking*  
 (<https://ec.europa.eu/digital-single-market/en/desi>)



The afore-mentioned states are also the best positioned in the picture above, and the headquarters of digital companies are most often in more developed countries. It can be said that they are a tax haven for the digital economy.

### 3. DIGITAL ECONOMY'S GIANTS

We have already defined the concept of digital economy, and the notion of a digital enterprise can simply be understood from it. According to Al-Samawi (2019) digital firm is “the firm that runs all its important business processes connected to customers, suppliers and employees using IT tools. This is an excellent clear definition of the DF which comprises all main human components of the organization who needs the IT tools to run tasks. Employees, customers and suppliers need IT tools to help them achieve their goals dealing with the organization. This is the goal of the IT infrastructure of the contemporary organizations, to help human get their job done faster and better.” Today, there is an increasing number of digital companies that surpass in size and revenue all the typical multinational companies and leave them behind. Just as there is a Big Four in accounting, there are also four big digital companies in the digital economy, known by the acronym of GAFA, consisting of Google, Amazon, Facebook and Apple. “The term GAFA was first used in 2011 by Simon Andrews, chief of Addictive Marketing agency in London, with the aim of studying the marketing strategies of these companies and their applicability to other sectors. The term was also used in France in December 2012 (Ducourtieux 2014) referring to the big Internet companies that are tax-exempt in France. The Financial Times refers to GAFA (Rachman 2015), although the purpose is to underline their industrial and even cultural dominance (Chibber 2014)” (Miguel, Casado, 2016, p. 127). They are considered digital economy concepts, representatives of the digital era, but at the same time they are not looked upon benevolently from the standpoint of typical companies, since they do not pay the same amount of tax liabilities. However, the paper will first show who are the GAFA firms and how big they are, before moving on to the very basis of the paper, considering the need for the existence or non-existence of a new digital tax.

#### 3.1. Apple, Inc.

As of September 29, 2018, the Apple had approximately 132,000 full-time equivalent employees. The most important and interesting figures, for the last three years, are shown in the following table.

*Table 2: Selected financial data of Apple Inc for period 2016 – 2018  
 (Annual Report (Form 10-K) of the company)*

<b>Apple Inc (in billion US\$)</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
Net sales	265.6	229.23	215.64
Net income	59.53	48.35	45.69
R&D expenses	14.24	11.58	10.05
R&D % of net sales	5%	5%	5%
Total cash	237.1	268.9	237.59
Total assets	365.73	375.32	321.69

As the table shows, there is a continuous increase in net sales and net income year by year, at the same time keeping the same rates of investment in R & D, which is a positive item. The amount of cash and cash equivalents oscillates, just like the value of the total assets, but that is irrelevant in relation to the other data displayed. According to Forbes, Apple Inc. is ranked 6<sup>th</sup> in the world's largest companies.

### **3.2. Amazon.com, Inc.**

Amazon.com employed approximately 647,500 full-time and part-time employees as of the end of 2018. It's important to remind that employment levels fluctuate due to seasonal factors affecting our business.

*Table 3: Selected financial data of Amazon.com, Inc. for period 2016 – 2018  
 (Annual Report (Form 10-K) of the company)*

<b>Amazon.com Inc (in billion \$)</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
Net sales	232.89	177.87	135.99
Net income	10.07	3.03	2.37
R&D expenses	28.84	22.62	16.09
R&D % of net sales	12%	13%	12%
Total cash	32.17	21.86	25.98
Total assets	162.65	131.31	83.4

It is not surprising to see the Amazon's business data either, which also progresses year after year, with the growth in net sales, as well as the increase of net income.

### **3.3. Facebook, Inc.**

Facebook as one of the most popular social networks ever, is considered one of the strongest digital companies and one of the best digital economy representatives. Rare are those who do not have a user profile on this social network. Number of employees increased to 37,773 as of March 31, 2019. The company's business operations are shown below.

*Table 4: Selected financial data of Facebook, Inc. for period 2016 – 2018  
 (Annual Report (Form 10-K) of the company)*

<b>Facebook, Inc (in billion \$)</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
Net sales	55.84	40.65	27.64
Net income	22.11	15.93	10.22
R&D expenses	10.27	7.75	5.92
R&D % of net sales	5%	7%	9%
Total cash	10.13	8.20	9.11
Total assets	97.33	84.52	64.96

The situation is the same as with the data presented above. The company is experiencing an increase in business, the results are better every year and the amount of investments in R & D is also higher.

### 3.4. Google

When you say Google, it can be identified as Alphabet Inc., a member of which Google is, and at the same time more than 99% of the revenue is generated through Google. Below are the data for the entire Alphabet group.

*Table 5: Selected financial data of Alphabet, Inc. for period 2016 – 2018  
 (Annual Report (Form 10-K) of the company)*

<b>Alphabet, Inc (in billion \$)</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
Net sales	136.82	110.86	90.27
Net income	30.74	12.66	19.48
R&D expenses	21.42	16.63	13.95
R&D % of net sales	16%	15%	16%
Total cash	109.14	101.87	86.33
Total assets	232.79	197.3	167.5

Same as the previous three, there was also an increase in business activity here. It is not questionable why these four companies (Google made 99.6% of the revenue of the Alphabet group in 2018, which is why we look at it all as Google) are considered the "giants" of the digital economy. What is definitely the problem is the amount of taxes paid by digital companies, which is by tens of percent lower than for typical / non-digital businesses. Why is that so? Are they protected, privileged or just found a way - building their headquarters in European countries that have (the) low(est) tax rates on such companies? Ireland, Denmark, and Sweden can be freely called tax havens for digital businesses because they have to pay low tax rates in these countries. When the talks about regulating and harmonizing digital taxes at the EU level began, and when the new "digital tax" package started being negotiated about, it is not difficult to guess which countries were the first to raise their hands against these rules and ideas. Of course, they were the so called "tax havens". According to the European Commission companies with digital business models pay on average half the effective tax rate of companies with traditional business models. So, the EU decided to prepare new digital tax packaging.

### 4. IS THERE A NEED FOR NEW DIGITAL TAX?

The European Union is trying to implement new measures with regard to taxation of digital companies, however, there are numerous dilemmas, since tax and fiscal challenges are more difficult to reconcile. Currently, there are two solutions presented:

1. „A Common EU solution for Digital Activities
  - Aim: A Single Market in which digital companies can do business and grow, while paying their fair share of taxes
  - Solution: A comprehensive corporate tax framework
2. An interim tax to fix the urgent gaps
  - An interim tax of 3% on revenues made from three main types of services, where the main value is created through user participation,, ([https://ec.europa.eu/taxation\\_customs/sites/taxation/files/factsheet\\_digital\\_taxation\\_21032018\\_en.pdf](https://ec.europa.eu/taxation_customs/sites/taxation/files/factsheet_digital_taxation_21032018_en.pdf))

“A comprehensive corporate tax framework” includes: adjusting double tax treaties, common consolidated corporate tax base (CCCTB) and new rules for the taxation of digital activities.

The new rules are focused on two essential factors, namely: where to tax and what to tax. Under the planned regulations, the company will pay tax in the Member State in which they have their digital presence if they meet one of the following three items (according to Europa.eu):

- Revenues from supplying digital services exceeding €7 million
- Number of users exceeding 100,000
- Number of online business contract exceeding 3,000.

The following will be taxed:

- Profits from user data
- Services connecting users
- Other digital services (e.g. subscription to streaming services).

“An interim tax of 3% on revenues made from three main types of services, where the main value is created through user participation”, is one of the possible solutions. It would be used on the following: online placement of advertising, sale of collected user data, digital platforms that facilitate interactions between users, when business of digital firm is provided by total annual worldwide revenue above €750 million and/or total annual revenue from digital activities in the EU above €50 million. Of course, the aforementioned clearly shows why the rest of the world sees this as an attack on the Big Four (GAFA). It will be difficult for any smaller digital company to achieve the same in terms of the above conditions and thus become a payer of new taxes. But when we put this issue aside, there are numerous possible advantages and disadvantages of introducing a new digital tax package, which can be sorted as follows:

*Table 6: Advantages and disadvantages of introducing a new tax on digital companies (made by the authors)*

Advantages	Disadvantages
Equal tax burden on traditional and digital economies	Changing the countries in which digital companies will work, due to new tax burden
Increased revenue in the budgets of EU Member States	Due to the departure of digital companies from Member States, a large number of layoffs would follow
The satisfaction of traditional companies due to the same conditions	Increasing the taxation of digital companies would negatively impact the future new business ideas (reducing the number of digital companies)
The tax rates uniformity in all EU Member States, thus gaining equal opportunities for attracting firms to a country (?)	There would be pressure from non-European countries, as a result of the attack on US digital companies

The table above shows the results of authors' reflection, i.e. potential advantages and disadvantages, but one item stands out, and that is the advantage of “The tax rates uniformity in all EU Member States, thus gaining equal opportunities for attracting firms to a country”, where the question arises to what extent this is actually an advantage and to what extent a disadvantage. Though regulatory authorities would see this as an advantage where everyone would have equal opportunities, there is a problem where “tax havens” would lose their status and their competitive advantage, which they had the opportunity and strength to achieve. Should some other Member States blame themselves because they have not attracted digital companies as Ireland, Denmark, or Luxembourg have, or are they to blame those who have this competitive advantage? It is logical to reflect on how these so-called tax havens for digital companies exploited their low tax rates and attracted digital economy within their borders. It would not be fair if they were imposed something they did not want due to the inability of others to do the same.

Digital taxes are certainly very important in today's world. However, a new tax package would bring discomfort among digital companies, the vast majority would decide to move their companies outside the EU, and this would undermine the Member States' right to independently decide on the tax rates, where it can be done and where individual countries benefit.

## 5. CONCLUSION

The intensive growth and development of the digital economy is a contemporary challenge for the further development of the global economy, with the need to consider each individual country, not ignoring the regional development of the economy and the regional development of the digital economy. Defining a new tax, such as digital tax, requires reverse implementation, since each country has its own autonomous fiscal system. It is obvious that such a form of tax would not be unique and would create a multiplicative set of difficulties in implementation and slow down the growth of the digital economy. It is proposed to introduce digital tax on the level of union, association or the default confederate form of states. Such an approach to taxation would have positive implementation effects regarding the taxation of large digital companies, which would reduce the gap between developed and less developed countries. Furthermore, along with the realization of tax revenues from the digital tax, a system should be designed for allocation of goods, such as certain forms of facilitation for the innovative and technological innovations and inventions.

## LITERATURE:

1. Al-Samawi, Yahya. (2019). *Digital Firm: Requirements, Recommendations, and Evaluation the Success in Digitization*. International Journal of Information Technology and Computer Science. 11. 39-49.
2. Andersen, B., & Wong, D. (2013). *The new normal: Competitive advantage in the digital economy*. London: Big Innovation Centre. Retrieved on May, 21, 2014.
3. Bauer, M. (2018). *Digital Companies and Their Fair Share of Taxes: Myths and Misconceptions*. ECIPE Occasional Paper, 3, 2018.
4. Carlsson, B. (2004). *The Digital Economy: what is new and what is not?* Structural change and economic dynamics, 15(3), 245-264.
5. Europa.eu, <https://ec.europa.eu/eurostat>
6. Fortanier, F., & López, J. (2017). *Measuring digital trade: towards a conceptual framework*. STD/CSSP/WPTGS (2017) 3), Paris, Organization for Economic Cooperation and Development (OECD).
7. Internet Live Stats, <https://www.internetlivestats.com>
8. Lambrecht, A., Goldfarb, A., Bonatti, A., Ghose, A., Goldstein, D. G., Lewis, R., ... & Yao, S. (2014). *How do firms make money selling digital goods online?* Marketing Letters, 25(3), 331-341.
9. Malecki, E. J., & Moriset, B. (2007). *The digital economy: Business organization, production processes and regional developments*. Routledge.
10. Mesenbourg, T. L. (2001). Measuring the digital economy. US Bureau of the Census.
11. Miguel J.C., Casado M.Á. (2016) *GAFAnomy (Google, Amazon, Facebook and Apple): The Big Four and the b-Ecosystem*. In: Gómez-Uranga M., Zabala-Iturriagoitia J., Barrutia J. (eds) Dynamics of Big Internet Industry Groups and Future Trends. Springer, Cham
12. Tapscott, D. (1996). *The digital economy: Promise and peril in the age of networked intelligence* (Vol. 1). New York: McGraw-Hill.
13. Taxation Trends in the European Union, Data for the EU Member States, Iceland and Norway, 2018, Retrieved 20.4.2019 from: [https://ec.europa.eu/taxation\\_customs/sites/taxation/files/factsheet\\_digital\\_taxation\\_21032\\_018\\_en.pdf](https://ec.europa.eu/taxation_customs/sites/taxation/files/factsheet_digital_taxation_21032_018_en.pdf)

14. Terranova, T. (2000). *Free labor: Producing culture for the digital economy*. Social text, 18(2), 33-58.
15. The Digital Economy and Society Index (DESI), <https://ec.europa.eu/digital-single-market/en/desi>

## SUSTAINABLE MOBILITY AS A FACTOR INCREASING THE QUALITY OF LIFE IN CITIES

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### ABSTRACT

*The global trends of the 21st century are strongly reflected in the way our cities and the urban transport have changed. The development of new technologies, together with the emergence of the concept of sharing economy, have resulted in an altered model of urban mobility. More and more city residents use solutions of shared mobility, transport on demand and mobility-as-a-service in their everyday trips. The article presents the idea of sustainable mobility and state-of-the-art urban transport solutions that are being implemented in contemporary cities. The correlation between transport and quality of life in cities is evident, however, many documents refer only to basic transport indicators, such as: road density, length of roads or number of accidents. Such a narrow scope of analysis proves to be insufficient and shows a growing need for research in this field. The aim of the following paper is to present the relationship between sustainable mobility and the quality of life in cities, and to propose additional indicators capable of measuring this relationship. 'The quality of life' itself, nebulous as a concept, is considered to be one of the most crucial factors when choosing a place to live. As result, a variety of indicators and methodologies should be employed for its complex and multifaceted analysis.*

**Keywords:** *Global trends, Quality of life, Sharing economy, Sustainable mobility, Urban transport*

### 1. INTRODUCTION

The world is changing at a faster pace than ever. Major technological innovations and phenomena such as big data, artificial intelligence and the Internet of Things have led to proliferation of new mobility options. The emergence of the global trend of sharing economy have caused significant changes in the urban mobility model too. Private cars have been increasingly displaced by shared mobility systems such as: bike-sharing, scooter-sharing, car-sharing. Mobile applications facilitate the use of these forms of transport and allow to rent vehicles for minutes, as well as, to pay and make reservations. In accordance with the concept of mobility-as-a-service, the ideal solution would be one application encompassing and facilitating all forms of transport. The use of such solutions aids the development of sustainable mobility, and also seems to have a beneficial effect on the quality of life in cities. Quality of life is associated with multidimensional features and measures such as level of air pollution, waste management, water management, environmental pressure and noise, education, housing etc. (Gupta et al., 2018, p. 101). On the other hand, residents perception of quality of life depends on personal characteristics, the presence of amenities (manmade and natural), and the actual use of those amenities (Biagi et al., 2018, p. 137). The aim of this paper was to present the relationship between sustainable mobility and quality of life in cities, and to propose additional indicators that can measure this relationship. Eventually, this interrelation was confirmed and seven new indicators were provided. The paper is organised as follows. The next section refers to sustainability and changes in transport in cities (urban mobility). Section 3 reviews the literature on quality of life in cities and its indicators. Section 4 discusses correlation between quality of life and transport and presents the indicators provided by the author. Finally, section 5 summarises conclusions and theoretical implications of the study.

## **2. URBAN MOBILITY**

The transport activities are the second largest source of global carbon dioxide emissions, of which the first sectors are electricity and heat production (IEA, 2017). This is one of the main reasons why transport policies in urban areas should clearly prioritise pedestrians, cyclists and local public transport over private cars – in urban planning, infrastructural development and traffic management. Nevertheless, all modes of transport can be good, but only with their proper functional application. Each of them occupies a niche, which may be rather broad or quite limited; some may respond to a wide range of needs, others can cope only with very specific demands; some may be effective in general urban environments, others work well only in targeted situations (Grava, 2003, p. XVII). The concept of mobility presupposes that transport products and services must be responsive to the needs, habits, and preferences of travellers and society. Thus, the shift in language - from transport to mobility - represents a shift in thinking about how a transportation system is best designed and managed: transport is a system-centric concept, mobility is a user-centric concept (CAR, 2016, p. 4). Traditional transport ecosystems have diversified, employing a wider array of actors, and the emergence of new concepts, such as Mobility-as-a-Service (Little, 2018, p. 6)

### **2.1. Sustainability**

There is no commonly approved definition of sustainability. In the literature on the subject, the word 'sustainable' appears in many different contexts. By definition, 'sustainable' means 'able to continue over a period of time' or 'causing little or no damage to the environment and therefore able to continue for a long time' (Cambridge dictionary). Furthermore, many current transport documents and publications refer to sustainable development. The term 'sustainable development' has evolved over the years. A straightforward definition, which has been widely cited around the world, was presented by World Commission on Environment and Development (WCED) in 1987. The WCED states that sustainable development is 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987, p. 1). In 2015 United Nations added that 'sustainable development cannot be realized without peace and security; and peace and security will be at risk without sustainable development' (United Nations, 2015, p. 9). Moreover, European Commission prioritises similar phrase 'sustainable growth' which means 'promoting a more resource efficient, greener and more competitive economy' (European Commission, 2010, p. 10)

### **2.2. Sustainable mobility**

Transport is a key driver in attempts to increase the degree of sustainability in our societies. Mobility is the ability of people and goods to move or be transported. Mobility is sustainable when it is created in a way that respects safety and the environment and guarantees fairness among individuals. Sustainable mobility refers to three dimensions (Perschon, 2012, p. 4):

- social, which should safeguard the fulfilment of people's needs on an intergenerational basis, with fair and equitable access to markets, health services, education and jobs, and participation in cultural
- economic, which should provide effective options for the movement of passengers and goods, and safeguard and facilitate regionally balanced development, taking account of financial capacities and the ensuing burdens for present and future generations
- ecological, which should reduce emissions of air pollution greenhouse gases and noise and minimise land consumption by transport infrastructure

More than 700 indicators are used to measure urban sustainability (Macedo et al., 2017, p. 732) for example: modal share of public transport/non-motorised transport (social dimension),

minimum taxation on fuel (economy dimension), land consumption by transport infrastructure (environment dimension). Furthermore, some authors refer to the existence of one more dimension: the cultural (Ameen et al., 2015, pp. 110-125). The use of these key criteria and indicators of sustainable mobility can provide reliable comparative data for successful implementation and evaluation of transport-related measures. To sum up, sustainable mobility is a comprehensive issue. In contemporary metropolises and cities there are many activities that affect it. The most important ones are presented below. As a result, new urban mobility model has emerged over the past few years.

### **2.3. Shared mobility**

Shared mobility is directly linked to the global trend of sharing economy. This trend has a very strong impact on the entire economy, however, transport is one of its key sectors. Shared mobility refers to the shared use of a vehicle, bicycle, or other transportation modes. The concept of shared-use mobility, which is at the centre of the new mobility services, enables users to have access to transport modes on a short-term and on an as-needed basis. Examples of shared mobility are: car-sharing, scooter-sharing, bike-sharing, ride-sharing, carpooling and vanpooling (Kuzia, 2017, p. 144). The first large mobility sharing systems were associated with bike-sharing in Western Europe. Then, car-sharing systems have begun to develop at a high rate, which are increasingly used by the ecological fleet of vehicles, i.e. electric cars. Currently, in many cities, there are many companies offering motor scooter-sharing and scooter-sharing, which acts as 'last mile trip' - the movement of people from a transportation hub to a final destination (home, work or school). Shared mobility scheme requires the use of at least one intelligent element: the intermediate platform. However, the use of Information and Communication Technologies (ICT) can make shared mobility smarter in cities (Mourey, 2017, p. 4).

### **2.4. Mobility-as-a-Service**

The goal of Mobility-as-a-Service (MaaS) is to provide end-to-end transport by linking different transport modes and making better use of the existing transport options in a given area. MaaS brings all means of travel to one easy place - mobile application (Kuzia, 2018, p. 1536). By definition 'MaaS systems offer customers personalised access to multiple transport modes and services, owned and operated by different mobility service providers, through an integrated digital platform for planning, booking and payment' (ITS Australia, 2018, p. 20). An important factor in making MaaS a success will be getting all of the players to work together. Mobile application should provide a planning trip function and a possibility to pay for all modes of public and private transport within the city: train, taxi, bus, car-sharing, bike-sharing, scooter-sharing etc.

## **3. MEASURING QUALITY OF LIFE IN CITIES**

### **3.1. Concept of quality of life**

Quality is a universal concept, appearing in almost all aspects of life. However, the term of quality has gradually started applying to the quality of life (QoL), mainly to the quality of life in cities. QoL is a crucial element in the competitiveness of cities because it represents a pull and retention factor for new resident populations. The quality of life (QoL) has many definitions and has become a complex, multifaceted category, which is the subject of research in many scientific disciplines. Currently, the concept of QoL is associated with several various disciplines, such as economics, environmental science, medicine, sociology, psychology, political science and demography (Andrejovský et al., 2012, p. 309).

### 3.2. Definition

QoL is commonly perceived as general wellbeing of people and the quality of environment they live in. QoL depends on a set of exogenous characteristics such as the quality and quantity of public services, natural environments, and cultural amenities, as well as more intangible factors such as human interactions and social and human capital. The second issue is that QoL depends also on the endogenous characteristics of the resident population, such as their status, gender, age, education, culture, and ethnicity (Biagi et al., 2018, p. 1). World Health Organization defined QoL as a life which reflects how people perceive their place in life, in culture and value system where they live and where they make relationships to objectives, standards or interests. (ISOQL, 2008, p. 1136).

### 3.3. Indicators and measurements

There are numerous measurements which are focused on valuation of quality of life globally, but there are considerable differences in the methodology and results among them. To measure the economic performance of countries macroeconomics it is possible to use indicators such as Gross National Product (GNP), Gross Domestic Product (GDP) and inflation. Nevertheless, these indicators do not reflect attitude and opinion of inhabitants, so it is not possible to use them to measure the development of the quality of life of the inhabitants in the country. A multidimensional approach is needed to evaluate quality of life which concerns measures of both satisfaction and importance in material wellbeing, health, productivity, intimacy, safety, community, and emotional wellbeing (Beslerová et al., 2014, p. 39). Therefore, indices such as OECD Better Life Index, Well-Being Index, Quality of Life Index, European Green City Index, Mercer's Quality of Living Ranking and other were created. A few of them are presented below.

#### 3.3.1. OECD Better Life Index

The Organisation for Economic Co-operation and Development (OECD) is an international organisation that works to build better policies for better lives. Its goal is to shape policies that foster prosperity, equality, opportunity and well-being for all. Better Life Index, launched in May 2011, is an interactive tool that allows people to compare countries' performances according to their own preferences in terms of what makes for a better life. It includes 11 dimensions and each has its own indicators:

1. Housing: housing expenditure, dwellings with basic facilities, rooms per person
2. Income: household financial wealth, household net adjusted disposable income
3. Jobs: earnings, job security, long-term unemployment rate and employment rate
4. Community: quality of support network
5. Education: years in education, student skills, educational attainment
6. Environment: water quality, air pollution
7. Civic Engagement: stakeholder engagement for developing regulations
8. Health: life expectancy, self-reported health
9. Life Satisfaction: level of happiness
10. Safety: homicide rate, feeling safe walking alone at night
11. Work-life balance: time devoted to leisure and personal care

The highest places in the ranking are taken by: Norway, Australia, Iceland (OECD, 2019).

#### 3.3.2. Quality of life in European Cities

European Union conducted a survey on the 'Perception of Quality of Life in European Cities', every three years since 2004. The last available study was carried out in 2015 and more than 40,000 people were interviewed in 79 cities. People rated the quality of services such as education, cultural and sport facilities as well as public transport and administrative services.

People were asked which mode of transport they use most frequently, whether they agree or disagree with statements on urban safety, air and noise pollution and whether migration is perceived as an asset. In the overall ranking of satisfaction of life in the city, in EU capital cities, the first three places are taken by: Vilnius, Copenhagen, Stockholm (European Commission, 2016, p. 5).

### 3.3.3. Numbeo Quality of Life Index

Numbeo was launched in April 2009 and developed the Quality of Life Index. The research and available data at Numbeo.com are not influenced by any governmental organisation. This website was mentioned or used as a source by many international newspapers and magazines including BBC, Time, The Week, Forbes, etc. The Quality of Life Index is an estimation of the overall quality of life by using an empirical formula that takes into account eight different indexes:

1. Purchasing power index
2. Safety index
3. Health care index
4. Cost of living index
5. Property price to income ratio
6. Traffic commute time index
7. Pollution index
8. Climate index

The research is available for 71 countries from the whole world. The first three places in the Quality of Life Index are taken by: Denmark, Switzerland, Finland.

### 3.3.4. Szołtysek research

Other indicators were presented by Szołtysek, a Polish scientist specialising in urban logistics, mobility, quality of life and economy. The research mainly focused on providing multi-aspectual information about factors that influence a sense of quality of life in a city. It was decided to select the following detailed issues (P1, P2, etc.) along with their indexes that are of empirical measurement nature (W1, W2, etc.) (Figure 1) (Szołtysek et al., 2016, p. 501).

Detailed issues		Indexes	
P1	Living conditions	W1	Cleanliness of the natural environment
		W2	Organization of household waste management
		W3	Nature (green spaces) in the neighborhood
		W4	Noise burden
P2	Culture, physical culture	W5	Accessibility of physical culture outlets (gyms)
		W6	Opportunities for active sport cultivation
		W7	Organization of spaced used for meeting friends
		W8	Prices of public transport tickets
		W9	Accessibility of bicycle routes
		W10	Quality of public transport
P3	Mobility	W11	Conditions of waiting at bus stops (shelters, seating, wind stoppers, etc.)
		W12	Travel conditions (seating and standing places, crowd, cleanliness, temperature)
		W13	Separate lanes (for public transport)
		W14	Public transport concessions
		W15	Existence of a part of a city where people can meet others with no limitations (e.g. the Market Square in Kraków)
P4	Public space	W16	Is there sufficient space of this type to experience high quality of life?
		W17	Do you think it is necessary to increase the amount of this commonly available space?
		W18	Easy access to public space on foot, by bike, etc.
		W19	Easy access to public space by individual transport
		W20	Easy access to public space by public transport

Figure 1: Detailed issues and their indexes (Szołtysek et al., 2016, p. 502)

## 4. QUALITY OF LIFE AND TRANSPORT CORRELATION

### 4.1. Dimensions and indicators in literature

As mentioned above, transport and movement of people is one of the key areas of the city life. Hence, stating the mutual dependence between the quality of city life and mobility is rather obvious. Nevertheless, the majority of the studies relevant to the topic do not seem to pay adequate attention to transport. OECD indicates 11 dimensions, however none of them focuses on transport sufficiently. Quality of life in European Cities by the EU examines satisfaction with public transport divided into a four-level scale: very satisfied, rather satisfied, rather unsatisfied or not at all satisfied. Additionally, respondents were also asked which type of transport they use most often on a typical day. In the context of changes in urban mobility and the emergence of new solutions, obtaining such data seems to be highly selective, therefore insufficient. In order to compile data from diverse research areas, the following table was prepared (table 1).

*Table1: Transport indicators in measuring the quality of life in cities (own elaboration)*

Research	All dimensions (number)	Indicators connected to transport
The Organisation for Economic Co-operation and Development (OECD)	11	Air pollution (caused by transport)
Quality of life in European Cities, European Commission	22	Public transport: satisfaction with public transport/ type of transport used most often on a typical day
Numbeo Quality of Life Index	8	Traffic commute time index: <ul style="list-style-type: none"> <li>• how much time people spend traveling to work (or school) on their daily commute</li> <li>• distance to workplace (or school)</li> <li>• estimation of overcrowding and overpopulation</li> <li>• inefficiency of doing business in cities and countries</li> <li>• to estimate CO<sub>2</sub> consumption for traffic per capita</li> </ul>
Szołtysek research	4	Mobility: <ul style="list-style-type: none"> <li>• Prices of public transport tickets</li> <li>• Accessibility of bicycle routes</li> <li>• Quality of public transport</li> <li>• Conditions of waiting at bus stops (shelters, seating, wind stoppers, etc.)</li> <li>• Travel conditions (seating and standing places, crowd, cleanliness, temperature)</li> <li>• Separate lanes (for public transport)</li> <li>• Public transport concessions</li> </ul>
Mercer Quality of Living Ranking	10	Public services and transportation: electricity, water, public transportation, traffic congestion
Eurostat Quality of life indicators	9	Living environment refers to the access to services (e.g. shops, public transport, etc.), the presence of cinema, museums, theatres, etc. in the places where the respondent lives.

### 4.2. Proposal of new indicators

More and more contemporary cities adopt the new urban mobility model. Inhabitants respond to innovations, using modern solutions such as mobile applications to rent and order transport. The growing number of sharing systems allows residents to rent vehicles per minute and

encourages them to give up their own car. With regard to these changes, the study of the quality of life should take into account the access of residents to these new, ecological, shared forms of transport. The dimensions presented above are insufficient to examine the impact of transport on the quality of life in the cities. In Table 1, the greatest number of indicators was presented by Szołtysek. Few of them correspond to modern or ecological transport solutions, e.g. separate lanes, accessibility of bicycle routes. Nonetheless, the author of this article believes, that in relation to sustainable urban mobility and state-of-the-art solutions, extended and modernised indicators should be applied. A few examples are given below:

1. Number of sharing systems in cities (including bike-sharing, car-sharing, scooter-sharing etc.)
2. Number of ecological vehicles (from sharing systems) per one thousand residents
3. Integration of sharing systems (e.g. one application)
4. Integration of public transport and sharing systems (e.g. bicycle parking at bus/train stops)
5. Infrastructure for new transport solutions (e.g. bicycle and scooter routes)
6. Appropriate legal regulations for sharing systems (e.g. electric scooters)
7. Facilities for new forms of transport, both urban and provided by private companies (e.g. monitoring, parking, sanitation, cloakroom)

## 5. CONCLUSION

Sustainable urban mobility planning focuses on satisfying people's travel needs and improving their quality of life (Nosal-Hoy et al., 2018, p. 606). With increasing mobility demand and evolving mobility needs, providers of the mobility solutions have to satisfy demand for services that are increasingly convenient, fast and predictable. Cars will not be entirely replaced in the foreseeable future, but they can be displaced to some extent since there are other choices available. The transformation of mobility systems is one of the key challenges the world is facing today. Quality of life is one of the most important areas which are examined within human well-being around the world. At the same time, transport plays an increasingly important role in the cities, and thus in human life. This paper presents the correlation between sustainable mobility and quality of life. The analysis of available literature on the following subject has showed that the research on the quality of life not only fails to prioritise transport, but sometimes does not acknowledge it at all in the overall assessment. With reference to changes taking place in urban mobility, such as shared mobility or mobility-as-a-service, the article proposes indicators that could be used to measure the quality of life in the city. The indicators refer to the transport dimension, however, taking into account the emerging urban mobility systems. Resident access to sharing systems and their convenient application (mobile applications) seem to be a significant issue. The number of available systems and vehicles, as well as, proper legal regulations and infrastructure are also important. Certainly, the interrelation between quality of life and urban mobility requires further research, which the author intends to carry out in subsequent scientific works. Notwithstanding, the new indicators presented can be used to study the quality of life in cities.

## LITERATURE:

1. Ameen, R. F. M., Mourshed, M., Li, H., (2015), *A critical review of environmental assessment tools for sustainable urban design*, Environmental Impact Assessment Review
2. Andrejovský, P., Gajdoš, J., Hajduová, Z., Andrejkovič, M., (2012), *Ecologisation of social development and quality*, 12th international multidisciplinary scientific geoconference SGEM 2012, Albena, Bulgaria, 307–312.
3. Beslerová, S., Dzuričková, J., (2014), *Quality of life measurements in EU countries*, Procedia Economics and Finance 12 (2014) p. 37 -47

4. Biagi B., Ladu, M. G., Meleddu, M., (2018), *Urban Quality of Life and Capabilities: An Experimental Study*, Ecological Economics 150 (2018) p. 137–152
5. Cambridge dictionary, Retrieved 25.06.2019 from <https://dictionary.cambridge.org/dictionary/english/sustainable>
6. CAR Center for Automotive Research, (2016), *The Impact of New Mobility Services on the Automotive Industry*, Center for Automotive Research
7. European Commission, (2010), *Europe 2020 A strategy for smart, sustainable and inclusive growth*. Retrieved 25.06.2019 from <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF>
8. European Commission, (2016), *Quality of Life in European Cities 2015*, Retrieved 25.06.2019 from [https://ec.europa.eu/regional\\_policy/sources/docgener/studies/pdf/urban/survey2015\\_en.pdf](https://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/urban/survey2015_en.pdf)
9. Eurostat, (2015), *Quality of life. Facts and views*, Publications Office of the European Union
10. Grava, S., (2003), *Urban transportation systems choices for communities*, McGraw-Hill
11. Gupta, S., Mateu, J., Degbelo J., Pebesma, E., *Quality of life, big data and the power of statistics*, Statistics and Probability Letters 136 (2018) 101–104
12. IEA, (2017), *CO2 Emissions from Fuel Combustion Highlights*. The International Energy Agency, Paris, France. Retrieved 25.06.2019 from <https://www.iea.org/publications/freepublications/publication/CO2EmissionsfromFuelCombustionHighlights2017.pdf>
13. ISOQL., (2008), *Quality of Life Research*, Journal of Quality of Life
14. ITS Australia, (2018), *Mobility as a Service in Australia. Customer insights and opportunities*, Retrieved 25.06.2019 from <https://www.its-australia.com.au/maasreport/>
15. Kuzia, M., (2017), *Shaping smart mobility in Gdynia*, Carpathian Logistics Congress 2017 - Congress proceedings, nr 1 p.142-147, 2017 Liptovsky Jan.
16. Kuzia, M., (2018). New urban mobility model in sharing economy context, Interdisciplinary management research XIV, Barkovic, D., et al, Faculty of Economics in Osijek, Opatija, 2018, p. 1526-1544.
17. Little, A., D., (2018), *The Future of Mobility 3.0. Reinventing mobility in the era of disruption and creativity*, Retrieved 25.06.2019 from [http://www.adlittle.com/futuremobilitylab/assets/file/ADL\\_UITP\\_Future%20of%20Mobility3.0-min.pdf](http://www.adlittle.com/futuremobilitylab/assets/file/ADL_UITP_Future%20of%20Mobility3.0-min.pdf)
18. Macedo, J., Rodriguesa, F., Tavaresb, F., (2017), *Urban sustainability mobility assessment: indicators proposal*, Energy Procedia 134
19. Mercer, (2016), *Quality of Living Rankings*, Retrieved 22.06.2019 from <https://www.imercer.com/content/mobility/quality-of-living-city-rankings.html>,
20. Mourey, T., Köhler, D., (2017), *Clean, shared and intelligent mobility*, Retrieved 21.06.2019 from [http://www.mobilityweek.eu/fileadmin/user\\_upload/materials/participation\\_resources/2017/2017\\_EMW\\_Thematic\\_Guidelines.pdf](http://www.mobilityweek.eu/fileadmin/user_upload/materials/participation_resources/2017/2017_EMW_Thematic_Guidelines.pdf)
21. Nosal-Hoy, K., Kuzia, M., *The assessment of the quality of selected public spaces in the city centre of Krakow and Gdynia*, Proceedings of the 4th International Conference on Traffic and Transport Engineering, s. 606-612, Belgrade 2018
22. OECD (The Organisation for Economic Co-operation and Development), (2019), *Better Life Index*, Retrieved 21.06.2019 from <http://www.oecdbetterlifeindex.org/>
23. Perschon J., (2012), *Sustainable Mobility Recommendations for Future-Proof Transport Strategies*, Stiftung Entwicklung und Frieden, Germany
24. Szołtysek, J., Otręba, R., (2016), *Determinants of Quality of Life in Building City Green Mobility Concept*, Transportation Research Procedia 16 (2016) p. 498-509

25. United Nations, (2015), *Transforming our world: the 2030 Agenda for Sustainable Development*. Retrieved 25.06.2019 from <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N15/291/89/PDF/N1529189.pdf?OpenElement>
26. WCED (World Commission on Environment and Development), (1987), *Report of the World Commission on Environment and Development: Our Common Future; Transmitted to the General Assembly as an Annex to document A/42/427 – Development and International Co-operation: Environment; Our Common Future, Chapter 2: Towards Sustainable Development*. United Nations General Assembly. Retrieved 25.06.2019 from <http://www.un-documents.net/ocf-02.htm>

## UNIVERSITIES' CONTRIBUTIONS TO REGIONAL DEVELOPMENT: A SYSTEMATIC REVIEW OF SMART SPECIALIZATION CASE STUDIES IN EUROPE

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### **ABSTRACT**

*The active engagement of universities in regions can be observed through their contribution to the Regional Innovation Systems (RIS). This has gained a new importance in the context of the Smart Specialisation strategy (RIS3) as tool to enhance European regional policy. Universities have been considered as important actors in regional innovation systems and Smart Specialisation reinforces and amplifies this role in the design and implementation of strategies. Universities, in this context, can act as boundary spanners, bridging the elements of the 'Knowledge Triangle' (Research, Education and Innovation). Also, they can build innovation capabilities in regions and can play a much broader role than is usually considered. However, their exact role in research and innovation strategies for Smart Specialisation and how they are collaborating with regions has yet to receive much critical attention in the academic literature. The aim of this paper is to perform a systematic review of literature on smart specialisation case studies in Europe to shed a light on the role of the University in regional development. Results point to a diversity of actions that can enhance regional development as well as demonstrate that there are barriers and opportunities to be harnessed.*

**Keywords:** *University, Smart Specialisation, Regional Development, Innovation*

### **1. INTRODUCTION**

The EU's growth strategy for the next decade (Europe 2020) established the development of a smart, sustainable and inclusive economy in order to achieve high levels of employment, productivity and social cohesion. To this end, national and regional European authorities must develop smart specialization strategies (RIS3 strategies), which make it possible to use the European Structural and Investment Funds more effectively and efficiently, as well as to obtain synergies between different regional, national and EU policies. In this new EU cohesion policy framework, the development of a smart specialization is a precondition for obtain European funds by the regions of each Member State and the design of a strategy of this type will be required for its subsequent implementation in research, development and innovation activities. Smart Specialisation can be defined as an innovative policy concept which emphasizes the principle of prioritization and defines a method to identify desirable areas for innovation policy intervention (Foray and Goenaga, 2013). A new vision emphasising a place-based approach advocated the need for the rethinking of the European regional policy (i.e. Cohesion Policy), in result of a paradigm shift experienced at the regional development policy level (OECD, 2009 Anselmo and Cascio, 2011; Vanthillo and Verhetsel, 2012). In this sense, national and regional research and innovation strategies for smart specialization are defined as integrated agendas for

transformation and territorial economic development based on knowledge and innovation. Undoubtedly, the role of the Universities in the promotion of innovation is indisputable. One of the key messages in the search for RIS3 is the use of the untapped potential of the Universities to contribute to regional development and the need for their full integration into the regional economy. The RIS3 strategy is an exceptional opportunity for the Universities to intervene intensively together with other stakeholders, including the private sector, in the identification of possible areas of specialization in the Member States and in their regions. Over recent years European and international policy agendas have reinforced the importance of universities as important players with a key role in contributing to territorial development. However, The European Higher Education Modernisation Agenda (European Commission, 2011) and more recently the "Renewed EU Agenda for Higher Education" (European Commission, 2017) emphasize that Universities are not contributing to innovation as much as they could in regions. The latter in particular emphasised that Universities could play a potentially wide role in RIS3 by facilitating connections between academics, entrepreneurs and public authorities, and by aligning their educational offer to RIS3. In addition, Goddard et al. (2013) and EC (2017) argue that the implications of the importance attached to Universities in smart specialization strategies have not yet been explored in detail. In the light of these circumstances, this paper aims to enlighten the actual positioning of Universities within regional innovation systems and how their activities can contribute to the transformation of a regional economy through research and innovation strategies for smart specialization. To investigate this, a systematic review of the scientific literature was conducted.

## **2. SMART SPECIALISATION**

The concept of Smart Specialization became a key element in the policies of the European Union, having been included in the new 2014-2020 programming framework, aimed at increasing the innovative capacity of the European regions. Elaborated by Dominique Foray and Bart Van Ark in studies on productivity gaps between the United States and Europe, the theme of Smart Specialization is then proposed by the working group organized by Commissioner Potočník, "Knowledge for Growth" (K4G). The aim was to create a platform to promote the creation, dissemination and use of knowledge, as well as provide advice on the roles that actors can play to stimulate a knowledge society and how to strengthen the dialogue between these actors. The objectives the K4G intended to pursue were the following: provide advice to promote the emergence and development of an effective and efficient European research and innovation system; set up a system and a strategy that could provide the European Union with the technological skills and abilities necessary to optimally exploit future technological revolutions; and identify an alternative to the public policies in use up to that moment. The group of experts has created nine documents that have highlighted weaknesses in the R & D system in Europe, bringing to light the need for the European economy to develop in an open, integrated and competitive space. It is precisely the creation of this concept that allows all European regions to identify their competitive advantage through a path of specialization. The concept of smart specialisation is based on the observation and study of local and regional economic structures in order to support the discovery process carried out by companies and organizations present in the economic context. Smart Specialisation is closely linked to economic development and innovation-driven growth policies (McCann and Ortega-Argilés, 2011; Foray et al, 2012; OECD, 2013) and also builds on the idea of "self-discovery" (Hausmann and Rodrik, 2003). Foray and Goenaga (2013) provide a relevant input to the definition of Smart Specialisation by conceptualising it as an innovative policy concept that emphasises the principle of prioritisation in a vertical logic and defines a method to identify such desirable areas for innovation policy intervention. According to McCann and Ortega-Argilés (2011), smart specialisation envisages that the identification of the knowledge intensive

areas for potential growth and development are related to the role of certain classes of players (researchers, suppliers, manufacturers and service providers, entrepreneurs, users) and the public research and industry / science links. The players are required to be the agents who use the knowledge acquisition facilities and resources (human capital, ideas, academic and research collaborations) to scan the available local economic and market opportunities, to identify technological and market niches for exploitation, and thereby act as the catalyst for driving the emerging transformation of the economy.

### **3. UNIVERSITIES AND SMART SPECIALISATION**

It is important to mention that the role of Universities and their relation in the development of the smart specialization began in its embryonic phase with the definition of its concepts and related studies coming from Knowledge for Growth” (K4G) Expert Group which was composed of several university researchers: Bart van Ark (Holland - University of Groningen / Vice-President of the "Knowledge for Growth" Group); Paul A. David (USA - Stanford University); Jean-Paul Fitoussi (France - Paris Institute of Political Studies); Dominique Foray (France - Polytechnic School of Lausanne); Anastasios Giannitsis (Greece - University of Athens); Bronwyn H. Hall (USA - University of California); Ramon Marimon (Spain - European University Institute in Florence / Pompeu Fabra University); Stan Metcalfe (UK - University of Manchester); Mojmir Mrak (Slovenia - University of Ljubljana); Dariusz Rosati (Poland - Warsaw School of Economics); Mary O'Sullivan (Ireland - Wharton Business School – USA); André Sapir (Belgium - Université Libre de Bruxelles); and Reinhilde Veugelers (Belgium - University of Leuven). In addition, the Policy Brief n°2 "Universities must contribute to enhancing Europe's innovative performance" developed by the group and especially by Paul David and Stan Metcalfe emphasized the role of universities in develop and enhance a smart specialisation through guidelines: European universities and research institutes need to be modernized if they want to play a role in the growth of the EU; to form a team of highly competent researchers who are willing to move across institutional, disciplinary and national boundaries; and the diversity of specialist skills in the field of universities must be complemented by that of the business sector. The players of a smart specialisation are regarded as being the agents who use the knowledge acquisition facilities and resources (human capital, ideas, academic and research collaborations) to scan the available local economic and market opportunities, to identify technological and market niches for exploitation, and thereby act as the catalyst for driving the emerging transformation of the economy. Universities can therefore play a key role in defining a regional smart specialisation strategy by contributing to a rigorous assessment of the region's knowledge assets, capabilities and competencies, including those embedded in the universities own departments as well as local businesses. According to Marinelli and Periañez (2017) universities need to develop capabilities to engage and interact with the private and public sectors, with the aim of jointly identifying, reviewing and revising priorities. This requires an understanding of entrepreneurial and market dynamics as well as policy processes. In this context, universities can play a highly valuable role in absorbing knowledge from outside the region and applying it to the local context (European Commission 2014). Universities have long been recognised as central to national and regional innovation systems in the academic literature (Uyarra, 2010). Over the past years many different concepts have emerged, conceptualising from various perspectives the changing role of universities and its relation to regional development. Thus, there is a broad literature on the changing role of universities in regional development (Etzkowitz, 2008; Goldstein, 2010; Trippi et al., 2012). There is increasing prominence given to role of universities beyond its core functions of teaching and research - it is broadly accepted that the evolution pointed towards the development of a third role in animating regional economic and social development (Etzkowitz, 2008; Trippi et al., 2012).

In response, universities are rethinking their role and responsibilities, and engaging in learning and co-production of knowledge beyond the campus walls, resulting in discoveries which are useful beyond the academic community and that directly benefit the public. Kempton et. al (2013) highlight the roles/contributions of universities to RIS3: universities can play a key role in defining a regional S3 by contributing to a rigorous assessment of the region's knowledge assets, capabilities and competencies, including those embedded in the university's own departments as well as local businesses; universities can contribute to the regional entrepreneurial discovery process by bringing global awareness and partnerships across regional borders into the frame through evidenced based identification of competitive advantage around which regional strategies and resources can be concentrated; universities can provide specialist research expertise and links to national and international networks of knowledge, becoming critical agents in the entrepreneurial discovery process and establishing whether a region has the assets needed to specialise in particular areas; through their teaching programmes (including Continuing Professional Development and Lifelong Learning as well as under and post graduate courses) universities can enhance the skills and competencies of staff working in the field of economic development through training, consultancy services and supply of graduates, thus improving the capacity of the region to deliver S3; universities can contribute to capacity building on the demand side through new business formation, student enterprise, and graduate placements as well as encouraging staff to actively engage with local businesses; in terms of institutional leadership and governance, particularly in regions where local government is fragmented and unable to act beyond its own immediate boundaries, universities as key anchor institutions can play an important role in building the social relations which underpin the regional innovation system for the formulation and indeed, implementation of S3. Furthermore, in meeting major societal challenges that have both global and local dimensions, such as how to move towards a low carbon economy or to meet the needs and realise the opportunities of an ageing population, universities can contribute to local knowledge creation and its translation into innovative products and public and private services. In addressing such challenges universities can engage the creative arts and social sciences as well as technical and natural scientists. Furthermore, there are two key concepts that deserve to be mentioned: entrepreneurial discovery and place based approach to innovation. Entrepreneurial discovery can be defined as a collective strategy formation process focused on the identification of science and technology areas with distinctive market potential in the region (Goddard et al, 2012). It can be argued that universities in many cases are already well established entrepreneurial actors in their local and regional economies through activities such as research commercialisation, enterprise formation and spin outs. A place-based policy, in its turn aims to realise the potential of local assets through tailored interventions (as opposed to 'one size fits all') and a strong 'bottom-up' engagement supported by an adequate institutional and governance set-up (Barca 2009). Universities can support a place-based approach to innovation policy by contributing to the identification of regional priorities, in line with their own strategies and capabilities.

#### **4. RESEARCH DESIGN**

According to Papaioannou et. al. (2010) a systematic literature review is an important vehicle of academic discussion, dissemination and debate and it must be thorough, sensitive and transparent. Reviewing research systematically involves three key activities, including 1) identifying and describing the relevant research, 2) critically appraising research reports in a systematic manner, and 3) bringing the findings together to form coherent statements or themes, a process also called synthesis (GOUGH et al. 2012). The publication analysis was conducted in two literature databases to ensure a comprehensive coverage of well-established as well as emerging academic journals: Scopus provided by Elsevier and Web of Science Core Collection

(WoS) made available by Thomson Reuters. To create a complete picture, a research question for the reviewing process was chosen: "How universities are contributing to the regional development through smart specialisation?". Based on this question, and seeking to collect information from practical cases, two main topics were chosen for this review: smart specialisation and case studies. Having defined the goal of the research, the author searched for the expressions "smart speciali\*ation" AND "case stud\*". The term "university" was excluded from the search for two reasons: first, "university" appears as a reference of the institution to which the author of the article belongs, causing the search engine to select almost all available articles. Secondly, universities are a necessary actor of the smart specialization, so even if they do not appear in the search results, there will probably be a discussion about their role in the articles' discussions. After the first search (based on the above-mentioned criteria), the results were refined using the respective data source mechanisms, excluding documents outside the scope of the research, such as non-English written documents and document types that weren't articles, reviews or conference (or proceedings) papers. Then, the remaining data was exported to Excel, where duplicate documents were removed. Following up, an analysis of document abstract was conducted considering this leading question: "Could the document contribute to answering the research question?". If the answer to the aforementioned question were "no", the document was excluded; if the answer were "yes" or "possibly", the document remained for further analysis. This procedure sought to find all relevant material in the database and, at the same time, to reject irrelevant material. After that, a few documents which the author did not have access to (paid documents) were excluded. The full content of the remaining documents was analyzed to answer the following question: "Can this document contribute to answering the research question?", and then an in-depth analysis was carried out only on the documents that could contribute to answering the research question. All content analysis, including title and abstract was done manually (reading line by line). The research design used in this paper can be better visualized in the table 1. With the detailed reading of the remaining articles, an analysis was carried out with the following purpose: to classify and collect the contributions as (a) observed contributions and (b) contributions suggested by the authors (table 1).

## 5. RESULTS

Following the research design, 71 documents were found in the primary research. In the results refinement, the author selected 13 documents for further analysis (table 2). The table 3 describes the selected articles, showing the year, author, source area and a brief description of the subject. The table 4, answer the proposed question "How universities are contributing to the regional development through smart specialisation?" following the proposed categorization.

*Table following on the next page*

*Table 1: Research Design*

<b>Step 1</b> <i>Primary search</i>	Research equation:	"smart speciali*ation" AND "case stud*"
	Inclusion criteria:	- In: title, abstract, key words (Scopus); topic (WoS); - Date range: not specified.
	Exclusion criteria:	- Document types other than articles.
<b>Step 2</b> <i>Results refinement</i>	Exclusion criteria:	- Non-English papers; - Duplicate documents.
<b>Step 3</b> <i>Abstract analysis</i>	Exclusion criteria:	"Could the document contribute to answering the research question?"
<b>Step 4</b> <i>Document availability</i>	Exclusion criteria:	Paid documents.
<b>Step 5</b> <i>Full document analysis</i>	Exclusion criteria:	"Can the document contribute to answering the research question?"
<b>Step 6</b> <i>Documents review</i>	Description: (Step 6.1)	- Brief description of each document, including title, author(s), year of publication and source;
	Description/ Categorization: (Step 6.2)	- Brief description of the contribution of the university to regional development; - Location of the case study; - Economic area of smart specialization; - Categorization of the contributions: (a) observed contributions or (b) contributions suggested by the authors.

*Table 2: Results from Steps 1 to 5*

Step	Criteria	Documents found	Resulting documents
Step 1: <i>Primary search</i>	Scopus	43	71
	WoS	28	
Step 2: <i>Results refinement</i>	Non-English	2	45
	Duplicate	24	
Step 3: <i>Abstract analysis</i>	Off-scope	5	40
Step 4: <i>Document availability</i>	Paid document	8	32
Step 5: <i>Full document analysis</i>	Off-scope	19	13

*Table following on the next page*

*Table 3: Documents description – Step 6.1*

	<i>Document title</i>	<i>Authors</i>	<i>Year</i>	<i>Source</i>	<i>Brief description of the document</i>
1	"Making waves: the valuation of innovations in San Sebastian's surf economy"	Carvalho, L., van Winden, W.	2018	European Planning Studies	The case of the surf-related economy in the city of San Sebastian (Basque Country, Spain) is used to make a broader point about the growing relevance of a valuation approach to understand competitive advantage and economic renewal in localized production systems.
2	"Universities and smart specialisation strategy: From third mission to sustainable development co-creation"	Rinaldi, C., Cavicchi, A., Spigarelli, F., Lacchè, L., Rubens, A.	2018	International Journal of Sustainability in Higher Education	The paper investigates the potential contributions that Social Sciences and Humanities (SSH) universities can offer in developing and enhancing capacities, supporting the changing conception of innovation coherently through a Smart Specialisation Strategy (S3) approach.
3	"A connectivity model as a potential tool for smart specialization strategies"	Virkkala, S., Mäenpää, A., Mariussen, A.	2017	European Planning Studies	The article presents a new approach, connectivity analysis, where Triple Helix (TH) relations (involving universities, companies and government) are at the centre of the entrepreneurial discovery process.
4	"Nurturing novelty: Regional innovation policy in the age of smart specialisation"	Morgan, K.	2017	Environment and Planning C: Politics and Space	The article offers detailed case studies of two regional innovation policy repertoires, arguing that smart specialisation makes unprecedented demands on public sector bodies to nurture more collaborative forms of economic search and craft more inclusive forms of regional governance.
5	"Innovation and knowledge transference in a cluster user-driven innovation perspective - the Inovcluster experience"	Paiva, T., Domingues, C., de Andrade, L.P.	2016	International Journal of Food Studies	The article presents a case study of the Inovcluster ecosystem and its trends and innovation transfer to business value creation, contextualized within the regional strategy for smart specialization.
6	"Relational capabilities to leverage new knowledge: Managing directors' perceptions in UK and Portugal old industrial regions"	Martins, J.T.	2016	Learning Organization	Focusing on the specific context of two European old industrial regions—South Yorkshire (UK) and North Region of Portugal – the paper aims to identify and conceptualise a set of relational capabilities that business leaders perceive to play a key role in industrial rejuvenation.
7	"Organisational innovation strategies in the context of smart specialization"	Olaniyi, E.O., Reidolf, M.	2015	Journal of Security and Sustainability Issues	The paper presents a case study of an Estonian production company for Maritime function wear.
8	"Delivering smart specialization in peripheral regions: The role of Universities"	Kempton, L.	2015	Regional Studies, Regional Science	The article provides valuable insights for other European universities, regions and policy-makers in peripheral places that are seeking to work more closely to support smart specialization.
9	"Research Driven Clusters at the Heart of (Trans-)Regional Learning and Priority-Setting Processes: The Case of a Smart Specialisation Strategy of a German "Spitzen" Cluster"	Clar, G., Sautter, B.	2014	Journal of the Knowledge Economy	The paper exemplifies elements of promising Research and Innovation Strategies for Smart Specialisation (RIS3) outlining the participatory processes implemented to develop better-informed outward-looking (across sectors, borders, etc.), and more forward-looking strategies for evidence-based priority-setting and focusing investments.
10	"Smart specialisation strategies in south Europe during crisis"	Komninos, N., Musyck, B., Reid, A.I.	2014	European Journal of Innovation Management	The paper assesses how national and regional authorities in south-east Europe in a period of crisis perceive and set in motion research and innovation strategies for smart specialisation (RIS3) and the options that these strategies offer to overcome the current fiscal and development crisis.
11	"Adapting smart specialisation to a micro-economy - the case of Malta"	Georgiou, L., Uyarra, E., Scerri, R.S., Castillo, N., Harper, J.C.	2014	European Journal of Innovation Management	The purpose of the paper is to set out the process by which a smart specialisation strategy was developed for a small, peripheral economy in the European Union, the Republic of Malta.
12	"Targeting biomed cluster from a mature pharma industry: The Medicon Valley experience"	Vence, X., del Carmen Sánchez, M., Rodil, i.	2013	Technology Analysis and Strategic Management	The paper analyses the emergence and development of the Medicon Valley biomedicine cluster from an evolutionary perspective.
13	"Scaling Spatial Transformation: Smart Specialization of Urban Capabilities in the Helsinki Region"	Niemi, R., Rytönen, E., Eriksson, R., Nenonen, S.	2015	Technology Innovation Management Review	The article explores the potential scaling in diverse spatial transformations and summarizes the lessons learned from managing a campus as a small city to managing a larger-scale urban area.

*Table following on the next page*

Table 4: Outcomes from documents review – Step 6.2

Article	Contribution of the university	Location	Area
1	PUKAS – a leading surfboard manufacturer from San Sebastian – formally cooperates with engineering departments of Basque universities to improve production processes and develop software (e.g. surf-CAD) for their surfboard modulation machines; (a)	San Sebastian, Spain	Surf economy
1	Development of new materials (e.g. foams, resins, polymers), namely after the closure in 2005 of the world's largest supplier of surfboard foams in the U.S.A. (for environmental reasons); (a)	San Sebastian, Spain	Surf economy
1	Local surfboard manufacturers teamed up with Basque research institutes and the local government to launch a 'Surf Design Competition' in which university students – often also enthusiastic surfers – propose new product concepts to be further developed in-company; (a)	San Sebastian, Spain	Surf economy
2	<i>Play Marche</i> is a cultural district project, which aims at creating an integrated system of different economic actors, expertise and talents related to the cultural excellence offer and ICT technologies applied to the communication, divulgation and valorization of cultural heritage; (a)	Macerata, Italy	Multiple/general
2	<i>Cult Lab</i> is an incubator for cultural firms to develop the startup culture, as well as services related to culture and cultural heritage in the community; (a)	Macerata, Italy	Multiple/general
2	<i>The Gastronomic Cities</i> project's goal was to create a brand for cities based on gastronomy; (a)	Macerata, Italy	Multiple/general
2	<i>Marche d'Eccellenza</i> represented the umbrella-brand attempt aimed at collecting some of the typical products and key features of the Marche region (Cavicchi et al., 2013) to explore issues concerning the development of tourism and, more generally, the local economy; (a)	Macerata, Italy	Multiple/general
2	<i>Made in Fabriano</i> is an academia which showcases local typical products and Fabriano's productive system in order to disseminate, promote and safeguard Fabriano's industry and culture, both in Italy and worldwide; (a)	Macerata, Italy	Multiple/general
2	<i>LUCI</i> is an innovative training course dedicated to students, PhD students and early stage researchers, to train them developing a business idea starting from a humanistic and social science background; (a)	Macerata, Italy	Multiple/general
2	<i>Eureka</i> project is a PhD industrial scholarship program co-financed by the University in which students are trained for half of their time in local firms, allowing them to enroll in regional strategic areas; (a)	Macerata, Italy	Multiple/general
3	The energy industry representatives feel the local universities should support the sector more effectively, since there are too few students and projects addressing the area; (b)	Ostrobothnia, Finland	Energy industry
4	<i>Basic Excellence Research Centres</i> were created by the Department of Education to develop basic research in association with universities and these focused on bio-physics, materials physics, cognition and language, and climate change; (a)	Basque Country, Spain	Multiple/general
4	The <i>Technium</i> experience was a network of high technology incubation centres costing over £100 million, which imploded because it was driven by the political priorities of the regional state rather than the commercial needs of the business community. The experience exposed the weakness of the universities as a source of spin-out companies, underlining the fact that they are better at generating knowledge than commercialising it (Morgan, 2013a); (a)	Wales	Multiple/general
4	<i>Specific</i> is a multi-actor, open innovation project driven by two key partners – Swansea University and Tata Steel – and it has developed smart coatings that generate, store and release solar energy, enabling buildings to become their own power stations in effect; (a)	Wales	Multiple/general
5	Development of a national consumer study with the objective of understanding wine consumption behavior and purchase in the supermarkets; (a)	Portugal	Wine industry
6	Across interviews, there was a consensual view between managing directors that regional efforts to develop industry clusters must include universities as central assets, provided that there is a close alignment between the skills and expertise of universities with the industries in the region. They particularly expect universities to be sources of research and technology whilst complementarily addressing other needs of industrial clusters such as marketing, legal issues, and human resources management; (b)	UK and Portugal	Multiple/general
7	There is an ongoing project with research organisations related to universities in Tallinn, Estonia and Freiburg, Germany, to create an intelligent lifejacket; (a)	Estonia	Maritime function wear
8	Collaboration agreement between the region of Värmland and Karlstad University (2010 – 2014) to improve regional development (made up of equal financial contributions from the region, the university and external sources); (a)	Värmland, Sweden	Multiple/general
8	The design of bachelor's and master's degree programmes in order ensures graduates leave university equipped with the skills needed by companies in the region; (a)	Värmland, Sweden	Multiple/general
8	<i>10 Professors</i> program resulted in the installation of eight new professorships in areas where the competency of the university and strategic priorities of the cluster organizations intersect; the remaining two professorships cover the cross-cutting areas of municipal school development and regional development; (a)	Värmland, Sweden	Multiple/general
8	<i>ICT Testlab</i> , a high-technology centre for independent software testing that has strengthened the region's competitiveness in the global market; (a)	Värmland, Sweden	Multiple/general
8	<i>Innovation Park</i> was launched in 2014 to provide a physical space on the university campus where businesses and researchers can meet and exchange knowledge, with specialist staff on-site to provide support; (a)	Värmland, Sweden	Multiple/general
8	The interventions must go beyond the 'usual suspects' and include SMEs that have no previous history of working with universities or other innovation actors; (a)	Värmland, Sweden	Multiple/general
9	Concerning microsystems technology (MST), <i>MicroTEC Südwest</i> cluster capitalised on knowledge of the Department of Microsystems Engineering (IMTEK) at the University of Freiburg with its 21 professors and 370 academic and technical staff. They closely collaborate with other leading MST departments at the world; (a)	Baden-Württemberg (BW), Germany	High-Tech
10	A University of Cyprus PhD student working at the centre has recently won a prestigious award for his research into improving the performance of power distribution systems and potentially lowering electricity costs for consumers (Cyprus Mail, 2013). Applying such expertise could prove to be a viable commercial proposal, one of the many that could be directed to private entrepreneurs establishing new collaborative links with research institutes; (b)	Cyprus	Multiple/general
10	An in-depth research on the needs of tourist stakeholders should identify exactly what is needed and how related ICT projects could become relevant; (b)	Cyprus	Multiple/general
11	The university established an institute for postgraduate education and research in game studies, game design and game technology; (a)	Malta	Art and design for the creative industries
11	A pilot agreement in the area of engineering is being negotiated to address the needs of the industry, to overcome, among others, the lack of patent awareness and the need for improved links with the university; (a)	Malta	Technologies and systems
11	The university has invested significantly in molecular medicine with the aim of building interdisciplinary teams which can raise the level of critical mass and attract further students in the area, thus increasing the cohort further; (a)	Malta	Molecular medicine
12	Both countries have renewed and reinforced several programmes aimed at exchanging skilled personnel between business and universities (SAMBIO or SAMPOST in Sweden and Danish Industrial PhD in Denmark); (a)	Øresund, Denmark/Sweden	Biomedicine
12	Strong university research focused on diabetes metabolism, neuroscience, cancer, inflammation and allergy fields, medicine, bioinformatics and stem cell research; (a)	Øresund, Denmark/Sweden	Biomedicine
13	<i>Urban Mill</i> focuses on facilitating new public-private-people partnerships in an attempt to find common and shared value within the public and private sectors; (a)	Helsinki, Finland	Multiple/general
13	Buildings and spaces function as thematic platforms for collaboration around the campus, such as the <i>Energy Platform</i> , the <i>Digi Platform</i> , and the <i>Living+ Platform</i> ; (a)	Helsinki, Finland	Multiple/general
13	The paper indicates that the campus areas can function as great living labs for experimenting and prototyping bottom-up concepts for facilitating collaboration among public and private stakeholders as they are densely packed in a manageable entity and as universities create new models and practices, through their core business, research. (b)	Helsinki, Finland	Multiple/general

End of table.

## 6. RESULTS

The introduction of smart specialisation as a guiding principle for European innovation policy is the source of a number of underexplored dynamics with different, and possibly conflicting, implications for the role of universities in these regional contexts.

Universities have been part of this shift through their central involvement in shaping innovation strategies in their regions. Universities can no longer be viewed as strangers to the community, but must be considered a central actor of the regional development (as stated in papers 2; 3; 8; 13). However, it should be noted that the roles and related capacities that universities should have to support the design and implementation of RIS3 cannot be built overnight. Once created, connections and networks with local stakeholders and civil society need to be stimulated through a variety of activities and engagement modes at multiple levels. Yet, to solving complex real-world problems is important to ask "how universities should reply to these societal demands". In particular, the role of innovation by science and technology should be re-defined and perhaps re-invented. As stated in papers 2 and 8, academic inter- and trans-disciplinary activities on training, research, and societal services have the potential in establishing and transferring value-added knowledge in comparison with the established university disciplines. Interdisciplinary activities match science with stakeholder contributions addressing "real world" problems in the human-environment interphase and contributing to solutions by mitigating and/or solving the nowadays environmental questions. Universities are not only about teaching and research but about knowledge in general, in any field. However, it is important to highlight the enormous differences between disciplines, which is particularly important when considering the contribution of universities to regional development. For example, the connection between universities and regions has a stronger relation with applied sciences (papers 3; 4; 6; 7; 8; 9; 10; 11; 12). On the other hand, it can be observed even in a lesser proportion a connection with social sciences and humanistic approaches (1; 2; 5; 13). The potentially large contribution of universities to the non-technological needs of the region was also stressed, such as in social innovation and participation in cultural and artistic life (2; 13). In the context of smart specialisation the relationship between firms and universities is always a highlight factor. "Academic firm" and "entrepreneurial university" are denotations demonstrating how firms and universities adopt characteristics of each other, which is significant with both the Mode 3 system (Campbell & Güttel 2005) and the Triple Helix concept (Etzkowitz & Leydesdorff 2000) (observed in papers 2; 8; 13). One major obstacle in research cooperation between academia and business has been to overcome the cultural gap and the need for a higher degree of trust. However, the kinds of integrated organizations mentioned above are thought to be able to more easily overcome these problems and thereby more directly engage in collaboration (Campbell & Güttel 2005) (papers 1; 2; 3; 4; 8). Looking from the point of view of the firm, its ability to recognize, assimilate and exploit knowledge is often crucial for its survival in the long run. One way of doing this is to recruit personnel from universities or to encourage personnel mobility between firms and universities (papers 2; 11; 12; 13). However, some issues about this collaboration are perceived regarding some gaps in university support to firm's development (papers 3; 6; 10). It is important to mention also that the opportunities for regional cooperation vary across the countries, depending on specific national contexts, but also geographic and institutional factors. For example, universities located in less-developed regions have a particularly crucial role to play because of the low levels of institutional capacity that are typically found in these places. (papers 5; 6; 7; 10; 11). The point is that all universities can contribute to Smart Specialisation partnerships but some to a greater extent than others with regard to the different regional objectives. Another aspect of Smart Specialisation is the need for evidence-based strategies, and universities can play a role in analysing the regional needs and opportunities from an independent perspective (papers 6; 10). Regional policy debates tend to adopt a conventional approach of viewing a university's role in regional development as focused solely on technology transfer. However, in short, universities can contribute to regional goals including: research and innovation (enhancing innovation through their research activities – papers 1; 2; 4; 7; 8; 9; 11; 12); enterprise and business development (promoting enterprise development and growth – papers 1; 2; 4; 5; 8); human capital development (contribution to

human capital and skills development – papers 2; 3; 4; 7; 8; 9; 10; 11; 12); and enhancing social equality (improving social equality through regeneration and cultural development – papers 1; 2; 13). It is important yet to observe some obstacles to universities' involvement in regional partnerships perceived in the analyzed case studies (e.g. Higher education policies are usually defined without regional/local concerns (i.e. at national level); competition or lack of alignment between national and regional political and policy objectives; and regional engagement may be seen as compromising academic excellence). While aspects of the collaboration are specific to conditions in the region and are the result of a long-term process of building trust and understanding across the partnership, the analyzed case studies can provide a number of important lessons to other regions and their universities in designing and development of their smart specialization strategies.

## 7. CONCLUSION

According to EC (2017), in the period up to 2025, half of all jobs are projected to require high-level qualifications. Without universities and systems that are effective in education, research and innovation and are connected to their societies, Europe cannot respond to these challenges. Universities can facilitate connections between academics, entrepreneurs and public authorities, to align their educational offer to needs identified in smart specialisation strategies, seize opportunities for innovation in priority sectors, and help local businesses and other organisations understand and adopt new ways of thinking. Making all this happen should be part of a wider cultural change, whereby universities become 'entrepreneurial actors'. The core principles contained in the Smart Specialisation concept represent a set of challenges, tensions and opportunities for the position of universities in regional innovation strategies. This implies that universities must understand their current positioning as well as their 'new role' in other ways to regional development, by becoming involved in activities beyond research-related activities that can bring added-value to the region. It does not mean that universities shall stop making efforts in their current activities. On the contrary, shall universities consider Smart Specialisation a priority, efforts shall be undertaken as to keep and improve their scientific standards as well as their involvement level to regional development. The observations and results obtained in the analysis highlight the importance of universities and other regional actors working together in increasing regional competitiveness and growth, as well as it is important to observe that there is no single way to achieve synergies between regional actors. Universities should be recognised as a vital partner for regions in the design and implementation of successful RIS3 and their potential goes far beyond their function as producers of new research, particularly in lagging or peripheral regions where supplying and creating demand for human capital and skills is likely to be a more critical contribution to building regional capacity than research (European Commission 2015, Kempton 2016, Vallance et al. 2017). It is important to recognise that there may well be a series of complex barriers and challenges to be overcome, both internal to the universities and in the wider enabling environment. Achieving this is a long-term objective and will require a staged approach moving from simple projects to more integrated collaborative programmes.

## LITERATURE:

1. ANSELMO, A.; CASCIO, L. (2011). Towards a new era for regional development: investing in leadership", *Local Economy* 26 (6–7), 467–472.
2. BARCA, F. (2009). *An Agenda for a Reformed Cohesion Policy: A place- based approach to meeting European Union challenges and expectations*. Brussels.
3. CAMPBELL, D. F. J., & GÜTTEL, W. H. (2005). Knowledge production of firms: research networks and the "Scientification" of business R&D. *International Journal of Technology Management*, 31(1/2), 152–175.

4. CARAYANNIS, E.; HENS, L.; NICOLOPOULOU-STAMATI, P. (2017). Trans-disciplinarity and growth: Nature and Characteristics of Trans-disciplinary Training Programs on the Human-Environment Interphase. *Journal of the Knowledge Economy* 8(1).
5. CARVALHO, L. & VAN WINDEN, W. (2018). Making waves: the valuation of innovations in San Sebastian's surf economy, *European Planning Studies*, 26:1, 75-93
6. CLAR, G.; SAUTTER, B. (2014). Research Driven Clusters at the Heart of (Trans-)Regional Learning and Priority-Setting Processes: The Case of a Smart Specialisation Strategy of a German "Spitzen" Cluster . *Journal of the Knowledge Economy* 5(1), 156-180.
7. ETZKOWITZ, H. (2008). *The Triple Helix Model: University-industry-government innovation in action*, London: Routledge.
8. ETZKOWITZ, H., & LEYDESDORFF, L. (2000). The dynamics of innovation: from National Systems and "Mode 2" to a Triple Helix of university-industry-government relations. *Research Policy*, 29, 109–123. <sup>[L]</sup><sub>[SEP]</sub>
9. EUROPEAN COMMISSION. (2017). On a renewed EU agenda for higher education. Communication from the commission to the european parliament, the council, the european economic and social committee and the committee of the regions. Brussels.
10. EUROPEAN COMMISSION (2014). RIS3 Implementation and Policy Mixes S3 Policy Brief Series 07/2014, JRC Technical Reports. Luxembourg.
11. EUROPEAN COMMISSION. (2015). Perspectives for Research and Innovation Strategies for Smart Specialisation (RIS3) in the wider context of the Europe 2020 Growth Strategy. DG Research. Luxembourg, Publications Office of the European Union.
12. FORAY, D.; DAVID, P.A.; HALL, B.H. (2011). Smart Specialisation: from academic idea to political instrument, the surprising career of a concept and the difficulties involved in its implementation, MTEI Working Paper p.4.
13. FORAY, D.; GOENAGA, X. (2013). The goals of smart specialisation", JRC Scientific and Policy Reports, S3 Policy Brief Series No. 01/2013, Seville: European Commission.
14. GEORGHIOU, L.; UYARRA, E.; SCERRI, R.S.; CASTILLO, N.; HARPER, J.C. (2014). Adapting smart specialisation to a micro-economy – the case of Malta. *European Journal of Innovation Management* 17(4), 428-447.
15. GODDARD, J.; KEMPTON, L.; & VALLANCE, P. (2013). Universities and Smart Specialisation: challenges, tensions, and opportunities for the innovation strategies of European regions. *Ekonomiaz*.
16. GODDARD, J.; VALLANCE, P.; KEMPTON L. (2012). The Civic University: Connecting the Global and the Local", in A. Olechnicka, R. Capello, G. Gorzelak (Eds), *Universities, Cities and Regions Loci for Knowledge and Innovation Creation*, Routledge: London.
17. GOLDSTEIN, H. (2010). The 'entrepreneurial turn' and regional economic development mission of universities. *Annals of Regional Science* 44, 83-109.
18. GOUGH, D., OLIVER, S., & THOMAS, J. (2012). *An Introduction to Systematic Reviews*, Sage Publications Ltd., London.
19. HAUSMANN, R.; RODRIK, D. (2003). Economic development as self-discovery. *Journal of Development Economics*, 72(2), 603-633.
20. KEMPTON, L. (2015). Delivering smart specialization in peripheral regions: the role of Universities, *Regional Studies, Regional Science*, 2:1, 489-496.
21. KEMPTON, L. (2016). Delivering Smart Specialisation in Peripheral Regions: the Role of Universities. *Regional Studies/Regional Science*.
22. KEMPTON, L.; GODDARD, J.; EDWARDS, J.; FATIME, A.; HEGYI, B.; & ELENA-PÉREZ, S. (2013). *Universities and Smart Specialisation*. Centre for Urban and Regional Development Studies, Newcastle University (United Kingdom). European Commission, JRC-IPTS, Seville (Spain). S3 Policy Brief Series n° 03/2013

23. KOMNINOS, N.; MUSYCK, B.; REID, A.I. (2014). Smart specialisation strategies in south Europe during crisis. *European Journal of Innovation Management* 17(4), 448-471.
24. MARINELLI, E. & PERIANEZ, I. (2017). Smart Specialisation at work: The entrepreneurial discovery as a continuous process. JRC Technical Report. Seville.
25. MARTINS, J.T. (2016). Relational capabilities to leverage new knowledge: Managing directors' perceptions in UK and Portugal old industrial regions. *Learning Organization* 23(6), 98-414.
26. MCCANN, P. & ORTEGA-ARGILÉS, R. (2011). Smart specialisation, regional growth and applications to EU cohesion policy", *Economic Geography Working Paper 2011*: Faculty of Spatial Sciences, University of Groningen.
27. MORGAN, K. (2017). Nurturing novelty: Regional innovation policy in the age of smart specialisation. *Environment and Planning C: Politics and Space* 35(4), 569-583.
28. NIEMI, R.; RYTKÖNEN, E.; ERIKSSON, R.; & NENONEN, S. (2015). Scaling Spatial Transformation: Smart Specialization of Urban Capabilities in the Helsinki Region. *Technology Innovation Management Review*, 5(10).
29. OECD. (2007). Higher Education and Regions: Globally Competitive, Locally Engaged, OECD, Paris.
30. OECD. (2009). *How Regions Grow: Trends and Analysis*, Paris: Organisation for Economic Co-operation and Development.
31. OECD. (2009). *Regions Matter: Economic Recovery, Innovation and Sustainable Growth*, Paris: Organisation for Economic Co-operation and Development.
32. OLANIYI, E.O.; REIDOLF, M. (2015). Organisational innovation strategies in the context of smart specialization. *Journal of Security and Sustainability Issues*, 5(2), 213-227.
33. PAIVA, T.; DOMINGUES, C.; DE ANDRADE, L.P. (2016). Innovation and knowledge transference in a cluster user-driven innovation perspective - the Inovcluster experience. *International Journal of Food Studies*, 5(1), 54-60.
34. RINALDI, C.; CAVICCHI, A.; SPIGARELLI, F.; LACCHÈ, L. & RUBENS, A. (2018). Universities and smart specialisation strategy: From third mission to sustainable development co-creation. *International Journal of Sustainability in Higher Education*, 19(1), 67-84.
35. TRIPPL, M.; SINOZIC, T.; LAWTON-SMITH, H. (2012). The 'third mission' of universities and the region: comparing the UK, Sweden and Austria. Paper presented at the 52nd European Congress of the RSAI, 21-25 August 2012, Bratislava, Slovakia.
36. UYARRA, E. (2010). Conceptualizing the regional roles of universities, implications and contradictions. *European Planning Studies*, 18, 1227-1246.
37. VALLANCE, P.; BLAŽEK, J.; EDWARDS, J.; & KVĚTOŇ, V. (2017). Smart specialisation in regions with less-developed research and innovation systems: A changing role for universities? *Environment and Planning C: Politics and Space*.
38. VANTHILLO, T.; VERHETSEL, A. (2012). Paradigm change in regional policy: towards smart specialisation? Lessons from Flanders (Belgium). *Belgeo - Belgian Journal of Geography*, 1-2.
39. VENCE, X.; DEL CARMEN SÁNCHEZ, M. & RODIL, O. (2013). Targeting biomed cluster from a mature pharma industry: the Medicon Valley experience, *Technology Analysis & Strategic Management*, 25:7, 871-889.
40. VIRKKALA, S.; MÄENPÄÄ, A. & ÅGE MARIUSSEN. (2017). A connectivity model as a potential tool for smart specialization strategies, *European Planning Studies*, 25:4, 661-679

## PROACTIVE AND REACTIVE MECHANISMS FOR FRAUD PREVENTION BASED ON THE EXAMPLE OF WIG20 COMPANIES

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### ABSTRACT

*The issue of limiting the phenomena of fraud and abuse in organizations is a subject that remains valid. Every organization is exposed to the risk of fraud. Its effects may contribute not only to the gradual deterioration of the situation of the company, but in the long run even to its bankruptcy. Therefore, it is necessary to take actions to protect the organization not only against the likelihood of fraud, but also to limit its potential effects. Actions in this area are taken not only at the international and national level by providing legal solutions against money laundering, but also at the level of each organization. However, the evaluation of their effectiveness provides considerable problems, not only because of the progressing development of this phenomenon, but also, and above all, because of the difficulty in its estimation. The aim of this publication is to verify the mechanisms for limiting and combating fraud at the level of organizations. The research was referred to companies listed on the Polish Stock Exchange and included in the WIG20 index. These entities are obliged to publish not only financial but also non-financial information concerning their economic situation. The basic research method is quantitative and qualitative analysis. It refers to the verification of information contained in reports on the activities of management boards in the scope of implemented and undertaken actions to reduce the phenomenon of fraud, with their division into reactive and proactive tools. The conducted analysis made it possible to formulate conclusions on the organisation's disposition to undertake actions aimed at reducing the risk of fraud and constitutes is the starting point for a research to be carried out to assess the effectiveness of the adopted solutions. As a result, the author will strive to develop a model of fraud management and indicators that will determine the number and complexity of activities undertaken by the organization.*

**Keywords:** *corruption, fraud, money laundering, risk management*

### 1. INTRODUCTION

The pace of ongoing changes in the legal and economic environment forces enterprises to adapt to them in a very short time. This in turn, causes changes in the management of the organization, which often due to the short time of their implementation are characterized by certain weaknesses and imperfections, which can be used by employees, individuals or other organizations to obtain information, data, and as a consequence committing an act of fraud against the enterprise. They must therefore take steps to ensure that management systems are properly safeguarded by applying mechanisms reducing fraud and its potential consequences. The phenomenon of fraud and abuse has accompanied organisations since their inception. It is described in the literature on the subject, both theoretically (Wels, 2006, pp. 7), (Spencer Pickett, 2012), and practically in terms of measuring the scale and causes of fraud (Krawczyk, Skoczylas, 2013, pp. 493). The literature also indicates actions taken to combat fraud (Jasiński, 2013, pp. 11), (Kutera, 2016, pp. 17). Legislative solutions in this area are also being developed at the European level (European Commission, 2018). Separate legislative actions are also taken at the national level (Order No. 39). International organisations are also developing guidelines for the correct conduct of companies in the area of fraud prevention (IIA, AICPA, ACFE, 2012, pp.5).

Regardless of the adopted legal solutions and the proposed theoretical ones, each organization must take appropriate actions, taking into account the specificity of its activity, so as to effectively combat potential acts of fraud and effectively deal with them when they occur. The aim of the publication is to present actions taken at the level of enterprises in the field of fraud reduction on the example of enterprises listed on the Polish Stock Exchange and included in the WIG20 index. The aim of this analysis was to show general activities undertaken by the management boards of the surveyed entities in regards to reducing the number of frauds in the area of their activity, excluding fraud related to forgery of financial statements. Financial information was not included in the analyzed data due to the fact that in the author's opinion it constitutes a separate issue and is so specific that it requires a separate publication in this respect. In addition, it should be noted that in the literature on the subject a relatively large amount of attention is paid to the falsification of financial statements (Wells, 2012, pp. 8), and much less attention is focused on the general activities of business management boards to protect the company against the phenomena of fraud in a global sense. Of course, there is no doubt that these areas are fully dependent on each other because the effects of committing a fraud are usually reflected in financial reporting. The publication does not focus on the definition of a fraud either, but for the sake of transparency, the one included in the International Internal Auditing Standards was applied. It defines a fraud as "any illegal act characterized by deceit, concealment, or violation of trust. These acts are not dependent upon the threat of violence or physical force. Frauds are perpetrated by parties and organizations to obtain money, property, or services; to avoid payment or loss of services; or to secure personal or business advantage." (IIARF, 2016, pp. 47). The basic research method is quantitative and qualitative analysis. It refers to the verification of information contained in reports on the activities of management boards in the scope of implemented and undertaken actions to reduce the phenomenon of fraud, with their division into reactive and proactive tools. The conducted analysis made it possible to formulate conclusions on the organisation's disposition to undertake actions aimed at reducing the risk of fraud and constitutes the starting point for a research to be carried out to assess the effectiveness of the adopted solutions. As a result, the author will strive to develop a model of fraud management and indicators that will determine the number and complexity of activities undertaken by the organization.

## **2. THE ISSUE OF THE GROWING PHENOMENON OF FRAUD IN THE ECONOMY**

Modern technological progress is not only conducive to the growing scale of fraud, but also to the creativity of potential fraudsters. The phenomenon of fraud is becoming more and more widespread among institutions and economic operators, which most often become their victims. The consequence of fraud from the point of view of organisations is not only a financial loss, but also, and sometimes solely a loss of reputation. For example, the loss of personal data or customer information first results in the loss of reputation due to unreliable data protection by the company, which in the long run may lead to the loss of customers, and thus financial losses. The scale of fraud and abuse is constantly increasing, as evidenced by the results of audits carried out by audit firms to assess the phenomenon of fraud. They show that the losses incurred by companies as a result of fraud are increasing year by year (Wiśniewska, 2017, pp. 79). Research is conducted both on fraudulent financial reporting (COSO, 2010) and on other forms of fraud. The data published by EY shows that fraud has remained unchanged for many years or is increasing slightly, despite measures taken at both organisational and governmental levels (EY, 2018). Similar figures are presented by PricewaterhouseCoopers (PwC), and the organisation points to a growing scale of fraud in organisations over the last two years (PwC, 2018). Particularly high growth in recent years has been observed in cybercrime (Ngo, Jaishankar, 2017, pp. 2), which is all the more justified in the era of computerisation and digitization, and it can even be expected that this phenomenon will show a growing tendency

in the coming years. The data presented in these reports indicate that majority of the fraud and abuse is the result of insufficient protection of the organization against undesirable phenomena. This means that the systems operating in companies have gaps that give employees the opportunity to circumvent or not to apply internal regulations in a given operation or activity, thus contributing to a fraudulent act (see, ACFE, p. 5, 17). Of course, a lack of normalization of a given issue or an imperfection of action does not necessarily entail taking up fraudulent actions. It is the person perpetrating them who decides on taking advantage of the emerging risk. The ineffective detection of fraud is affected by too long and often not fully adapted to the development of new forms of abuse organisational structures (Kutera, 2016, pp. 17). Of course, it will be more difficult for organizations to keep up with the progressing technology and changes in the economic and legal environment than for potential perpetrators. The institution needs time to implement changes and adapt to them, and this time can be used by potential fraudsters. Hence, each organisation should establish contingency procedures of transitional character until alignment with the changes occur. An additional, very worrying aspect is the fact that studies show that a significant percentage of fraud is committed by employees of organisations (ACFE, 2018, pp.43). Therefore, what should give the organisation stability most often fails. Employees who know well the systems functioning in organizations much faster perceive gaps in them, using them for their own benefit. Another issue is that similarly to organizational progress, with which companies improve their techniques, procedures and systems, the creativity of potential fraudsters develops along with them. With regard to employee fraud, the purpose of potential fraudsters often varies. As a rule, it refers to material benefits, because there is no need to take risk without having any benefits at all. Often, however, especially in the working environment, in addition to material or personal gain, there may be a premise of vengeance or compensation for promises that have not been fulfilled by the employer. On the other hand, the purpose of an external entity or a natural person who is not an employee of the institution will in most cases involve a financial benefit. The number of such actions is significantly lower (ACFE, 2018, pp. 17). Research conducted by the Association of Certified Fraud Examiners (ACFE) shows that over 30% of fraud disclosures come from individuals outside the organisation, such as customers, retailers or competitors. Only a small percentage of fraud is detected at the organisational level, usually as a result of management or internal audit (ACFE, 2018, pp.17). Regardless of the perpetrator of the act or its purpose, organizations must take action to limit the frauds committed against them as economic operators. Therefore, their task is to strengthen internal control systems by implementing appropriate countermeasures and assessing their effectiveness.

### **3. REACTIVE AND PROACTIVE FRAUD REDUCTION MECHANISMS**

Organisations are taking a number of measures to control fraud in their field of activity. However, a significant contribution to a strong offensive against fraud remains on the entrepreneurial side (Jasiński, et al. 2013). It determines how effectively national and international regulations and guidelines will be implemented moreover it will take actions on its own initiative in this area and ensure the effectiveness of their implementation. Some companies, depending on the industry group within which they operate, adopt their own anti-fraud guidelines. Banks are an example of such organisations. The Banking Law Act takes into account the provisions of Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (the Market Abuse Regulation). This regulation refers to abuses in relation to financial instruments. Another group of companies for which guidelines have been developed, which relate to reducing the phenomenon of abuse, are entities listed on stock exchanges. An example is the Polish Stock Exchange, where, for the needs of its participants, there are two documents. The first one, Best Practices of Companies Listed on GWP 2016 (GWP, 2016), the second Corporate governance rules for supervised institutions

(KNF, 2014). Both guidelines refer in their provisions to fraud. The European Commission also takes actions to reduce fraud in financial areas, such as the Report from the Commission to the European Parliament and the Council, the 29<sup>th</sup> Annual Report on the protection of the European Union's financial interests and the fight against fraud (2017) and other regulations designed to reduce fraud as undesirable phenomena. In addition to legislative measures, specific bodies are set up at national level with the main task of investigating and detecting fraud. Examples of such organisations are The Central Intelligence Agency (CIA) and The Federal Bar Association (FBA) operating in the United States, or the Central Bureau of Investigation (CBS) and the Internal Security Agency (ABW) operating in Poland. The tasks of these institutions include enforcing compliance with the law and taking action in the event of violations of the law, in particular leading to fraud and criminal activities. Moreover, proactive mechanisms also include decisions taken at the government level in the area of reducing the phenomenon of fraud, apart from the issue of regulations established by way of legislation. Actions taken at the national, international and organisational level in the form of procedures, guidelines or regulations are the so-called reactive mechanisms for reducing fraud. On the other hand, activities undertaken by organised entities established to fight crime, as well as government decisions, constitute a group of proactive mechanisms. From the point of view of a company as a participant in a market economy, these solutions look almost identical. It uses both reactive mechanisms of reducing fraud by creating its own regulations and applying national and international guidelines, and proactive mechanisms by establishing internal units in organisational structures, departments verifying the correctness of the former, as well as various management decisions. In search of the definition of a reactive mechanism, the author referred to the science of psychology, which define the so-called reactive formation, in other words a simulated reaction, which consists in dealing with difficult situations by expressing opposing situations, defined by the so-called demonstration for a show (Heszen, 2011, pp. 49-52). On the other hand, a proactive mechanism is a situation in which a person or organization takes over responsibility for dealing with difficult situations, undertakes actions on an ongoing basis without going back in time to the past, does not expect support, but deals with its own means and uses emerging opportunities (Bańka, 2015, pp. 99-100). Considering the above, reactive mechanisms for reducing abuse will constitute a group of activities undertaken by the organisation in the form of developing procedures, codes, guidelines indicating actions that should not be taken in order to prevent the fraud. This includes both mandatory regulations and codes defined by legislation, as well as own studies at the level of the organisation. Proactive mechanisms, on the other hand, are a group of tools and actions that are taken and implemented by the management of an organisation in order to effectively identify frauds. The table below shows examples of practical mechanisms applied at company level, divided into reactive and proactive ones.

*Figure 1: Reactive and proactive mechanisms to reduce fraud in the company*

Reactive fraud reduction mechanisms	Proactive mechanisms to limit fraud
Code of Ethics	Internal Audit
Financial Reporting Standards	External Audit
Accounting Policy	Institutional Internal Control
Anti-corruption Policy	External Control
Anti-fraud Policy	Revisions
Code of Good Practice	Compliance Officer
Conformity Policy	Management Board
Conflict of Interest Management policy	Information Tools and Technologies
Internal Operational Procedures	Whistleblowing
Trainings	

*Source: own work.*

The importance of both reactive and proactive mechanisms in reducing fraud is crucial. While the first of these are informative and educational, they require a lot of work on the part of the management board and employees of the organization. The precision of their preparation may contribute to the elimination of undesirable effects. It is very important that such procedures should not have any significant gaps that could easily be exploited by the potential perpetrator of the fraud. It is similar in the case of proactive mechanisms, where the right approach and precision of persons performing these activities count. For example, the Compliance Audit will refer only to the assessment of the correctness of the application of procedures, but the value for money audit will also verify the effectiveness of these procedures (Skoczylas-Tworek, 2014, pp.53) in terms of reducing the risk of fraud. In regards to the effectiveness of fraud reduction, research carried out by ACFE shows that, of the many tools used by organizations, both Internal and External Audit activities, data monitoring and analysis, management activities and fraud training are the most effective in reducing fraud losses and reducing the duration of fraud (Accountancy Europe, 2017). In the case of fraud, both reactive and proactive mechanisms play a very important role and are necessary to protect the organization against the materialization of risks in this area. Reactive mechanisms require more precision and detail in their development. Proactive mechanisms, on the other hand, should focus on efficiency and risk minimization aspects.

#### **4. APPLICATION OF MECHANISMS TO COMBAT FRAUD AND ABUSE IN ORGANISATIONS ON THE EXAMPLE OF COMPANIES INCLUDED IN THE WIG20 INDEX**

The study of the implementation of mechanisms preventing fraud was conducted on a selected group of 20 companies included in the WIG 20 index. The development of the index is significantly influenced not only by the government policies pursued but also by the situation of the financial sector (Bisness Insider, 2017), and these are very important from the point of view of fraud (Surdykowska, 2012, pp. 46-47). Therefore, the selection of the research sample was purposeful, assuming that these entities should operate on the basis of higher standards, and the fraud management policy in relation to their activities should be characterized by particular caution and precision. The adopted index of listed companies focuses on the list of companies included in the WIG20 Index as at 09.05.2019. In turn, data from documents published for the years 2017-2018 for these entities were used for the audit. The verification of companies included in the WIG20 Index was made taking into consideration the following issues:

1. the review of the mechanisms used to reduce fraud,
2. division of these mechanisms into reactive and proactive mechanisms according to the division adopted in the publication.
3. verification of the degree of involvement of the organization in the use of reactive and proactive mechanisms in order to assess their effectiveness.

The data necessary for the research were derived from activity reports containing non-financial data. On the basis of the information contained therein, fraud prevention mechanisms implemented by the audited entities were identified and divided into reactive and proactive mechanisms. The analysis of documentation included those mechanisms which the company indicated as having functions which contribute to the reduction of undesirable effects such as fraud. The reactive mechanisms of fraud reduction used by the surveyed companies are presented in Chart 1.

*Chart following on the next page*

*Chart 1: Reactive fraud reduction mechanisms*

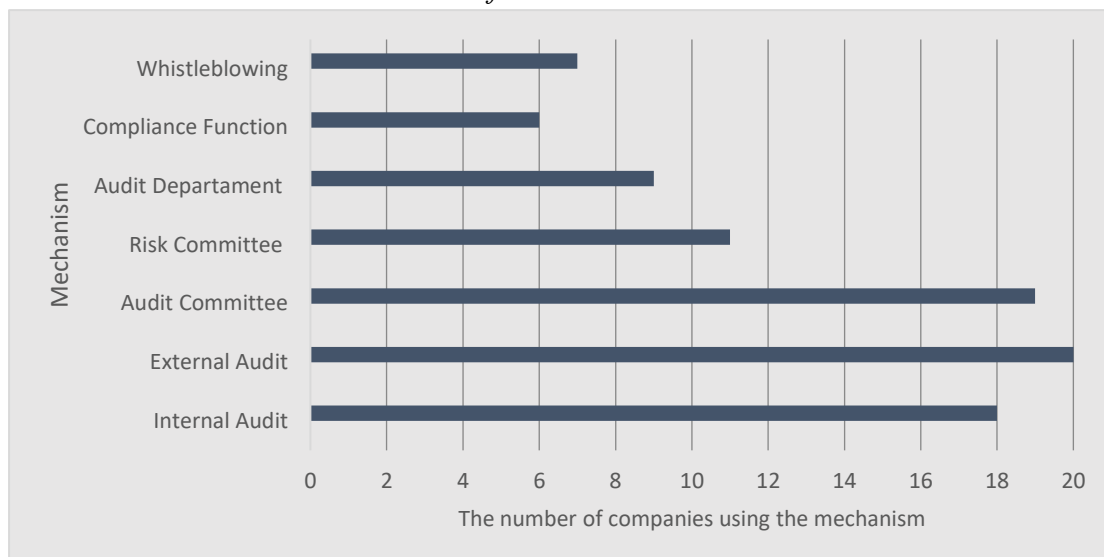


*Source: Authors' own analyses based on Consolidated annual reports and reports on the activities of management boards of companies included in the WIG20 Index as at 09/05/2019*

The presented data indicate that WIG20 index companies show significant involvement in the development of procedures and guidelines for the reduction of fraud and use the guidelines developed for listed companies in this respect. The mechanisms indicated in the chart do not always directly address the issue of fraud, but they do point to elements that relate to the phenomenon under investigation. Some of them are more general and relate to the employee's behaviour in the performance of his/her duties, e.g. the Code of Ethics, Conduct, Anti-Corruption and Conflict of Interest Management Policy. They concern shaping an appropriate attitude of an employee as a person who does not succumb to motives or premises for acts of abuse. The analysed data show that all companies have adopted Codes of Ethics. It is worth mentioning that some of the surveyed entities indicate that they have very extensive Codes of Ethics, taking into account such procedures as Conflicts of Interest or Operational Procedures. There are also some entities that separated these procedures from the Code of Ethics as separate documents. All of the surveyed companies have implemented a Risk Management system, although in the case of a few entities this management is limited to financial risk only. Almost each of the surveyed companies adopted the document entitled Best Practices for Listed Companies, in which, as mentioned earlier, some of the provisions refer to the risk of fraud. Some companies have developed fraud detection procedures, others have implemented corporate protection models, a European Common Minimum Anti-abuse rule (GAAR) (EU clause) or the European Parliament and Council Regulation on fraud (EU regulation, 2014). The surveyed entities also use guidelines that deal with fraud in a specific area, for example, the International Accounting Standards, and on their basis have established internal regulations that cover inappropriate conduct that may result in fraud. Such a process concerns in particular purchase procedures, accounting operations, or quality assurance, etc. They were not taken into account in this study due to the very detailed and often strictly financial nature or industry specificity of the surveyed entities. As it was mentioned in the introduction to the publication, the analysis concerned only provisions referring to general assumptions adopted in relation to the organisation, its employees, management board and clients in the area of protection against fraud. The analysis showed that entities more and more often implement compliance policies, and thus include compliance departments in their structures as proactive mechanisms to limit

abuses. The same applies to fraud detection policies. The study has shown that the proactive mechanism often follows a reactive tool. The above indicates a close link between reactive and proactive mechanisms, as the latter verify the effectiveness and efficiency of the former. Proactive mechanisms used by the surveyed entities are presented in Chart 2.

*Chart 2: Proactive fraud reduction mechanisms*



*Source: Authors' own analyses based on Consolidated annual reports and reports on the activities of management boards of companies included in the WIG20 Index as at 09/05/2019*

The presented data show that in terms of using proactive mechanisms, the audited companies show the greatest activity in terms of using external audit services, which is fully justified by the need to audit financial statements of entities listed on the stock exchange by independent auditors. The analysed data included in the reports do not indicate that any of the entities uses external audit services in any other scope. The only aspect identified as being subject to the audit relates to the energy sector with respect to the so-called ISO audits. Over 90% of the analyzed entities use internal audit units, and those which do not have separate audit units in the structure have assigned these tasks to Audit Committees. It was also observed that the surveyed organizations do not use the mechanism of institutional internal control in the form of a separate organizational unit or department. If this tool is functional, almost always the control tasks are assigned to the internal audit. In the majority of the surveyed organizations, the Risk Committee also undertakes activities related to fraud prevention. Its presence was particularly noticeable in the banking and energy sectors. A very popular mechanism is also the compliance department mentioned above, which deals with the examination of compliance risk or lack of it. According to the information presented in the reports of companies using the compliance, this risk constitutes a violation of the law or internal regulations and may result in fraud. Entities that do not have compliance departments have assigned an analysis in this respect to other units. This is usually the internal audit unit. Another proactive mechanism applied among the surveyed entities is whistleblowing, i.e. persons who report that a threat has been noticed. The survey showed that 35% of companies included in the WIG20 Index use this type of mechanism. In most of the analysed reports, no information was found on the use of special IT technologies used by the surveyed entities to detect frauds. Certainly, even if the organization has such tools at its disposal, it will try to keep them secret, thus reducing the possibilities for potential perpetrators to act. For some entities, there was information on actions taken in the area of fraud prevention based on internal procedures, but these procedures were not indicated or named.

Hence, the mere mention of action taken may be a proactive mechanism, but it does not provide sufficient evidence of its actual existence. The data presented in the chart show that WIG20 Index companies use both reactive and proactive mechanisms to a fairly large extent to reduce fraud. This raises the question of their effectiveness in combating this phenomenon. In this case, the data contained in the activity reports are already much poorer. It follows from them that only 20% of the respondents show results in the area of violations of the mechanisms introduced to limit frauds in their activity reports. The question therefore arises as to whether their effectiveness is so high that there are no frauds, or rather if they are insufficient or whether the frauds occur, but the company avoids disclosing them, or whether the effectiveness of these mechanisms is not assessed at all. This is all the more debatable given the media information and financial data on the frauds committed in relation to companies included in the WIG20 index, which have, however, recorded frauds in recent years. The banking sector deserves special attention in this respect (Parkiet, 2018).

## 5. CONSLUSION

Companies are taking a number of measures to reduce the number of fraudulent phenomena. In this respect, they use both procedural solutions established in the form of guidelines, internal regulations, the so-called reactive mechanisms. Additionally, they use proactive mechanisms by establishing independent departments in organisational structures, whose tasks include not only research into the phenomena of fraud, but also verification of the correct functioning of reactive mechanisms. As mentioned above, depending on the branch of activity of the organization, it depends on whether the company is additionally supported by the provisions of national, EU or international law. However, implementation of the mechanism in any form does not guarantee that the organisation is effectively protected against fraud. The analysis shows that organisations sometimes have a very wide range of fraud control mechanisms at their disposal, but places in doubt the assessment of their effectiveness. The phenomenon of fraud has always been a taboo subject. While certain acts of abuse have not come to light by chance, the organisations themselves have not necessarily strived to disclose information in this regard. This is certainly to preserve the reputation of companies. However, it should be remembered that evaluating the effectiveness of anti-fraud measures will not only provide information for the company, but can also be a valuable source of information for potential investors as long as the entity that has identified the misconduct or got it identified, discloses it and indicates the steps it has taken to strengthen the system before it reoccurs. Fraud is a very difficult research area mainly due to the fact that entities are not only reluctant to disclose information on fraud, but also do not want to fully disclose the tools they use to capture such activities. In the case of the occurrence of fraud and identification of its features, the company will first of all try to solve the situation on its own using the mechanisms at its disposal. As a rule, however, after some time, such an act is revealed, usually through the media, which does not favour the enterprise, especially taking into account its position in the economy, industry, and also from the point of view of customers. The study showed that WIG20 Index entities are actively involved in implementing reactive and proactive mechanisms to limit abuse. However, it questioned the assessment of their effectiveness. The collected material will allow for a detailed study focused on the effectiveness of these tools in the actual reduction of fraud, as well as the development of a model of fraud management and indicators that will determine the number and complexity of activities undertaken by the organization.

## LITERATURE:

1. Association of Certified Fraud Examiners (2018), Report to the Nations, 2018 Global study on occupational fraud and abuse, Retrieved 20.05.2019 from [https://www.acfe.com/uploadedFiles/ACFE\\_Website/Content/rtnn/2018/RTTN-Government-Edition.pdf](https://www.acfe.com/uploadedFiles/ACFE_Website/Content/rtnn/2018/RTTN-Government-Edition.pdf).
2. Annual report on the activities of CCC S.A. for 2017, <https://www.parkiet.com/assets/pdf/PA258356326.pdf> access 19.04.2019.
3. Assessment of the situation of KGHM Polska Miedź S.A. including the assessment of the internal control system, risk management, compliance and internal audit function. Retrieved 20.05.2019 from [https://kgbm.com/sites/kgbm2014/files/document.../10\\_ocena\\_sytuacji\\_spolki.pdf](https://kgbm.com/sites/kgbm2014/files/document.../10_ocena_sytuacji_spolki.pdf).
4. Bańka A. (2015), Intencjonalne konstruowanie przyszłości i wyprzedzające realizowanie celów: walidacja Skali Proaktywności Ogólnej, Psychological Journal. Retrieved 20.06.2019 from [www.casopismopsychologiczne.pl/files/articles/2015\\_PDF\\_1/11-KABANKA\\_str\\_97-115.pdf](http://www.casopismopsychologiczne.pl/files/articles/2015_PDF_1/11-KABANKA_str_97-115.pdf).
5. Business Insider (2017), Od giełdowego strachu przez obietnice reform – blaski i cienie WIG20, 17 stycznia 2017, Retrieved 07.06.2019 from <https://businessinsider.com.pl/finanse/inwestowanie/indeks-wig20-z-czego-sie-sklada-jak-dziala-od-czego-zalezy/hv3qxm6>.
6. Committee of Sponsoring Organizations of the Treadway Commission (2010), Fraudulent Financial Reporting: 1998-2007. An Analysis of U.S. Public Companies, May. Retrieved 03.06.2019 from <https://www.coso.org/Documents/COSO-Fraud-Study-2010-001.pdf>.
7. Consolidated management report on the operations of the CD Projekt and CD Projekt SA for the year 2017. Retrieved 20.05.2019 from <https://www.cdprojekt.com/pl/wp-content/uploads-pl/2018/03/sprawozdanie-zarzacc8du-z-dzialalnosci-grupy-kapitalowej-cd-projekt-za-2017-1.pdf>.
8. Consolidated annual report of the PGNiG Group for the period from January 1, 2017 to 31 December 2017. Retrieved 20.05.2019 from [http://pgnig.pl/documents/10184/2297192/PGNiG\\_Skonsolidowany\\_Raport\\_Roczny\\_2017.pdf/38dc8569-6c6e-43b8-b9ce-709dfe1be5a4](http://pgnig.pl/documents/10184/2297192/PGNiG_Skonsolidowany_Raport_Roczny_2017.pdf/38dc8569-6c6e-43b8-b9ce-709dfe1be5a4).
9. Consolidated Annual Report of Grupa Lotos S.A., Retrieved 20.05.2019 from [http://inwestor.lotos.pl/193/r,2017/raporty\\_i\\_dane/raporty\\_roczne](http://inwestor.lotos.pl/193/r,2017/raporty_i_dane/raporty_roczne).
10. Cyfrowy Polsat SA Declaration on the application of corporate governance principles in 2017. Retrieved 20.05.2019 from [http://grupapolsat.pl/sites/default/files/2017\\_oswiadczenie\\_o\\_stosowaniu\\_zasad\\_ladu\\_korporacyjnego.pdf](http://grupapolsat.pl/sites/default/files/2017_oswiadczenie_o_stosowaniu_zasad_ladu_korporacyjnego.pdf).
11. EY, Uczciwość pod lupą. Przyszłość zarządzania zgodnością, 15. Światowe Badanie Nadużyć Gospodarczych, 2018, p. 13. Retrieved 07.06.2019 from <https://www.ey.com/pl/pl/services/assurance/fraud-investigation---dispute-services/ey-swiatowe-badanie-naduzyc-gospodarczych-2018>.
12. Heszen I. (2011), Zachowanie celowe i reaktywne jako komplementarne formy radzenia sobie w sytuacji stresowej, The Review of Psychology. Official Journal of the Polish Psychological Association, vol. 54, 1.
13. *International Standards for the Professional Practice of Internal Auditing*,
14. Institute of Internal Auditors Research Foundation (2016), 247 Maitland Avenue, Altamonte Springs, Florida 32701-4201, USA. Retrieved 03.06.2019 from <https://www.iiia.org.pl/onas/standardy>.
15. Integrated Report 2017 mBank Group. Retrieved 20.05.2019 from <https://www.mbank.pl/pdf/relacje-inwestorskie/raport-roczny/2017/raport-zintegrowany-mbank-2017.pdf>.

16. Indexes of the Warsaw Stock Exchange. Retrieved 20.05.2019 from <https://www.bankier.pl/inwestowanie/profile/quote.html?symbol=WIG20>.
17. Integrated report 2017 Orange Polska. Retrieved 20.05.2019 from [http://orange-ir.pl/sites/default/files/Orange\\_Raport\\_2017\\_PL.pdf](http://orange-ir.pl/sites/default/files/Orange_Raport_2017_PL.pdf).
18. Jasiński W. (2013), Nadużycia w przedsiębiorstwie, przeciwdziałania i wykrywanie, Wydawnictwo Poltex, Warszawa.
19. Komisja Europejska, Sprawozdanie komisji dla Parlamentu Europejskiego i Rady, 29 sprawozdania roczne dotyczące ochrony interesów finansowych Unii Europejskiej i zwalczania nadużyć finansowych (2017 r.), Bruksela 03.09.2018, COM(2018) 533 final.
20. Klauzula UE w sprawie zwalczania nadużyć podatkowych, Retrieved 11.06.2019 from <https://ksiegowosc.infor.pl/wiadomosci/704484,Klauzula-UE-w-sprawie-zwalczania-naduzy-c-podatkowych.html>.
21. Krawczyk M., Skoczylas-Tworek A. (2013), Skala ryzyka nadużyć w polskich przedsiębiorstwach w dobie kryzysu, *Finanse, Rynki Finansowe, Ubezpieczenia*, Zeszyty Naukowe Wydziału Nauk Ekonomicznych i Zarządzania Uniwersytet Szczeciński nr 60, s. 493.
22. Kutera M. (2016), Nadużycia finansowe, wykrywanie i zapobieganie, Difin, Warszawa.
23. LPP S.A. Consolidated annual report for 2017. Retrieved 20.05.2019 from [https://www.lppsa.com/wp-content/uploads/2018/03/LPP\\_-Skonsolidowany-roczny-raport-za-2017-rok-1.pdf](https://www.lppsa.com/wp-content/uploads/2018/03/LPP_-Skonsolidowany-roczny-raport-za-2017-rok-1.pdf).
24. Managing the Business Risk of Fraud: A Practical Guide (2012), IIA, AICPA, ACFE. Retrieved 11.06.2019 from <https://na.theiia.org/standards-guidance/Public Documents/fraud paper.pdf>.
25. Ngo F., Jaishankar K., 2017, Commemorating a Decade in Existence of the International Journal of Cyber Criminology: A Research Agenda to Advance the Scholarship on Cyber Crime, *International Journal of Cyber Criminology*, vol. 11 Issue 1 January-June 2017. Retrieved 09.06.2019 from <https://www.cybercrimejournal.com/FawnjaiSAvol11issue1IJCC2017.pdf>.
26. Parkiet Plus (2018), Banki: ile tracą na oszustwach pracowników i wyłudzeniach? Retrieved 21.05.2019 from <https://www.parkiet.com/Parkiet-PLUS/306269958-Banki-ile-traca-na-oszustwach-pracownikow-i-wyludzeniach.html>,
27. PwC, 2018, Pulling fraud out of the shadows. The biggest competitor you didn't know you head, *Global Economic Crime and Fraud Survey*. Retrieved 20.05.2019 from <https://www.pwc.com/gx/en/forensics/global-economic-crime-and-fraud-survey-2018.pdf>.
28. Report of the Cyfrowy Polsat Capital Group S.A. and Cyfrowy Polsat S.A. on non-financial information for 2018. Retrieved 20.05.2019 from [http://grupapolsat.pl/sites/default/files/documents/raport\\_niefinansowy\\_gk\\_cyfrowy\\_polsat\\_s.a.\\_oraz\\_spolki\\_cyfrowy\\_polsat\\_s.a.\\_za\\_rok\\_2018.pdf](http://grupapolsat.pl/sites/default/files/documents/raport_niefinansowy_gk_cyfrowy_polsat_s.a._oraz_spolki_cyfrowy_polsat_s.a._za_rok_2018.pdf).
29. Report of the Management Board on the operations of the Alior Bank SA Capital Group for 2017. Retrieved 20.05.2019 from [https://www.aliorbank.pl/.../Sprawozdanie\\_Zarzadu\\_z\\_dzialalnosci\\_Grupy\\_Kapitalowej](https://www.aliorbank.pl/.../Sprawozdanie_Zarzadu_z_dzialalnosci_Grupy_Kapitalowej).
30. Raport roczny ENERGA 2017. Retrieved 20.05.2019 from <http://raportroczny.energa.pl/pl/zarzad/>
31. Raport roczny Eurocash. Retrieved 21.05.2019 from <https://grupaeurocash.pl/pl/inwestor/raporty/raporty-okresowe>.
32. Report of the Management Board on the operations of Jastrzębska Spółka Węglowa S.A. for the financial year ended December 31, 2017. Retrieved 20.05.2019 from <https://www.jsw.pl/relacje-inwestorskie/raporty-gieldowe/raporty-okresowe/raporty-okresowe-2017/>.

33. Report of the Management Board on the activities of KGHM and KGH KGHM 2018. Retrieved 20.05.2019 from <https://kghm.com/pl/inwestorzy/zarzadzanie-ryzykiem>.
34. Report on the operations of the Bank Pekao SA Capital Group for 2017. Retrieved 20.05.2019 from <https://www.pekao.com.pl/o-banku/stopka/informacje-dla-inwestorow/raporty-finansowe.html?year=2017>.
35. Report of the Management Board on the operations of PGE Polska Grupa Energetyczna SA And the PGE Capital Group for 2017 ended on December 31. Retrieved 20.05.2019 from <https://oko.press/images/2018/03/PGE-2017-sprawozdanie-zarz%C4%85du.pdf>.
36. Report on non-financial information of the Orlen Group and PKN Orlen S.A. For 2017. Retrieved 20.05.2019 from <https://www.orklen.pl/PL/Aktualnosci/Strony/Sprawozdania-Finansowe-PKN-ORLEN-S.A.-za-2017-rok.aspx>.
37. Report of the Management Board on non-financial information of the PKO Bank Polski SA Group. For 2017. Retrieved 20.05.2019 from [http://www.raportroczny2017.pkobp.pl/sites/pkobpar17/files/sprawozdanie\\_zarzadu\\_na\\_temat\\_informacji\\_niefinansowych.pdf](http://www.raportroczny2017.pkobp.pl/sites/pkobpar17/files/sprawozdanie_zarzadu_na_temat_informacji_niefinansowych.pdf).
38. Report of the Management Board on the operations of the PZU and PZU SA Capital Group 2017. Retrieved 20.05.2019 from [https://www.pzu.pl/\\_files/1506905](https://www.pzu.pl/_files/1506905).
39. Report of the Management Board on the activities of TARON Polska Energia SA for the financial year 2017. Retrieved 20.05.2019 from <https://www.tauron.pl/-/.../tauron/.../sprawozdanie-zarzadu-z-dzialalnosci-tauron-za-2017>.
40. Rozporządzenie Parlamentu Europejskiego i Rady UE (nr) 596/2014 z dnia 16 kwietnia 2014 r. w sprawie nadużyć na rynku (rozporządzenie w sprawie nadużyć na rynku) oraz uchylające dyrektywę 2003/6/WE Parlamentu Europejskiego i Rady i dyrektywy Komisji 2003/124/WE, 2003/125/WE i 2004/72/WE, Dz. U. L 173/1 z dnia 12 czerwca 2014.
41. GWP (2016) Best Practices of Companies Listed on GWP 2016, Retrieved 15.04.2019 from [https://www.gpw.pl/pub/GPW/files/PDF/GPW\\_1015\\_17\\_DOBRE\\_PRAKTYKI\\_v2.pdf](https://www.gpw.pl/pub/GPW/files/PDF/GPW_1015_17_DOBRE_PRAKTYKI_v2.pdf).
42. KNF (2014) Corporate governance rules for supervised institutions (2014), Retrieved 15.04.2019 from [https://www.knf.gov.pl/dla\\_ryнку/.../zasady\\_ladu\\_korporacyjnego](https://www.knf.gov.pl/dla_ryнку/.../zasady_ladu_korporacyjnego).
43. Skoczylas-Tworek (2014), Audyt we współczesnej gospodarce rynkowej, Wydawnictwo Uniwersytetu Łódzkiego, Łódź.
44. Spencer Pickett K.H. (2012), Fraud Smart, John Wiley & Sons Ltd., January.
45. Sprawozdanie Zarządu Grupy Kapitałowej Santander. Retrieved 20.05.2019 from <https://www.parkiet.com/assets/pdf/PA286857222.pdf>.
46. Statement on compliance with certain detailed corporate governance principles included in the Code of Best Practices for WSE Listed Companies 2016 . Retrieved 20.05.2019 from [https://static3.santander.pl/asset/S/a/n/Santander\\_\\_WSE\\_Code-2016\\_60588.pdf](https://static3.santander.pl/asset/S/a/n/Santander__WSE_Code-2016_60588.pdf).
47. Surdykowska S.T. (2012), Ryzyko finansowe w środowisku globalnej gospodarki. Kulisy najbardziej spektakularnych afer finansowych ostatnich lat, Difin, Warszawa.
48. Wells J.T. (2006), Nadużycia w firmach, vademecum zapobieganie i wykrywanie, LeisNexis, Warszawa.
49. Wells J.T. (2012), Financial Statement Fraud Casebook: Baking the Ledgers and Cooking the Books, ACFE, January.
50. Wiśniewska J. (2017), Rola rachunkowości śledczej w ograniczaniu ryzyka występowania nadużyć gospodarczych w przedsiębiorstwach, Studia i Prace. Kolegium Zarządzania i Finansów, Zeszyty Naukowe 154/2017, Szkoła Główna Handlowa w Warszawie, p. 79.
51. Zarządzenie nr 39 Prezesa Rady Ministrów z dnia 29 marca 2016 r. zmieniające zarządzenie w sprawie utworzenia Międzyresortowego Zespołu do spraw Koordynacji i Monitorowania Wdrażania „Rządowego Programu Przeciwdziałania Korupcji na lata 2014–2019”, Dz. Urz. Z 31 marca 2016 r., poz. 298.

## SOME CRITICAL REMARKS ON THE BRANDING OF COUNTRIES

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### ABSTRACT

*In the past two decades, 'country image centres' and 'country brand councils' have been created throughout Europe and the world. Their task is the same everywhere: to position the country, distinguish it from 'competitors', create a uniform brand strategy, and coordinate the various messages about the country in a certain sense. Politicians also tend to mention country branding or nation branding, and the term appears in the news media and tabloid press more frequently. In short, country branding is actually nothing else than the technical application of branding for countries in order to improve the reputation of the country, thus attracting more tourists and investors, improving export, etc. – in other words, resulting in greater competitiveness and more money. The topic is very exciting, but also extremely complex, and quite often divisive, generating emotions in many cases. It is no coincidence that the opposition of country branding is just as large as its support, and critical voices continue to strengthen. We present these aspects in our article as food for thought – not necessarily in order of importance. Thus, a total of 25 critical remarks on country branding are discussed including the opinion that a good national image cannot be built according to a plan, with the precision of an engineer. It can only be earned, also because it is impossible to coordinate so many things at a time, not to mention that consistent branding is basically impracticable because of successive political cycles. The article also discusses that if a country has a 'country image centre' or 'country brand council', it does not necessarily mean that the country has a better brand image. The cause of the problem is often that many people still identify country branding with logo design and a catchy slogan, although country branding is much more than that. In addition, there is no country branding without a country strategy – in other words, there is no country brand building without country building. Last but not least, we should remind ourselves that countries are primarily not brands but countries.*

**Keywords:** country branding, nation branding, country image, country reputation

### 1. INTRODUCTION: THE AIMS OF COUNTRY BRANDING

Country branding is a rather unique field: although parallels may be drawn between the branding of countries and that of products, services and companies, it also has its characteristics and unique features. One of these is that while a country brand may look like a simplified cliché, stereotype of even a caricature from outside, we can see that it is actually complex with many dimensions and layers if we look at it closely. In a historical sense, the first person to mention the concept of 'nation brand', or country brand was British expert SIMON ANHOLT, back in 1996. (see ANHOLT 2011, FEINBERG and ZHAO 2011, SUBRAMANIAN 2017). His article Nation-brands of the twenty-first century published in the Journal of Brand Management in 1998 soon became very popular among marketing professionals, and later in scientific circles. 'Country image centres' and 'country brand councils' were created shortly throughout Europe and the world. Their role is the same everywhere: the positioning of the country, that is its distinction from the competition, the creation of a uniform brand strategy, and the coordination of various messages about the country. We could also say that there is a new era in the competition of nations. Although military clashes are still quite common in certain areas of the world, in most places wars are not waged with traditional weapons, but marketing tools (see VAN HAM 2002: 265.). Moreover, the battlefield is nothing else but the consumers' mind (Ries and Trout 1997), where various countries would like to occupy as distinguished position and as big area as

possible, because this means tourists, investors, and more people buying the products of the countries. In this regard, we can say that globalisation almost provokes, certainly encourages nation branding (HANNA and ROWLEY 2008). But what are the areas where it is possible to increase competitiveness, and how can a good country brand help us in our 'battle' for our position in the consumers' mind? First of all, the primary aims of country branding are all economic. This involves three major aspects:

1. The promotion of tourism, the attraction of tourists to the specific country.
2. The promotion of investment coming into the country.
3. The development of export, and improved sales of the country's products on foreign markets. Besides the three aims above, we can identify two more equally important aims that are not economic, and have a positive impact in the long term:
4. A greater role in international organizations and foreign policy.
5. Improving the well-being of citizens and their pride of belonging to the nation/country.

If we think about it, the five points above suggest the same thing: they all aim the better competitiveness of the country. Country branding also serves the five aims mentioned above, which actually involves the application of branding for countries in a technical sense, thus developing the country's reputation. In addition, this kind of branding (in other words: brand building) is something that can equally be used by small or big, developing or developed countries. The topic is very exciting, but also extremely complex and often divisive, invoking emotions again and again. It is no coincidence that the camp of people opposing this activity has become at least as big as that of its supporters, and the critics are getting louder. In the present article, we present these critical aspects as food for thought – not necessarily in order of importance. Thus a total of 25 critical remarks on country branding are discussed, including the question whether country branding exists at all.

## **2. THE 25 LIMITS OF COUNTRY BRANDING**

### **2.1. Countries are not brands, but countries**

First, we should start with this item as we may think of another country as a brand – for example, when make a decision to spend the summer vacation by the sea in Spain, Italy, Croatia or Bulgaria. Nevertheless, this does not mean that people want to consider their own country to be a brand. Using the term 'branding' in terms of our own country or nation may seem arrogant or cynical. But what would people like to see? They want their country to matter, to be a front-runner internationally – be it any kind of competition. They want to be proud of their country. Therefore some experts suggest that politicians should use the term 'reputation management' instead of the expression 'country branding'. However though, the problem with the newly suggested term is that it makes even less sense to ordinary citizens than country branding.

### **2.2. People are not parrots**

'The face of a country can be broadcast to the world successfully if all cities, institutions, citizens, politics and economy – each in its own way – broadcast the same thought, idea, or image. There may be a hundred colours and forms, but the multitude of messages converge in a way.' wrote Elemér Hankiss in the late 1990s (2000: 210.). In fact, this may be the essence of country branding, but let us be honest, this is a somewhat idealistic approach. In a democratic state, the system – fortunately – does not have control over every word and action of all the citizens. This is because people are not parrots; we cannot teach them what to recite. If we do so, it is propaganda. Of course this does not mean that it is impossible to provide some subtle guidance to people on what (and how) to communicate about their own country. Examples include Estonia and their [brand.estonia.ee](http://brand.estonia.ee) website for this purpose.

### **2.3. It is impossible to coordinate so many things**

The realisation of the above quotation by HANKISS is complicated by the multitude of institutions communicating about the country. In the case of Hungary, the institutions officially entitled to communicate about the country are:

- the organ in control of tourism (currently, the Hungarian Tourism Agency)
- the organ promoting investments (HIPA – Hungarian Investment Promotion Agency)
- cultural institutes, Hungarian institutes abroad (Balassi Institute)
- dedicated organizations for the support of export (HEPA – Hungarian Export Development Agency)
- the ministry of foreign affairs (now called Ministry of Foreign Affairs and Trade)

Moreover, in most countries (including Hungary), several other bodies, government organs, ministries, special interest groups, non-governmental organisations (NGOs) and companies promote what the country means to them. In addition, smaller units such as cities may also send messages in connection with Hungary – as suggested in the above quotation by HANKISS. As WALLY OLINS, British branding expert says (2004): 'Nations present themselves in a million way every minute, 24 hours a day.' It is almost impossible to coordinate all this, even if there were attempts of this kind in several countries. Individual 'country image centres' or 'country brand councils' may be more capable of taking on a supportive role and providing guidance on what to communicate regarding the country and how each organisation may adapt it. This may involve vision, positioning, value system, message system and the definition of some visual identity element such as a central logo. However though, this cannot be implemented in all cases: we hardly see a country whose tourism logo is the same as the one used for investment promotion. This is logical in a sense: while we must present our (cultural) heritage to the majority of tourists, we must offer some kind of a vision to prospective investors.

### **2.4. Operating a 'country image centre' or 'country brand council' does not mean that the brand image of the country will improve**

Although we may assume that countries with this kind of central key body perform better (that is, they own a better brand), the numbers refute this view. Italy does not have such a 'country brand council', but its country brand is still viewed as one of the best, especially in terms of the dimensions of tourism and culture.

### **2.5. Branding is always narrowing, but countries are complex**

In the case of classic brands, the branding activity is centred upon positioning – that is to say, upon the most important idea that explains why that specific brand exists, and how it is different from its competitors. The same questions can be asked of any country, and it is practical to ask them: Why does the country exist? What would happen if it disappeared from one day to the next? Why would people miss it? How is it unique compared to all other countries? Well, the fact is that it is hard to find a clear answer to these questions. The main reason is that usually 'even the smallest village is more complex than a large corporation' (ANHOLT 2010: 5). This is even more true if we consider a country instead of a village. The same applies to the consumers of the country: the priorities of tourists, investors and people living in the country may all be different. Moreover, there may be great differences within each group: the needs of a tourist used to 5-star hotels is different from the needs of a tourist team arriving for a bachelor party. In this respect, the question may be asked whether a country/nation benefits more from having a clear, simple image, or it is preferable to have a rich, complex, even contradictory image? (ANHOLT 2010: 38.). For example, the brand image of the United States of America is not at all that clean and simple. The perception of the country's government is very negative, but people like (or what is more: love) American products, brands, popular culture, music and

films. On the other hand, the image of North Korea is rather clean, simple and consistent. But does this make the country a better brand?

## **2.6. There is no country branding without a country strategy**

It is not enough to create a new slogan, logo, advertisement or PR campaign. Communications cannot replace real politics, real strategy and real government. Poor, ambiguous policies lead to poor, ambiguous reputation. 'In every case, the country image is part of the country strategy, serving as a communication tool, expression, embodiment, face or part of it. If there is no country strategy, the country image is also 'hanging in the air', and in default of reasonability, understanding, comprehension and connection it can be overwritten by anyone at discretion, in any moment' (BÍRÓ 2009: 60.). Therefore we must examine and define where we are now, and what we want to achieve. Then we must provide proof of our country vision, because it is not enough merely to communicate it. Thus the strategy must be inspiring and realisable at the same time. To be honest, only a few good examples can be found in the case of countries, but Estonia's 'E-Estonia' vision (which has become a mission as well) serves as a good example.

## **2.7. 'Do good and speak about it'**

This is a basic rule of PR (public relations) (see SÓS 2017). The examples below better contribute to the brand of the specific country than if they had run an advertising campaign:

- Artists, writers and poets living in Ireland do not have to pay taxes. With this measure, the state acknowledges creative talent.
- Slovenia is positioning itself by providing aid for Balkan countries (Albania, Montenegro, Macedonia) – thus demonstrating that Slovenia is not a Balkan country.
- Having built the Sydney Opera House, Australia demonstrates its cultural values – and the fact that their country is significantly more than a residence for descendants of convicts.
- The Netherlands is a bastion of law as the International Court of Justice is seated in The Hague. (Legalising same-sex marriage, Spain gives another clear indication that it has got rid of the conservative heritage of the Franco era.
- Estonia demonstrates its leading role in digitalisation by including in their constitution that internet access is a basic human right.

In this sense, branding is actually not about communication; it is about (national) policies. According to ANHOLT (2008), GOVERS and GO (2009: 15.), who are experts of the field, the two mottos are:

1. 'Actions speak louder than words.'
2. 'Don't talk unless you have something to say.'

If we only do something for the image itself, stating that something is already true before it has become true, it is called propaganda. Hungarian authors such as PISKÓTI et al. also point out the same thing (1997: 31.): 'If we only concentrate on communication tools, and break away from real tendencies, the efforts for change will not be credible, and the desired processes will not start. In such cases (...) schematic propaganda does more harm than good.'

## **2.8. There is no progress without innovation**

One of the factors forming the basis for country branding is real change taking place in the country. Much the same as in the case of classic brands, innovation, novelty and excitement are needed – and these provide news value. In this context, ANHOLT (2007: 37.) thinks that 80% of country brand building is innovation, 15% is coordination and only 5% is communication.

## **2.9. Consistent branding is impossible as a result of parliamentary terms**

A country positioning or repositioning process may take up to 10, 15 or 20 years to provide the desired results. However, politicians are often unable or unwilling to wait for them. This is because in most countries the mandate of governments lasts 4 years, and newcomers always wish to deliver quick results. Therefore they often engage in the creation of a new country logo or country slogan, because it is the easiest thing to do – and then it is where the whole activity begins and ends. There are only a few countries that follow the designated direction of their country branding consistently. Examples include the abovementioned country, Estonia and their E-Estonia concept (PAPP-VÁRY and ILIC 2018), but this country has not changed its government frequently.

## **2.10. You need to start developing your country brand at home, domestically**

This is one of the remarks that critics fail to understand or do not accept, although even the most prestigious experts agree that first we should get our own house in order before entering the international market (MOILANEN and RAINISTO 2009: 25.). Or, as ANHOLT suggests (2010: 46.), first of all we must find the way to be true to ourselves instead of lying to others. It is impossible to build a brand without internal security, confidence, principles and identity. In addition, we must involve locals in the process of country branding and ask for their assistance. As KENNEDY said: 'Ask not what your country can do for you – ask what you can do for your country'. Of course what worked for KENNEDY in the United States of the 1960s has not necessarily been successful with other politicians in other countries and periods. Even in a workplace, you cannot always achieve that employees stand behind the brand vision, communicate and behave in accordance with brand values, or at least believe in them. It is even hard to motivate the workers of a company to actually make them 'live the brand', and this is especially true if we consider the whole population of a country who should represent it externally, at international level. This is especially true if a nation has a poor self-image, if it does not respect and admire itself (at least in part).

## **2.11. Good advertisements do not help bad products**

'A great ad campaign will make a bad product fail faster. It will get more people to know it's bad', said BILL BERNBACH, founder of the DDB advertising agency. In such cases, ad campaigns result in that people try the product as soon as possible, but they are dissatisfied with it – therefore they are not willing to purchase the same product again, and they also share their bad experiences with others (LEVENSON 1987). First of all, a good brand definitely requires a good product. This is true for FMCG (that is fast-moving consumer goods) and services, and for personal brands as well. The case is the same for places including countries. A country branding campaign by itself is unlikely to save a country with bad reality. Let us take the example of Nigeria: when the country launched its first image campaign in the late 2000s, it was faced with incomprehension and even indignation. Locals claimed that they should rather deal with key problems such as poverty, diseases or the situation of education. Many people said that their campaign with the message 'Good People, Great Nation' was 'meaningless, stating that merely using slogans and eye-catching colour combinations will not change the image of a country where members of the government steal, falsify election results, and sometimes eliminate members of the opposition' (MARKETING&MEDIA 2009). In addition, the internet further worsened the not so bright reputation of the country through an online scam action called '419 Scam', promising quick wealth in exchange for the banking data of the victims. The lesson is that this kind of country branding is a waste of money. It is a naïve assumption that an advertisement or marketing campaign could change international reputation. It is as if a massage by itself would make us lose weight – however though, diet and exercise are required for that purpose (ANHOLT 2010: 31-32.).

In this context, ANDRÁS WERMER claims that 'it is wrong to believe that you can sell something just because you cover it with glaze. Marketing is not advertising, but a process that includes the construction of something we think will do good for the people' (MAGYAR HÍRLAP 2006). Therefore in almost all cases it is better to spend on the development of the place than on advertising. This is more powerful and more credible, and lasts longer (ANHOLT 2009: 66.). It is extremely hard to change the country image or country perception itself – and it is especially impossible to expect it from an advertisement. Let us ask a simple question: When was the last time the reader has changed his/her opinion as a result of an advertisement? And by this we do not mean countries, but any product. It is likely that there were no such examples lately (or possibly there have been no examples at all). In addition, the competition of advertising is fierce: the total amount of advertising stimuli affecting us is 3-5 thousand a day. There is very little chance that the advertisement of a country will affect us unless we have been (at least latently) interested in the country before.

#### **2.12. Negative news is always more interesting and spread more rapidly**

It is enough to open any kind of newspaper or switch to a programme on your TV to see that bad news spread much faster. This is an eternal truth about media: negative news is always more interesting. Modest progress, increasing stability and reasonable reforms are not too exciting in connection with a country (ANHOLT 2010: 74.). On the other hand, a national disaster, a crime, the collapse of economy, if the prime minister starts to behave like a dictator, or if they have 'lied night and day' in the country could be interesting news. And in the same way, it is much more interesting if we get a restaurant bill of 300 EUR after a modest dinner, or the toilet at the border crossing is in an awful condition. Accordingly, a 2008 research by LEBEDENKO concluded that in the case of Russia, only 17% of articles published in the Western media were positive or at least neutral/realistic. This is also important because negative news may build awareness, but positive news may also contribute to the building of an image.

#### **2.13. You cannot build a good country image merely through plans and the precision of an engineer – but it can be deserved**

'Distracting spontaneous image formation in another direction is a significant marketing challenge', wrote PAPADOPOULOS and HESLOP in 2002 (quoted by TÖRÖCSIK and SOMOGYI 2009). Well, the period since then has justified this. No matter how many planned and coordinated efforts were made, there have been no news of roaring success ever since.

#### **2.14. Country branding does not have a standard formula**

Of course we can create systems or guidelines including the most important steps of country branding. But this does not mean that there is a universal template or sample for nation branding strategies (see DINNIE 2008: 219.) Each country has its own purposes, circumstances and competences (ANHOLT 2007: xi.). Every country is different, therefore there is no magical formula that we could use. Of course we can create identity manuals or style guides for country brands including the logo and its possible applications. However, their most important aim is to distinguish the country, therefore they must not be too similar, using a one-size-fits-all approach.

#### **2.15. It is hard to build a country brand, and it is easy to destroy it – but actually it is hard to destroy as well**

This is a very important remark, maybe the most important of the ones listed here. There are people who disagree: 'There is a rule you cannot circumvent: the country image may easily change.' (BÍRÓ 2009, p.56.) But this is simply false – as various studies on country brands show, the image of most countries is exactly the same every year.

Even if a country decides to change its brand image and support it with conscious actions and communication, the change will likely take many years, and the process is neither easy, nor quick. It is a bit like the case of a marine tanker: it takes 5 miles to slow it down and 10 miles to change direction (see ANHOLT 2007). Other authors state that 'It is hard to build the image of a country, and it is easy to destroy it. (...) But statistics show that it is not that easy to destroy, either.' (SZANDTNER's interview with PAPP-VÁRY 2012). Many similar negative events have to take place in order to change the perception of that specific country. This is somewhat similar to driving a Mercedes. If for some reason it breaks down and we need to take it to the garage, we say 'oh, how unlucky we are as this is a great brand'. On the contrary, if we have a Lada and we have not had any problem with it, we say 'how lucky we are'. In most cases, image changes slowly – be it a positive or a negative change. Let us take Volkswagen for example. After their diesel scandal and the series of lies associated with them, it would have been no surprise if nobody in the world bought Volkswagens any more. But people keep buying the brand's cars. Returning to countries: warfare, terrorist attacks and natural disasters have little effect on country image, to be honest (see ANHOLT 2009: 54.). If these happen in a country with a good image, it is possible that the only thing the public says is 'It is such a safe place. How could all that happen?' The country image only changes if such events (for example, terrorist attacks) become a regular feature of that country.

#### **2.16. Country image is nothing more than reality with some delay**

As the previous item in the list suggests, a lot of converging events need to happen in order to change the image of a place. In the case of negative events, this change may be quicker, but this also takes some time. No doubt countries would like to improve their image. But we must understand that even if many developments and innovations are on their way in a country, the country brand will be slow to catch up with the change of reality. Moreover, a change in a country's image may be left behind as it usually takes place over decades not years (ANHOLT 2007: 27.). For many places, the real challenge is here: they need (marketing) communications to decrease the gap between reality and perception.

#### **2.17. Each country gets the image it deserves**

From time to time, the author of this article (also a consultant) is contacted by various product and service brands with the question 'Why is our image so terrible?'. In such cases the first answer is always a question: 'Can it be because the product/service is terrible?' The same rule holds for countries: if a country has a terrible image, chances are high that it is because the country itself is terrible. We must accept that problems of image are often problems of reality as well. In order to change that image, the country itself must change. Even if the image is relatively neutral, there is one question that should be asked: what was the last real news story in connection with the country? What was the most exciting thing (be it a product, service or celebrity) that has come from the country recently?

#### **2.18. You can only plant a new idea in minds if you find connection with an idea that is already there**

It is essentially impossible to convince people to change their thinking and especially their behaviour. This is even more true for their attitude to foreigners. In their mind, they are looking for familiar clues and associations. Therefore you must build on what is already in their mind (see DAY 1980). Thus it is important not to stick to the idea that traditional elements must be got rid of in country advertisements. If these traditional elements are well-known, we must present them, even if in a modernised form.

### **2.19. If the image of a country is in crisis, country branding is the least helpful thing**

'Many people believe that places particularly 'in need of' branding are ones that are in some crisis, and their economy, social and cultural situation are not stable enough. Already existing crisis situations may not be solved by means of branding as successful branding always is always the result of a longer period – quite often years or decades. Crises may only be staved off through determinant and highly targeted actions based on an already existing, strong brand identity' GELDER (1998) says, quoted by TÖRÖCSIK and SOMOGYI (2009: 20.). Confirming once again what has been written above, the only thing that can result in long-lasting change in the image of places is long-lasting and comprehensive change in the country itself, including political, social, economic and cultural changes. Fighting negative perceptions with commercial communication techniques is like fighting terrorism with traditional weapons (ANHOLT 2010: 60.). In order to change the country brand, the country must change as well. Country brand management is always more than a campaign; it is a national policy (ANHOLT 2008).

### **2.20. Complex country branding is impossible, but sectoral branding (such as tourism promotion or investment promotion) can be successful**

As stated above, SIMON ANHOLT the most renowned expert of the topic conducted several studies and concluded that 'there has been no detectable correlation between changes in national brand value and expenditure on the so-called "nation branding campaigns"' (ANHOLT 2010: 2.) There is not a single study justifying that general country branding campaigns change the country image. However, this does not mean that such campaigns are completely unsuccessful. They may be successful sectorally. For example, tourism campaigns may convince people to visit a certain place, but their primary focus is selling and promotion. The target group and messages are clearly defined, and travellers give their money and free time. ANHOLT remarks somewhat cynically that tourism promotion is a fool-proof thing. According to him, it is completely unnecessary to replace it with new terms such as 'destination branding', because the whole thing is quite simply about sales and promotion. Independent investment promotion ('invest in') campaigns are also possible, for example, to convince a well-known car brand to build its newest factory in the country. Maybe it would be exaggerating to say that it is a branding campaign, as it is much more about B2B (business-to-business) sales than marketing or especially branding. The excellence of Asian countries regarding their export products may also be considered a sectoral activity. In such cases, the image of the products influences the country's image – although it is achieved years later, similarly to the case of Japan or South Korea. By contrast, general country brand campaigns fail to deliver the desired results. Of course there is a chance that the receivers of the communication can recall a slogan (but let us add that this is not the case usually). However, this does not necessarily mean that the people's opinion about the country changes. Therefore we can state that campaigns for the promotion of tourism, investment or product sales are effective, but it seems completely needless to spend money (especially that of the taxpayers) on general image campaigns.

### **2.21. You should rather brand cities, regions and smaller units than brand countries**

As early as in 2009, RÓBERT BRAUN wrote that 'Hungary would succeed if the country would spend money on the support of the creation of local brands instead of the Hungary brand' (BRAUN 2009: 48.) 'In the future, the race of destinations, investments and places will not be decided by countries but cities, settlements, regions, clusters or districts, and these could and should be the foundations of a successful brand.' (BRAUN 2009: 51) Moreover, he also added (2009: 49.): 'A Hungary brand is unnecessary in the twenty-first century.' Well, it is highly questionable that a Hungary brand would be unnecessary. However, it seems logical that it is more practical to spend money on the support of individual local brands, especially with regards to the fact that the awareness and image of the capital is much more favourable than those of

the country itself. This is not only true in the case of Hungary: Prague is more well-known and recognised than the Czech Republic, and the same can be said of the relationship between Amsterdam and The Netherlands, or Paris and France. It is also possible to think over the branding of the country and the branding of more significant cities, regions and attractions at the same time. As KÁDÁR says (2013: 22.), 'A country brand affects regions and settlements, but this is also true the other way round: each settlement or region represents the country and brings added value for the country brand. It would be reasonable to create regional and local plans in connection with the strategic plan and allocate resources to them. Settlements, regions, local brands, natural or built attractions and events may greatly improve the positive perception of the country. Therefore they contribute to the development of the identity and the country brand in a spontaneous way, followed by their systematisation and construction based on their common, synergic effect. It is no coincidence that several important articles by Hungarian authors have been published about the cooperation between individual destinations (SZIVA 2010, 2012, KULCSÁR and ZÁTORI 2011a, 2011b). Even if these writings approach the question from a touristic view, they can serve as an important basis for this concept.

#### **2.22. Just as you need 'money, money, money' to wage war, it is also useful for country branding**

The famous dictum by MONTECUCCOLI is partly true for the field of country branding as well: it is better not to start the whole thing without sufficient resources, preferably planned for five years in advance (MOILANEN and RAINISTO 2009: 79.). However, it must be also said that money may be at least partially replaced by ideas, creativity and innovation.

#### **2.23. Many people still identify country branding with logo design – and some consulting companies skilfully benefit from this situation**

The greatest misunderstanding in relation to country branding is the idea that this activity merely includes the creation of a new logo and/or the writing of a new slogan accompanied by a high-budget advertising campaign. To implement these items is definitely in the interest of consulting companies and advertising agencies: they can request great amounts for this purpose, and they have proficiency in this field. The problem is that the perception of places cannot be changed merely through direct communication. Changes must take place on a deeper level. (ANHOLT 2010: 31.)

#### **2.24. Merely providing more information about the country does not help**

The other communication-based approach is to provide as much information about the country as possible. These consultants propose that we make the advertising spots as long as possible and display everything that has anything to do with the country. But are these interesting for receivers? And what is the target audience in this case? An important attribute of consumer behaviour is that consumers only receive the information if they are actively looking for it – when they are right before (or after) the purchase decision. For example, if we want to buy a car, we start to see the chosen model on the roads after a while – although we have not noticed it despite their presence. Moreover, many people read the brochure about the model after purchasing the car itself, justifying their decision in a way. We react to countries pretty much the same way. Thus we can say that providing more information is not bad in itself – but there is a time and place for it. In most cases it is better to communicate less (and simpler) truths about the country instead of long lists of our attributes, and it is better to patiently wait for its 'reception'. Less is more, as we have realised again.

## 2.25. There is no country branding without country development

It must be pointed out that whatever the industry is, branding is not just about communication: it is also about the product and its development process. It is impossible to brand something without the involvement of the product itself. In that case it would only be communication – an advertising campaign in a worse case scenario, or a PR campaign in a better situation.

## 3. CONCLUSION

As the article pointed out, country branding as an activity can be criticised for various reasons. These are presented in the table below.

*Table 1: The most significant critical remarks: limits of country branding*

<ol style="list-style-type: none"> <li>1) Countries are not brands, but countries</li> <li>2) People are not parrots</li> <li>3) It is impossible to coordinate so many things</li> <li>4) Operating a 'country image centre' or 'country brand council' does not mean that the brand image of the country will improve</li> <li>5) Branding is always narrowing, but countries are complex</li> <li>6) There is no country branding without a country strategy</li> <li>7) 'Do good and speak about it'</li> <li>8) There is no progress without innovation</li> <li>9) Consistent branding is impossible as a result of parliamentary terms</li> <li>10) You need to start developing your country brand at home, domestically</li> <li>11) Good advertisements do not help bad products</li> <li>12) Negative news is always more interesting and spread more rapidly</li> <li>13) You cannot build a good country image merely through plans and the precision of an engineer – but it can be deserved</li> <li>14) Country branding does not have a standard formula</li> <li>15) It is hard to build a country brand, and it is easy to destroy it – but actually it is hard to destroy as well</li> <li>16) Country image is nothing more than reality with some delay</li> <li>17) Each country gets the image it deserves</li> <li>18) You can only plant a new idea in minds if you find connection with an idea that is already there</li> <li>19) If the image of a country is in crisis, country branding is the least helpful thing</li> <li>20) Complex country branding is impossible, but sectoral branding (such as tourism promotion or investment promotion) can be successful</li> <li>21) You should rather brand cities, regions and smaller units than brand countries</li> <li>22) Just as you need 'money, money, money' to wage war, it is also useful for country branding</li> <li>23) Many people still identify country branding with logo design – and some consulting companies skilfully benefit from this situation</li> <li>24) Merely providing more information about the country does not help</li> <li>25) There is no country branding without country development</li> </ol>
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*Source: classification by ÁRPÁD PAPP-VÁRY*

After all these critical remarks, it is also makes sense to find out how a country's perception becomes positive and what makes it a brand. In this context, it is worth calling upon SIMON ANHOLT, the most renowned international expert of the topic. ANHOLT withdrew for over a year and did nothing but study the results of his country brand ranking called Anholt-GfK Roper Nation Brands Index. It was no small task as his researches had gathered 3 billion (!) data points by that time – which made ANHOLT's survey one of the three largest social science research

projects in the world. ANHOLT primarily sought to find out what makes people think that a country is good. Well, his results outlined five drivers of national reputation (see ANHOLT 2016):

1. Morality: Is the country good or bad? 'Are they happy about its existence? Does it have a positive effect on the world? Does it act correctly? Or is it a bad, dangerous, or useless member of the international community?'
2. Aesthetics: Is it beautiful or ugly? 'If we think that a country is beautiful, we tend to believe several other things about it (...) People think that Canada is an eco-friendly country because it is beautiful.'
3. Relevance: What does this country have to do with me? How does it affect my life? 'Why would we expect that people around the world know and respect Hungary? Do we know and respect the countries of others?'
4. Strength: This is not 'soft' power as explained by professor Joseph S. Nye (2005), but 'hard' power. 'It means whether the country has real economic, military and territorial power, or a large population, and whether they can force their will on others.'
5. Sophistication: 'Are there smartphones in the country, or are they still plowing the land with oxen?'

Reading the five initials together, we may see the abbreviation MARSS – this is no coincidence, as ANHOLT was looking for something easy to remember. 'These are the five main factors in people's minds. When they think of foreign countries, these are the characteristics they consider in the fraction of a second. (...) When I analysed results, I realised that the first point was by far the most important. The most important aspect for people is how that specific country contributes to humanity. (...) This is the essence of discovery. People like good countries. Therefore, if we would like a better image, the only way to achieve it is to do something which makes people grateful for our existence. In other words, if we act for them' (ANHOLT 2016: 145-145.). It should be noted that strangely enough, ANHOLT's twenty years of research have led to the same conclusions as 'How to start your own country', a six-part comedy series by well-known British comedian DANNY WALLACE on BBC (2005). After the establishment of his own country (in his own flat) and 'much' consideration, WALLACE wrote the two-word constitution of his country: 'Be good'. Returning to ANHOLT's ideas and marketing: 'What is the first rule of marketing? The first rule of marketing is not to brag about how fantastic our product is. We must get to know our customers and their needs instead. The same applies to countries. (...) People are not interested in successes. They are only interested in what the specific country did for them that week' (ANHOLT 2016: 145.). This actually refers to nothing else than the classic WIIFM principle, that is 'What's In It For Me?' (see PEASE and DUNN 2001, and PAPP-VÁRY 2010). This is the thing that matters from the consumer side. We need to find the same features when we embark on country branding – which is clearly more than simply branding.

## LITERATURE:

1. ANHOLT, Simon (2007): *Competitive Identity – The New Brand Management for Nations, Cities and Regions*. Houndmills, Basingstoke, Hampshire, UK: Palgrave MacMillan.
2. ANHOLT, Simon (2008): Place branding: Is it marketing, or isn't it? *Place Branding and Public Diplomacy* 4(1), 1-6.
3. ANHOLT, Simon (2009): *Places: Identity, Image and Reputation*. Houndmills, Basingstoke, Hampshire, UK: Palgrave MacMillan.

4. ANHOLT, Simon (2010): Why 'Nation Branding' Doesn't Exist. *The Economic Times*. (URL: <https://economictimes.indiatimes.com/magazines/brand-equity/why-nation-branding-doesnt-exist/articleshow/5799304.cms>, published: 14 April 2010, retrieved: 10 January 2018)
5. ANHOLT, Simon (2011): Beyond the nation brand: The role of identity and image in international relations. In: PIKE, Andy (2011): *Brands and Branding Geographies*. Cheltenham, UK: Edward Elgar Publishing, 289-301.
6. ANHOLT, Simon (2016): A nagy országmárka svindli. ('The Great Country Brand Swindle') *HUG – Hungarian Geopolitics Magazine*, 1(1), 132-149., URL: [https://issuu.com/pageo/docs/hug\\_online\\_marcius\\_boritoval\\_](https://issuu.com/pageo/docs/hug_online_marcius_boritoval_), retrieved: 1 July 2017.)
7. BARÁT, Tamás (1997): Hozzászólás a Magyarország 2000 konferencia ország-kép témájához. *Magyarország 2000 konferencia – Magyarország képe a nagyvilágban*, ('Comment on the topic of country image, Magyarország 2000 conference. *Magyarország 2000 Conference – Hungary's Image in the World*') 30-31 May 1997. (URL: <http://www.meh.hu/Egyeb/Mo2000.velemenym.htm>, retrieved: 1 January 2007.)
8. BÍRÓ, Péter (2009): Magyarországkép 2009: Másképp, más kép – Feltételek és esélyek. ('Hungary Image 2009: Another way, another image – Conditions and Prospects') *Marketing és Menedzsment*, 43(2), 56-62.
9. BRAND ESTONIA (2017): (URL: <https://brand.estonia.ee/>, retrieved: 27 August 2017.)
10. BRAUN, Róbert (2009): Magyarország márka: miért (ne)? ('The Hungary Brand: Why (not)?') *Marketing és Menedzsment*, 43(2), 48-51.
11. DAY, C. R., Jr. (1980): Do companies have personalities? *Industry Week* 72(1980), 75-76
12. DINNIE, Keith J. (szerk.) (2008): *Nation Branding – Concepts, Issues, Practice*. Oxford, UK: Elsevier Butterworth-Heinemann.
13. FEINBERG, Barry M. – ZHAO, Xiaoyan (2011): The Anholt-GfK Roper Nation Brands Index: Navigating the Changing World. In: GO, Frank M. – GOVERS, Robert (2011): *International Place Branding Yearbook – Managing Reputational Risk*. Basingstoke, UK: Palgrave MacMillan
14. GOVERS, Robert – GO, Frank (2009): *Place Branding – Glocal, Virtual and Physical Identities, Constructed, Imagined and Experienced*. Basingstoke, Hampshire, UK: Palgrave Macmillan
15. HANKISS, Elemér (2000): Farkasok a Kánaánban, avagy találjuk ki újra Magyarországot – Egy ország keresi a helyét. ('Wolves in Canaan, or Let us Invent Hungary Again – A Country Looking for its Place') In: HANKISS, Elemér (2000): *Proletár reneszánsz – Tanulmányok az európai civilizációról és a magyar társadalomról*. ('Proletarian Renaissance – Studies on European Civilisation and the Hungarian Society.') Budapest: Helikon Kiadó, 199-211.
16. HANNA, Sonya – ROWLEY, Jennifer (2008): An analysis of terminology use in place branding. *Place Branding and Public Diplomacy*, 4(1), 61-75.
17. KULCSÁR, Noémi – ZÁTORI, Anita (2011a): Destination Co-operations. *Corvinus Regional Studies*, 2(2-3), 32-38.
18. KULCSÁR, Noémi – ZÁTORI, Anita (2011b): Desztinációs együttműködések. ('Destination Co-operations') *Corvinus Regionális Tanulmányok*, 2(2-3), 33-41.
19. LEBEDENKO, Vladimir (2008): On national identity and the building of Russia's image. In: DINNIE, Keith J. (ed.) (2008): *Nation Branding – Concepts, Issues, Practice*. Oxford, UK: Elsevier Butterworth-Heinemann, 107-111.
20. Levenson, B. (1987) *Bill Bernbach's Book: A History of the Advertising that Changed the History of Advertising*. Random House, USA

21. MAGYAR HÍRLAP (2006): Ami egyszer bement a fejekbe, azt onnan isten sem veri ki – Interjú Wermer Andrással. ('What goes in your head is never going to come out – Interview with András Wermer') *Magyar Hírlap*, 3 April 2006 URL: <http://www.magyarhirlap.hu/cikk.php?cikk=102478>, published: 3 April 2006. retrieved: 1 January 2009.)
22. MARKETING&MEDIA (2009): Imázst váltana Nigéria. ('Nigeria wishes to change its image.') *Marketing és Média*, 14(8), 7.
23. MOILANEN, Teemu – RAINISTO, Seppo (2009): *How to Brand Nations, Cities and Destinations – A Planning Book for Place Branding*. Houndmills, Basingstoke, Hampshire, UK: Palgrave Macmillan
24. NYE, Joseph S. (2005): *The Means to Success in World Politics*. US: PublicAffairs.
25. OLINS, Wally (2004): *A márkák – A márkák világa, a világ márkái*. ('On B®and.') Budapest: József Műhely – British Council
26. PAPADOPOULOS, Nicolas - HESLOP, Louise A. (2002): Country Equity and Country Branding. *Journal of Brand Management*, 9(4), 294-314.
27. PAPP-VÁRY, Árpád (2010): *JPÉ Marketing – Elmélet és gyakorlat józan paraszti ésszel*. ('JPÉ Marketing – Theory and Practice with Common Sense.') Budapest: KIT Kiadó
28. PEASE, Allan – DUNN, Paul (2001): *Levél-beszéd – Új, igazán hatásos levélírási technikák*. ('Write Language – The Secrets of Writing Letters That Really Work...') Budapest: Fiesta
29. PISKÓTI, István – DANKÓ, László – SCHUPLER, Helmuth – BÜDY, László (1997): *Régió és településmarketing – egy tudatos koncepció a nemzetközi és hazai gyakorlat példáján*. ('Regional and city marketing – a conscious concept based on international and Hungarian practices') Miskolc: Miskolci Egyetem
30. RIES, Al – TROUT, Jack (1997): *Pozicionálás – Harc a vevők fejében elfoglalt helyért*. ('Positioning: The Battle for Your Mind') Budapest: Bagolyvár Könyvkiadó
31. SÓS, Péter János (2017): *#mindennapir – Gyakorlati public relations a webkorszakban*. ('#everydaypr – Practical Public Relations in the Web Age.') Budapest: B. Swan Kiadó
32. SUBRAMANIAN, Samanth (2017): How to sell a country: the booming business of nation branding. *The Guardian*. (URL: <https://www.theguardian.com/news/2017/nov/07/nation-branding-industry-how-to-sell-a-country>, published: 7 November 2017, retrieved: 8 January 2018)
33. SZANDTNER, Veronika (2012): „Egy ország imázsát felépíteni nehéz, lerombolni annál könnyebb”. ('It is hard to build the image of country, it is much easier to destroy it.') (URL: [http://hvg.hu/kultura/20120903\\_Egy\\_oroszag\\_imazsat\\_felepiteni\\_nehez\\_lerom](http://hvg.hu/kultura/20120903_Egy_oroszag_imazsat_felepiteni_nehez_lerom), published: 3 September 2012., retrieved: 20 July 2018.
34. SZIVA, Ivett (2010): A turisztikai desztinációk versenyképessége. Egyedül miért nem, együtt mikor és meddig? ('The Competitiveness of Tourism Destinations. Why Not Alone – When and How Long Together?') *Turizmus Bulletin*, 14(3), 40-49.
35. SZIVA, Ivett (2012): Versenyző együttműködés és a turisztikai desztinációk versenyképessége: "Hol volt, hol nem volt...?" ('Competitive Cooperation and the Competitiveness of Tourism Destinations: Once Upon a Time') *Vezetéstudomány*, 43(5), 52-60.
36. TÖRÖCSIK, Mária – SOMOGYI, Zita (2009): Az országmárkázás kérdései. ('Questions of Country Branding.') *Marketing és Menedzsment*, 43(2), 20-29.
37. VAN HAM, Peter (2002b): Branding Territory: Inside the Wonderful Worlds of PR and IR Theory. *Millenium: Journal of International Studies*, 31(2), 249-269.
38. WALLACE, Danny (2005): *How to start your own country?* BBC Television Documentary Comedy Series, August-September 2005, 6-part series

## THE EU'S ARMY TRANSFORMATION: TRENDS AND PERSPECTIVES

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### ABSTRACT

*National armies of the present day must transform to campaign-capable forces of high quality, with joint and expeditionary capabilities, in order to provide a relevant and ready military power to combat commanders, when they use battle groups. National armies are focusing its efforts to enhance military capabilities for those units that meet requirements of the full range of military commitments on the contemporary battlefield. Modern armies need to have guidance into the Transformation Roadmap that describes the path the army is taking to adapt its institutions and capabilities. Each national army turns to operational experience, in order to develop operational concepts and capabilities that ought to be sustained interoperability between comparable European armies. The army transformation develops the force structure as to achieve full joint interdependence between European armies. What the EU member states need to do to achieve common military capability goals? What can we expect from the EU member states' contributions – maybe they will invest more into national capabilities? International obligations and agreements are respected between the EU states inside military relations but the major plan, to constitute the European army had failed politically, after the proposal of the EU Constitution was rejected at the referendums in France and in the Netherlands in 2005, respectively. If state investments will not be provided for modern military capabilities than army transformation could stop. Therefore, the EU needs to rebuild a new command staff intelligence program, which will distribute, dispatch, dislocate, dislodge, and supply modern armies on versatile battlefields around the globe under artificial C4I architecture platform command. This military program, at strategic level, as the third generation of transformation paradigm will use human brains to automatically command and control both to unmanned robotics systems and to military troops on the ground, in the Earth's space, at the sea and in the air, by using selective weapons systems.*

**Keywords:** *European Union (EU) member states, army transformation, military capabilities, NATO, EU Battle Groups (EUBGs), the Helsinki Goal document*

### 1. INTRODUCTION

Before we start with explaining the meritum addressed in this paper, we need to explain terms from military terminology used here. Military transformation process is termed as army transformation. Transformation process includes: theories for command, development of military capabilities and forming units into military organization. Definition for military transformation single out as military forces are able to face with new security challenges, so they need to reorganize, reequip, and rearm for carrying out multirole missions that include non-military tasks.

At the 2010 Lisbon summit, the EU – NATO states<sup>1</sup> confirmed new NATO's Strategic Concept. After this security concept was accepted, the topics for military challenges for transforming process were discussed. What had to be transformed in the military were military elements, such as: military units, command posts, military installations, and capabilities. If these military elements were changed or upgraded than military forces get smaller, agile, effective, professional, modern equipped and armoured, interoperable and interconnected, to be able to conduct multirole tasks in security missions. Modern transformation for military infrastructure, as well as command posts and capabilities, were put into praxis as conversion process of outdated military assets and demobilization of surplus cadres into military organisation inside parent units. Derivative results should bring new modern armies, at the end of the transformation process, into more flexible, mobile, and protective forces.

## **2. THEORETICAL VIEWPOINTS: THE TRANSFORMATION OF ARMIES IN THE U.S.A. AND IN EUROPE**

What does it mean army transformation for the modern military into the 21<sup>st</sup> century? The transformation of the US Army began in 2006, under the development military team of the then Army Chief of Staff, General P. Schoomaker. This military expert team had to move the old army structure from its Cold War divisional orientation to a full-spectrum capability with fully manned, equipped and trained brigades with reserve components. Modern military forces were organized around large, mostly mechanized divisions, each with around 15 000 soldiers but under the new plan were organized modular brigades of 3 000 – 4 000 soldiers each, with the aim of being able to deploy continuously in different parts of the world<sup>2</sup>. Beside organizational changes into modern military, the armies faced with technical challenges that had been able to overcome number of technical challenges as reducing the weight of soldier equipment, improving soldier protection, making lightweight combat systems survivable, and ensuring command and control centres more mobile and capable for fighting on ground. The aim of army transformation, in science and engineering, was to save soldiers lives on the battlefield, by putting them into formed smaller, lighter, faster, and smarter force (Parmentola, 2004: 33-41). The term military transformation should simply be understood as the means to achieve profound change in military affairs. The changes, however, should be dramatic rather than mere improvements on the margin, such as modestly better aircraft, tanks or ships. Discussion about military transformation began in the mid- to late 1990s, through the debate about the impending revolution in military affairs (RMA) that should involve into major changes in technology, doctrine and organization (Davis, 2003: 2-3). Modern states need transformation strategies, enabling them to transform culture through innovative leadership and adaptive defence institutions, able to transform processes include with risk adjudication that are using the Trends of Future Force (re)construction and transformed capabilities for interdependent joint operations through force transformation (Army Transformation Roadmap, 2004: 14). The EU member states have drafted a strategy how to transform own parent army units with added organic military capabilities into a defence reform. Therefore, it has written an Army Transformation Roadmap, the Defence Strategy and Transformation Planning Guidance as the framework documents that serve as directions and manuals to achieve sustained mayor goals into military. These documents include main attributes to handle out the future operational environment, joint concepts that identify required joint force capabilities and interdependencies, operational experience that identifies both known shortfalls requiring change and promising improvements to joint and Army operations, and explorations of technological advantages. The Army's transformation strategy includes three transformed components as military culture, processes and capabilities.

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<sup>1</sup> Today, there are 22 members states of both EU and NATO.

<sup>2</sup> [http://www.en.wikipedia.org/wiki/Transformation\\_of\\_the\\_United\\_States\\_Army\\_2014](http://www.en.wikipedia.org/wiki/Transformation_of_the_United_States_Army_2014).

A support to change through efforts achieved from the Headquarters, Department of the Army staff, supporting agencies and activities should not be omitted (Army Transformation Roadmap, 2004: 8-9). The changes in military sphere had been organizational, to be made lighter and more deployable, in an attempt to give them an asymmetrical information advantage through leveraging information technology in the strategic, operational, and tactical spheres of military knowledge on the battlefield against probable peer competitors. The first change is reshaping the way the military looks and staffs itself and the second is adjusting its firepower and intelligence acquisition and processing capabilities to highly sophisticated units on the world in the 21<sup>st</sup> century (Leonard, 2004: 2-3). Military transformation is an advanced military project or development program of highly industrialized states in the contemporary Information Age. EU-NATO member states had accepted instructions as Army Transformation Plan and A Campaign-Quality Army with Joint and Expeditionary Capabilities, to provide a strategic approach to transformation, along with campaign plan for executing the desired changes, by adopting modular formations and later fielding networked systems, in a carefully phased manner over the coming decade and beyond it. The new plan began by discussing the imperatives of defence transformation and the Army's roles in ongoing operations were blurred the traditional distinction between combat and stability operations. In addition, the Army transformation plan emphasized the important role of new-era joint operation concepts in determining how new ground forces and capabilities should be built and used with joint functional concepts (battle space awareness, force application, focused logistics, and network-centric operations), and joint integrating concepts (forcible entry operations, global strike, joint logistics, and joint urban operations). The effect of these joint concepts was to create an operational framework within transformation efforts as to emphasize the importance of pursuing joint interdependencies for expeditionary operations in joint battle command, joint fires and effects, joint air and missile defence, joint force protection, and joint sustainment (Kugler, 2008: 13-14). The EU member states fell into the military dilemma how to develop advanced military capabilities when the framework document Helsinki Goals 2010 expired. Any advanced military solutions were not found from the EU member states in the second decade of the 21<sup>st</sup> century. A new vision, for 2020, was presented from the European Defense Agency (EDA). Nevertheless, the EU member states had to approve the Strategic Lift Joint Coordination, for conducting necessary capacity and full efficiency in the strategic lift (air, land, and sea) and support of anticipated operations by 2005, had to construct an aircraft carrier with its associated air wing and escort capabilities by 2008, had to develop appropriate compatibility and network linkage of all communications equipment and assets both terrestrial and space based by 2010 (Headline Goal 2010, 2004: 3). A special group, the EU-NATO Capability Group, had worked intensively on these cases, and put them into catalogues as to remove the discrepancies in military panels of cooperation between EU member states, which had produced fallout in the military transformation process. The EU member states cannot cease military development plans, because for some EU member states, it was impossible to substitute military setback with new technical solutions. The solutions present more financial investments into development and research for advanced military technologies. Here a question should be posed: Could smart defence follow, to correct trends for developing renewed military facilities for the EU Battle Groups (hereafter: the EUBGs)? Every EU member state has made decision, to initiatively cooperate into common military modernization with using pooling and sharing method, share defence burdens for financing military programs as to invest more financial resources into common military programs. Otherwise, they ought to eliminate surplus outdated military equipment from operative use and buy a new one. The problem was found here by the army's strategic posture how to dedicate efforts directly through the Army Campaign Plan as able to synchronize transformation planning, preparation and execution of military obligations during the period of the army transformation (The Army Transformation Roadmap, 2004: 17).

The EU-NATO permanent arrangements under the mechanism Berlin Plus had enhanced European operational capability and provided the strategic partnership between the EU and NATO in crisis management. A small military body, the EU cell at the NATO military headquarters (SHAPE) had been approved to prepare EU operations by using NATO assets and capabilities under the Berlin plus arrangements. This military cooperation had enhanced transparency between the EU and NATO partnership (Headline Goal 2010, 2004: 5). This bilateral coordination body intensively discussed military capabilities and took decision. It also needs to revise the Berlin Plus agreement. The EU member states were disengaged from financial investing to acquire advanced military capabilities for sending more EUBG troops into theatre of operations abroad and made their more agile on the range field. The EU member states agreed that they might not attend to invest more money for military modernization programs and pooled out EUBG troops from hot spot areas out of Europe.

### **3. PRESENTING MILITARY CAPABILITIES INTO QUANTITY OF ITEMS**

Military transformation process in Europe is not finished yet, because final formulation of the EUBG is not carried out successfully until the financial constraints for military investment into European military shall be removed. The framework document, Helsinki Goal 2010, has imposed the obligation to the EU member states, to contribute more than 60 000 soldiers inside the military core that might set up nineteen battle groups. Sustainable battle groups were integrated but not operative enough within intensive military training in the field and had not enough battle autonomy for theatre of operations outside of Europe. Strong efforts were taken to attain main priorities into military programs, such as the EUBGs, sustainable and independent militarily strong units in the battlefield, with using advanced military capabilities that were produced on highest military technical standards from European defence producers inside the EU defence market. Modular formations that shall be able to be organized and prepared expeditionary forces faster are needed. Additionally, smaller brigades, command structures, and support assets, combined, with lightweight weapons reduce tonnages to vehicles that must be sent overseas in any given situation via strategic airlift. For major deployments troops to overseas areas are needed fast sealift capabilities (Kugler, 2008: 25). The EU states had decided to gradually eliminate the outdated land force capabilities that presented in army self-propelled vehicles (main battle tanks, armoured vehicles, and howitzers) in order to reduce maintenance costs and save lives of soldiers on battle fields. Military transform forces include both national and the EUBG troops, equipped with advanced military capabilities as multi-wheeled vehicles (4x4, 6x6, 8x8, and 10x10), in order to save lives of soldiers into fire area and reduce the costs for maintenance on field, get higher mobility on field, have better efficiency in logistic supply, and spend less ammunition for destroying military targets quickly. These advanced vehicles have strongpoints in speed, ballistic protection, and fire power on the battle field, with extended range of observing. Total European land force capabilities at present day come up to 3 810 items. With this quantity of land force capabilities it is possible to equip exactly 20 armoured brigades. Potential users of air capabilities as airbuses, transportable helicopters and advanced multirole airplanes are the EU states: Belgium, Czech Republic, Finland, France, Germany, Poland, Romania, Slovakia, Spain, Sweden, and the United Kingdom. EAG air wing capabilities count into quantity to 1326 items that the main core of EU air fleet might set up to four air transport regiments, teen air force regiments and thirty helicopters battalions. Potential EU users for maritime capabilities are: France, Germany, Greece, Italy, the Netherlands, and the United Kingdom, which modernized sea fleets with advanced frigates, submarines and other surface ships as to carry out offshore military activities to protect national sea borders and transport sea lanes. Maritime space was less covered with advanced military capabilities, because maritime projects for each EU maritime member state

were too expensive and some maritime programs needed long time as to being realized. The maritime EU fleet consists of 51 frigates and 12 submarines (Military Balance, 2016: 71-181). The future EU maritime development cannot be deemed as optimistic; hence power projection in the oceanic waters without purchasing new air carriers cannot declare the EU as a globally relevant maritime power. European military capabilities might be reinforced with land and air components near coastal areas. France and the United Kingdom had rendered to compound together an air carrier group as a mini blue navy fleet for conducting limited maritime operations over 2 000 miles away from the EU coastal waters.

#### **4. WHAT IS INCLUDED IN THE MILITARY CAPABILITIES WITHIN THE FRAMEWORK DOCUMENT**

The first draft of framework document Headline Goal 2003 was accepted from EU states that had contributed to 50 000 – 60 000 professional soldiers for military operations abroad, formed in 15 brigades that were able to conduct non-military Petersberg tasks, with autonomy of work in logistical support to 60 days. These forces should be militarily self-sustaining with the necessary command, control and intelligence capabilities, logistics, combat support services, with appropriated air and naval elements (Headline Goal 2003, 1999). Headline Goal 2010, issued in 2004, included renewed conceptualization of functioning multinational task forces on battle fields that ought to be reinforced with added military strength up to 100 000 professional soldiers and included to 400 airplanes and 100 ships, capable to operate in range to 6 000 miles at geographical distance from Brussels to the Middle East (Sommer, 2012: 77). Implemented document included following activities that were finished until 2010 were the Finalisation of the Requirements Catalogue, including Rapid Response in accordance with the EU Capability Development Mechanism (2005); the Force Catalogue and Progress Catalogue (2005), and a completed development of rapidly deployable battle groups (2007). Between 2006 and 2010, the Capability Development Mechanism continued to take place with the involvement of the European Defence Agency (Headline Goal 2010, 2003). The Military Staff of the European Union i.e. the European Union Military Staff (hereafter: the EUMS), situated in Bruxelles, will be capable of running executive operations of up to 2 500 troops (approximately the size of one battle group) by 2020. The EUMS had for the coming years planned to demand more troops with boots in hot spot areas and the EU states need to increase military strengths up from 100 000 to 180 000 soldiers, if the EUMS is able to (re)cover all organisational military needs as to carry out three rotates of roll call for conducting military missions on different geographical locations into operational times without military strength shortages but unfavourable financial circumstances had crossed over mayor military plane of the EUMS for demanding more troops with boots on floor. In this case, a larger pool with military personals meant that additional combat brigades could be promptly mobilized for demanding situations on battle field in the case if active forces were overstretched and scattered around military missions. The military plan put battle groups into a six-year readiness cycle that would allow for 40 percent of those units to surge for a contingency, while still maintaining the capacity to support other missions necessary as an Army Reserve Expeditionary Force being submitted to Plan B (Kugler, 2008: 16). The battle groups concept based on building small, effective, agile, mobile, and connectable forces that are able to operate autonomously and independently. Battle groups are formed into battalions reinforced with close air support and logistical supply task groups that are submitted to operative headquarters (EU Battle Group Concept, 2006). The main characteristics of the EUBGs include multirole military activities and interoperability. Each unit has up to 1 500 professional soldiers, capable of mobility in the air and at the sea, and capable to be operative without supply rates up to 30 days etc. In the first rotation, the EUMS is able to send at most two EUBGs on battle field, while other forces at most two prepared EUBGs are being deployed for lifespan of one half year cycles.

These EUBGs are being ready to intervene from 5 to 10 days after they become mobile, agile, trained, and certificated to carry out multirole military tasks, under one condition – if they pass an exam during a field training exercise, in military training camps and centres. The military transformation plan put a considerable emphasis upon the ability of successful progress toward effort to produce new technologies (new types of protective armour and sensors to warn of impending attack and enemy use of IED explosives). Battle group leaders expressed confidence that by using such new technologies, faster mobility, and higher survivability during military engagement, more safety was felt at the battlefield. However, some military critics expressed worries that many of these new technologies were still unproven and intercept too early to manual into battle groups (Kugler, 2008: 22). The EU member states accepted The Declaration of European military capabilities (2004) and decided to form task forces. The EUMS has the lists from the participating EU member states, which joined this military project and formed those task forces<sup>3</sup>. The European Council had formed operative bodies, in order to coordinate, supervise and control operative activities for command and control, equip and armour those battle groups as they work successfully and independently on battle field. These operative bodies are: Operative cell for command and control, the European Defence Agency, Coordination Centre for transporting troops, HQ for transporting of troops, Catalogue for operative EUBG troops, maritime strike groups within air wing carrier, and the Information-Communication centre for command and control (Lindstrom, 2005: 5). A preliminary agreement between EU states to participate forming battle groups was written into the framework document Helsinki Goal 2003, and it was signed in Feira (2000). The EU member states had been banded up to commitment before as to sum up to 100 000 professional solders with transportable facilities and carry out non-military missions in autonomy without NATO assistance in C4I, and logistics supply (Kugler, 2008: 18). Each EU member state had put troops, commanding and staff cadres submitted to operative work to the national HQ. The EU Concept for Military Planning at Political and Strategic Level had accepted by the European Council<sup>4</sup>. Transformation plan created new and modular headquarters for commanding on operative level to battle groups on three high-echelon commands for operating its forces – divisions, corps, and field armies. The initial transformation plan was made for consolidating the three national command echelons and a joint HQ (Kugler, 2008: 18). However, one problem occurred – how to modulate operative HQ with different national armies in the EU. EUBG concept envisioned a military unit such as battalion, counts to 450 professional solders with full organic military support mounted or dismounted by using wheeled infantry (Kerttunen, 2005: 40-42). This concept includes next modulated units that are the command post (HQ), companies, multiplier fire support, logistic support and maintenances on company level, transporting troops with strategic and tactical air lift and sea lift, maritime support with an aircraft carrier (capable of carrying an air wing) group in forward staging areas, near sea lanes and air ports for departing or withdrawing units. The EU member states had formed the first operative multinational formation Eurocorps for carrying out multiplier non-military missions abroad.

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<sup>3</sup> Parent units are 1<sup>st</sup> French EUBG, 2<sup>nd</sup> Italian EUBG, 3<sup>rd</sup> Spanish EUBG, 4<sup>th</sup> British EUBG, multinational 5<sup>th</sup> EUBG from France, Luxembourg and Spain, bi-national 6<sup>th</sup> EUBG from France and Belgium, a multinational 7<sup>th</sup> EUBG from Germany, the Netherlands, and Finland, multinational 8<sup>th</sup> EUBG from Germany, Austria and Czech Republic, a multinational 9<sup>th</sup> EUBG from Italy, Hungary and Slovenia, multinational 10<sup>th</sup> EUBG from Italy, Spain, Greece and Portugal, a multinational 11<sup>th</sup> EUBG from Poland, Germany, Slovakia, Latvia and Lithuania, a multinational 12<sup>th</sup> EUBG from Sweden, Finland and Norway, bi-national 13<sup>th</sup> EUBG from the United Kingdom and the Netherlands, a medical team from Cyprus, the units for water purification in Lithuania, the Centre for seawater transport coordination in Greece, and the Operative HQ in France (Lindstrom, 2005: 4).

<sup>4</sup> Full Operability Concept (FOC), the EU Concept for Force Generation (2008), Concept for military strategic planning (2008), Concept of response forces at ground (2003), at sea and at air (2007), Concept of EUBG response (2006), Concept of transport forces and logistics response (2006), Concept for transporting, embarkation/disembarkation of maritime forces and integration of forces into the crises area (2006), Concept for command and control (2008) and the EU Military Rapid Response Concept (2009).

Then, the EU member states have gone further and have talked about a tidy common military cooperation with the signed Letter of Intent that might bring signatories to cooperate into panels for military project as get to set up both aerial transport capability and maritime groups for carry out missions under the EU flag<sup>5</sup>. Larger maritime EU states, such as the United Kingdom, France, Italy, Spain, the Netherlands, and Italy, had participated in a common maritime program of the EU Strategic Projects Squadron as to realise signed European Carrier Group Interoperability Initiative (2008) and decided to construct strategic blue water navy capabilities for maritime activities over the horizon sealing. At first, they planned two maritime battle groups that consisted of two nuclear propelled aircraft carriers (one from France and one from the United Kingdom), with escort submarines or surface ships for force protection and another two maritime battle groups being built, like amphibian ships for supplying and transporting maritime infantry into blue water areas (Rogers, 2009: 37-38). This maritime program should to be realized until 2020, without expecting financial constraints in future if some participating maritime states drag out from maritime multiplier military project. In this particular case, pooling and sharing method had increased fundamentally military cohesion between EU states as both to join operative strengths and military capabilities without duplication of military assets. The EUMS had grounded a joint operative HQ and an operative HQ within military branches. Both EU militarily leading states, France and United Kingdom, had led an experiment, as they planed military mobilization to enrol up to 10 000 professional solders during the military project Task Force 5000, to join French and British tactical units into joint land, maritime, and sea components. The activated mobilization core was held on only with British and French units in preparedness – as they were able to send high trained and mobile unit in the battle field. France had decided to send its own troops individually or join a coalition of the willing or a mini coalition, formulated between the EU states such as France and the United Kingdom. They had to engage into the military operations in Libya rapidly or had to carry out the French-led military expedition in Mali swiftly.

## 5. CONCLUSION

Army transformation gives the correct answer on how to optimize activities of battle groups for strategic thinking against versatilities, by making them more mobile, more lethal, and more agile, so they might dominate in any future conflict with sustaining military power. What is the most important case or matter into army transformation as to achieve this five key joint attributes by expeditionary interdependencies are battle command, military fires and effects, air and missile defence, force projection and sustainment by using versatile forces, services and commands. The transformation of current forces in military capabilities, forces, infrastructure, and education programs is needed. Therefore, these will be more capable to carry out full spectrum operations. If the EU member states have best wishes to achieve those upper goals than they must deepening military integration process toward reinforcing EUBGs with advanced military capabilities, facilities, manning new EUBGs with fresh enrolment professional solders as to better approved consolidation, and reorganization process of European military into a sustained military power in a certain region or towards the World. The EU-NATO member states have to carry out more effort themselves – invest more military knowledge and expertise, to show higher political motivation, and invest more money into army transformation progress programs. These states fulfil all conditions and they are able to achieve political goals within obligations of the Helsinki Goal.

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<sup>5</sup> To project military power, twelve EU states had participated in the EATF, to join multinational aerial group (Belgium, Czech, France, Germany, Greece, Italy, Luxembourg, the Netherlands, Portugal, Romania, Slovakia, and Spain), and to project European maritime strike capability. Maritime military capabilities under military cooperation are limited to nine maritime EU states (Belgium, France, Germany, Greece, Italy, the Netherlands, Portugal, Spain, and the United Kingdom) (Skubic, 2010: 63).

## LITERATURE:

1. *Council conclusions on ESDP*. 2009. Council of the European Union, Brussels.
2. Davis, P. 2003. *Military Transformation? Which Transformation, and What Lies ahead?* National security Research Division. <http://www.rand.org>.
3. *Declaration on European Military Capabilities*. 2004. Military Capabilities Commitment Conference, Council of the European Union: Brussels.
4. *Development of European Military Capabilities*. 2009. European Security and Defence Policy: Brussels.
5. *Draft Single Progress Report on the Development of the EU Military Capabilities*. 2009. Council of the European Union: Brussels.
6. *European Councils Session on Defence Matters*. 2013. Council of the European Union: Brussels.
7. *European Union Concept for Force Generation*. 2008. Council of the European Union: Brussels.
8. *EU Battle group Concept*. 2006. Council of the European Union: Brussels.
9. *EU Concept for Reception, Staging, Onward Movement & Integration (RSOI) for EU – led military operations*. 2012. EUMS: Brussels.
10. *European Union for Military Command and Control*. 2008. Council of the European Union: Brussels.
11. *European Union Concept for Military Planning at the Political and Strategic Level*. 2008. Council of the European Union: Brussels.
12. *European Union Military Rapid Response Concept*. 2009. Council of the European Union: Brussels.
13. *Headline Goal 2003*. 1999. General Affairs and External Relations Council, The European Council: Brussels.
14. *Headline Goal 2010*. 2004. General Affairs and External Relations Council, The European Council: Brussels.
15. *Future Trends from the Capability Development Plan*. 2008. European Defence Agency, Brussels: Belgium. <http://www.eda.europa.eu>.
16. Kerttunen, M. 2005. *EU Battle groups*. Department of Strategic and Defence Studies: Helsinki.
17. Kugler, R. 2008. *Case Study in Army Transformation: Creating Modular Forces*. National Defense University: Washington.
18. Leonard, L. 2004. *To Change an Army: Understanding Defense Transformation*. Department of Social Sciences, United States Military Academy: West Point.
19. Major, C. 2011. *EU Battle groups: What Contribution to European Defence? Progress and Prospect of European Rapid Response Forces*. SWP Research Paper: Berlin.
20. Parmentola, J. 2004. "Army Transformation: Paradigm-Shifting Capabilities through Biotechnology. *The Bridge linking engineering and society*, 34 (3), edited by G. Bugliarello, pp. 35-41. Washington: National Academy of Sciences.
21. Rogers, J. 2011. *A New Geography of European power?* Egmont Paper 42. Royal Institute for International Relations Brussels: Academia Press.
22. Russian MoD. 2018. End of year session of Russian defence ministrys board (official translation), <https://southfront.org/end-of-year-session-of-russian-defense-ministrys-board-official-translation/>.
23. Skubic, M. 2010. "Vpliv Lizbonske pogodbe na Skupno varnostno in obrambno politiko EU – vojaški vidik". Diploma degree, FDV: Ljubljana.
24. Sommer, T. 2012. *NATO no longer fits the Bill. We need a more European alliance*. Hamburg: Körber Stiftung.

30. *The Military Balance*. 2012. IISS. Routledge Journals, Abington, 71-181.
31. United States Army. 2004. *Army Transformation Roadmap. A Campaign Quality Army with Joint and Expeditionary Capabilities*. Department of Defence: USA.
32. [http://www.en.wikipedia.org/wiki/Transformation\\_of\\_the\\_United\\_States\\_Army\\_2014](http://www.en.wikipedia.org/wiki/Transformation_of_the_United_States_Army_2014)

## **GENDER AND ENTREPRENEURSHIP: IN WHICH AREAS OF HIGHER EDUCATION ARE WOMEN AND MEN MORE ENTREPRENEURIAL?**

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### **ABSTRACT**

*Entrepreneurship is a concept of complex definition, but it can be defined as the initiative of the process of creating something new or a change. This concept is strongly related to the economic development of countries as well as to social development. In this sense, changes are considered fundamental. Changes may also be associated with the role of women and men in society. This concept of entrepreneurship, among other aspects, is thus associated with creation of companies and / or creation of self-employment. In this sense, the present study aims to analyze how men and women have become more entrepreneurial over the last two decades. It is also intended to verify which areas of higher education appear to be the most relevant to the entrepreneurial spirit. That is, it is considered that higher education can be representative of the human capital measure. The areas of higher education are: Education; Arts and Humanities; Social Sciences, Commerce and Law Sciences; Mathematics and Computer Engineering; Manufacturing and Construction; Agriculture; Health and Social Protection Services. The data was collected from the database PORDATA (Base de dados de Portugal contemporâneo) and from the database of the World Bank, for the period between 1998 and 2017. The present study was applied to different countries in order to compare results and the evolution of human capital and female and male entrepreneurship. For this, we used linear regression models, as well as the analysis of the evolution of the different considered variables.*  
**Keywords:** *Entrepreneurship, human capital and linear regression models*

### **1. INTRODUCTION**

The concept of entrepreneurship is difficult to define since it is a rather wide-ranging concept. Although its definition is not consensual, it is unanimous that it is something positive and with social and economic repercussions. According to Baggio & Baggio (2014), it is a phenomenon mainly linked to the creation of companies, either through the need for survival or to take

advantage of opportunities. It can also originate a social phenomenon that leads to develop skills and seek the construction of his own future. According to Faggiani, Partridge & Malecki (2016) self-employment rates are adequate measures to evaluate entrepreneurship and since human capital is the basis of entrepreneurship, it is pertinent to study the relevance of education / training. Goldin (2014), Veugelers and Del Rey (2014) and Burgess (2016) define the concept of human capital as the set of knowledge and skills that constitute the workforce of organizations. Based on the mentioned concepts, multiple linear regression models (MLRM) were formulated, considering as dependent variables the male and female self-employment rates, representing entrepreneurship and as explanatory variables 8 different areas of higher education (by gender). These models were analyzed and compared for the 10 countries under study. Therefore, in the present investigation we present firstly a brief review of the literature that supports the formulated models. The description and methodological justification followed are presented below as well as the obtained MLRM and their analysis. Based on the results, the main conclusions are presented as well as limitations and paths for future research.

## **2. ENTREPRENEURSHIP AND EDUCATION**

The concept of entrepreneurship is not recent and has been the target of several definition attempts. However, it is a complex and comprehensive concept and, therefore, there is no full consensus on a single definition. As Sarkar (2014) points out, the popularity of entrepreneurship has recently been reborn as if it had been a sudden discovery, that is, it was as if the key had been found to open the door that allows to definitively change the course of the economy. There are numerous definition attempts, and we cannot address this concept without mentioning the Austrian economist Joseph Schumpeter, who points out that the entrepreneur is one who applies an innovation in the context of business (Schumpeter, 1939). Similarly, Faggian, Partridge & Malecki (2016) report that a univocal definition of entrepreneurship does not exist. In their paper, these authors seek to collect several definitions of this concept in order to form a set of characteristics common to what is an entrepreneur. According to them, the term entrepreneurial refers to the ability and willingness of individuals, on their own, in teams, within and outside existing organizations, to perceive and create new economic opportunities. It also refers to a profit opportunity that had previously gone unnoticed. These authors point out that: "Hence, while much of the academic focus on entrepreneurs has been on radical innovations, successful small and medium-sized enterprises are typically defined by an owner who is a niche profit opportunity and is willing to take some risk in order to succeed "(Faggian et al, 2016, p.2). The authors consider that an adequate definition of entrepreneurship is the one that considers it as a process of creating something of value, dedicating time and effort, taking on financial, psychological and social risks and receiving the consequent rewards of economic and its personal satisfaction. According to Faggian et al (2016) the main theories that approach entrepreneurship are the economic theory and the behavioral theory. The first, also known as Schumpeterian, shows that the foremost to realize the importance of entrepreneurship were economists. They were primarily interested in understanding the role of the entrepreneur and the impact of his role in the economy. In turn, the behavioral theory, refers to specialists in human behavior: psychologists, psychoanalysts, sociologists, among others. The objective of this entrepreneurship approach was to increase knowledge about motivation and human behavior. However, it is important to note that the assumptions of the behaviorist theory are not opposed to the assumptions of economists' theories, they merely broaden the characteristics of entrepreneurs. Baggio & Baggio (2014) consider that entrepreneurship must be an individual phenomenon. This phenomenon is mainly linked to the creation of companies, either through the need for survival or to take advantage of opportunities. It can also originate in social phenomena that lead an individual to develop problem solving skills and seek the construction of his own future, that is, to generate Social Capital and Human Capital.

Faggiani et al (2016) consider that self-employment rates are relatively easy to measure, so they have become standard in much of the empirical work. According to these authors, "self-employed individuals are proprietors (and partnerships) that own / operate businesses that range from employing the one to medium-sized enterprises that employ thousands." exhibit entrepreneurial characteristics such as greater risk-taking and ability to innovate and to commercially exploit inventions" (Faggiani et al, 2016, p.3). According to Schultz (1961) the concept of human capital refers to the set of intangible resources inherent to the labor factor, improving its quality and productivity. Nelson and Phelps (1966) emphasize that this concept is fundamentally related to the knowledge and skills that individuals acquire throughout their training and experience, and it is extremely important to invest in people. Knowledge is a reflection of the success of human capital and Goldin (2014), Veugelers and Del Rey (2014) and Burgess (2016) define this concept as the set of knowledge and skills that constitute the workforce of organizations and, therefore, can be seen as an essential intangible asset to organizational success. Benhabib and Spiegel (1994) emphasize the direct impact of human capital on economic growth, since individuals with higher academic skills can become more productive, entrepreneurial, and innovative, and therefore human capital contributes directly to improved productivity factors. According to Estrin, Mickiewicz & Stephan (2016) both social entrepreneurs and commercial entrepreneurs create value. the former base their activity on the creation of welfare and the latter focus their intention on the creation of financial profitability. In this sense, since the ultimate objectives of these types of entrepreneurship are different then also the resources and capacities for their creation are different. "Hence the two types of entrepreneur may not be drawn from exactly the same pool of talent, which has implications for the relationship between educations, human capital and the choice of social as against commercial entrepreneurship as well as the context in which the new venture creation occurs" (Estrin et al, 2016, p. 449). In short, as noted, commercial entrepreneurship is critical to economic growth and development and it is based on business creation and self-employment, with human capital playing a central role in its creation and success.

### **3. METHODOLOGY**

#### **3.1. Introductory remarks**

The purpose of this research is to determine the impact of higher education on entrepreneurship. More specifically, it is intended to determine if there are differences in the several higher education areas in job creation, distinguished by male and female entrepreneurship, and if there are differences, what kind of differences are. In order to achieve this objective, we used the formulation of multiple linear regression models.

#### **3.2. Data and definition of variables**

The data collected are annual referring to the period from 1998 to 2017 and are related to a set of 10 countries: Austria (AT), Germany (DE), Spain (ES), Finland (FI), Ireland (IE), Italy (IT), Norway (NO), Portugal (PT), Sweden (SE) and United Kingdom (UK). We used the World Bank Database and the PORDATA database, Database of Contemporary Portugal, organized and developed by the Francisco Manuel dos Santos Foundation. The selection of the indicators that represent the variables under study was carried out based on the literature are summarized in Table 1.

*Table following on the next page*

*Table 1: Variables used on the multiple linear regression models (Adapted from PORDATA Database and World Bank Database)*

Variable	Description
Men's Entrepreneurship (Source: World Bank Database)	Self-employed workers are those workers who, working on their own account or with one or a few partners or in cooperative, hold the type of jobs defined as a "self-employment jobs." i.e. jobs where the remuneration is directly dependent upon the profits derived from the goods and services produced. Self-employed workers include four sub-categories of employers, own-account workers, members of producers' cooperatives, and contributing family workers.
Women Entrepreneurship (Source: World Bank Database)	
Higher education (Source: PORDATA Database)	Education (including training of teachers / trainers and education sciences)
	Humanities and Arts (including arts and humanities)
	Social Sciences, Commerce and Law (including social and behavioral sciences, journalism and information, business sciences and law)
	Mathematics and Computers Engineering (life sciences, physical sciences, mathematics and statistics, computer science)
	Engineering, Manufacturing and Construction (engineering and related techniques, manufacturing, architecture and construction)
	Agriculture (agriculture, forestry and fisheries, veterinary sciences)
	Health and Social Protection (health, social services)
	Services (personal services, transport services, environmental protection, security services)
	It is based on secondary education, providing learning activities in specialized areas. Its purpose is to learn to a high level of complexity and specialization. Higher education includes what is commonly understood as academic education, but also includes vocational or advanced vocational education. It covers levels 5, 6, 7 and 8 of ISCED, which are labeled as upper-level, baccalaureate or equivalent level, master's or equivalent level, and PhD or equivalent level, respectively.

### 3.3. Multiple linear regression models

Multiple linear regression models allow us to analyze the impact of several explanatory variables on a dependent variable. Based on the purpose of this investigation, the formulated MLRM are:

$$SEM_t = \beta_0 + \beta_1 X_{t1} + \dots + \beta_k X_{tk} + u_{tk}$$

$$SEF_t = \beta_0 + \beta_1 X_{t1} + \dots + \beta_k X_{tk} + u_{tk}$$

$SEM$  - Self-employment, male

$SEF$  - Self-employment, female

$t=1, \dots, 20$  - years

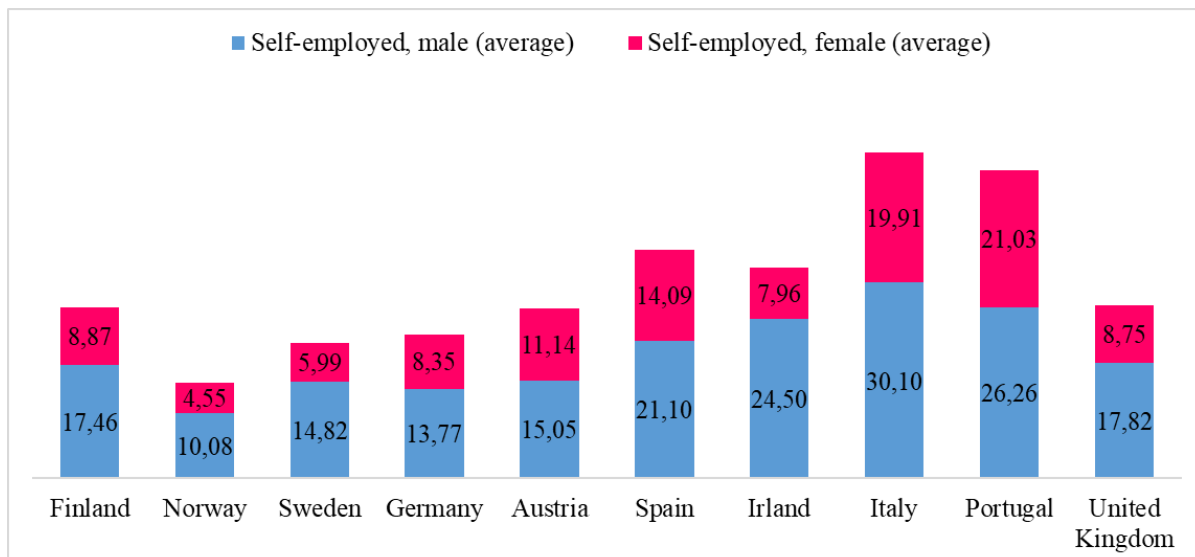
$k=8$  - explanatory variables

$u_t$  - error term

## 4. RESULTS AND DISCUSSION

The present study begins with a global vision of entrepreneurship in each one of the considered countries. As can be seen in figure 1, the average percentage of job creation is higher for men than for women. In general terms, Italy and Portugal stand out from the group of 10 countries that are the most active in creating their own employment by both men and women. It should also be noted that the difference between female and male entrepreneurship is most pronounced in Ireland with a difference in average of 16.53%, followed by Italy where this difference is 10.19% and the United Kingdom with a difference of 9, 07%.

*Figure following on the next page*



*Figure 1: Average of Self-employed (male and female) of each country*

The results shown in Figure 1 correspond, as mentioned, to the average numbers of the period under analysis. However, it should be noted that over the last 20 years the creation of employment has declined in practically all the countries under study. This trend is presented in both men and women. However, Finland stands out where female entrepreneurship has increased on average 0.2% per year and Austria male entrepreneurship has increased by an average of 0.1% per year. United Kingdom is the only country in this set where both entrepreneurship female and male have increased by 1.9% and 0.9% respectively. Regarding the number of individuals who completed their higher education in each country, figure 2 shows that, overall, the average number of women with higher education is higher than the number of men over the 20 years analyzed. It is also worth noting that the country with the highest average number of individuals with higher education is the United Kingdom with an average of 654 thousand, followed by Germany with about 438 thousand, Spain with 332 thousand and Italy with 307 thousand. The remaining countries present average values of individuals with higher education of less than 70 thousand a year. Consensus to all countries is the fact that the higher education in the area of Social Sciences, Commerce and Law Sciences is the one with the highest number of people with higher education. Analyzing each of the areas of higher education, it can be seen that the tendency of a greater number of women than men is influenced by most areas of higher education but this is not observed in other areas such as training in Manufacturing and Construction, where in all countries the number of men with this training is higher than the number of women. Also, in the area of Mathematics and Computers Engineering, the number of men with higher education is higher in all countries except in Portugal and Italy.

*Figure following on the next page*



Figure 2: Total number of individuals with higher education, from 1998 to 2007 by country

The following are the multiple linear regression models that intend to serve as a basis for the analysis of the weight that each of the higher education areas presents in the entrepreneurship

of each of the countries under study. Table 2 refers to MLRM whose dependent variable is job creation by men and the independent variables are men's higher education by training area. Table 3 shows the MLRM where the dependent variable is entrepreneurship by women and the explanatory variables are women's higher education by area of education.

*Table 2: Multiple linear regression models for Self-employed, male*

**Self-employed, male (SEM)**

Dependent variables: Model (1) - SEM\_AT: Self-employed, male (Austria); Model (2) - SEM\_DE: Self-employed, male (Germany); Model (3) - SEM\_ES: Self-employed, male (Spain); Model (4) - SEM\_FI: Self-employed, male (Finland); Model (5) - SEM\_IE: Self-employed, male (Ireland); Model (6) - SEM\_IT: Self-employed, male (Italy); Model (7) - SEM\_NO: Self-employed, male (Norway); Model (8) - SEM\_PT: Self-employed, male (Portugal); Model (9) - SEM\_SE: Self-employed, male (Sweden); Model (10) - SEM\_UK: Self-employed, male (United Kingdom)

Explanatory variables: Graduates in higher education by area of education. E: Education; AH: Arts and Humanities; SSCLS: Social Sciences, Commerce and Law Sciences; MCE: Mathematics and Computers Engineering; MC: Manufacturing and Construction; A: Agriculture; HSP: Health and Social Protection; S: Services.

	(1)SEM_AT	(2)SEM_DE	(3)SEM_ES	(4)SEM_FI	(5)SEM_IE	(6)SEM_IT	(7)SEM_NO	(8)SEM_PT	(9)SEM_SE	(10)SEM_UK
E	-0,00088*** (0,00028)	-0,00079** (0,00028)	-0,00029*** (0,00004)	-0,00898* (0,00433)	0,00084* (0,00042)	0,00003 (0,00002)	0,00103* (0,00052)	0,00384*** (0,0007)	-0,00033 (0,00021)	-0,00024** (0,00009)
AH	-0,00016 (0,00039)	0,00012 (0,00009)	0,00014 (0,00017)	0,001558 (0,00156)	-5,008E-05 (0,00022)	-0,00038*** (0,000009)	0,00222** (0,00073)	0,00027 (0,00263)	-0,00017 (0,00079)	-1,952E-05 (0,00009)
SSCLS	0,00031** (0,00011)	0,00024 (0,00018)	0,00035*** (0,00004)	0,00069 (0,00083)	-0,00045* (0,00025)	0,000022 (0,00002)	-0,00026 (0,00028)	0,00032 (0,00032)	0,00013 (0,00011)	0,00007** (0,00002)
MCE	0,00037*** (0,00013)	-4,059E-05 (0,00019)	-0,00015*** (0,00005)	-0,00081** (0,00033)	-0,00044** (0,00017)	0,000087*** (0,00001)	-0,00099 (0,00061)	-0,00589** (0,00257)	-0,00143*** (0,00027)	-1,011E-05 (0,00002)
MC	-0,00024** (0,00011)	-8,126E-05* (0,00004)	-3,225E-05* (0,00002)	-0,00011 (0,00015)	0,00014 (0,00025)	0,00007** (0,00002)	-0,00045 (0,00058)	0,00043 (0,00029)	0,00019** (0,00007)	-4,941E-05 (0,00005)
A	-0,00107** (0,00044)	-0,00034 (0,00054)	-0,00099*** (0,00029)	0,00424 (0,00385)	0,00341** (0,00137)	-0,00102*** (0,00018)	0,00248 (0,00359)	0,00639** (0,00265)	0,00276** (0,00103)	0,00041 (0,00052)
HSP	0,00013 (0,00064)	0,00007* (0,00004)	-0,00028** (0,00010)	0,004145** (0,00179)	-0,00091 (0,00069)	0,00017*** (0,00003)	-0,00079 (0,00222)	2,80E-04 (0,00055)	-0,00035 (0,00045)	0,00016** (0,00006)
S	-0,00017 (0,00052)	0,00032 (0,00023)	3,00E-05 (0,00003)	-0,00182 (0,00142)	-0,00043 (0,00043)	0,000091*** (0,00002)	-0,00075 (0,00174)	0,00085 (0,00124)	0,00016 (0,00043)	-1,801E-05 (0,00009)
cons	15,7795*** (0,48730)	10,5106** (4,37976)	19,9213*** (0,48385)	13,8408 *** (2,27277)	29,2169*** (1,99662)	30,7387*** (0,09860)	11,5002*** (1,17153 )	20,9859*** (3,01525)	17,6242*** (0,48009)	14,7965*** (1,18508)

SEM\_AT: F(8,11)=205,12\*\*\*, SEM\_DE: F(8,11)=71,36\*\*\*, SEM\_ES: F(8,11)=598,67\*\*\*, SEM\_FI: F(8,11)=28,29\*\*\*, SEM\_IE: F(8,11)=31,13\*\*\*, SEM\_IT: F(8,11)=1862,99\*\*\*, SEM\_NO: F(8,11)=191,15\*\*\*, SEM\_PT: F(8,11)=17,62\*\*\*, SEM\_SE: F(8,11)=86,98\*\*\*, SEM\_UK: F(8,11)=52,98\*\*\*  
 Number of observations: SEM\_AT=20, SEM\_DE=20, SEM\_ES=20, SEM\_FI=20, SEM\_IE=20, SEM\_IT=20, SEM\_NO=20, SEM\_PT=20, SEM\_SE=20, SEM\_UK=20

SEM\_AT:  $R^2=0,8217$ ,  $\bar{R}^2=0,6920$ , SEM\_DE:  $R^2=0,7121$ ,  $\bar{R}^2=0,5028$ , SEM\_ES:  $R^2=0,9572$ ,  $\bar{R}^2=0,9261$ , SEM\_FI:  $R^2=0,5779$ ,  $\bar{R}^2=0,2710$ , SEM\_IE:  $R^2=0,8762$ ,  $\bar{R}^2=0,7861$ , SEM\_IT:  $R^2=0,9840$ ,  $\bar{R}^2=0,9723$ , SEM\_NO:  $R^2=0,7335$ ,  $\bar{R}^2=0,5397$ , SEM\_PT:  $R^2=0,8711$ ,  $\bar{R}^2=0,7774$ , SEM\_SE:  $R^2=0,8989$ ,  $\bar{R}^2=0,8253$ , SEM\_UK:  $R^2=0,9324$ ,  $\bar{R}^2=0,8832$

(Standard errors in parenthesis)

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

As for male entrepreneurship, Portugal has been highlighted, where training areas, except for Mathematics and Computers Engineering, are favorable to the creation of employment. The second country with an apparent human capital advantage is Italy, where of the 8 study areas, only 2 (Arts and Humanities and Agriculture) had a negative impact on the dependent variable. Social Sciences, Commerce and Law Sciences is the training area that is most favorable to entrepreneurship in most countries, with a positive coefficient in 8 countries. As opposed to training in Mathematics and Computers Engineering, which has the negative coefficient in 8 of the 10 countries under analysis. Regarding female entrepreneurship, Portugal and Austria are the countries where higher education for women presents more favorable results to the creation of own employment.

In the case of Portugal only the training in Manufacturing and Construction and Services presents negative coefficients. In the case of Austria, the Social Sciences, Commerce and Law Sciences and Manufacturing and Construction areas have negative coefficients. For the contribution of entrepreneurship by women, the areas of Education, Arts and Humanities and Social Sciences, Commerce and Law Sciences are presented as more favorable, with positive impacts in 7 of the 10 countries. In contrast, the areas in Manufacturing and Construction, Health and Social Protection and Services are the least influential, since they have negative coefficients in 6 of the 10 countries.

*Table 3: Multiple linear regression models for Self-employed, female*

**Self-employed, female (SEF)**

Dependent variables: Model (11) - SEF\_AT: Self-employed, female (Austria); Model (12) - SEF\_DE: Self-employed, female (Germany); Model (13) - SEF\_ES: Self-employed, female (Spain); Model (14) - SEF\_FI: Self-employed, female (Finland); Model (15) - SEF\_IE: Self-employed, female (Ireland); Model (16) - SEF\_IT: Self-employed, female (Italy); Model (17) - SEF\_NO: Self-employed, female (Norway); Model (18) - SEF\_PT: Self-employed, female (Portugal); Model (19) - SEF\_SE: Self-employed, female (Sweden); Model (20) - SEF\_UK: Self-employed,

Explanatory variables: Graduates in higher education by area of education. E: Education; AH: Arts and Humanities; SSCLS: Social Sciences, Commerce and Law Sciences; MCE: Mathematics and Computers Engineering; MC: Manufacturing and Construction; A: Agriculture; HSP: Health and Social Protection; S: Services.

	(11)SEF_AT	(12)SEF_DE	(13)SEF_ES	(14)SEF_FI	(15)SEF_IE	(16)SEF_IT	(17)SEF_NO	(18)SEF_PT	(19)SEF_SE	(20)SEF_UK
E	0,00039** (0,00015)	9,67E-06 (1,370E-05)	3,44E-05 (3,959E-05)	-0,00053 (0,00042)	-0,00016 (0,00014)	4,21E-05 (3,509E-05)	6,00E-05 (7,421E-05)	1,91E-04 (0,00015)	1,43E-05 (4,433E-05)	-1,355E-05 (2,907E-05)
AH	7,00E-05 (0,00026)	1,31E-05 (2,169E-05)	0,00025 (0,00019)	-7,954E-05 (0,00017)	-4,883E-05 (6,878E-05)	-0,00041*** (8,558E-05)	0,00043** (0,00019)	1,96E-03 (0,00216)	0,00145** (0,00051)	0,00005* (2,540E-05)
SSCLS	-0,00099** (0,00039)	0,00007*** (1,174E-05)	0,00016*** (3,328E-05)	0,00017 (0,00033)	-0,00026** (0,0001)	0,00021*** (5,961E-05)	-0,00016* (7,473E-05)	6,18E-04 (0,00039)	1,41E-05 (5,315E-05)	4,53E-06 (6,430E-06)
MCE	0,00064 (0,00118)	-0,00012** (5,241E-05)	-0,00024 (0,00017)	9,00E-05 (0,00062)	-1,950E-05 (0,00019)	0,00014 (0,00017)	-0,00054 (0,00045)	0,00139 (0,00233)	-0,00061*** (0,00014)	0,00003** (1,058E-05)
MC	-0,00084 (0,00081)	-0,00038*** (5,072E-05)	-0,00052*** (0,00014)	0,00013 (0,00022)	0,00035 (0,00072)	-0,00036 (0,00028)	0,00069 (0,00048)	-0,00699*** (0,00159)	-0,00033** (0,00013)	0,00029*** (6,129E-05)
A	0,00515 (0,00352)	0,00129*** (0,00025)	-0,00107* (0,00054)	-3,119E-05 (0,00130)	0,00376** (0,0017)	-4,429E-05 (0,00061)	0,00681* (0,00320)	0,00261 (0,00531)	-0,00122** (0,00053)	-0,00034 (0,00021)
HSP	0,00189** (0,00064)	-1,399E-05*** (2,196E-06)	-0,00016*** (4,929E-05)	0,00015 (0,00025)	-0,00014 (0,00013)	2,37E-05 (6,211E-05)	-0,00027* (0,00014)	0,00129** (0,00058)	-0,00015*** (4,009E-05)	-2,526E-05** (8,678E-06)
S	0,00063** (0,00021)	0,00011 (8,881E-05)	-0,00017 (0,00011)	-0,00036 (0,00035)	0,00055 (0,00041)	-2,493E-05 (3,830E-05)	-0,00041 (0,00048)	-0,00457 (0,00340)	0,00057** (0,00021)	-6,171E-06 (3,560E-05)
cons	8,93616*** (1,68966)	7,16655*** (0,633009)	19,3804*** (1,37658)	8,32848*** (1,02805)	10,2727*** (1,28896)	23,7216*** (1,19190)	5,2077*** (0,497168)	20,9622** (7,50758)	6,63289*** (0,31534)	4,56416*** (0,34217)

SEF\_AT: F(8,11)=20,42\*\*\*, SEF\_DE: F(8,11)=526,99\*\*\*, SEF\_ES: F(8,11)=282,51\*\*\*, SEF\_FI: F(8,11)=11,69\*\*\*, SEF\_IE: F(8,11)=20,55\*\*\*, SEF\_IT: F(8,11)=54,18\*\*\*, SEF\_NO: F(8,11)=124,05\*\*\*, SEF\_PT: F(8,11)=47,10\*\*\*, SEF\_SE: F(8,11)=180,45\*\*\*, SEF\_UK: F(8,11)=274,90\*\*\*

Number of observations: SEF\_AT=20, SEF\_DE=20, SEF\_ES=20, SEF\_FI=20, SEF\_IE=20, SEF\_IT=20, SEF\_NO=20, SEF\_PT=20, SEF\_SE=20, SEF\_UK=20

SEF\_AT: R<sup>2</sup>=0,7368,  $\bar{R}^2$ =0,5454, SEF\_DE: R<sup>2</sup>=0,9181,  $\bar{R}^2$ =0,8585, SEF\_ES: R<sup>2</sup>=0,9739,  $\bar{R}^2$ =0,9549, SEF\_FI: R<sup>2</sup>=0,4637,  $\bar{R}^2$ =0,0736,

SEF\_IE: R<sup>2</sup>=0,7619,  $\bar{R}^2$ =0,5887, SEF\_IT: R<sup>2</sup>=0,8442,  $\bar{R}^2$ =0,7308, SEF\_NO: R<sup>2</sup>=0,6148,  $\bar{R}^2$ =0,3346, SEF\_PT: R<sup>2</sup>=0,8943,  $\bar{R}^2$ =0,8173,

SEF\_SE: R<sup>2</sup>=0,8458,  $\bar{R}^2$ =0,7337, SEF\_UK: R<sup>2</sup>=0,9710,  $\bar{R}^2$ =0,9498

(Standard errors in parenthesis)

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

## 5. CONSLUSION

The results obtained suggest that from the set of 10 countries analyzed, Portugal and Italy stand out with higher levels of entrepreneurship, both in the feminine and in the masculine. This apparent advantage seems to be the result of an adequate higher education, where in the case of Portugal only the training in Mathematics and Computers Engineering has no positive impact on male entrepreneurship.

In relation to female entrepreneurship, Portugal also presents results to be highlighted, with higher education having positive impacts, except for training in Manufacturing and Construction and Services. Italy also stands out in the self-employment rates of men, with education having a positive impact except in the areas of Arts and Humanities and Agriculture. As for the overall impact of the areas of training analyzed, for male entrepreneurship stands out Social Sciences, Commerce and Law Sciences with a positive coefficient in 8 countries. As opposed to training in Mathematics and Computers Engineering, which has the negative coefficient in 8 of the 10 countries under analysis. For female entrepreneurship, it is worth noting that education, Arts and Humanities and Social Sciences, Commerce and Law Sciences are presented as positive, with positive impacts in 7 of the 10 countries. In contrast, the areas in Manufacturing and Construction, Health and Social Protection and Services are the least influential, since they have negative coefficients in 6 of the 10 countries. The study presented thus highlights the need to better understand what is essential to the development of entrepreneurship in countries, how it is encouraged and whether training is appropriate to the achievement of successful results. It is considered that this study presents two main limitations. The first is that entrepreneurship was considered only as self-employment rates, that is, the entrepreneurship that exists within organizations remains to be analyzed and can have significant impacts in economic and social terms. The second limitation lies in the explanatory variables considered to be solely related to human capital, and other factors are fundamental to the promotion and success of entrepreneurship. It is considered that the limitations presented can be future research opportunities and, in this sense, it is intended to extend the present study to more countries in order to obtain more comparisons and thus richer results. It is also intended to include more explanatory variables, namely variables related to information and communication technologies and innovation, also, to study entrepreneurship using panel data models (including all the countries in a regression model) And finally, there is the intention to extend the study to different types of entrepreneurship and its social and economic impact in the countries.

## LITERATURE:

1. Baggio, A. F. and Baggio, D. K. (2014). Empreendedorismo: conceitos e definições. *Rev. de Empreendedorismo, Inovação e Tecnologia*. 1(1), 25-38.
2. Benhabib, J. and Spiegel, M. M. (1994). The role of human capital in economic development: Evidence from aggregate cross-country data. *Journal of Monetary Economics*. 34, 143-173.
3. Burgess, S. (2016). Human Capital and Education - The State of the Art in the Economics of Education. *Forschungsinstitut zur Zukunft der Arbeit Institute for the Study of Labor*.
4. Faggian, A., Partridge, M. and Malecki, E. (2016). Creating an environment for economic growth: creativity, entrepreneurship or human capital?. *Munich Personal RePEc Archive*.
5. Goldin, C. (2014). Human Capital. *Handbook of Cliometrics. Harvard University and National Bureau of Economic Research*.
6. Nelson, R. R. and Phelps, E. S. (1966). Investment in Humans, Technological Diffusion, and Economic Growth. *The American Economic Review*. 56(1/2), 69-75.
7. Sarkar, S. (2014). *Empreendedorismo e Inovação*. Lisboa: Escolar Editora.
8. Schultz, T. W. (1961). Investment in Human Capital. *The American Economic Review*. 51(1), 1-17.
9. Schumpeter, J. A. (1939). *Business Cycles: A Theoretical, Historical and Statistical Analysis of the Capitalist Process*. New York: McGraw-Hill.
10. Veugelers and Del-Rey, E. (2014). The contribution of universities to innovation, (regional) growth and employment: European Commission.

## CONTRIBUTION OF THE KNOWLEDGE ECONOMY TO THE SUSTAINABLE DEVELOPMENT OF PORTUGAL

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### ABSTRACT

*The definition of sustainable development presented in the Brundtland report made by the World Commission on Environment and Development, established by the United Nations, remains one of the most frequently used definitions, stating that: «Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of the future generations to meet their own needs. » (United Nations, 1987, p. 24). As the demand for sustainable development is a priority, it is interesting to understand what factors contribute to such development. In this sense, in the light of the current knowledge economy, we try to relate the different dimensions of the knowledge economy to the different dimensions of sustainable development. This study was applied to Portugal for the period between 1997 and 2017. Data were collected from the PORDATA database (Base de dados de Portugal contemporâneo) and from the World Bank database. The study presented as dimensions of knowledge economy: human capital, innovation and information and communication technologies. And as dimensions of sustainable development: economic, social and environmental development. We selected indicators to represent each of the dimensions to be studied. And using the multivariate analysis of data, the relationship and impact between them was analysed. The analysis of the evolution of these dimensions of the knowledge economy and sustainable development is also presented, with the aim of better understand the path followed by Portugal over the last two decades, in the search for a better social, economic and environmental structure.*

**Keywords:** *Knowledge economy, multiple linear regression models and sustainable development*

### 1. INTRODUCTION

The demand for sustainable development is a reality common to most countries. And the concept of sustainable development can be defined as guaranteeing the satisfaction of the needs of present generations, without compromising the satisfactions of the needs of future generations. As knowledge is fundamental to the development of societies, it is relevant to study the extent to which the knowledge created contributes to the pursuit for sustainability. The purpose of this research is to determine to what extent the bases of the knowledge economy are effectively contributing to a sustainable development in Portugal. In order to reach this goal, variables representative of the concepts under study were selected. Based on these variables, multiple linear regression models (MLRM) were formulated. We present the analysis of these models, as well as the evolution of the variables under study. Based on these analyses, the main conclusions of this research are presented, as well as the limitations and obstacles founded. It is also presented some possible lines of research that can be followed in order to continue this study.

## **2. SUSTAINABLE DEVELOPMENT IN THE AGE OF KNOWLEDGE ECONOMY**

The definitions of the concepts of sustainable development and the knowledge economy are presented below. Since its definitions cannot be simple and linear, the different dimensions on which these concepts are based are also presented. These definitions are intended to support the theoretical models formulated in order to study the impact of the different dimensions of the knowledge economy on the different dimensions of sustainable development, and according to Jednak: "Knowledge-based economy (KBE) and sustainable development (SD) are set as goals by many economies worldwide. Such concepts connect economic, social and environmental aspects. Certain studies have shown that there is a connection between the two concepts. Knowledge-based economy can promote sustainable development through innovation sustained by economic growth." (Jednak, 2015, p. 5).

### **2.1. Sustainable development**

The Brundtland report is a document published by the United Nations in 1987, where the concept of sustainable development is addressed as "Humanity has the ability to make sustainable development to ensure that it meets the needs of the present without compromising the ability of the future generations to meet their own needs." (United Nations, 1987, 24). This concept remains current, being sure that once it is a global concept and devoid of axiomatic, lead to criticism and doubts in its theoretical application (Feil & Schreiber, 2018). But despite any controversy, it is agreed that the concept of sustainable development is something positive and fundamental to all nations, that is: "Sustainable development should provide a solution in terms of meeting basic human needs, integrating environmental development and protection, achieving equality, social self-determination and cultural diversity, and maintaining ecological integrity. Although the concept of sustainable development has undergone certain changes during the past, its fundamental principles and goals have contributed to a more conscious behaviour adapted to the limitations of the environment. This is the reason for adopting the concept in different areas of human activities." (Klarin, 2018, p.87). As Feil and Schreiber (2017) point out, sustainable development can be defined as a long-term strategy for improving the quality of life (well-being) of society. This strategy should integrate environmental, social and economic aspects. According to these authors, sustainable development has its main properties: It aims at economic growth without human environmental aggression; Long-term vision for future generations; It covers the environmental, the economic and the social in mutual equilibrium; Proposes change in the behaviour of humanity; Materialized through strategies and involves processes and practices. The United Nations in its report "Transforming our world: the 2030 agenda for Sustainable Development" reorganizes the goals for 2030. As can be seen in table 1, there are 17 general objectives that nations should aim to achieve by 2030.

*Table following on the next page*

*Table 1: 17 Goals to Transform Our World (UN General Assembly, 2015)*



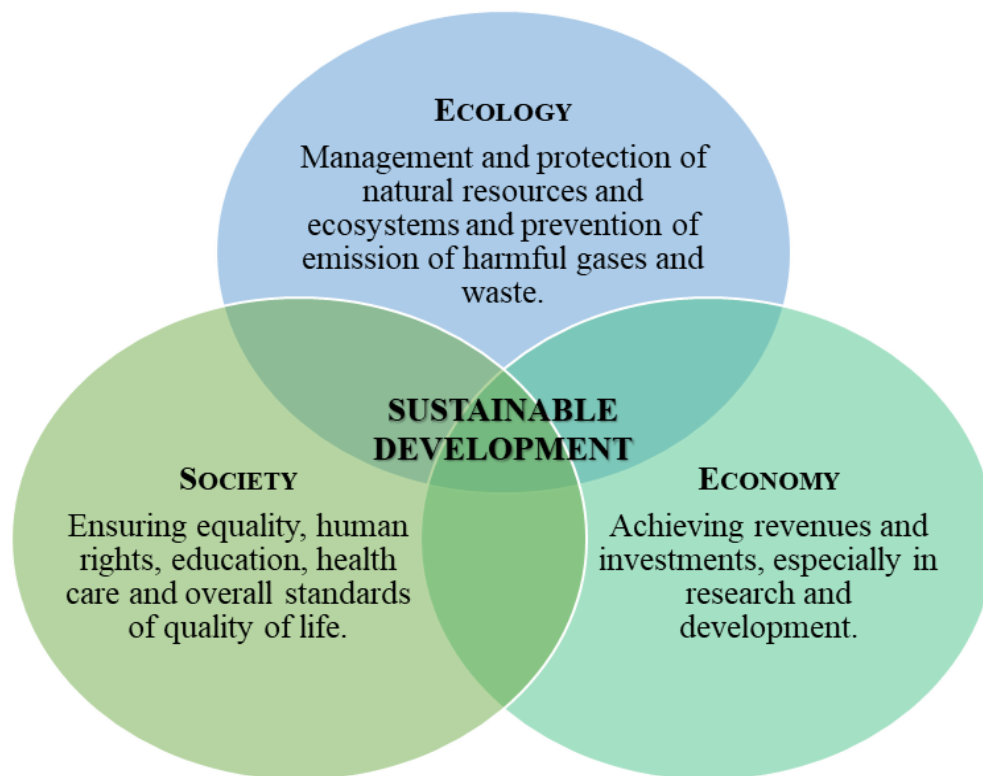
The new United Nations Agenda is a plan of action centred on people, the planet, prosperity, peace and partnerships (5P), with ultimate goal the eradication of poverty and sustainable development, in which all States and other stakeholders assume their own responsibility for their implementation, emphasizing that no one should be left behind. The incorporation of Agenda 2030 into national strategies, plans and policies is articulated by thematic areas, identified as 5P:

- People: eradicate poverty and hunger, in all their forms and dimensions, and ensure that everyone can fulfil their potential in dignity and equality and in a healthy environment.
- Planet: protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and acting on climate change.
- Prosperity: ensure that everyone can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature.
- Peace: promote peaceful, just and inclusive societies which are free from fear and violence.
- Partnership: mobilize the means required to implement this Agenda through a revitalized Global Partnership for Sustainable Development.

Klarin (2018) synthesizes the triple bottom-line concept of sustainable development in three large dimensions, as can be seen in Figure 1. Figure 1 shows the complex relationship that exists between the 3 pillars of sustainable development. The interaction and correlation between them must be balanced in order to achieve complete sustainable development.

*Figure following on the next page*

Figure 1: Triple bottom-line concept of sustainable development: adapted from Klarin (2018)

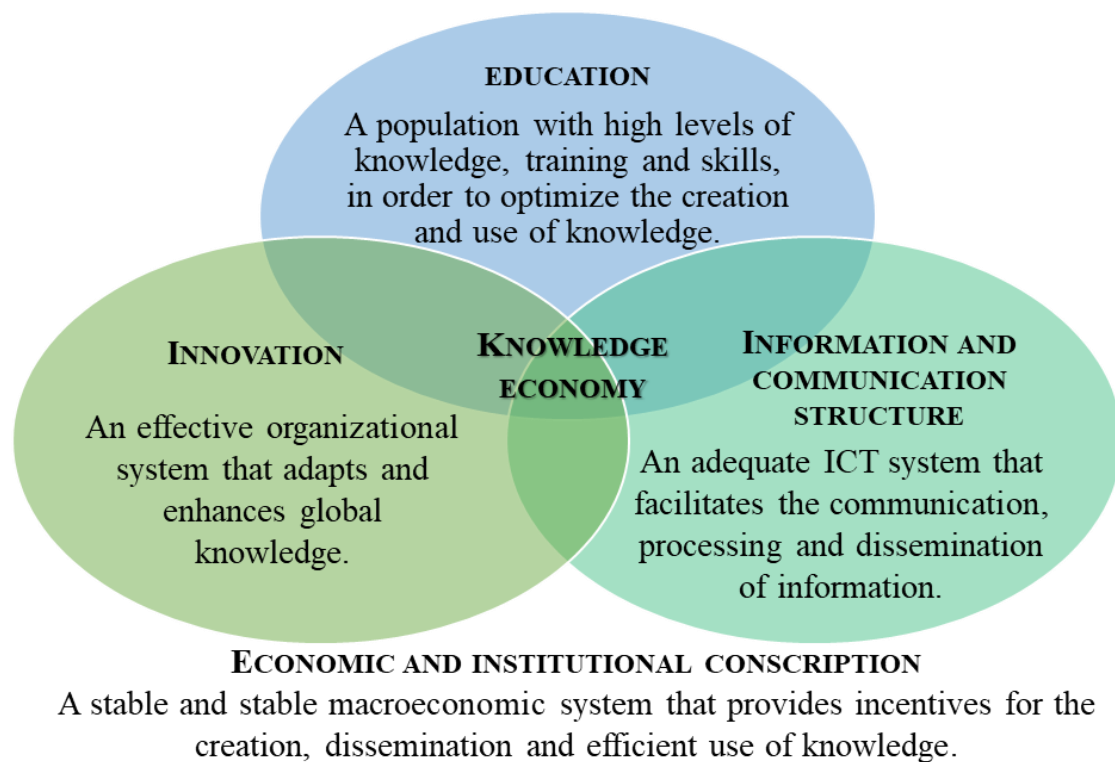


After more than thirty years of the Brundtland report, the United Nations continues to clarify the concept of sustainable development. This concept undeniably addresses the three dimensions presented in figure 1. As mentioned previously, Agenda 2030 redefines objectives to be achieved by 2030 and the new objectives reveal a greater complexity in the challenges that seek to improve the current situation of the planet. There are several and different strategies that countries can adopt to achieve sustainable development and cannot approach this concept without considering that we are currently in the era of the knowledge economy.

## 2.2. Knowledge economy

Acceptance of the knowledge economy as a reality has become predominant in academic, business and political discourses, given the recognition of knowledge and innovation as key determinants of countries' economic growth and development. Pilipenko (2015) considers that it is correct to consider the knowledge-based economy not as an inexplicable phenomenon with unknown origins, but as a logical step in the evolutionary development of the productive forces resulting from the transfer of scientific knowledge and that allows to reach a new level of quality. The OECD (2000) defines knowledge economy, considering that "knowledge-based economy is defined as one where knowledge (codified and tacit) is created, acquired, transmitted and used more effectively by enterprises, organizations, individuals and communities for greater economic and social development. "(OECD, 2000, p.13). The Australian Bureau of Statistics (ABS) considers that "KBE does not rely solely on a few high-tech industries for growth and wealth production. Rather, all industries in the economy can be knowledge intensive, even so-called 'old economy' industries like mining and agriculture. "(ABS, 2002, p.2). The knowledge economy is the current reality that explains the growth and economic development of the countries, so it is verified that several organizations seek to define the structure on which this concept is based. As shown in figure 2, it is possible to identify three main dimensions: Education, Innovation and Information and Communication Technologies (ICT).

*Figure 2: Structure of the Knowledge Economy: Adapted from the Australian Bureau of Statistics (2002), World Bank (2007) and OECD (2015)*



Each one of these dimensions is essential to the progress of a society. The adequacy of these dimensions and the synergies created between them can boost the development of a country in a sustainable way.

### 3. METHODOLOGY

#### 3.1. Introductory remarks

The purpose of this research is to determine the impact of the knowledge economy on the sustainable development of Portugal. In order to achieve this objective, the different dimensions that make up the concepts of knowledge economy and sustainable development were analysed using multiple linear regression models, and an analysis of their evolution over the last two decades is also presented.

#### 3.2. Data and definition of variables

The data collected is related to Portugal, with annual data referring to the period from 1997 to 2017. To do so, we used the PORDATA database, Database of Contemporary Portugal, organized and developed by the Francisco Manuel dos Santos Foundation. The selection of the indicators that represent the variables under study was carried out based on the literature review and are summarized in Table 2.

*Table following on the next page*

Table 2: Variables used on the multiple linear regression models (Adapted from PORDATA)

Variable		Description
Sustainable development	GDP - Gross Domestic Product <i>per capita</i>	Measure used to evaluate the performance of the economy, and can be considered the measure of the wealth that the country can create, per citizen.
	GINI	This coefficient measures on a scale between 0 and 100 the inequality in the distribution of income of the population. The Gini coefficient would have the minimum value of 0 if all the population had the same income and the maximum value of 100 if all income was for the same person.
	CO <sub>2</sub> - Carbon dioxide <i>per capita</i>	Anthropogenic atmospheric emissions arise from human activities such as energy production, transport, agriculture, industrial processes or waste, and produce carbon dioxide, methane and other gases and heavy metals that pollute the air. Concentrated gases in the atmosphere that absorb and emit infrared radiation, from the solar rays that are reflected into the space or absorbed and transformed into heat. One of the main greenhouse gases is water vapor, carbon dioxide (CO <sub>2</sub> )
Human capital	ES - Elementary School	The 3rd cycle of elementary school is the level of education that lasts for three academic years and that students usually attend from 12 to 14 years of age. Corresponds to the 7th, 8th and 9th years of schooling, for example the unified former secondary general. The 3rd cycle of basic education is equivalent to ISCED 2 of the International Standard Classification of Education (ISCED).
	HS - High School	Secondary education is the last level of compulsory education, which lasts for three academic years and which students usually attend from 15 to 17 years of age. Corresponds to the 10th, 11th and 12th years of schooling, for example the old high school. Secondary education is equivalent to ISCED 3 of the ISCED.
	HE - Higher Education	Higher education includes what is commonly understood as academic education, but also includes vocational or advanced vocational education. It covers levels 5, 6, 7 and 8 of ISCED, which are labelled as upper-level, baccalaureate or equivalent level, master's or equivalent level, and PhD or equivalent level, respectively. The content of higher education programs is more complex and advanced than lower levels of ISCED.
Information and communication technologies	NS - Net Subscribers	Individuals with Internet connection, where the connection corresponds to the set of global computer networks interconnected by the Transmission Control Protocol /Internet Protocol, where information and service servers (FTP, WWW, e-mail, etc.) .
	TS - Tell Subscribers	Users covered by a contractual relationship established with a national operator of the Land Mobile Service, in particular in the form of subscription or prepaid card activated, to whom it has been the right to originate or receive traffic, through its network. Users of the service, customers of a foreign operator in the national territory, are excluded from the concept of subscribers when roaming.
Innovation	P - Patents	The patent is the official license granted to anyone who intends to protect an invention. If the examination of the invention concludes that the patent can be granted, it means that the invention meets all the conditions for its grant and complies with the three patentability requirements (novelty, inventive step and industrial application).
	T - Trademark	The trademark is a sign that identifies the products or services of a company on the market, distinguishing them from those of other companies. If the trade mark is registered, the proprietor of the trademark is granted an exclusive right conferring on him the right to prevent third parties from using, without his consent, an identical or similar sign in identical or similar goods or services.

### 3.3. Multiple linear regression models

Multiple linear regression models (MLRM) allow us to analyze the impact of several explanatory variables on a dependent variable. Based on the purpose of this investigation, the formulated MLRM are:

Model (1) of Economic Sustainability :  $GDP_t = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_{tk} + u_t$

Model(2) of Social Sustainability :  $GINI_t = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_{tk} + u_t$

Model (3) of Environmental Sustainability :  $CO2_t = \beta_0 + \beta_1 X_1 + \dots + \beta_k X_{tk} + u_t$

$t = 1, \dots, 21$  – years

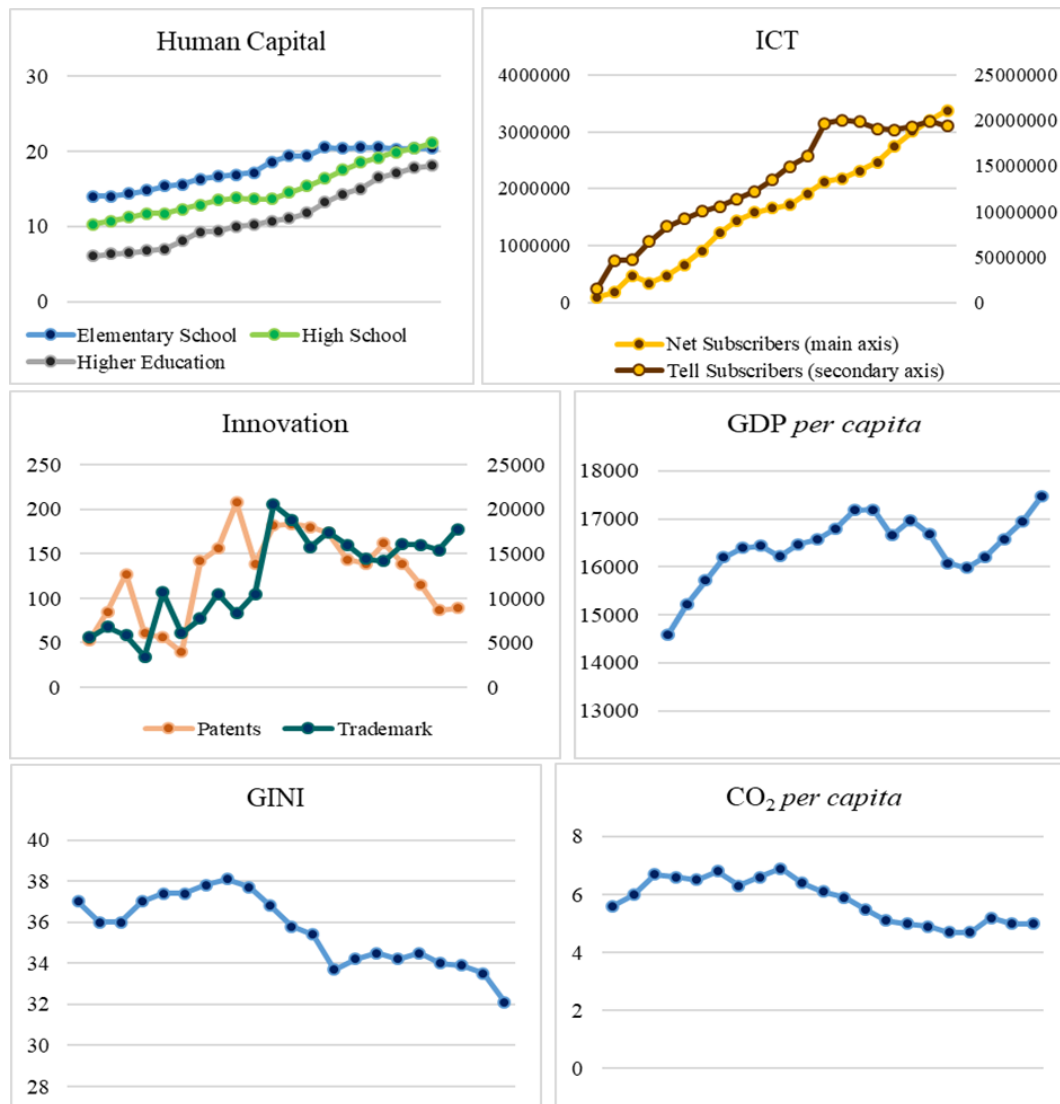
$k = 9$  – explanatory variables

$u_t$  – error term

#### 4. RESULTS AND DISCUSSION

In order to better understand the relationship between the dimensions considered in the knowledge economy and sustainable development in Portugal, an overview of the variables under analysis is presented first. Beginning with the representative variables of the knowledge economy. In figure 3, the human capital analysed through the education of the population presents an increasing tendency, with the higher education to stand out with an average rhythm of 6% per year. In this way, it is possible to affirm that throughout the period in analysis the education of the Portuguese population has evolved according to the expectation associated to the creation of knowledge.

Figure 3: Evolution of the variables used in MLRM over the period from 1997 to 2017



This dissemination of knowledge verified with the intensification of human capital has been followed by the evolution of ICT, namely in the use of mobile phones that allow a faster and easier communication between individuals and organizations. This indicator shows a growth rate of approximately 18.22% per year. It should be noted that in 1997 the number of mobile service subscriptions was 1.506.958 and that in 2017 this number was already 19.420.188. That is, superior to the population of the country that in 2017 was of approximately 10.3 million inhabitants. In Figure 3 it is also possible to observe that the use of ICT as a way of access and sharing of knowledge and information through the Internet has increased at a very steep rate of

about 25% per year. In this case in 1997 the number of subscriptions was 88.670 and in 2017 reached the number of 3.380.881. The third dimension of the knowledge economy analysed refers to innovation and in this case two forms of industrial property were used. Both have shown a positive rhythm of growth over the last two decades with patent and trademark registration growing at an annual average of 12.7% and 14.5% respectively. This growth is in line with expectations in the knowledge economy through the practical application of the knowledge created. Regarding the indicators chosen to represent sustainable development, GDP per capita shows a growing tendency (on average 0.9% per year), despite some years of decline. The years in which this happens were the years marked by the economic crisis that affected the country between 2007 and 2013. As for the GINI index, its trend is decreasing (on average -0.7% per year) and is in line with expectations, since the closer to zero this indicator is, smaller are the inequalities between the population. The same behaviour is observed in the indicator related to carbon dioxide emissions, with the number of tons emitted decreasing by an average of -0.4% per year. The MLRMs are shown in table 3. It is verified that some explanatory variables are not statistically significant. Nevertheless, since their inclusion in the models contributes to a higher coefficient of determination ( $R^2$ ), it is considered relevant to study the sign that the explanatory variables present, evaluating its impact on the different dependent variables. In the first model (1), concerning to economic sustainability, it should be pointed out that human capital does not seem to contribute to the economic sustainability of the country, since the different variables representative of human capital, present negative coefficient, contrary to the expectations assumed by the review of the literature. It is also considered relevant to mention that, the results obtained suggest that greater access to information and knowledge sharing, have a positive impact on GDP per capita. As for innovation, evaluated through two forms of industrial property (patents and trademarks), only trademarks contribute positively to the economic development of the country. In the second model (2), we intend to analyze the social sustainability of Portugal. In this case, the closer to zero is the GINI index, the more egalitarian the society. That is, the explanatory variables present a positive impact when their respective coefficients are negative. In this model, it is verified that the greater the economic sustainability, the more egalitarian the society will tend to be. Equally, human capital and access to information (Internet users) appear to be conducive to reducing inequalities. Lastly, as regards to innovation, once again it can be seen that the increase in the registration of trademarks contributes positively to social sustainability. In the third and last model (3), which analyses environmental sustainability, the explanatory variables that present negative coefficients are those that contribute favourably to the country's environmental sustainability. As it can be seen, neither economic sustainability nor social sustainability seems favourable to environmental sustainability, since its impact is negative, contributing to an increase in CO<sub>2</sub> emissions. As for human capital, the results suggest that higher education contributes to the improvement of the quality of life. Regarding to the access to information, the results are not conclusive, with access to the Internet to make a negative contribution and the use of mobile phones with a positive impact. It should also be noted that the two forms of industrial property considered in this study have a positive impact. That is, both the registration of patents and trademarks contributes to the reduction of CO<sub>2</sub> per capita.

*Table following on the next page*

*Table 3: Multiple linear regression models*

Dependent Variables: Model (1) - GDP: Gross Domestic Product *per capita*, which represents Economic Sustainability; Model (2) - GINI: GINI index, referring to gender equality, which represents Social Sustainability; Model (3) - CO<sub>2</sub>: Emission of carbon dioxide *per capita*, which represents Environmental Sustainability.

Explanatory Variables: BE: Basic Education; HS: High School; HE: Higher Education; IS: Internet Subscribers; MS: Mobile Subscribers; P: Patent; T: Trademark; GDP: Gross Domestic Product *per capita*; GINI: GINI index; CO<sub>2</sub>: Emission of carbon dioxide *per capita*.

		Model (1) Economic Sustainability	Model (2) Social Sustainability	Model (3) Environmental Sustainability
GDP		-	-2,02864e-05 (0,000517145)	0,000303068** (0,000106543)
GINI		-3,22866 (82,8845)	-	0,221700*** (0,0301278)
CO <sub>2</sub>		581,208* (289,075)	2,67140*** (0,458267)	-
Human Capital	BE	-93,6962 (131,572)	-0,855037*** (0,243237)	0,157978 (0,0951513)
	HS	-24,3383 (123,716)	-0,158535 (0,488634)	0,0398259 (0,135454)
	HE	-294,344 (246,597)	1,42118*** (0,416192)	-0,319384** (0,122229)
Information and communication technology	IS	0,00156344* (0,000792014)	-6,22025e-06*** (1,22398e-06)	1,35166e-06*** (3,97154e-07)
	MS	7,62029e-05 (8,12973e-05)	6,43197e-07*** (1,53522e-07)	-1,72742e-07*** (4,22307e-08)
Innovation	P	-4,57549** (1,63164)	0,0125544** (0,00422842)	-0,00135996 (0,00154656)
	T	0,0654244*** (0,0112657)	-2,80176e-05 (5,04142e-05)	-2,20533e-05* (1,09288e-05)
cons		14645,2*** (2497,63)	22,2454** (9,79044)	-6,31748** (2,66761)

Model (1): F(9,11)=119,5654\*\*\*; Model (2): F(9,11)=454,9480\*\*\*; Model (3): F(9,11)=365,3644\*\*\*

Number of observations: Model (1)=20; Model (2)=20; Model (3)=20

Model(1): R<sup>2</sup>=0,9456,  $\bar{R}^2$ =0,8927; Model(2): R<sup>2</sup>=0,9047,  $\bar{R}^2$ =0,8189; Model (3): R<sup>2</sup>=0,9768,  $\bar{R}^2$ =0,9559  
 (Standard errors in parenthesis)

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

## 5. CONSLUSION

The results suggest that Portugal is moving at a relatively slow pace towards sustainable development. However, all dimensions of sustainable development and knowledge economy grew as would be desirable over the period under review. Based on the results obtained in the multiple linear regression models, it is verified that the balance between economic and environmental sustainability is contradictory given that the results show that over the last two decades economic growth has not directly contributed to environmental sustainability. On the other hand, it has contributed positively to the reduction of inequalities, that is, to social sustainability. The relevance of human capital to reduce inequalities in society and to improve environmental quality through the reduction of carbon dioxide emissions is also highlighted. However, the results suggest that human capital alone does not contribute to the economic development of the country. In terms of innovation, the results suggest that registered trademarks lead to good results in all forms of sustainable development.

Access to information has also been favourable to different forms of sustainable development. This dimension of the knowledge economy appears to be the one most suited to the desired results for the sustainable development of Portugal. The present study presents two main limitations. The first one is related to the fact that a restricted number of variables representative of the concepts under analysis has been selected. The future objective is to increase the number of years of study, increasing the number of variables in order to make this research more comprehensive both in terms of sustainable development objectives and in terms of inputs and outputs of the knowledge economy. The second limitation is the fact that the study was carried out only for Portugal, not allowing comparisons with other countries. Once again, this limitation is seen as an opportunity to make the present study more comprehensive, not only to compare countries but also to better understand the ways forward in the quest for a knowledge economy that will achieve the fullness of sustainable development.

## LITERATURE:

1. AUSTRALIAN BUREAU OF STATISTICS. (2002). *Measuring a Knowledge-based Economy and Society*: Australian Bureau of Statistics.
2. Feil, A. A. and Schreiber, D. (2017). Sustentabilidade e desenvolvimento sustentável: desvendando as sobreposições e alcances de seus significados. *Cad. EBAPER. Br.* 14(3).
3. Jednak, S. and Krageli, D. (2015). Achieving Sustainable Development and Knowledge-Based economy in Serbia. *Journal for theory and practice of management*.
4. Klarin, T. (2018). The Concept of Sustainable Development from its Beginning to the Contemporary Issues. *Zagreb International Review of Economic & Business*. 21(1), 67-94.
5. OCDE. (2015). *Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development: The Measurement of Scientific, Technological and Innovation Activities*. OCDE publishing: Paris.
6. OCDE. (2000). *Korea and Knowledge based Economy: Making the transition*. OCDE and World Bank.
7. Pilipenko, E. (2015): Knowledge-Based Economy as a Basis for the Long-Term Strategy of the Development of the Society: *Scientific Research Publishing Inc.* 6, 888-894.
8. United Nations. (1987). *Our common future – Development and international economic co-operation: environment*. Report of the World Commission on Environment and Development.
9. UN General Assembly. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development*. United Nations.
10. WORLD BANK. (2007). *Building Knowledge Economies*. The World Bank Washington, D.C.

## TAX AVOIDANCE – CASE STUDY IN CROATIA

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### ABSTRACT

*There is a fine line between tax avoidance and tax evasion. Tax evasion and tax avoidance serve the purpose of reducing taxes. The state budget of the Republic of Croatia consists mainly of tax revenues; therefore, collection of taxes is the main task of the tax authorities. The main purpose of this paper is to determine whether there is tax avoidance in the Croatian tax legislation. In the three main legal regulations: The Income Tax Act, the Corporate Income Tax Act, and the Value Added Tax Act legal possibilities for non-payment of taxes have been determined. Through the example of the "VAT - caterers" case was confirmed that the tax authorities when introducing higher tax rates force taxpayers to seek "holes" in the legal regulations. The tax advisers confirm that in the "VAT-caterers" case the caterers worked in accordance with the legal regulations and that the tax authorities should react more promptly in order to close the tax "holes".*

**Keywords:** *Tax avoidance, tax evasion, tax obligations*

### 1. INTRODUCTION

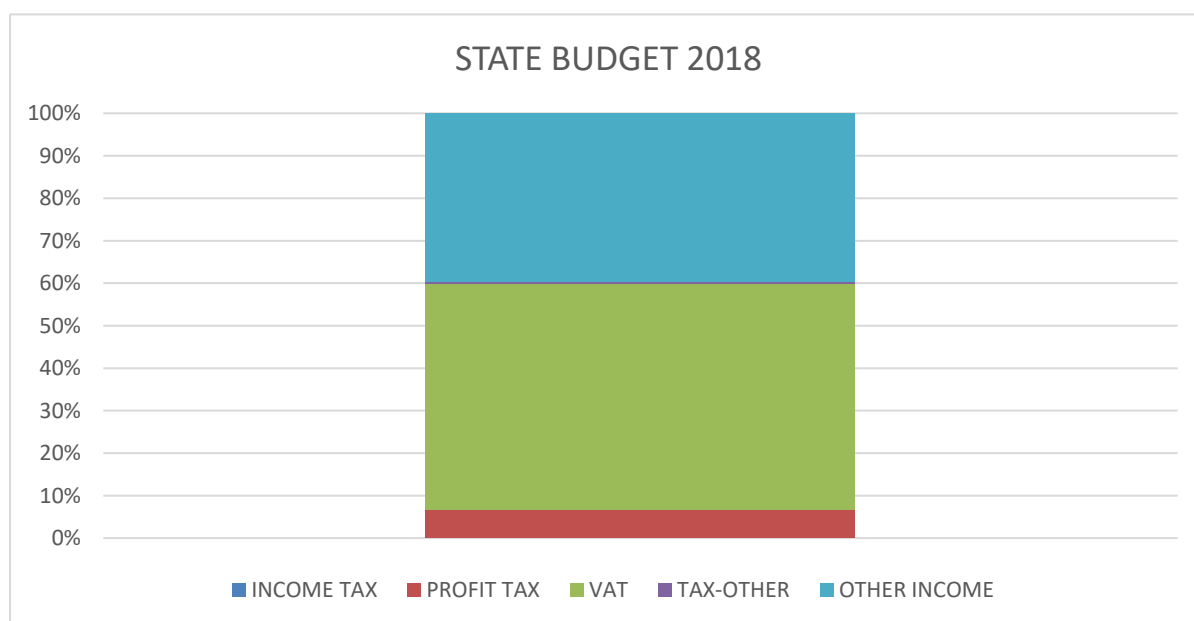
Taxes are an important part of the state budget. Taxes are intended to finance all public functions such as army, police, education or civil services. Taxpayers, natural or legal persons, pay taxes and fulfil the state budget. Tax authorities of each country pay special attention to the orderly payment of taxpayers' tax liabilities. Tax evasion and tax avoidance are the main problem of each country. All countries are working every day to standardize legal regulations and to prevent tax avoidance or tax evasion. Every taxpayer aims to pay as little tax as possible. Many multinational companies have special tax departments to find the best way to pay as low taxes as possible. Legislation itself often enables the development of business under certain conditions or in certain areas where tax rates are minimal or, in some situations, tax exempt is also possible. Corporate income tax, income tax and value added tax are the most significant taxes in all countries of the world. Tax evasion and tax avoidance are possible in all types of taxes and lead to the need to increase rates due to the non-fulfilment of the planned tax revenue. The main goals of this paper are:

- to determine whether there are statutory possibilities of tax avoidance in the tax legislation of the Republic of Croatia, which the government deliberately leaves in order to achieve economic prosperity. The existence of tax avoidance is researched in the three main legal regulations: the Income Tax Act, the Corporate Income Tax Act, and the Value Added Tax Act,

- to confirm on the example of "VAT - caterers" that the state authorities when introducing higher tax rates force taxpayers to seek "holes" in legal regulations,
- to investigate how fast the government reacts in some border cases and closes visible undesirable "holes" in legal regulations, especially in the case study "VAT -Caterers ",
- to determinate the assessment of the tax advisers of the legality and equality in tax laws in the specific situation of case study of VAT- caterers.

## 2. THEORETICAL BACKGROUND

Taxes can be defined as "the basic financial means of collecting revenues that modern countries use for expenditures from their jurisdiction" (Jelčić, Lončarić-Horvat, Šimović, Arbutina, Mijatović, 2008, p.81–82). In Croatia, tax revenues and contributions, expressed in GDP, amounted to 37.8 percent in 2017 (EUROSTAT, 2018). The closest to Croatia are Hungary with a 38.4 percent GDP share, Portugal with 36.9 percent, and Slovenia with 36.8 percent, according to the data of the European Statistical Office. The lowest tax revenues, expressed in the GDP share for the year of 2017, were recorded in Ireland with 23.5 percent and in Romania with 25.8 percent.



*Chart 1: State Budget 2018 (Author's)*

The budget for 2018 consists 60.30 % of taxes and 39.70% from other income as shown in the chart no. 1. VAT with 53,45% is one of the most important income in the state budget, profit tax with 6.66% is on the second place and the profit tax and the rest of taxes make up less than 1% of the state budget. Justice as one of the basic principles of the modern socially acceptable tax systems is based on the principle that taxpayers should bear the tax burden in accordance with their economic abilities (ability-to-pay principle). Tax avoidance and tax evasion violate the principle of justice. The main characteristics of tax evasion are illegal activities or direct violation of the legal provisions. The authors (Šimović, Rogić Lugarić, Cindori, 2007) divided causes of tax evasion in accordance with their common characteristics into the following groups: institutional nature, legal nature and social economic nature. In their study Glavina, Prtenjača, (2018) investigate the problem of whether doing business via the so called tax havens is legal or illegal. Sertić (2012, p. 40-41) differentiates between tax avoidance which is a legal action and tax evasion which is illegal, i.e. unlawful. Sertić (2012) considers all tax evasion illegal, the attitude also adopted by the United Kingdom as opposed to the idea that there are

legal and illegal tax evasions (Križanec, 2016). Harel (2014) compares tax evasion with a lottery; the taxpayer decides whether to pay the tax in full or pay a lower amount of tax or not to pay the tax at all and risk being caught and punished and then pay the penalty and the tax that has not been paid. Tax evasion and tax avoidance have the same goal, reduction of taxes. Although the goal is the same, there is still a significant difference between tax evasion and tax avoidance. Tax evasion can be defined as unlawful avoidance of tax payments where the taxpayer acts in violation of legal regulations. On the other hand, tax avoidance is a lawful avoidance of tax payments where the taxpayer uses the so-called "holes" in the legislation respecting tax regulations. That definition of tax avoidance has been used in this paper. Alstads, Johannesen and Zucman (2018) in their paper study the substitution between illegal tax evasion and legal tax avoidance on the example of Norwegian wealthy individuals whose assets previously were hidden in abroad. The taxes paid by these individuals rise 30% at the time of disclosure and that the rise is sustained over time. Their results suggest that cracking down on evasion by the wealthy can be an effective way to raise tax revenue, increase tax progressivity, and ultimately reduce inequality. The paper of Gerxhani (2003) presents the results of a field research conducted from the beginning of April to the middle of May 2000 in Tirana, Albania. It was found that self-employed people are more likely to avoid tax obligations than other employees. The results of the paper Tang, Liu, Liu and Li (2019) can guide the taxation of companies listed on the Chinese market to achieve the full payment of tax obligations by reinforcing managerial power in companies, which improves national taxation and leads to sustained economic growth. Aggressive corporate tax planning means exploiting all possible legal grounds in all parts of the world. World famous multinational companies are well acquainted with and use all legal options to reduce tax burden. Therefore, the European Commission specifically examines the aggressive tax planning of multinational companies through business segregation between several countries, proportionally to the tax burden in individual countries, thus leading to the minimum tax burden on the group. Many countries make special tax arrangements with multinational companies that often go to legally unauthorized areas. Since 1958, Member States are obliged to inform the Commission of any planned state aid and the Commission is responsible for assessing its (non)permissibility. Since 2001, the Commission has carried out a series of investigations of the aid used by only a few companies (application of the principle of unbundled transaction at transfer prices). Some of the investigations disclosed in 2012 were carried out in the USA (Microsoft, Hewlett-Packard and Caterpillar), France (Apple, Google and Facebook Inc.), UK (Amazon, Google and Starbucks). Since then several final decisions were made by which many of the multinational companies have to pay to the state budget of the aforementioned country the taxes in full amount. Some of these final decisions are: 2015: € 20 - 30 million Starbucks - The Netherlands; 2015: € 20 - 30 million Fiat - Luxembourg; 2016: approximately € 700 million 35 MNK - Belgium; 2016: € 13 bn. Apple - Ireland; 2017: about € 250 million Amazon - Luxembourg; 2018: € 120 million Engie - Luxembourg; 2018: 0 € McDonalds - Luxembourg. In the case of McDonald's, which paid only 1.49 percent of the tax in Luxembourg instead of 29 percent, no illegality was found, but it was concluded that the application of a bilateral agreement, aimed at preventing double taxation, enabled double non-taxing. The interpretation of legal provisions (including the International Contract between the USA and Luxembourg) in 2 binding opinions (2009) enabled McDonald's the non-payment of franchise income from the EU, Ukraine and Russia ( $\approx$  1.1 billion euros from 2009 to 2013) like is shown in chart 2.

*Chart following on the next page*



Chart 2: McDonald's and EU (retrieved 26.06.2019. from [http://europa.eu/rapid/press-release\\_IP-15-6221\\_en.htm](http://europa.eu/rapid/press-release_IP-15-6221_en.htm))

European Commission has fined Google €1.49 billion for illegal misuse of its dominant position in the market for the brokering of online search adverts. According to the Commissioner Margrethe Vestager (EU, 2019) „Google has cemented its dominance in online search adverts and shielded itself from competitive pressure by imposing anti-competitive contractual restrictions on third-party websites. This is illegal under EU antitrust rules..” Commissioner Margrethe Vestager in charge of competition policy said (EU, 2019): "Anti-tax avoidance rules are important to ensure that all companies pay their fair share of tax. But they must apply equally to all taxpayers. The UK gave certain multinationals a selective advantage by granting them an unjustified exemption from UK anti-tax avoidance rules. This is illegal under EU State aid rules. The UK must now recover the undue tax benefits." The EU is constantly considering new directives aimed to prevent of avoiding the tax payment. Following the adoption of the COUNCIL DIRECTIVE (EU) 2016/1164 or Anti-Tax Avoidance Directive (ATAD), all EU Member States had to introduce CFC rules in their legislation as of 1 January 2019. In the measures against tax avoidances are implemented the Interest limitation rule and the general anti-abuse rule. In the article 4 ATAD are prescribed that exceeding borrowing costs shall be deductible in the tax period in which they are incurred only up to 30 percent of the taxpayer's earnings before interest, tax, depreciation and amortisation (EBITDA) or to deduct exceeding borrowing costs up to EUR 3 000 000. In article 6 is prescribed general anti-abuse rule. The Member State of a taxpayer shall treat an entity, or a permanent establishment of which the profits are not subject to tax or are exempt from tax in that Member State, as a controlled foreign company where the prescribed conditions are met.

### 3. RESEARCH RESULTS OF TAX AVOIDANCE IN CROATIA

In order to improve the tax system, dis-burden the taxpayers and attract foreign investment, the tax system has been the subject of the tax reform over the last three years. Tax regulations are being coordinated with EU directive. Fourth tax reform for 2020 has been announced. Corporate income tax, income tax and Value Added Tax (VAT) are the subject of the tax reform every year.

### 3.1. Tax Avoidance in tax legislation

The tax avoidance in Croatian tax legislation is researched in Corporate Income Tax Act, Income Tax Act and VAT Act. All tax regulations allow tax avoidance while meeting certain prescribed elements. Corporate Income Tax Act enables tax avoidance through the following:

- reduction of income tax rates from 20% to 18% with introduction and reduction of the 12% rate for all taxpayers with a total revenue up to HRK 3,000,000.00 (€ 400,000.00) since 2017
- business in the area of Vukovar is exempt from the corporate tax and business in the assisted area classified in the I. group by degree of development has a 50% tax exempt.
- the law also prescribes certain exemptions for education and training as well as for research and development activities.
- special regulations prescribe exemptions from the payment of corporate profit tax in proportion to investments and the number of employees.

A classic example of tax avoidance for corporate tax is the establishment of new companies and the separation of the business of a large corporation into several smaller companies that generate a turnover up to HRK 3,000,000.00 and pay taxes at 12% instead of 18%. If we take a company with a total revenue of HRK 9,000,000.00 (€ 1,200,000.00) and a tax base of HRK 900,000.00 (€ 120,000.00) it would have paid corporate tax of 18% or HRK 162,000.00 (€ 21,600). However, if the company separates its business and the owner has three companies instead of one, where each company has a total revenue of HRK 3,000,000.00 (€ 400,000.00) and pays 12% of corporate tax, the total paid corporate tax on the total tax base of HRK 900,000.00 will amount to HRK 108,000.00 (€ 14,400.00), which is HRK 54,000.00 (€ 7,500.00) less. The Income Tax Act enables tax avoidance through the following:

- payment of 50% of the income tax from the employment of employees in the area of Vukovar or in the assisted area classified in the I. group by degree of development, pensioners and war veterans according to the percentage of disability.
- for self-employed activities, exemption from income tax is provided if the activity is performed in the area of the city of Vukovar, or there is a 50% reduction in the tax liability for the business activities in the areas classified in the I. group by degree of development. The law also provides certain exemptions for education and training as well as for research and development activities.
- flat taxation of craft and associated activities.
- flat taxation of rooms and beds renting for travelers and tourists.

The best example in this area is the flat taxation of crafts and associated activities. A physical person who receives permit from a self-employed craft activity can determine the income in the flat taxation. That self-employed can pay flat tax if it is not a VAT taxpayer and did not receive in the previous tax period a total annual revenue which is higher than the amount prescribed for compulsory entry into the VAT system (HRK 300.000,00). This exemption is foreseen only for the activities of crafts are not available for free professions, such as accountant, tax advisor, dentist... However, the definitions of the establishment grounds for a craft differ from city to city or from office to office. And so, it is often the case that one person can build up a bookkeeping business and pay a flat tax in one city, which would be an independent activity in another city, for which bookkeeping and the payment of income tax are prescribed.

Value Added Tax Act enables tax avoidance through the following:

- business of companies without entering the VAT system until they reach HRK 300,000.00 (€ 40,000.00) of turnover.
- outgoing VAT 0% with using normal incoming VAT rate 25%\13%\5%

The companies may voluntarily enter the VAT system irrespective of the threshold of entry, and by force of law since 2019 they must enter the system the following month after fulfilling the requirement of HRK 300,000.00 turnover. However, until 2019, companies could work all year long without entering the VAT system, even if they passed the threshold for entry into the VAT system in March, as they were required to enter the VAT system only from 1.1. of the next year. In the above-mentioned examples in the field of Corporate Income Tax Act, Income Tax Act and VAT Act it is evident that legal regulations in the Republic of Croatia have the possibilities for tax avoidance.

### **3.2. VAT – Caterers case study**

VAT is the most important tax revenue with the largest taxpayer circle (Šimović and Deškar-Škrbić, 2016). Croatia, in addition to having a higher general rate of VAT (European Commission, 2017) compared to the competing tourist countries of the Mediterranean, is not at all favorable in terms of competition nor at the VAT rate in the hospitality industry. Unlike hotel accommodation (13% in Croatia) for which most European countries have a reduced VAT rate (the lowest in Portugal with 6%, and the highest in Hungary's with 18%), the VAT rate in rest of hospitality (restaurants and catering) is much more varied. The situation similar to this in Croatia, where the most recent legal changes in the VAT rate in catering are equal to the general VAT rate of 25%, can be observed only in Greece (24%) and in Malta (18%), while in other competing European and Mediterranean countries the VAT rate in catering is much lower. By studying (Varedi and Ebrahimi, 2015) the relationship between VAT rates and liquidity and profitability, a negative impact of the VAT rate on property and debt management has been proven. The study (Klarić Pisačić and Mladineo, 2017) which dealt with the effects of the reduction of the VAT rate on the liquidity of small and medium-sized catering companies, confirmed the positive effects of reduced VAT rates on several liquidity indicators. In 2017, VAT rate on restaurant and catering services increased from 13% to 25%. The caterers announced that they would not pay tax liabilities. Some have accomplished this, but not in a way that they do not pay tax obligations but have established a new company and have exercised the right not to enter the VAT system in the first year of business. It would not be disputed if some of them would not repeat it in 2018. The government has not yet reduced VAT on catering services, as it is considered that the previous reduction in the VAT rate for a number of reasons did not have the expected effect in the catering industry, but disrupted tax revenues, but 2019 closed the possibility of a non-entrance into the VAT system for the whole business year. Although it is impossible to obtain information on how many caterers have established new companies and thus avoided VAT payments, it still has a significant impact on state revenues, as the Ministry of Finance has published its press release on its website (2018) titled "Aggressive Tax Planning - avoiding the entry into the VAT system", which shows a scheme of intentional exploitation of positive legal regulations with the primary aim of avoiding the entry into the VAT system. In the scheme outlined above it is noted that the common characteristics of the mentioned companies are as follows: they were founded by the same founder - responsible persons, with business activities starting on January 1<sup>st</sup>, they are doing the same business, they continue the business that has been transferred to them by a related company that ran their business in the previous business year, and business activities are carried out by December 31<sup>st</sup> of the same year at the same address in the same business premises, use the same bookkeeping service, use the same funds, the same work force, the same suppliers, and send millions on transactions per transaction account. By the end of the business year or December 31<sup>st</sup>, the business is transferred to the next newly formed company, while the business of the company that ran until December 31<sup>st</sup> in the following business year is reduced to a minimum or is completely stopped. The Tax Administration explains that in these cases it is not about tax evasion, but about the so-called "aggressive tax planning" that is not in the

"spirit of law" because legal solutions are used for purposes that the legislator did not foresee. From all the above-mentioned and "VAT- caterers" case it can be concluded that the state authorities, introducing higher tax rates, force taxpayers to seek "holes" in the legal regulations.

### **3.3. Tax advisers assessment**

Tax advisers responded through interviews and questionnaires. Out of a total of 72 tax advisers in Croatia, 46% of them have filled out questionnaires. All of them agreed that the tax avoidance is required in legal regulations to encourage economic development, but that the tax administration should look after the lawfulness of exploitation and use the available law institutes in cases of misuse. Regarding the "VAT- caterers" case everyone agrees that the law enables all taxpayers and caterers to build a new company that does not have to enter the VAT system until the legal threshold is met in compliance with legal regulations. However, if the same story repeats from year to year, the same owners, the same activity, there is already a risk of tax evasion. In this case, the tax authorities are to prove the illegality of establishing new companies in order to avoid paying taxes. When asked whether the caterers were right when they founded new companies only not to pay VAT, only 15.15% answered that they were, 72.73% that they were not, and 12.12% answered they were for the first year, but not for the second year of business. The question here was not about lawfulness but about fairness and equality for all taxpayers. The second question was whether VAT on catering services should be 13%. 36.36% of tax advisers answered that it should be, 45.45% that there should be a regular rate, 15.15% that the entry and exit rate of VAT should be the same, and 3.03% that it should be 13% on food preparation services. Today caterers have different rates of input and output VAT, whose relationship is currently unfavorable to them and results in tax liabilities. Output VAT is 25% and input VAT depending on the specific menu may contain rates of 5%, 13% and 25%. Especially since this year, the rate of fresh meat, fish, fruits and vegetables decreased from 25% to 13%, which could result in more frozen ingredients in meals instead of fresh ones. Before increasing the rates from 13% to 25%, the caterers had a reverse situation. Output VAT was 13% and input VAT on most ingredients was 25%, and they were entitled to VAT refunds. The third question is whether the tax administration should immediately close the tax holes because the caterers announced it, and not wait two years. 71.87% of tax advisers answered that the tax administration should promptly respond and introduce the entry into the VAT system from the next month when the threshold for entry was met, and 28.13% responded that the tax administration did not have to respond because only legal means were used. The general attitude of tax advisers is that in situations where tax burdens are big taxpayers are forced to seek and exploit legal "holes", but that taxpayers still have to keep in mind legality, and that taxation is determined according to their economic nature (Article 11 of the General Tax Code). The burden of proof and use of a legitimate business lies on the tax administration, and if a legitimate business conceals some other business, then the basis for the determination of the tax liability is the undercover legal business (Article 12 of the General Tax Code), which enables timely response for the prevention of misuse.

### **4. CONCLUSION**

This paper did not consider tax evasion what is a far more serious problem for tax authorities than tax avoidance. It is necessary to distinguish tax evasion from tax avoiding or diminishing tax payments or tax planning. The basic characteristic of tax evasion is the illegal activity, contrary to legal provisions, and is subject to prescribed sanctions. Tax avoidance is the use of legal "holes" for the purpose of non-payment or less tax payment. Sometimes we may wonder who needs tax evasion when some legal regulations have too many "holes" to exploit. The research has shown on the examples of the Corporate Income Tax Act, the Income Tax Act, and the Value Added Tax Act, that legal regulations enable non-payment of taxes.

Likewise, the "VAT- caterers" case has shown that the increase in tax rates may force taxpayers to use tax "holes". Although tax advisers agree that in the "VAT-caterers" case, caterers did not act against the law by establishing a new company and not entering in the VAT system, it is necessary to keep in mind the thin line in the legal regulations between the use of opportunities and evasion of tax liabilities. Tax advisers emphasized that the tax authorities are responsible for the state budget as well as for the closure of the tax "holes", which used contrary to the original legislation. This research has shown that there are opportunities for tax avoidance within a country, not just in bilateral or multilateral agreements. Tax evasion, which was not the subject of this paper, is one of the topics for further research. Stability of the tax system provides security and stability to taxpayers and thus security of the state budget revenues.

## LITERATURE:

1. Alstads, A., Johannesen, N., Zucman, G. (2018). *Tax Evasion and Tax Avoidance*, Retrieved 22.6.2019 from <https://scholar.google.com>
2. COUNCIL DIRECTIVE (EU) 2016/1164
3. EUROSTAT (2018) Retrieved 24.6.2019 from <https://ec.europa.eu/eurostat/publications/leaflets>
4. European Commission (2019). *Press Release Data*, Brussell, Retrieved 24.6.2019. form <http://europa.eu/rapid/press-release>
5. Euroean Commission (2018). McDonald's, Retrieved 26.6.2019. from [http://europa.eu/rapid/press-release\\_IP-15-6221\\_en.htm](http://europa.eu/rapid/press-release_IP-15-6221_en.htm)
6. Gerxhani, K.(2003). *Porezna evazija u Albaniji: Institucionalni Vakuum*, Institute for Advanced Labour Studies, *Financijska teorija i praksa* 27 (1) UDK: 336.2.04(496.5), str. 55-82
7. Glavina, D., Dragičević Prtenjača, M., (2017). *Kazneno djelo utaje poreza kao oblik porezne evazije s posebnim osvrtom na poslovanje preko poreznih utočišta*. Godišnjak Akademije pravnih znanosti Hrvatske, vol. IX, 1/2018.
8. Harel, A., (2014). *The Contribution of Garry Becker u Foundational Texts in Modern Criminal Law*, ur. Dubber, Markus D., Oxford: Oxford University Press, Retrieved 20.8.2018. from <https://books.google.hr/books?id=y89LBAAQBAJ&pg=PA313&lpg=PA313&dq=tax+evasion+texts&source=bl&ots=V-iF8GStFs&sig=k7q2udtmswKIU1Y2eLHtrZUrt-NQ&hl=hr&sa=X&ved=0ahUKEwi9886mnffWAhXJb1AKHTHWCHcQ6AEIRTA-G#v=onepage&q=tax%20evasion%20texts&f=false>
9. Jelčić, B.; Lončarić-Horvat, O.; Šimović, J., Arbutina, H., Mijatović, N. (2008). *Financijsko pravo i financijska znanost*. Narodne novine.
10. Klarić Pisačić, M., Mladineo, L. (2017) *Changes in VAT Rate and Liquidity Indicators in Hospitality and Catering Industry. Conference Proceedings of the 8th International Scientific Conference "Future World by 2050"*, 1st-3rd June 2017, Pula, Croatia, str. 255-273.
11. Križanec, J. (2016). *Porezna evazija*. Institut pravo/finansije.
12. Ministry of Finance. (2018). *Aggressive Tax Planning - avoiding the entry into the VAT system*. Retrived, 25.11.2018. from <https://www.porezna-uprava.hr>
13. Opći porezni zakon, Official Gazette no. 115\16, 105\18
14. Sertić, A., (2012). *Porezne oaze: međunarodno izbjegavanje plaćanja poreza i porezna evazija*. Porezni vjesnik 5.
15. Šimović, H. i Deskar-Škrbić, M. (2016). *Efficiency of value added tax in Croatia*. *Ekonomija/Economics*, 22(2), 409-426.

16. Šimović, J., Rogić Lugarić, T., Cindori, S. (2007). *Utaja poreza u Republici Hrvatskoj i mjere za njeno sprečavanje*, Hrvatski ljetopis za kazneno pravo i praksu (Zagreb), vol. 14, broj 2, str. 591-617.
17. Tang, Y., Liu Y, Liu, J. and Li, W.(2019). *Does More Managerial Power Impede or Promote Corporate Tax Avoidance? Evidence from Listed Chinese Companies*, *Sustainability*, 11, 1914; doi:10.3390/su11071914, Retrieved 24.6.2019. from [www.mdpi.com/journal/sustainability](http://www.mdpi.com/journal/sustainability)
18. Varedi, S. S. i Ebrahimi, H. (2015). *The examination of the effect of value added tax on financial ratios of companies operating in Tehran Stock Exchange*. *Australian Journal of International Social Research*, 1(3), 116-127.
19. Zakon o porez na dobit , Official Gazette no. 177/04, 90/05, 57/06, 146/08, 80/10, 22/12, 148/13, 143/14, 50/16, 115/16, 106/18)
20. Zakon o porezu na dodanu vrijednost, Official Gazette no. 73/13, 148/13,143/14, 115/16, 106/18; *Rješenje USRH* 99/13, 153/13)
21. Zakon o porezu na dohodak, Official Gazette no. 115\16, 106\18

## AUDITOR'S ASSESSMENT OF GOING CONCERN ASSUMPTION THROUGH BANKRUPTCY PREDICTION MODELS

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### ABSTRACT

*One of the most relevant judgments the auditors express when auditing a company is whether this company can be considered as going concern. International auditing standards do not explicitly prescribe which analytical procedures should be used for that purpose but bankruptcy prediction models have proven useful according to relevant international literature. In this paper we investigate the auditor's assessment of going concern in order to assess the efficacy of Altman's and Zmijewski's prognostic models for predicting the going concern basis. The research is based on a sample of financially unstable companies in the Republic of Croatia that operated at loss in the observed period. The research sample was stratified into two groups, the first which consists of unstable companies assessed as going concern by the auditor (GC companies), whereas the other group is formed of unstable companies that the auditor assessed as those that would not operate as going concern (GCU companies). Using a one-way Mann – Whitney - Wilcoxon test, it was determined that Altman's and Zmijewski's score have statistically significantly higher (more favourable) value for the unstable companies which auditor assessed as going concern than for unstable companies which the auditor assessed as not being able to continue as going concern. We can conclude that statistical analysis performed on our sample of Croatian companies is in favour of the commonly accepted fact that bankruptcy models are appropriate classifiers of companies and can be used to assess going concern for financially unstable companies.*

**Keywords:** Auditor going concern assessment, Bankruptcy prediction models, Going concern assumption

### 1. INTRODUCTION

Going concern is a basic assumption of accounting theory and practice. In the Republic of Croatia, the application of going concern assumption is prescribed by Croatian Financial Reporting Standards and International Financial Reporting Standards. According to the above mentioned standards, the going concern assumption is applicable if the management of the enterprise has no intention or need to liquidate or substantially reduce the scope of its business. Otherwise, financial statements should be compiled on a different accounting basis. In accordance with accounting standards, the applicability of the going concern assumption in financial statements must be assessed by the company management, whereas, based on International Auditing Standard (ISA) 570, the auditor has to assess the truth and the objectivity of the management's evaluation. If the auditor, when performing an audit, determines that there is "substantial doubt" that an entity can exist through the "forward-looking period," after considering any plan by management to address this issue, a going concern emphasis or

explanatory paragraph (or qualification) will be required in the auditor's report. "Though this assumption is conceptually easy to articulate, it is often extremely difficult to determine when an entity's continuing existence is in such doubt that management needs to disclose that possibility in a note to its financial statements, and its auditors need to modify their report to acknowledge that risk" (Eickemeyer & Love, 2016). There also exists the very real possibility of creating a "self-fulfilling prophecy" when questioning an entity's ability to continue to operate into the future" (Pryor and Terza, 2002). Such a disclosure can hasten the entity's demise by impairing its ability to obtain credit, in turn causing current and potential customers to hesitate to enter into transactions with it. The end result can be that the entity must dispose of its operating assets outside the normal course of business to meet its obligations, eventually causing it to go out of business. The interest of the professional and expert public in the auditor's going concern assessment has been prompted by numerous accounting scandals which led to doubt in audited financial statements. Auditor's going concern assessment represents one of the most relevant judgments the auditors express, as it is able to affect both the equity markets (Blay et al., 2011) and the investors' behavior (Menon, Williams, 2010). International Standard on Auditing (ISA) 570 is the current authoritative guidance available to help auditors assess the going concern issue. Even though ISA 570 does not set forth analytical procedures that auditors should use in their evaluation of the going concern issue, bankruptcy prediction models have been linked to this evaluation (Altman, 1974; Hopwood et al., 1994; Koh, 1991; Kuruppu et al., 2003). „Failure-prediction models that attempt to predict business failures on the basis of financial ratios can give valuable insight into the expected continuity of firms and therefore supplement the auditor's subjective evaluation“(Koh and Killough, 1990). The Studies have also shown that companies with high probability of bankruptcy receive more opinions in which auditor expressed doubts about business continuity than companies with low probability of bankruptcy (McKeown et al., 1991; Carcello et al., 2003). „Although the going concern assessment is made in a complex setting, it would seem logical that auditors would be motivated to modify the audit opinions of clients that are at a high risk of failure, given the substantial costs associated with going concern misclassification“ (Kuruppu et al., 2012). Lennox and Kausar (2017) shown that auditors are more conservative when they face greater estimation risk. In particular, "auditors are more likely to issue opinions with expressed doubts about business continuity, are more likely to resign, and charge higher audit fees when the standard errors surrounding the point estimates of bankruptcy are larger" (Lennox and Kausar, 2017). Altman and McGough (1974) suggested that bankruptcy prediction models may help auditors judge companies' abilities to continue as a going concerns by alerting auditors to certain problems that may be difficult to detect using traditional auditing procedures. In spite of this recommendation Zenzerović (2007) shows that bankruptcy prediction models are neglected to a considerable extent as analytical procedure among Croatian auditors. The significant majority of auditors in the Republic of Croatia still largely rely on financial ratios for the implementation of analytical procedures in the process of assessing going concern. Žager et al. (2008) have specified the role of financial ratios in the auditor's assessment of going concern. Taking the above stated into consideration the main objective of this paper is to investigate whether bankruptcy prediction models which have been recognized as relevant in the international literature are appropriate to use when an auditor evaluates going concern assumption for companies operating in the Republic of Croatia, which would be important objective addition to auditor's assessment.

## **2. METHODS OF RESEARCH**

This section explains the methodology employed to evaluate the usefulness of the Altman's and Zmijewski's models as audit tools in going concern assessments. Specifically, the models and the research implementation process are discussed as well as the tests used to evaluate the

hypotheses. Since an auditor can evaluate going concern of profitable companies relatively easily, the research aims at the evaluation of going concern for financially unstable companies. In our research a company is considered as unstable if it has generated loss in doing business. The research implementation process consists of:

- investigating auditors' opinions which have been issued to unstable companies in the context of going concern,
- depending on the auditor's going concern opinion, dividing the observed sample into two groups: the first which consists of unstable companies assessed as going concern by the auditor (GC companies), whereas the other group is formed of unstable companies that the auditor assessed as those that would not operate as going concern (GCU companies)
- with use a one-way Mann – Whitney - Wilcoxon test to determine whether there are statistically significantly differences in the financial stability between the observed groups

The general assumption in the hypotheses is that the financial stability of unstable companies which the auditor assessed as going concern is significantly better than of the unstable companies which the auditor assessed as not being able to continue as going concern. Altman's and Zmijewski's score are used to determine the financial stability. If results show that between the observed groups of unstable companies there are statistically significantly differences in financial stability, it can be concluded that observed prognostic models efficiently separate the observed group of unstable companies. Additionally, by confirming the hypotheses, it contributes to the development of analytical procedures in auditor's assessing the going concern basis of unstable companies. Bankruptcy prediction models which are used in this paper are Altman's and Zmijewski's models for predicting bankruptcy. The stated models have proved useful when evaluating going concern and have been chosen for this paper after studying relevant literature. Altman's bankruptcy model was used to evaluate going concern by Haron (2009), Wertheim and Fowler (2005), Pendly (1998) whereas Zmijewski's model was used to evaluate going concern by the following researchers: Sundgren and Svanstrom (2014), Arnedo et al. (2008), Robinson (2008), Krishnan and Sengupta (2011). Although this literature shows that corporate failure models can contribute to improving auditors going concern evaluation, their practical value for evaluating going concern has not been studied enough (Kuruppu et al., 2012). That is why we are going to concentrate on using both models in researching if there are significant differences between unstable companies that cannot continue as a going concern (GCU companies) and unstable companies that can continue as a going concern (GC companies).

## 2.1. Altman's model

In year 1968 Altman developed his known Z-score model for publicly traded companies using multiple discriminant analysis methodology. Later he revised the model so that Z'-score model can be used for private companies (Altman, 2000):

$$Z' = 0,717X_1 + 0,847X_2 + 3,107X_3 + 0,420X_4 + 0,998X_5 \quad (1)$$

where  $X_1$ = working capital/total assets,  
 $X_2$ = retained earnings/total assets,  
 $X_3$ = earnings before interest and taxes/total assets,  
 $X_4$ = book value of equity/book value of total liabilities, and  
 $X_5$ = sales/total assets

The cut-off rules are the following:

$Z' < 1,23$  = Zone I (no errors in bankruptcy classification)

$Z' > 2,90$  = Zone II (no errors in non-bankruptcy classification)

Gray area or zone of ignorance (possibility of misclassification) = 1,23 to 2,90. Variable  $X_2$  is calculated as retained earnings/total assets. In the USA retained earnings consist of beginning retained earnings plus net income (or minus any net losses) and minus any dividends paid to shareholders. We calculated the numerator of variable  $X_2$  as retained earnings (Croatian interpretation) or previous years' losses (losses being a negative number) plus current year net profit or loss (loss being a negative number). „Even though the Z-Score model was developed more than 45 years ago and many alternative failure prediction models exist, the Z-Score model continues to be used worldwide as a main or supporting tool for bankruptcy or financial distress prediction and analysis both in research and in practice “(Altman et al. 2016, p.134).

## 2.2. Zmijewski's model

Zmijewski (1984) developed a logistic regression function to estimate the financial condition of a company. For model development he used 40 bankrupt companies and 800 companies that were operating. Zmijewski uses three variables that are most commonly used in previous bankruptcy predicting models, and the model is as follows:

$$Zm = -4,336 - 4,5131X_6 + 5,679X_7 - 0,004X_8 \quad (2)$$

where  $X_6$  = net income/total assets,  
 $X_7$  = total debt/total assets  
 $X_8$  = current assets/current liabilities.

The cut-off rules are as follows:

- if a probability is greater than 0,5 then the firm is classified as bankrupt
- if a probability is smaller than 0,5 then the firm is classified as non-bankrupt
- It is a probabilistic model where the  $Zm$  result is used to calculate the probability of a firm's bankruptcy.

## 3. RESEARCH AND ANALYSIS

The objective of this paper is to investigate whether above mentioned bankruptcy prediction models could be used when an auditor evaluates going concern for Croatian companies being audited. The previous studies indicate that statistical models could assist auditors in forming more accurate going concern judgments (see Altman, 1974; Hopwood et al., 1994; Koh, 1991; Kuruppu et al., 2012). Taking the above stated into consideration we expect that the financial stability of companies that cannot continue as a going concern (GCU companies) is significantly worse than of those companies that can continue as a going concern (GC companies) and that bankruptcy models will confirm this. Taking into account our research objective the following hypotheses will be examined:

- **H1:** There is a difference in Altman's  $Z'$  score between unstable companies which the auditor assessed as going concern (GC companies) and unstable companies which the auditor assessed as not being able to continue as going concern (GCU companies).
- **H2:** There is a difference in Zmijewski's model result between unstable companies which the auditor assessed as going concern (GC companies) and unstable companies which the auditor assessed as not being able to continue as going concern (GCU companies).

The presumption in hypotheses is that financial stability tested by Altman's  $Z'$  score and Zmijewski's model differs greatly between unstable companies which the auditor assessed as going concern (GC companies) and unstable companies which the auditor assessed as not being able to continue as going concern (GCU companies). Our sample is based on medium – sized Croatian companies in manufacturing industry.

Consistent with prior studies, only manufacturing companies are included in the sample to keep the financial ratios comparable across sample companies (Mutchler, 1985; Behn et al., 2001). The year of observation is 2014. For the sample we chose only financially unstable companies. We define unstable company as a company which has generated loss in doing business. Finally, the total sample consists of 41 companies which are divided into two subsamples: the first subsample consists of 20 unstable companies which the auditor assessed as going concern (GC companies) and the second one of 21 unstable companies which the auditor assessed as not being able to continue as going concern (GCU companies). We used statistical program R for descriptive statistics and hypotheses testing.

### 3.1. Statistical analysis and findings

Descriptive statistics for each subsample are presented in Tables 1 and 2. Since both Altman's Z' score and Zmijewski model result in numeric value, central tendency and variability can be expressed in terms of mean, median and standard deviation. These measures, as well as the minimum and maximum values for the Altman's Z' score are listed in Table 1.

*Table 1: Altman's Z score measures of central tendency and variability for sample*

	N	Mean	SD	Min	Median	Max
GC companies	21	1,78	2,01	-0,31	1,19	8,89
GCU companies	20	-0,28	1,82	-7,06	0,09	2,16
overall	41	0,774	2,16	-7,06	0,54	8,89

From Table 1 it is clearly visible that companies which the auditor assessed as going concern (GC companies) have on average a higher (more favourable) value of Altman's Z' score ( $1,78 \pm 2,01$ ) than the companies which the auditor assessed as not being able to continue as going concern ( $-0,28 \pm 1,82$ ). Whether this difference in the value is statistically significant, is to be determined with statistical tests. On average, GC companies are in the grey zone (possibility of error in classification) while GCU companies are classified as a bankrupt. For Zmijewski's model, measures of central tendency and variability are listed in Table 2.

*Table 2: Zmijewski's model measures of central tendency and variability for sample*

	N	Mean	SD	Min	Median	Max
GC companies	21	0,40	0,32	0,02	0,35	0,97
GCU companies	20	0,72	0,31	0,04	0,85	1,00
overall	41	0,56	0,35	0,02	0,53	1,00

Companies which the auditor assessed as going concern (GC companies) on average have a lower (more favourable) Zmijewski model value ( $0,40 \pm 0,32$ ) than the companies which the auditor assessed as not being able to continue as going concern ( $0,72 \pm 0,31$ ). On average GC companies have 40% probability of bankruptcy, while GCU companies 72%. Taking into consideration that results of descriptive statistic confirm the difference in the financial stability between observed groups we tested if this differences are statistically significant. We start from hypotheses H1 and H2 from section 3 and in both cases, using firstly Altman's Z' score (H1) and then Zmijewski's result (H2), test the null hypothesis which states:

- **H<sub>0</sub>:** there is no statistically significant difference between unstable companies which the auditor assessed as going concern (GC companies) and unstable companies which the auditor assessed as not being able to continue as going concern (GCU companies).

To determine the statistically significant differences in average values of two groups (of companies) several statistical tests can be performed, the most common being Student's t-test. Since the sample needs to satisfy certain assumptions, firstly these assumptions were checked. The results show that the sample doesn't satisfy the conditions needed to perform Student's t-test (in specific, data in the sample don't follow a normal distribution) so we switched to non-parametric tests which have less rigid assumptions. For our analysis, Mann-Whitney U test (also called Mann-Whitney-Wilcoxon or Wilcoxon rank-sum test) was used. One-sided tests (with well-defined alternative hypothesis for both models) were performed. Significance level of  $\alpha=0,05$  was used. In Table 3 medians of Altman's Z' score for two groups of companies are given, as well as the value of W statistic and p-value.

*Table 3: One-sided Mann-Whitney U test for Altman's Z' score*

	N	Median	W	p-value
GC companies	21	1,19	353	$4,73 \times 10^{-5}$
GCU companies	20	0,09		

From the test results, we can reject the null hypothesis which states that there is no statistically significant difference between unstable companies which the auditor assessed as going concern (GC companies) and unstable companies which the auditor assessed as not being able to continue as going concern (GCU companies) using Altman's Z' score ( $p < 0,05$ ). Thus, there is no reason to doubt that Altman's Z' score has statistically significantly higher (more favourable) value for the GC companies than for the GCU companies. The same procedure was performed for Zmijewski's model and Table 4 lists the medians, W statistic and p-value of Mann-Whitney U test.

*Table 4: One-sided Mann-Whitney U test for Zmijewski's model*

	N	Median	W	p-value
GC companies	21	0,35	87	$6,94 \times 10^{-4}$
GCU companies	20	0,85		

Again, from the test results, we can reject the null hypothesis which states that there is no difference between unstable companies which the auditor assessed as going concern (GC companies) and unstable companies which the auditor assessed as not being able to continue as going concern (GCU companies) using Zmijewski's result ( $p < 0,05$ ). Thus, there is no reason to doubt that Zmijewski's result has statistically significantly lower (more favourable) value for the GC companies than for the GCU companies.

#### 4. CONCLUSION

Predicting bankruptcy is a challenging task since it involves predicting future events on the basis of present information. Due to that fact different prognostic models have proved useful for potential investor in their decision-making process. Considering that they generally do not have enough knowledge and information to conduct such complex tasks, this responsibility is usually entrusted to auditor. Although predicting bankruptcy is not their primary responsibility, auditors have to consider the client's ability to continue as a going concern in the context of true and fair presentation of financial statements. Auditor's assessment of going concern is a delicate work because of the effect that such information has on numerous participants.

Conservative interpretation of facts and excessive caution may additionally endanger the survival prospects of companies that are already unstable. On the other hand, failure to notice early signs of financial distress and to issue a warning may be interpreted as poor performance of the assigned experts. Current authoritative guidance available to help auditors assess the going concern issue is International Standard on Auditing (ISA) 570. Even though ISA 570 does not set forth analytical procedures that auditors should use in their assessment of the going concern, in the literature bankruptcy prediction models have been recommended for this evaluation. Due to the results of research conducted in Republic of Croatia (Zenzerović, 2007) it has been showed that Croatian auditors rarely used bankruptcy prediction models as an analytical procedure in going concern assessment. Taking the above stated into consideration the main objective of this paper was to investigate whether Altman's and Zmijewski's bankruptcy prediction models (which have been recognized as relevant in the international literature) are appropriate to use when an auditor evaluates going concern assumption for unstable companies which operate in the Republic of Croatia. The general assumption in this paper was that the financial stability of unstable companies which the auditor assessed as going concern (GC companies) is significantly better than of the unstable companies which the auditor assessed as not being able to continue as going concern (GCU companies). Additionally, by comparing seemingly similar groups of companies which share the same feature, namely loss, but according to the auditor's going concern assessment have significantly different destinies, the effectiveness of above mentioned prognostic models in going concern evaluation was indirectly examined. To summarize our findings, we can conclude that statistical analysis performed on our sample of Croatian companies is in favour of the commonly accepted fact that bankruptcy models are appropriate classifiers of companies and can be used to assess going concern for financially unstable companies. We used internationally recognized Altman's and Zmijewski's model. Therefore, auditors in Croatia should use these models to confirm or deny their assessment of going concern assumption. If the results of auditor's opinion and bankruptcy prediction model differ, it calls for further investigation of circumstances the company faces and might finally lead to a change in auditor's classification.

## LITERATURE:

1. Altman, E.I. & McGough, T.P. (1974). Evaluation of a company as a going concern. *Journal of Accountancy*, 138/1974/6, p.51-57
2. Altman, E.I. (2000). Predicting Financial Distress of Companies: Revisiting The Z-Score and ZETA Models. Retrieved from <http://pages.stern.nyu.edu/~ealtman/PredFnclDistr.pdf>, accessed: May 19<sup>th</sup>, 2016
3. Arnedo, L., Lizarraga, F. & Sanchez, S. (2008). Going concern Uncertainties in Pre - bankrupt Audit Reports: New Evidence Regarding Discretionary Accruals and wording ambiguity. *International Journal of Auditing*, 12, p. 25-44
4. Behn, K., Kaplan, S. E. & Krumwiede, K. R. (2001). Further Evidence on the Auditor's Going-Concern Report: The Influence of Management Plan. *Auditing: A Journal of Practice and Theory*, Vol. 20, No. 1, pp. 13-28.
5. Blay, A. D., Geiger, M. A., & North, D. S. (2011). The auditor's going-concern opinion as a communication of risk. *Auditing: A Journal of Practice & Theory*, 30(2), 77-102.
6. Carcello, J. V., Hermanson, D. R., & Neal, T. L. (2003). Auditor reporting behavior when GAAS lack specificity: the case of SAS No. 59. *Journal of Accounting and Public Policy*, 22(1), 63-81.
7. Eickemeyer, J., & Love, V. (2016). The concerns with going concern. *The CPA Journal*, 86(1), 6.
8. Haron, H., Hartadi, B., Ansari, M., Ismail, I. (2009). Factors influencing Auditors' going concern opinion. *Asian Academy of Management Journal*, 14/1/2009, p. 1-19

9. Hopwood, W., McKeown, J.C. Mutchler, J.F. (1994). A reexamination of auditor versus model accuracy within the context of the going-concern opinion decision. *Contemporary Accounting Research*, 10 (2), p. 409–431
10. Koh, H.C. & Brown, R.M. (1991). Probit Prediction of Going and Non-going Concerns. *Managerial Auditing Journal*, 6 (3), p.18-23
11. Koh, H. C. & Killough, L. N. (1990). The use of multiple discriminant analysis in the assessment of the going concern status of an audit client. *Journal of Business Finance & Accounting*, (Spring): 179-192.
12. Krishnan, G.V. & Sengupta, P. (2011). How do Auditors Perceive Recognized vs. Disclosed Lease and Pension Obligations? Evidence from Fees and Going – concern opinions. *International Journal of Auditing* 15, p. 127-149
13. Kuruppu, N., Laswad, F., Oyeler, P. (2003). The efficacy of liquidation and bankruptcy prediction models for assessing going concern. *Managerial Auditing Journal* 18/2003/6/7, p. 577-590
14. Kuruppu, N., Laswad, F., Oyeler, P. (2012). Assessing going concern: The practical value of corporate failure models and auditors' perceptions. *Pacific Accounting Review* 24 (1), 33-50
15. Lennox, C. S., & Kausar, A. (2017). Estimation risk and auditor conservatism. *Review of Accounting Studies*, 22(1), 185-216.
16. McKeown, J. C., Mutchler, J. F., & Hopwood, W. (1991). Towards an explanation of auditor failure to modify the audit opinions of bankrupt companies. *Auditing-A Journal Of Practice & Theory*, 10, 1-13.
17. Menon, K. & Williams, D. D. (2010). Investor reaction to going concern audit reports. *The Accounting Review* 85 (6): 2075–2105.
18. Mutchler, J. (1985). A multivariate analysis of auditor's going-concern opinion decision. *Journal of Accounting Research* 23(2): p.668-682
19. Pendley, J. A. (1998). Industry specialization in the auditors' going concern opinion decision. *Accounting Enquiries*, Vol. 7, No.2; 155-200
20. Pryor, C. & Terza, J. (2002). Are going concern audit opinions a self-fulfilling prophecy? *Advances in Quantitative Analysis of Finance and Accounting* 10: 89–116.
21. Robinson, D. (2008). Auditor Independence and Auditor – Provided Tax Service: Evidence from Going – Concern Audit Opinions Prior to Bankruptcy Filings. *Auditing: A Journal of Practice & Theory*, Vol.27/2, p. 51-54
22. Sundgren, S. & Svanström, T. (2014). Auditor-in-Charge Characteristics and Going-concern Reporting. *Contemporary Accounting Research*, 31: 531–550
23. Wertheim, P., & Fowler, W. E. (2005). Audit firm differences in the issuance of going concern opinions prior to client bankruptcy. *Journal of Accounting and Finance Research*, 13(5), 93-109.
24. Zenzerović, R. (2007). Analitički postupci–instrument revizora u ocjeni vremenske neograničenosti poslovanja. *Ekonomika istraživanja*, 20(2), 62-75.
25. Zmijewski, M. E. (1984). Methodological issues related to the estimation of financial distress prediction models. *Journal of Accounting research*, 59-82.
26. Žager, K., Sačer, I. M., Sever, S., & Žager, L. (2008). *Analiza financijskih izvještaja*. Masmedia.

## FINANCIAL RATIOS BENCHMARKS – AVERAGE OF INDUSTRY OR SOME OTHER MEASURE?

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### ABSTRACT

*Financial ratios analysis is extensively used in practice as well as in empirical academic research. Moreover, it is common in most countries to issue statistical data about selected financial ratios by industries. Financial performance of a specific company based on financial ratios is very often assessed related to some benchmark. The mostly known benchmark measure for any financial ratio is industry average but even it could be calculated in two alternative ways. Beside industry averages, there are examples of different approaches to ratios statistics. In our paper we firstly investigate what measures are most often used as benchmarks, what are available alternatives and which are advantages and disadvantages of their use. We investigate that by means of hypothetical examples of current ratio. Then, we test different benchmark measures for current ratio on a sample of firms to analyze their effect on the performance rank of a single firm based on a specific benchmark measure. Finally, we give recommendations about the use of benchmark measures.*

**Keywords:** *Benchmark ratios, Financial analysis, Financial ratios, Financial statements*

### 1. INTRODUCTION

Financial ratios analysis is widely used among the practitioners as well as among researchers. Many empirical studies use financial ratios to assess the performance of companies. Obviously, some benchmark is needed and that raises the question: with what to compare the ratios of individual companies in the sample? Since it is common in most countries to issue statistical data about selected financial ratios by industries, so called industrial averages are very often used. However, we question the usefulness of industrial averages. It is important to notice that there are two different ways of calculating industrial averages used. Some calculate industry averages by using cumulative figures (e.g. industrial average for current ratio = cumulative current assets / cumulative short-term liabilities), some use a simple average of individual firms' indicators. Usually, there are no explanations as to why is the average calculated the one way or another. For example, Damodaran uses the first variant: For many of the ratios, estimated on a sector basis, we used the cumulated values for the sector. As an example, the PE ratio for the sector is not a simple average of the PE ratios of individual firms in the sector. Instead, it is obtained by dividing the cumulated net income for the sector (obtained by adding up the net income of each firm in the sector) by the cumulated market value of equity of firm in the sector (obtained by adding up the market values of all of the firms in the sector). What to us seems to be the motive for the first method is its simplicity. Troy (2008) in his Almanac Of Business and Industrial Financial Ratios also uses first variant when calculating sectoral indicators. Lev (1969) explored if firms adjust their financial ratios to some target ratios represented in his

paper by industry averages. In calculating industry averages he used the second variant: ... requirement which restricts the sample to large industries was imposed so that the industry mean would not be sensitive to the individual ratios which are used to compute the mean. In the case of large industries, the effect of any firm's ratio on the mean is negligible, and the latter may be regarded as an exogenous variable to the firm. Frecka & Lee (1983) in their study how firms adjust their financial ratios also use as target ratios industry groups averages computed as arithmetic means of individual ratios. Jiang et al. (2016) in their study of working capital management on a sample of Australian firms calculated both means and medians of current ratios and found that the average firm has the current ratio 9,046 while median firm 2,004. This vast difference suggests that for benchmarking purposes current ratio of an average firm would be difficult to use in order to produce meaningful conclusions about some individual firm current ratio. Brigham & Ehrhardt (2017) clearly state that ratio analysis involves comparisons, either with some industry averages or even better with smaller set of companies, and those companies who aspire to high level performance would not use industry averages. US National Association of Certified Valuators and Analysts (NACVA) in giving tips regarding industry benchmark comparison clearly states that in most situations using medians and interquartile range instead of industry averages gives more credible information, since medians and interquartile range exclude outliers. Additionally, saying that a company is below or above average, which is common when industry average is used, is too vague for assessing performance which will be shown on our examples in the following chapters. Croatian Financial agency regularly issues financial results analyses of Croatian entrepreneurs by counties which encompasses the calculation of some financial ratios like ROA, ROE etc. using cumulative numbers on the county level i.e. producing county averages (Fabrični & Škara, 2016). Their intention is to enable comparison among the counties but taking into consideration what was said in the previous paragraph, these numbers should be used with great caution. They should definitely not be used as benchmarks when individual company's performance is assessed. The example of what NACVA proposes is applied on New Zealand since they do not use industry averages as benchmarks but median and interquartile range (Business Performance Benchmark). The rest of the paper is organized as follows: in chapter two we use hypothetical examples of calculating current ratio to show how differently selected average benchmarks affect the assessment of company's performance, in chapter three we discuss the results of real example introducing the alternative to average as a benchmark, and the chapter four concludes with recommendations about what to choose for the benchmark.

## 2. HYPOTHETICAL EXAMPLES OF CURRENT RATIO AVERAGE CALCULATION

In this chapter we use hypothetical examples to calculate/express benchmark average ratios against which the individual company's ratios will be evaluated. To compare the results of different approaches we use example of current ratio. We examine three different scenarios, all of them based on the set of 10 companies.

### 2.1. Example 1

There are 10 companies, different in the size of current assets and/or current liabilities. Table 1 shows the individual firms' data.

*Table 1: Current assets, current liabilities and current ratios of individual firms (example 1)*

Firm	1	2	3	4	5	6	7	8	9	10	Sum	Average	ST. dev.
Current assets (CA)	100	250	500	750	500	100	250	500	750	1000	4.700	470	284,7806173
Current liabilities (CL)	200	500	1000	1500	2000	25	125	250	375	500	6.475	647,5	617,8035691
Current ratio=CA/CL	0,5	0,5	0,5	0,5	0,25	4	2	2	2	2	14,25	<b>1,425</b>	<b>1,1294357</b>

Firms 1-4 have the same current ratios of 0,5 and firm 7-10 have the same current ratio of 2. One firm has CR 4 and one CR 0,25. To compare the companies, we use:

- I. Average of individual current ratios
- II. Average CR (i.e. weighted average CR: CL as weights)

- I. Average of individual current ratios =  $14,25/10 = 1,425$
- II. Average CR<sup>1</sup>=Total current assets/Total current liabilities =  $4.700/6.475 = 0,726$

The second way of calculating Average CR leads to a lower value of the average indicator. The broader look at the calculation entails the notion that it is actually weighted average current ratio where CL are used as the weights. The weighted mean formula is (Newbold et al., 2013):

$$\bar{x} = \frac{\sum w_i \cdot x_i}{\sum w_i} \quad (1)$$

where  $w_i$  is the weight of the data  $x_i$ .

The weighted average CR formula with the use of CL as weights is:

$$\frac{CR_1 \cdot CL_1 + CR_2 \cdot CL_2 + \dots + CR_n \cdot CL_n}{CL_1 + CL_2 + \dots + CL_n} = \frac{\frac{CA_1}{CL_1} CL_1 + \frac{CA_2}{CL_2} CL_2 + \dots + \frac{CA_n}{CL_n} CL_n}{CL_1 + CL_2 + \dots + CL_n} = \frac{CA_1 + CA_2 + \dots + CA_n}{CL_1 + CL_2 + \dots + CL_n} = \frac{\sum CA}{\sum CL} = \frac{4.700}{6.475} = 0,726$$

By giving more importance to those firms that have higher debt explains why is the weighted average CR closer to 0,5 than to 2. It is questionable if this is appropriate way of calculating the average. Individual CR of 0,5 is interpreted the same no matter if company has CL of 200 or 500. Obviously, the second firm also must have higher CA. But why should more importance be given to the second's firm CR? This also raises the following issue: since CR is calculated as CA/CL, the other possible candidate for weights are CA, and why not to use them. Therefore, the third method for calculation of (weighted) average is by using CA as weights:

### III. Weighted average CR (weighted by CA)

$$\begin{aligned} &= \frac{CR_1 \cdot CA_1 + CR_2 \cdot CA_2 + \dots + CR_n \cdot CA_n}{CA_1 + CA_2 + \dots + CA_n} = \frac{\frac{CA_1}{CL_1} CA_1 + \frac{CA_2}{CL_2} CA_2 + \dots + \frac{CA_n}{CL_n} CA_n}{CA_1 + CA_2 + \dots + CA_n} = \frac{0,5 \cdot 100 + 0,5 \cdot 250 + \dots + 2 \cdot 1000}{\sum CA} = \\ &= \frac{6.325}{4.700} = 1,346 \end{aligned}$$

Referring to our example, giving more importance to those firms that have higher assets explains why the weighted average CR here is closer to 2 than to 0,5. Our example shows what is also intuitive, case II is much more pessimistic than case III compared with case I. The weighted standard deviation formula is:

$$\sigma = \sqrt{\frac{\sum (x_i - \bar{x})^2 \cdot w_i}{\sum w_i}} \quad (2)$$

<sup>1</sup> We can use also Average CA/ Average CL since it is equal to (Total CA/number of firms)/(Total CL/number of firms) which reduces to Total CA/ Total CL

Table 2 shows weighted standard deviations for both cases.

Table 2: Weighted standard deviations (example 1)

	ST.dev.
CL as weights	0,67078207
CA as weights	0,86533909

We can see that SD is highest in case I and the lowest in case II, but SD is difficult to meaningfully interpret here. Conclusion here is that no matter which of the three averages we use, five firms performed below and five above the average, but the difference is how far from the average individual CRs were which also influences the perception of a firm's performance. In this "perfect" case the average divides the companies in two same size sets, one set of companies is better the second worse than the average.

## 2.2. Example 2

Similarly like in example 1 we consider CRs of ten firms, who now all have the same amount of CLs, but different amount of CAs (table 3).

Table 3: Current assets, current liabilities and current ratios of individual firms (example 2)

Firm	1	2	3	4	5	6	7	8	9	10	Sum	Average	ST. dev.
Current assets (CA)	100	200	300	400	500	600	700	800	900	1000	5500	550	287,2281323
Current liabilities (CL)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000	1000	0
Current ratio=CA/CL	0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1	5,5	0,55	0,287228132

- I. Average of individual current ratios =  $5,5/10 = 0,55$
- II. Weighted average CR (weighted by CL) =  $\Sigma CA / \Sigma CL = 5500/10000 = 0,55$
- III. Weighted average CR (weighted by CA) =  $(0,1 \cdot 100 + 0,2 \cdot 200 + \dots + 1 \cdot 1000) / \Sigma KI = 3850/5500 = 0,7$

Because of identical CLs in this case averages I and II are the same. Weighing by CAs gives now more optimistic value of average. Table 4 shows SDs and now is SD in case III the lowest.

Table 4: Weighted standard deviations (example 2)

	ST.dev.
CL as weights	0,28722813
CA as weights	0,24494897

In this example based on averages I or II we conclude that 5 firms performed better than average, based on average III only 3.

## 2.3. Example 3

Similarly like in examples 1 and 2 we consider CRs of ten firms, who now all have the same amount of CAs, but different amount of CLs (table 3).

Table 5: Current assets, current liabilities and current ratios of individual firms (example 3)

Firm	1	2	3	4	5	6	7	8	9	10	Sum	Average	ST. dev.
Current assets (CA)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	10000	1000	0
Current liabilities (CL)	1000	1111	1250	1429	1667	2000	2500	3333	5000	10000	29289,68	2928,968	2630,365427
Current ratio=CA/CL	1	0,9	0,8	0,7	0,6	0,5	0,4	0,3	0,2	0,1	5,5	0,55	0,287228132

- I. Average of individual current ratios =  $5,5/10 = 0,55$
- II. Weighted average CR (weighted by CL) =  $\Sigma CA/\Sigma CL = 10000/29289,68 = 0,34142$
- III. Weighted average CR (weighted by CA) =  $(1 \cdot 1000 + 0,9 \cdot 1000 + \dots + 0,1 \cdot 1000)/\Sigma KI = 5500/10000 = 0,55$

Table 6: Weighted standard deviations (example 3)

	ST.dev.
CL as weights	<b>0,26685907</b>
CA as weights	<b>0,28722813</b>

Since CAs of all firms are here identical, now averages I and III are identical and weighing the average by CLs gives more pessimistic average. In this example based on averages I or III we conclude that 5 firms performed better than average, based on average II, 7 firms. In examples 2 and 3 we have two sets of firms whose individual current ratios are identical and the difference is in the amount of CAs and/or CLs. In example 3 where the amount of total liabilities is not just absolutely higher but also higher as a proportion of total assets than in example 2, weighing CR by CL leads to lower weighted average CR compared to the average of individual CRs. Examples 2 and 3 point to the problem of interpreting what it means if some company is better or worse than average.

### 3. REAL CASE OF CURRENT RATIO BENCHMARK CALCULATION

As a real case we have a set of medium-sized Croatian companies from manufacturing industry. They all have in common that in the year of observation (2017) they generated loss in doing business. We want to compare them using financial ratios, precisely, current ratio (CR). Our aim here is to analyze this set of firms as a group and evaluate individual firms related to the results of the group. Firstly, we calculate individual CRs (table 7) and then compare them using different benchmarks.

Table 7: Current assets, current liabilities and current ratios of individual firms (real case)

Firm	1	2	3	4	5	6	7	8	9	10
Current assets (CA)	20.866.792	17.030.763	35.123.000	32.556.000	73.378.075	20.114.479	55.740.507	9.674.775	15.335.595	79.969.081
Current liabilities (CL)	22.345.722	27.583.200	17.271.000	12.195.000	76.179.917	19.291.789	48.891.654	12.470.198	28.390.497	111.944.831
Current ratio=CA/CL	0,9338	0,6174	2,0336	2,6696	0,9632	1,0426	1,1401	0,7758	0,5402	0,7144

Firm	11	12	13	14	15	16	17	18	19	20
Current assets (CA)	32.746.361	37.804.000	17.358.026	9.698.917	27.654.367	7.536.168	36.514.451	48.291.423	13.889.000	24.407.661
Current liabilities (CL)	32.693.387	44.903.000	49.333.955	9.413.022	48.008.475	25.588.161	24.900.403	204.258.517	76.151.000	22.349.969
Current ratio=CA/CL	1,0016	0,8419	0,3518	1,0304	0,5760	0,2945	1,4664	0,2364	0,1824	1,0921

	Sum	Average	ST. dev.
Current assets (CA)	615.689.441	<b>30.784.472</b>	<b>19.821.058</b>
Current liabilities (CL)	914.163.697	<b>45.708.185</b>	<b>44.265.529</b>
Current ratio=CA/CL	18,5044	0,9252	0,5857

- I. Average of individual current ratios =  $18,5044/20 = 0,9252$
- II. Weighted average CR (weighted by CL) =  $\Sigma CA/\Sigma CL = 0,6735$  (great influence of two firms that have the lowest CRs and huge amount of CL)
- III. Weighted average CR (weighted by CA) =  $0,9899$

Table 8: Weighted standard deviations (real example)

	ST.dev.
CL as weights	<b>0,46163944</b>
CA as weights	<b>0,57680673</b>

If we use average I, in this case exactly 10 firms performed below, and 10 above the average of the group.

If we use average II, now 13 companies have CR higher than average; it means for example that for the firm with CR 0,71 we would say that it is better than the average (sometimes it is automatically interpreted as saying "better than most", which is not true in this case because 12 companies are better than it and the total is 20 companies). If we use average III, now only 8 companies are better than the average. The best for the analysis might be to consider median and interquartile range, and then compare with it the individual company's ratio (table 9).

*Table 9: Median and interquartile range*

Firm	19	18	16	13	9	15	2	10	8	12
Current ratio=CA/CL	0,1824	0,2364	0,2945	0,3518	0,5402	0,5760	0,6174	0,7144	0,7758	0,8419

Firm	1	5	11	14	6	20	7	17	3	4
Current ratio=CA/CL	0,9338	0,9632	1,0016	1,0304	1,0426	1,0921	1,1401	1,4664	2,0336	2,6696

In our example median would be 0,8879 and if the firm has CR 0,8419 we can precisely say that it is worse/better than 50% of the companies. If the company ranked at the 25th percentile (company 9) it simply means that 25 percent of the companies in the set had CR less than our subject company. That sort of information is more relevant than saying about the average. This case is symbolic but it shows what would be valuable to apply to big firm data sets in order to produce information that would enable significant analysis either on a national level by relevant authorities or on an individual firm's level when the firm wants to review its position among competing companies.

#### 4. CONSLUSION

Industrial averages are most commonly known benchmarks used to compare with the performance of some firm. They are often in practice calculated using cumulative numbers (e.g. average current ratio = total current assets of firms in industry/ total current liabilities of firms in industry) leading to abstract numbers with great influence of outliers. Even if outliers are removed, the real usefulness and informativeness of this numbers remains dubious. Sometimes, especially in academic research, averages are calculated as simple averages of individual ratios. In our examples of current ratio analysis, we used these two methods and added the third one, the weighted average current ratio (with current assets used as weights). Our examples pointed to the problem of interpretation of the averages when individual company's performance is assessed. There are examples of countries like New Zealand that have moved away from calculating industrial averages, and to put into perspective the performance of all the companies in the economy they use median and interquartile range of different ratios that are publicized by firm size. Using the set of Croatian firms we analyzed averages, and both medians and interquartile range as alternatives for benchmarks, where the latter proved to be more relevant and easier to interpret. That approach, like in New Zealand, applied to big firm data sets available at national levels would provide information enabling significant analysis either on a national level by relevant authorities or on an individual firm's level when the firm wants to review its position among competing companies.

#### LITERATURE:

1. Brigham, E.F., Ehrhardt, M.C. (2017). *Financial Managment: Theory and Practice*. Boston: Cengage Learning
2. Damodaran, A. *Variables used in data set*, Retrieved 14.4.2019 from [http://people.stern.nyu.edu/adamodar/New\\_Home\\_Page/datafile/variable.htm](http://people.stern.nyu.edu/adamodar/New_Home_Page/datafile/variable.htm)

3. Fabrični, S., Škara, I. (2016). *Analiza financijskih rezultata poslovanja poduzetnika Republike Hrvatske po županijama u 2015. godini*, V. Kavur (ed.), Zagreb: Financijska agencija, Retrieved 20.5.2019 from <https://www.fina.hr/documents/52450/130232/Analiza+financijskih+rezultata+poslovanja+poduzetnika+po+zupanijama+u+2015.+godini.pdf/14052190-596f-1937-203a-9b1806c4aa05>
4. Frecka, T. J., & Lee, C. F. (1983). Generalized financial ratio adjustment processes and their implications. *Journal of Accounting Research*, 308-316.
5. Jiang, W., Lu, M., Shan, Y., & Zhu, T. (2016). Evidence of avoiding working capital deficits in Australia. *Australian Accounting Review*, 26(1), 107-118.
6. Lev, B. (1969). Industry averages as targets for financial ratios. *Journal of Accounting Research*, 290-299.
7. National Association of Certified Valuators and Analysts, *Industry Benchmark Comparison Tips*, Retrieved 23.5.2019 from <https://www.nacva.com/content.asp?contentid=322>
8. Newbold, P., Carlson, W. L., & Thorne, B. (2013). *Statistics for business and economics*. Harlow: Pearson Education Limited.
9. New Zealand Government, *Business Performance Benchmark*, Retrieved 16.4.2019 from <https://statisticsnz.shinyapps.io/bpbench/>
10. Troy, L. (2008). *Almanac Of Business and Industrial Financial Ratios*, Chicago: CCH, Retrieved 14.4.2019 from <https://books.google.hr/books?id=5nEsDHfsfFwC&printsec=frontcover&dq=Almanac+of+Business&hl=hr&sa=X&ved=0ahUKEwjC0Kiam4zPAhXHtRoKHWAOAU0Q6AEIJDAA#v=onepage&q=Almanac%20of%20Business&f=false>

## THE IMPACT OF INCENTIVES ON ORGANIZATIONAL COMMITMENT IN PUBLIC ORGANIZATIONS IN EGYPT

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### **ABSTRACT**

*The purpose of this research is to explore the dynamics of incentive systems practices in the public organizations. More specifically, this paper tries to point out some main aspects of incentive systems, which strongly influence the degree of employees' organizational commitment. The practical study here tends to show greater insights into the incentives-organizational commitment relationship and its validation at the Ministry of Communications and Information Technology (MCIT) in Egypt as a case study. This research depends on descriptive analytical approach. The design of the study is both descriptive in the theoretical part and quantitative in the applied one. Theoretically, this paper implemented the analytical approach to define the main concepts using an empirical study to explore correlations in practice. This paper concludes that the employment of best incentive systems practices is considered a significant tool in enhancing the organizational commitment. Also, the results of analysis provide evidence that incentives systems contribute to organizational commitment at MCIT. The findings and recommendations of this research can practically guide management to devise effective policies to improve organizational commitment using right incentive systems, particularly in the Egyptian public organizations. This research has good implications for both theory and practice, as it offers contribution on literature in the field of study, as well as the practical contribution.*

**Keywords:** *Incentives, Concept of Incentives, Organizational Commitment, MCIT, Public Organizations*

### **1. INTRODUCTION**

The issue of incentives has always occupying a prominent place since the beginning of the researchers to examine how individuals perform optimally, and to study how to improve performance efficiency, which ensures the effective achievement of the organization's objectives. We can say that the human factor is the primary factor in increasing production. Therefore, upgrading the efficiency of the human factor becomes an important necessity in order to achieve the objectives pursued by the organizations. Incentives in public organizations are considered a human input, whereby management can increase efficiency and stimulate the desire of individuals to do their job better. Incentives are divided in terms of nature or value into two types: Non-material (moral) incentives and material incentives [1]. (El Taaey, 2006). On the other hand, Organizational commitment determines the degree of cohesion among workers, the leadership style, and to what extent the organizational climate encourages achievement, creativity, and the desire of the individual to achieve its objectives. The existence of a good system of incentives and is a reason for making the employees behave positively towards themselves and towards the organization. This positive attitude towards the organization is the core of the organizational commitment process.

### **2. RESEARCH PROBLEM AND OBJECTIVE**

In this study, the research problem is represented in the following research question: To what extent do different incentive systems affect the level of organizational commitment of employees in Egyptian public organizations?

"Case Study of the Ministry of Communications and Information Technology (MCIT)". The researcher aims at achieving a set of objectives that can be summarized as follows:

1. Introducing the basic concepts and types of incentives along with studying the concept of organizational commitment in the public organizations.
2. Studying the relationship between incentives and its impact on organizational commitment in Egyptian public organizations (MCIT) as a case study.

### **3. LITERATURE REVIEW FOR THE CONCEPT OF INCENTIVES AND ORGANIZATIONAL COMMITMENT**

The concepts and definitions of incentives and organizational commitment that are varying according to the researchers who have addressed this concept, as well as according to the different schools of thought to which they belong. The study of human behavior in the public organizations is aiming at searching for the reasons behind why individuals do something enthusiastically, while there is no such enthusiasm in other individuals or even the same person in varying stages of time. There are several definitions of incentives, they can be defined as reinforcing the individual desire towards achieving the goals of the organization [2]. They can be also defined as all that is given to the employee materially or morally for his creations and innovations or for his outstanding work, in the field of work or the work space [3]. In [4] Reinter defines the incentives as the ability to reward subordinates for their work and their commitment to the procedures, rules, instructions, and ethics, and have to be attached to the behavior of individuals in the performance of their duties. Organizational commitment refers to the quality of the relationship between the individual and the organization, it sets the positive feeling of the employee towards his organization and reflects the extent of his association and his desire to remain an active member. Inas [5] has discussed the level of organizational commitment. The researcher studied the relation between organizational commitment and job satisfaction through some personal variables such as gender, educational qualification, social status of the social supervisors. Amira [6] also worked on measuring the impact of organizational commitment on the relationship between organizational justice and citizenship behavior in the public. The study discussed the definitions of organizational commitment, organizational justice and organizational behavior.

### **4. THE SPECIAL NATURE OF INCENTIVES IN PUBLIC ORGANIZATIONS**

Some special features for incentives can be noticed in public organizations. These special features include:

1. Variety of dimensions, stakeholders, and tasks.
2. Trying to adopt the planned governmental policies, whilst keeping or even maximizing the productivity.

From these special characteristics we can explain why these public organizations are considered as public sector in the first place. That's can also explain why one cannot just apply ready-made solutions like competitive or performance-based incentives directly in public organizations. Although applying these kinds of ready-made incentives have some advantages in some dimensions or for some managers, but it can generate some undesired reactions in other dimensions or to other managers. Ratto [7] has conducted a study discussing the special nature of incentives in Public organizations, this study conducted a message that the use of performance related incentives, and in particular performance related pay, is more problematic in the public sector than in the private sector. This is due to aspects like multitasking, multiple principals, the difficulty of defining and measuring output, and the issue of the intrinsic motivation of workers.

## **5. CONDITIONS FOR SUCCESSFUL INCENTIVES IN PUBLIC ORGANIZATIONS**

There are some basic conditions for incentives that must be satisfied in public organizations, to ensure their increased returns in the organizations. Some of these conditions include that they should be linked to the objectives of both the employees and management together, also, choosing the appropriate time to use incentives, especially for material incentives, furthermore, one of the conditions is ensuring continuity of incentives and creating an inner feeling in the individual that there is a regularity in the incentives system.

## **6. THE IMPORTANCE OF ORGANIZATIONAL COMMITMENT**

The importance of the organizational commitment is reflected in its impact on both the workers on part and the organization on the other part. Some studies [8],[9] have led to a greater focus on the concept of organizational commitment and lead towards further studies of the concept. There are several reasons for why we should focus on that concept, like that organizational commitment is one indication of interdependence between the individual and the organization, and stems from within the individual and not imposed by the organization. Also, organizational commitment helps to create a cooperative, and complementary relationship between the employees and organizations in which they work together, rather than being at odds with each other in the organization. In Addition, organizational commitment increases the degree of job satisfaction of employees as a result of reducing pressures and conflicts and solving employee problems. So, it can be said that the organizational commitment is an important basis for judging the policy of using human resources in the suitable way, and the effectiveness of these policies.

## **7. RESEARCH METHODOLOGY AND DESIGN**

This research depends on descriptive analytical approach. The design of the study is both descriptive in the theoretical part and quantitative in the applied one. Theoretically, the research used the analytical approach to explain the key concepts and a practical study to investigate the correlations in practice. Therefore, in addition to providing a brief overview of relevant literature, a field survey was conducted to determine to what extent the incentives systems contribute towards the enhancement of the organizational commitment. Ministry of Communications and Information Technology in Egypt (MCIT) was chosen to be the case study here because it is considered one of the crucial public service organizations and almost the most important governmental institution in Egypt that's responsible for providing communications services generally. Also, the contribution of the ICT sector to the national economy increased by 3.1%. The growth rate of this sector reached 11.5% during the first nine months of 2016/2017, and the export of ICT services during the current year reached 1.87 billion dollars.

### **7.1. Population, sample and selection of the sample**

The field survey was conducted during September 2018. the researcher chose a random sample of employees in MCIT Headquarters located in Smart Village City in Cairo. The whole population included about (350) people who work for MCIT in this location, and (315) people only responded, the response rate was 90 per cent. The sample size of (315) people distributed between (110) managers [Top and Mid-Level management] and (205) employees [non-managers]. This sample also was randomly selected.

### **7.2. Data collection**

For the purpose of collecting the required primary data, an adopted Arabic language structured questionnaire was applied, Arabic language was chosen as it is the official language in Egypt (it was initially formulated in English and then translated to Arabic). It includes 50 items representing the various aspects of the subject, the questionnaire was designed and organized

into the following sections: demographic profile and professional characteristics of respondents (moderating variable) (five questions not included in the 50 main items), then Incentive Systems attributes (independent variable) that consist of incentive systems availability (ten items), work environment conditions (ten items), organizational culture (ten items), Organizational leadership (ten items), whereas organizational commitment (dependent variable) contain the organizational commitment availability factors (ten items). It is worth mentioning here that the study used the questionnaire to gather data used a five-point Likert scale as the measurement tool, ranging from 1 = strongly disagree to 5 = strongly agree. Moreover, Cronbach's alpha test was used to assess the stability of the questionnaire and reliability of the measures, and it was found that all coefficients are above 0.50, so there is evidence that the research variables seem to be consistent, stable, reliable and valid.

### 7.3. Methods of Statistical Analysis

Statistical Package for Social Survey (SPSS-V.23) was the tool for compiling and processing data in this research. Several statistical tools were also used for data analysis, which are descriptive analysis, simple linear regression and structural equation modeling, along with multiple linear regression model. Demographic and professional characteristics of respondents is shown in the table below.

Table 1: Demographic and professional characteristics of the sample space			
Percentage %	Count		
Gender			
57.5	181	Male	
42.5	134	Female	
100	315	Total	
Qualification			
20.3	64	Secondary School	
57.1	180	University Degree	
22.5	71	Post Graduate	
100	315	Total	
Age			
17.8	56	< 30 Years	
41.6	131	Between 30 Years and Less Than 40 Years	
31.1	98	Between 40 Years and Less Than 50 Years	
9.5	30	>= 50 Years	
100	315	Total	
Job Level			
13.0	41	Higher Management	
21.9	69	Mid-Level Management	
65.1	205	Entry Level	
100	315	Total	
Years of Experience			
13.3	42	< 10 Years	
39.7	125	Between 10 Years and Less Than 15 Years	
26.0	82	Between 15 Years and Less Than 20 Years	
21.0	66	>= 20 Years	
100	315	Total	

From the above table we can see that the distribution of the samples according to the variable "Gender" indicates that males have a ratio of (57.5%) from the sample space, while the females are representing (42.5%) from the sample space. This indicates that the dataset is balanced to good extent according to the "Gender". From the "Qualification" prospective we can see that the highest number of samples have "University Degree" with ratio of (57.1%) from the sample

space. This contributes to higher confidence in the study results as more education eventually means more awareness from the respondents about the scope and objective of the study questions. For the "Age" variables, the highest ratio of the sample space is having age ranging from 30 to 40 years, indicating that the Ministry is tending to hire younger aged employee rather than hiring old aged ones. This age domain is reflecting in the "Job Level" variable, indicating that the higher ratio of the sample space are in "Entry Level" jobs, with less percentage when going up to "Mid-level" and "Higher Management" levels, which demonstrates the normal "Pyramid" distribution in job levels, with broad band Entry Level jobs and narrower band for Mid-Level Management and Higher Management respectively. The previous distribution for Age and Job Level reflects in the "Years of Experience" variable, with most employees are having less than 15 years of experience (53%).

#### 7.4. Testing the Research Hypotheses

To accomplish the objectives of the practical study, the research set out the following hypotheses. Hypotheses:

- H1: There is no significant impact at significance level  $\alpha = 0.05$  of incentive systems availability on organizational commitment at Ministry of Communications and Telecommunications in Egypt.
- H2: There is no significant impact at significance level  $\alpha = 0.05$  of work environment conditions on organizational commitment at Ministry of Communications and Telecommunications in Egypt.
- H3: There is no significant impact at significance level  $\alpha = 0.05$  of organizational culture on organizational commitment at Ministry of Communications and Telecommunications in Egypt.
- H4: There is no significant impact at significance level  $\alpha = 0.05$  of organizational leadership on organizational commitment at Ministry of Communications and Telecommunications in Egypt.

To show whether the previous hypotheses are acceptable, simple linear regression was used to test the impact of each dimension of the Incentive systems, on organizational commitment, as presented in Table 2. The hypothesis will be rejected if the significance of the model is less than 0.05, and vice versa.

*Table 2: Simple linear regression models of the dependent variable on the different independent variables*

Simple regression model	Dependent variable	Independent variable	Beta	Significance of the model	Adjusted R-squared
First	Organizational Commitment	Incentives Systems Availability	0.805	0.000	0.649
Second		Working Environments Conditions	0.628	0.000	0.394
Third		Organizational Culture	0.585	0.000	0.342
Fourth		Organizational Leadership	0.750	0.000	0.563

Table 2 indicates the following:

From the first model, it is obvious that incentive systems availability has a significant positive effect on organizational commitment at confidence level 95 per cent, and this appears from the value of beta. From adjusted R-squared, it is noticed that incentive systems availability has the ability to explain about 64.9 per cent from the variation in organizational commitment in MCIT.

For the second model, when working environment condition is the independent variable: It is clear that working environment condition has a significant positive effect on organizational commitment at confidence level 95 per cent. From adjusted R-squared, it is noticed that working environment condition has the ability to explain about 39.4 per cent from the variation in organizational commitment in MCIT. For the third model, when organizational culture is the independent variable: It is obvious that organizational culture has a significant positive effect on organizational commitment confidence level 95 per cent. From adjusted R-squared, it is noticed that organizational culture has the ability to explain about 34.2 per cent from the variation in organizational commitment in MCIT. For the fourth model, when organizational leadership is the independent variable: It is clear that organizational leadership has a significant positive effect on organizational commitment at confidence level 95 per cent. From adjusted R-squared, it is noticed that organizational leadership has the ability to explain about 56.3 per cent from the variation in organizational commitment in MCIT. From the previous results, the study can conclude that there are significant impacts at significance level  $\alpha = 0.05$  of the various incentive systems dimensions (incentive systems availability, working environment conditions, organizational culture, and organizational leadership) on organizational commitment at MCIT, which means that the four hypotheses are all rejected. The linear regression equations for each of the independent variables (incentive systems availability, working environment conditions, organizational culture, and organizational leadership), and the dependent variable is illustrated below:

- Organizational Commitment =  $0.870 + 0.805$  Incentive Systems Availability
- Organizational Commitment =  $0.796 + 0.628$  Working Environment Conditions
- Organizational Commitment =  $0.956 + 0.585$  Organizational Culture
- Organizational Commitment =  $0.849 + 0.750$  Organizational Culture

Also, multiple linear regression was implemented for the impact of different incentive systems dimensions on the organizational commitment, with the results summarized in the below table:

*Table 3: Multiple Linear Regression for the impact of different incentive systems dimensions on the organizational commitment*

Independent Variable	Dependent variable	Independent variable	Beta	Significance of the model	Adjusted R-squared
Constant			0.946		
Term					0.664
First		Incentives Systems Availability	0.290		
Second	Organizational Commitment	Working Environments Conditions	0.166	0.001	
Third		Organizational Culture	0.460		
Fourth		Organizational Leadership	0.265		

The Multiple Linear Regression equation for the combined independent variables (incentive systems availability, working environment conditions, organizational culture, and organizational leadership) and the dependent variable is illustrated below: Organizational Commitment =  $0.946 + 0.29$  Incentive Systems Availability +  $0.166$  Working Environment Conditions +  $0.460$  Organizational Culture +  $0.265$  Organizational Leadership

## 8. CONCLUSIONS

This study has gone a substantial way towards meeting its prime goal, which is examining the relationship between incentives and organizational commitment in public organizations, especially in developing countries. The paper has concluded that good incentive system practices contributes to enhancing the organizational commitment, as it was relatively found at the MCIT, despite the need for further improvement efforts. Through both the theoretical and applied parts of this research, the researcher reached to some recommendations. These recommendations include preparing periodic studies on the currently applied incentive systems along with the encountered difficulties. The researcher also recommends introducing some new incentives for employees like giving some promotions (e.g. discounts coupons) in some famous retail chains, or commercial agencies. Furthermore, the researcher recommends paying more attention to the creation of an appropriate working environment for the employees, like, increasing the value of reward policy and reduce the use of punishments for workers within the organization. Enhancing the emotional Commitment of the employees in the ministry is one of the recommendations as well, this can be achieved by giving the employees the opportunity to participate in the decision-making process, especially the decisions that need discussions and affect the workers directly. This can be done through holding meetings and workshops with the employees to discuss ideas related to the work.

## LITERATURE:

1. Abd el Fatah Mohamed. 1997, Effect of Job Characteristics and Individual Variables on Organizational Commitment: An Empirical Study of Public and Industrial Companies in Dakahlia, Afaak Gadedda Journal, Faculty of Commerce, Monufia University, Egypt.
2. Al Kaaiby, N., El Samery, M. 1990, Human Resources Management Application Approach, Central Workers' Press, Baghdad.
3. Amira R. 2003, The Effect of Organizational Commitment and Confidence in Management
4. Civil Service Law No. 19 of 1991, Official Journal, Issue No. 17, September 1992.
5. El Taaey, Y. 2006, Human Recourses Management Complementary Strategic Approach, Al Waraq For Publication & Distribution, Oman.
6. Inas F. 2003, Job Satisfaction and its Relationship to the Organizational Commitment of Educational Supervisors and Supervisors in the Department of Education in Makkah City, Master Thesis, Faculty of Education, Umm Al-Qura University, Makkah.
7. Kreitner, R. 2007, Management, Houghton Mifflin, United States.
8. Marisa Ratto, Simon Burgess. 2003, The Role of Incentives in the Public Sector: Issues and Evidence, Oxford Review of Economic Policy, Bristol, United Kingdom.
9. Reichers A.E. 1985, A Review and Reconceptualization of Organizational Commitment, Academy of Management Review, Vol. 10, No.3, P473.

## MIGRATION AS AN INSIGHT IN THE CREATIVE MARKETING CAMPAIGNS

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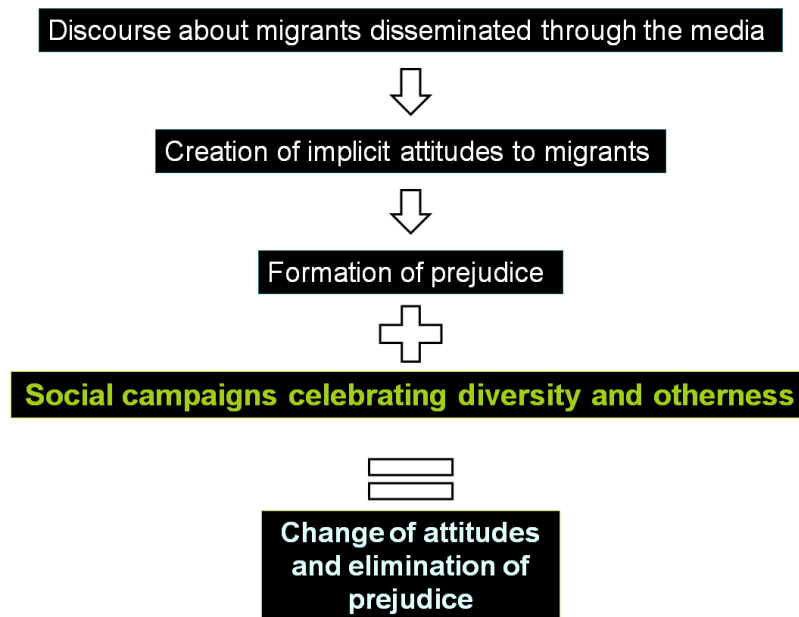
### **ABSTRACT**

*This paper deals with the results of a pilot study, which aims to identify the discourse of migration in the context of creative marketing campaigns of a non-commercial character. Additionally, the study focuses on the use of the migration theme as an insight (main idea) in the creative campaigns; it seeks to define the secondary issues and the framework contextually connected to migration theme and migrants, i.e. to identify the special content and features that are significant in this type of campaign by analyzing the specific examples of creative marketing campaigns during the migration crisis.*

**Keywords:** *Creativity, Insight, Media discourse Migration, Non-commercial marketing, Social advertising*

### **1. MEDIA DISCOURSE ON MIGRATION AND THE POSITION OF SOCIAL CAMPAIGNS IN THE PROCESS OF CHANGING ATTITUDES**

Although the issue of migration is no longer prominent in the media as it used to be in 2015-2016, it is still relatively current. The media play a key role in disseminating the information, especially on remote topics that the citizens cannot observe themselves in their social surroundings, as well as in the process of formation and/or promotion of a certain attitude – based on the nature of the media discourse, the recipient builds an implicit attitudes towards the subject, and particularly the subject of migrants–migration. The nature of the media discourse may negatively affect the process of integration of the refugees in Europe and contribute to the strengthening of prejudice among the citizens. In the media discourse context, the refugees were presented as safety risk regardless of their humanitarian needs, and other concerns related to religious and economic threats (Nová, 2016, p. 677). The type of media discourse changed in the individual waves of the migration crises, and the transition from migration control to migration management is evident in recent developments. In the first migration wave, i.e. in 2015, the security risk and cultural threats were the dominant communication strategy, in the second wave (2016 and 2017) the discourse on migration management prevailed, and in the third period (2018), an alternative concept of “effective solidarity” emerged – this idea was first presented in 2016 during the Slovak Presidency of the EU Council (Spálová – Szabo, 2017, pp. 528-538). As mentioned above, the discourse distributed by the media has a significant influence and consequences – it contributes to the shaping of attitudes and subsequent prejudices. Within the intentions of the said social framework, we reflect on the non-marketing campaigns using the theme of migration, social campaigns celebrating otherness (Všetečková, 2003, p. 20) (see Fig. 1), which seek to eliminate the prejudices in the context of civil political participation and tolerance of migrants. As can be seen in the model, the most important task of social marketing is a real change in behavior. From a procedural point of view, social marketing can be grouped into five categories – primary education, change in the values, change in the attitudes, motivation to act, and finally, training and strengthening (Andreasen, 1994).



*Figure 1: Position of non-commercial campaigns in the attitude formation process*  
 Source: own processing

Although the measurement of size or duration of social campaigns is very difficult (Peattie – Peattie, 2003), the evaluations of social campaigns in terms of meeting or measuring their effectiveness should not avoid the measurement of impacts on real behaviour. According to Andreasen (1994), what distinguishes the best professional social marketers from the good ones is the natural tendency to ascertain how a given strategy or tactics affects the consumers.

### 1.1. Behavioral change as a goal of social marketing

The bottom line of social marketing, as claims Andreasen (1994), is a change in behavior, and it is the key objective of social campaigns. With regard to short-term or long-term behavior, Kotler and Lee (2011) introduced four types of desired behavior in social marketing: "(a) acceptance of new behavior; (b) refusal of potentially unwanted behavior; (c) modification of the current behavior; or (d) abandonment of unwanted behavior (Kotler – Lee, 2011). Andreasen (1994) adds: "(e) continuation of the desired behavior; and (f) behavioral change". In terms of attaining these objectives, it should be noted that there are a few obstacles en route to the adaptation and promotion of socially responsible behavior: they have to do with the attention and acceptance of the legitimacy of the present desired behavior (Peatties – Peatties, 2003). The very civic participation may be one of the objectives of social marketing. In terms of civic participation, the factor analysis results indicate that the activities can be divided into four types of civic participation: "(a) political activities based on individual initiatives (e.g. running for public office; work for a political party; conversion to a public official; participation in public discussions, debates and negotiations); (b) participation in mass civic activities (e.g. involvement in charitable collections; participation in elections, signing a petition, engagement in municipal problem solving); (c) protest activities (e.g. participation in a demonstration, participation in a protest or boycott, participation in a political meeting; active field work); (d) engagement in a public debate and problem solutions (e.g. Participation in online discussions about public affairs, commenting on public affairs in the media, work in non-governmental organizations, participation in commenting on laws and regulations)" (Bútorá – Bútorová – Strečanský – Ondrušek – Mesežnikov, 2011).

All these types of civic participation are relatively easy to measure. In addition to signing the petitions and participating in online discussions about public affairs, however, civic participation is on a decline (Bútorová – Gyárfášová, 2010). Non-commercial campaigns contributing to changing xenophobia and racism to tolerance have become one of the areas/topics of socially responsible marketing – in some of the campaigns, their creators define the above as one of the main objectives of the communication campaign. The present paper seeks to map the creative campaigns using migration as an insight in the various waves of the migration crisis (2015-19) and define the most significant and key elements this type of creative marketing campaigns works with. Subsequently in the second stage, we plan to identify the effectiveness of the above forms of civil participation in changing the attitude of Generation Y to the phenomenon of migration.

## **2. RESEARCH PROBLEM**

As indicated in the introduction to the issue, and relying on the already conducted studies, media discourse has developed over time, however, we are interested in whether the non-commercial campaigns with the theme of migration contribute to the change of attitudes towards the issue of migrants (second stage of our research). Within the operationalization of our research problem, it was necessary to abstract the dominant communication elements in the successful marketing campaigns with the theme of migration. Based on the qualitative nature of our pilot study, we have defined the following research questions:

1. What creative communication elements dominate in the award-winning creative campaigns on the issue of migration?
2. Does the insight in non-commercial campaigns on migration differ depending on the waves of the migration crisis as the media discourses do?

An “insight” can be defined as a fundamental truth known to all, however, it cannot be abstracted, realized or formulated. Ultimately, an insight is the understanding of the needs of the target groups. A properly used insight respects the boundaries of personal freedom, and because of it, it creates a space for the development of a personal relation with the brand or product (Knesche, 2007).

## **3. RESEARCH MATERIAL AND METHODS**

The research material consisted of audiovisual non-commercial marketing campaigns created in the years 2014-2017, i.e. a selection of campaigns with the migration insight in the individual waves of the migration crisis. The key criterion for the selection of research material, which comprised a total of four campaigns, was the theme of migration. It allowed us to create an idea of the examined issues and specify the most common elements and themes. The unit of analysis were found through the Google search engine by entering the keywords: "kampane o migrácii" (613 000 results) "kampane utečenci" (48800 results) and their English equivalents "campaign about migration" (65 100 000 results), "campaign refugees" (82 400 000 results). The first selection criterion was the topic itself. We considered the 1st and 2nd page with the search results as reference. The second criterion was the awards at prestigious competitions and festivals, which are recognized worldwide. After narrowing the research set  $\Sigma$  77 (20 +20 +18 +19), we analyzed those that contained a relevant example of a social campaign. The resulting number of analyzed units narrowed as follows: "kampane o migrácii" – 2 units ; "kampane utečenci"- 3 units; "campaign about migration" - 4 units; "campaign refugees" - 3 units. Then, we sought more detailed information to these campaigns to see if they can be labeled as successful in terms of marketing. Within the pilot analysis of the social campaigns with the theme of migration from the years 2014 to 2018, we will further devote our attention to the campaign Invisible People, Look Beyond Border, Project Life Jacket and The Refugee Nation

because out of the 10 campaigns outlined above they met all our criteria – i.e. they had the subject of migration and were successful. Success is measured by the awards (winning position, but also the shortlist, i.e. nominations) at the creativity festivals (Cannes Lions) or efficiency (EFFIE), as indicated above. These four representative campaigns were among the result of the keywords "kampane o migrácii" (1) and "campaign about migration" (3). In our research, we used the case study method. A case study belongs to the methods of qualitative research (Hancock - Algozzine, 2006). It differs from other types of studies (biographical, phenomenological, ethnographic) in that it includes an intensive analysis and description of a separate unit or system bounded by time and space. According to the recommendations (Yin, 2009), we used the so-called collective case study, which is actually a case study with multiple cases, aimed at exploring the similarities and differences between several instrumental cases.

#### **4. STUDIES – SOCIAL MARKETING CAMPAIGNS WITH PHENOMENON OF MIGRATION**

##### **4.1. Non-commercial campaign “Invisible People”**

The campaign titled “Invisible People” was prepared and implemented by the United Nations High Commissioner for Refugees (UNHCR), the company Cheil Worldwide and the Seoul Museum of Art. This city in South Korea became the scene of the whole campaign in February and March 2014. The aim of the campaign was to raise awareness among the population about the refugee situation in the target group of especially young people aged 20+ (Guerillaforngo.com, 2014). The creators wanted to correct the low awareness and knowledge among the population of South Korea on the challenges and threats the North Korean refugees face every day. Regarding the campaign, the makers bet on the originality of the selected elements – in the museum there were thirty miniature 3D models of the North Korean refugees (see Fig. 2).



*Figure 2: A miniature 3D model of a North Korean refugee  
(Guerillaforngo.wordpress.com. 2014)*

The visitors were informed about this interesting exhibition through print materials and maps that showed the location of these “invisible people” only after entering the museum. When they found the refugees, they could scan the figure with their mobile phones and watch a video about the respective person, in which he/she told his/her own refugee story (see Fig. 3). The campaign had excellent results – during the exhibition, the museum was visited by more than 48,000 visitors and it received about 3.5 million impressions (responses) in the media. Additionally, people could express their support on the official Facebook campaign page, and they posted a total of 5000 messages addressed to specific individuals (see Fig. 4) (Setaysha, 2014). Although the campaign did not seek to receive funding or raise money in a collection, its success and effectiveness was also evident in the 87 people who volunteered to become a sponsor of the UNHCR program for global refugee support (Invisible people, 2014).



Figure 3: Video after scanning the figure (Guerillaforngo.wordpress.com, 2014)

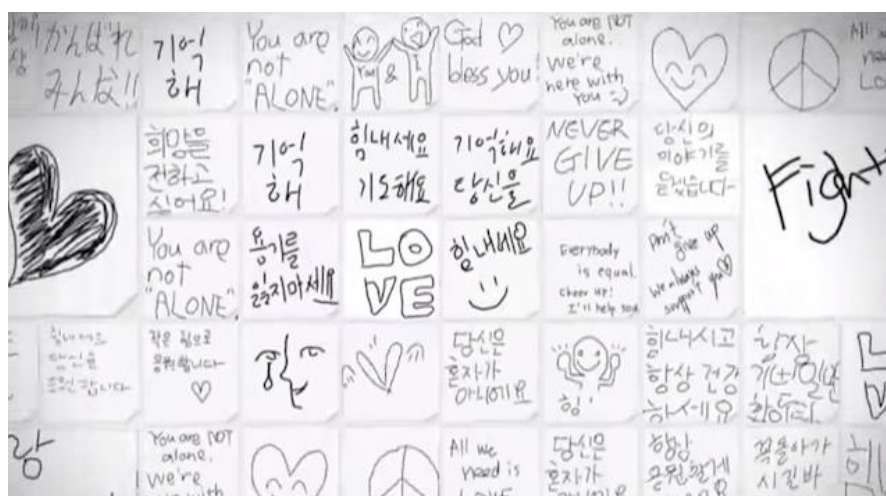


Figure 4: Messages of support on the official FB page (WELOVEAD.COM, 2014)

As stated in the reasoning for the selection of research material, we chose successful campaigns where the criterion for success were the awards at the most prestigious festivals – in 2014, Invisible People received two Bronze Lions at the Cannes Lions international festival of creative works in the category "Design" and "Outdoor".

#### 4.2. Campaign Look Beyond Borders

The campaign Look Beyond Borders was sponsored by Amnesty International Poland, the campaign was implemented in 2016 in 26 countries, and its main aim was to change the narrative on migrants/migration. There were two target groups: those countries that received the refugees and those that did not (for fears of what they see in the media, but on the other hand, with their conscience telling them that the refugees need help), which amounts for 45% of the European countries = 334 million people. The secondary target group were the influencers – celebrities, bloggers and journalists who helped to push the envelope on the European level and launch a debate on the fate of the refugees, as well as other offices of Amnesty International that could host a campaign across Europe with a universal message. The campaign was based on a simple experiment described by psychologist Arthur Aron 20 years ago: he found that four minutes of staring into somebody's eyes can significantly bring the persons together (Look Beyond Borders – 4 minutes experiment, 2016). With this discovery, the creators decided to shape its insight – they seated an European and a Muslim migrant/refugee opposite each other, and their task was to look each other straight in the eye

(see Fig. 5), the point of which was to show how little it takes to break the prejudice and stereotypes on refugees.



Figure 5: A photograph of the Look Beyond Borders campaign (CCT-SEECITY.COM, 2016)

The campaign was awarded the EFFIE award in the category "Small budgets-Services", and it won 481.8 million viewers in Europe and up to 930 million worldwide. Thanks to the strategy and insight, the campaign was referenced by the leading media in and outside of Europe, it was analyzed in 727 different publications in 25 European countries. Moreover, although the media budget only amounted to \$23, the value of the media outlets and media space the organization would otherwise have to pay for amounted to € 950 000 (Look Beyond Borders, 2018) , which is an increase of 45,238% compared to the original budget.

#### 4.3. Non-commercial campaign Project Life Jacket

Another creative campaign that worked with the migration insight is the campaign Project Life Jacket, which was launched in 2016 and its aim was to catapult the refugee crisis back into the agenda of the politicians, the media and the European public. The campaign was built on the real stories of the refugees that are rarely heard in the media. The news portray the lives in the camps, in which the people are stigmatized by a single word – refugee. It is often forgotten that before they had to flee, these people were leading a normal life. The project Life Jacket gives the people the opportunity to look at the stories of their lives in a non-conventional way – through the drawings on life jackets (see Fig. 6), which became the symbol of the refugee crisis and refugees without a name. The campaign was initiated by three Swiss NGOs: The Voice Of Thousands, BorderFree and Schwizerchrüz (Project tells the stories before the Life Jacket, 2017).

*Figure following on the next page*



*Figure 6: Illustrated life stories of the refugees on the life jackets (Marc van Gurp, 2017)*

The real stories of nine refugees who fled across the Mediterranean and waited in a transit camp in Greece were collected through personal interviews by the volunteers and subsequently morphed into the illustrations on life jackets found on the Greek beaches. The whole campaign was presented online and the people could experience these stories firsthand through interactive life jackets and interviews. The initiative also provided an opportunity to a direct impact: donating money and goods and the possibility of personal involvement (Project Life Jacket: Time to Make Refugees Human Again, 2017). The campaign was shortlisted (nominated) in the category "INTEGRATION & INNOVATION Creative Strategy" at Awards for 2017, which were awarded by ADCE (Art Directors Club of Europe) (Project Life Jacket, 2017).

#### **4.4. The Refugee Nation campaign with a migration insight**

In 2017, Amnesty International launched another non-commercial campaign called The Refugee Nation, which significantly uses the migration insight. The campaign was based on the fact that the 2016 Olympics was for the first time attended by a team refugees – these 10 athletes belonged to no particular national team, no flag, and no anthem. The agency Ogilvy & Mather and Amnesty International have created a flag inspired by a life jacket and an anthem, which represented the athletes and 65 million other people worldwide – both of these symbols were created by the refugees themselves – the flag of the "Refugee Nation" was created by a Syrian refugee in the orange-black duotone (see Fig. 7), which evokes the life jackets, and another Syrian refugee, composer Moutaz Arian, created a wordless anthem to express a universal message of love and hope. The aim of the campaign was to create a comprehensive marketing pressure to raise the awareness of and commitment to the refugee crisis with a fourfold influence: inciting public participation, community support, pride among the refugees and citizens and consolidation of approach (Refugee Nation Campaign, 2017).

*Figure following on the next page*



*Figure 7: Flag of the refugees inspired by the life jackets, V & A Museum in London  
(Bringing the world together to support refugees, 2017)*

The campaign had more than two billion page impressions, it was discussed in the world's most prominent media, and it won the prestigious The Cannes Lions Grand Prix in the category "Good" and Dezeen Awards in the category "The most headline-making design of 2016" (The Refugee Nation - Case Study, 2017).

## 5. RESULTS

At the beginning of our paper, we defined two research questions of a qualitative nature, which we will try to answer after having performed a case study of the campaigns that form the research material of our pilot study. By analyzing the individual campaigns with the migration insight, we have observed a number of common features allowing us to answer our research question "What creative communication elements dominate in the award-winning creative campaigns on the issue of migration?" We have identified two dominant elements, which we encountered in all observed campaigns: authenticity, and story (storytelling). It can be concluded that the authors of the creative campaigns dealing with the issues of migration are betting on the natural approach - authenticity because real refugees –not actors acting the presented facts– appear in all campaigns. The effectiveness of social advertising increases with the direct involvement of the "vulnerable" citizens in the preparations for the campaign with social themes (Janoušková, 2004). The importance of the concept of involvement has also been researched in the field of socially oriented marketing events (Štrbová, 2016). The involvement and commitment of real migrants is also framed by another common element: story. This was present in each unit of our research material. Based on the campaigns we analyzed in our pilot study, we conclude that the creators of social non-commercial campaigns using authenticity, sincerity and naturalness combined with storytelling. Many authors (Pressgrove, 2017, Pulizzi, 2016, Berger, 2013), assume that viral marketing content should among components primarily include a story. Commercial advertising has limited space for tragic stories, but social campaigns may use the shock tactics and depressive stories to get people to study the issue and problems associated with it. Stories evoke emotions in people that help us remember the message of the campaign – emotions can affect the cognitive processes and activate our attention or intentional memorizing. The use of emotions may make us use peripheral processing in the persuasion and subsequent decision-making processes, i.e., our decisions and actions will be driven by emotions or other ancillary elements and not by rational arguments or facts (Szabóová, 2017).

We consider it essential that emotions are empathetic and the story has a significant role in the process because it draws the viewer into the action and personalizes him/her with the performers. It is these very factors that Tellis (2000) considers to be characteristic of the implicit model of advertising. We term them “dominant components” or “special content of creative marketing campaigns with the migration insight”. The issue of virality of online content, according to Bergman and Milkman (in Hirvijärvi, 2013), is still a rather vague term. On the other hand, Berger in his book *Contagious* (2013) refers to the methods and actions that may increase the chances of creating successful viral content. He defined a six-element model termed STEPPS. This model shows us what qualities should content have, and what emotions should it evoke to motivate the audience to virality. This model consists of six elements: social factors (social currency), trends (triggers), emotions, public information, practical value and story (Berger, 2013). The author adds that viral content is not created randomly, and it is rather created conscientiously. We can find all the elements of the STEPPS model in the analysis of selected social campaigns. We mentioned in the introduction that the development of the migration crisis caused a change in the media discourse on migration. Based on the above, we wonder whether the insight of the campaigns changed with the changing discourse: "Does the insight in the non-commercial campaigns on migration differ depending on the waves of the migration crisis as the media discourses do?" Insights illuminate, expand the mind and help the creative thinkers in the advertising agencies understand and get inspiration for the creative process – a good insight launches a completely new way of thinking (What is an insight, anyway?, 2018). By using the case study method, we did not identify significant differences in the campaign insights with respect to the migration crisis periods (waves). We state that an insight into a difficult life journey – a migrant severely tested by life – appeared in the monitored campaigns. This insight was morphed into the individual campaigns, it is processed uniquely in each campaign, but it uses certain dominant elements, which we addressed above.

## 6. CONCLUSION

The pilot study, which was the subject of our paper, allowed us to get an initial understanding of the nature and types of marketing campaigns with the theme of migration. By using the case study method, we identified the dominant elements the campaigns operate with: authenticity and storytelling. Therefore, although the insight in the campaigns is based on a similar background – difficult life journeys with uneasy destiny – the campaigns are processed in a unique way, they work with symbols, emotions and not with facts or figures, they use the model of the likely elaboration of advertising message (see the ELM model) through the emotional component of attitudes – peripheral road of persuasion – the so-called transfer of feelings or the central path of persuasion – a model of empathic persuasion. In the second phase of our planned research, we will validate each identified variable of social advertising campaigns – empathic persuasion, mythological narrative and interactivity/civic participation and their impact on changing the attitudes of Generation Y to the phenomenon of migration.

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## LITERATURE:

1. ANDREASEN A. R. (1994). Social Marketing: Its Definition and Domain. *Journal of Public Policy & Marketing*, 1(13), 108-114. [online], 1994, [quoted on 5/6/2019]. Available at: <<https://www.jstor.org/stable/30000176>>.

2. BERGER, J. (2013). *Contagious: Why Things Catch On*. New York : Simon & Schuster Paperbacks, 2013. ISBN: 978-1-456-8659-3.
3. BÚTORA, M. – BÚTOROVÁ, Z. – STREČANSKÝ, B. – ONDRUŠEK, D. – MESEŽNIKOV, G. (2011). *Štúdiá trendov vývoja občianskej spoločnosti na Slovensku*. Bratislava: Inštitút pre verejné otázky, Centrum pre filantropiu, PDCS. [online], 2011, [quoted on 5/6/2019]. Available at:  
<[http://www.minv.sk/swift\\_data/source/rozvoj\\_obcianskej\\_spolocnosti/na\\_stiahnutie/publikacie/Studia-trendov-vyvoja-OS.pdf](http://www.minv.sk/swift_data/source/rozvoj_obcianskej_spolocnosti/na_stiahnutie/publikacie/Studia-trendov-vyvoja-OS.pdf)>.
4. BÚTOROVÁ, Z. – GYÁRFÁŠOVÁ, O. (2010). *Občianska participácia: trendy, problémy, súvislosti*. Sociológia, 42(5), 447-491. [online], 2010, [quoted on 6/10/2019]. Available at:  
<<https://www.sav.sk/journals/uploads/05130915Butorova%20Gyarfasova%20OK%20A.F.pdf>>.
5. HANCOCK, D.R. – ALGOZZINE, B. (2006) *Doing case study research : a practical guide for beginning researchers*. New York: Teachers College Press, 2006.
6. HIRVIJÄRVI, F.: *Viral Marketing and content forwarding on social media*. Degree Thesis, Arcada - University of Applied Science. [online]. [5/5/2019]. Available at:  
<[https://www.theseus.fi/bitstream/handle/10024/129869/Hirvijarvi\\_Fanny\\_Thesis.pdf?sequence=1&isAllowed=y](https://www.theseus.fi/bitstream/handle/10024/129869/Hirvijarvi_Fanny_Thesis.pdf?sequence=1&isAllowed=y)>.
7. Invisible people. [online]. [01/05/2019]. Available at:  
<[http://www.welovead.com/en/works/details/120\\_wouxg](http://www.welovead.com/en/works/details/120_wouxg)>.
8. JANOUŠKOVÁ, L. (2004). *Sociální reklama a její role v informační společnosti*. Brno: Filozofická fakulta Masarykovy univerzity, 2004.
9. KNESCHKE, J. (2007). *Reklama, ze které (ne)mluví strategie* [online], 2007, [cit. 5/5/2019]. Available at: <[http://www.marketingovenoviny.cz/marketing\\_4932/](http://www.marketingovenoviny.cz/marketing_4932/)>.
10. LEE, N. R., - KOTLER, P. (2011). *Social marketing: Influencing Behaviors for Good*. Los Angeles: SAGE Publications. [online], 2011, [quoted on 5/6/2019]. Available at:  
<[https://books.google.sk/books?id=NCOCYPZcR8C&printsec=frontcover&hl=sk&source=gbs\\_ge\\_summary\\_r&cad=0#v=onepage&q&f=false](https://books.google.sk/books?id=NCOCYPZcR8C&printsec=frontcover&hl=sk&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false)>.
11. Look Beyond Borders – 4 minutes experiment. [online]. [01/05/2019]. Available at:  
<<https://www.cct-seecity.com/en/2016/05/look-beyond-borders-4-minutes-experiment/>>.
12. Look Beyond Borders. [online]. [05/05/2019]. Available at: <<https://eaca.eu/wp-content/uploads/2018/01/Look-Beyond-Borders-Campaign-Summary.pdf>>.
13. NOVÁ, M. (2016). *Migration – Models and principles of Immigrant Integration*. In KOVÁŘOVÁ, E.; MELECKÝ, L.; STANÍČKOVÁ, M. (eds.): *Proceedings of the 3rd International Conference on European Integration*. Ostrava: VŠB, 2016.
14. NUDD, T. in KUČEROVÁ, T.: *Storytelling: jak vyprávět o značce*. [online]. [19/05/2019]. Available at: <<http://marketing.cz/storytelling>>.
15. PEATTIE S. - PEATTIE K.: *Ready to fly solo? Reducing social marketing's dependence on commercial marketing theory*. *Marketing theory*, 3(3), 365-385. [online], 2003, [quoted on 5/6/2019]. Available at:  
<<http://journals.sagepub.com/doi/abs/10.1177/147059310333006>>.
16. PRESSGROVE, G., et al.: *What is Contagious? Exploring why content goes viral on Twitter: A case study of the ALS Ice Bucket Challenge*. In *International Journal of Nonprofit and Voluntary Sector Marketing*, 2017, [online]. [5/5/2019]. Available at:  
<[https://www.researchgate.net/publication/318894208\\_What\\_is\\_Contagious\\_Exploring\\_why\\_content\\_goes\\_viral\\_on\\_Twitter\\_A\\_case\\_study\\_of\\_the\\_ALS\\_Ice\\_Bucket\\_Challenge](https://www.researchgate.net/publication/318894208_What_is_Contagious_Exploring_why_content_goes_viral_on_Twitter_A_case_study_of_the_ALS_Ice_Bucket_Challenge)>.
17. Project tells the stories before the Life Jacket. [online]. [05/05/2019]. Available at:  
<<https://osocio.org/message/project-tells-the-stories-before-the-life-jacket/>>.

18. Projects Life Jacket. [online]. [05/05/2019]. Available at: <[https://www.adceurope.org/awards/annual/project-life-jacket\\_176](https://www.adceurope.org/awards/annual/project-life-jacket_176)>.
19. PULIZZI, J.: The History of Content Marketing [Updated Infographic]. [online]. [5/5/2019]. Available at: <<https://contentmarketinginstitute.com/2016/07/history-content-marketing/>>.
20. SETAYSHA, O.: The UN Refuge Agency Places Small Figures of Real People Throughout Museum. [online], [01/05/2019]. Available at: <<http://www.creativeguerrillamarketing.com/street-art/un-refuge-agency-places-small-figures-real-people-throughout-museum/>>.
21. SPÁLOVÁ, L., SZABO, P. (2017). Možnosti sémantických prístupov v analýze konceptu personalizácie politického lídra. In ŠTEFANČÍK, R. (ed.): Jazyk a politika: Na pomedzí lingvistiky politológie. Bratislava: Ekonóm, 2017.
22. SZABÓOVÁ, V. (2017). Seriálny pozičný efekt vo vzťahu k rôznym typom reklamných apelov. In HETÉNYI, M. (ed.): Študentská vedecká, odborná a umělecká činnost : zborník vedeckých prác. Nitra: Univerzita Konštantína Filozofa v Nitre, 2017.
23. ŠTRBOVÁ, E. (2016). Consumer involvement and motivation in attending socially oriented marketing events In: European Journal of Science and Theology, Vol. 12. No. 2. p. 191-201. 2016.
26. TELLIS, G. J. (2000). Reklama a podpora prodeje. Praha : Grada Publishing, 2000.
27. The Refugee Nation-Case Study. [online]. [05/05/2019]. Available at: <<https://vimeo.com/209432188>>.
28. VŠETEČKOVÁ, V. (2003). Větší svoboda při tvorbě sociální reklamy může být pastí na tvůrce. Strategie, 2003, vol. 10, issue 17, p. 20.
29. YIN, R.K.: Case Study Research: Design and Methods. 5th edition. SAGE Publications, 2009.

# THE CONCENTRATION AND STRUCTURE OF SHAREHOLDERS ON UNEMPLOYED FINANCIAL MARKETS IN THE CONCEPT OF CAPITAL MARKETS UNION - EVIDENCE FROM CROATIA

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## **ABSTRACT**

*In an attempt to create European policies for the conceptualisation of financial mechanisms to seal the structural capacity gap through the Capital Markets Union, it is necessary to examine the condition and level of the development of each potential market of the Union. In this respect, with less developed markets, such as Croatian, it is necessary to pay attention to characteristics such as capital centralisation, institutional reforms process, but also instability of the transition process as well as the consequences that can be created on the account of these characteristics. This paper observes these characteristics through the concentration and structure of shareholders in the context of Croatian economic development, observed through the rise and fall of the GDP, in correlation with the established research problem. The analysis conducted through ANFIS clearly showed the importance of not only the concentration but also the structure of shareholders for the growth of GDP, that is, we can conclude that the structure of shareholders and its movement through the observed period indicates structural shortcomings of social capital, while social capital is the one that turns investment into growth. The established models indicate that the best ratio for GDP growth would be the one in which the structure of investors is distributed to 11 % of domestic natural persons, 46 % of domestic legal entities, 35 % of foreign persons and 8 % of other investors.*

**Keywords:** *financial markets, capital markets union, shareholders' structure, social capital*

## **1. INTRODUCTION**

Recent research tries to explain the pressure of the European Union toward the Capital Markets Union, i.e. a more effective financial system that would contribute in a wider context to a more effective macroeconomic management of politically fragmented communities. The current management structure of the European Monetary Union strongly limits the ability of macroeconomic stabilisation. Alongside institutionalised fiscal austerity and abandonment of other macroeconomic levers, there is a lack of fiscal means necessary to achieve stable macroeconomic conditions for strengthening the business cycle, which would ensure growth, encourage the creation of jobs and mitigate the effect of output shocks on consumption (Braun & Hübner, 2017). This issue is indirectly tied to the creation of fiscal illusions, for example in introducing strategies of self-employment or raising the education level of citizens, that were used by policy makers to try to hide the real tax burdens through debt illusion, fiscal drag, wage withholding taxes, as well as taxes on labour (Anno & Dollery, 2012). Therefore, it can be concluded that the „Capital Markets Union“ is an attempt of European politicians to devise a financial recovery for the structural capacity gap (Braun & Hübner, 2017).

However, it is evident that organised business activity, which is frequently conditioned by the development level within a specific business community and time domain in which the phenomenon is observed, is an important actor in any regulatory policy connected to economic growth and development (Young & Pagliari, 2015). Therefore, it is necessary to observe each financial market individually within the context of „Capital Markets Union“ and bring conclusions about the possible benefits or losses for potential members individually, depending on the market development stage and the meaning of the development stage for the economy. As a result, the Croatian capital market should be observed in this context from the aspects of: chronological development stage of the capital market and shareholding, volume of shareholders, shareholders' structure and volume and value of shares. The onsets of the Croatian capital market operation, stock exchange operation and shareholding are marked by two simultaneous processes. On the one hand, there was a process of transforming social capital into state capital as a precondition for the privatisation process. On the other hand, there were the weak institutional and administrative state capacities due to homeland war and the separation of Croatia from the former federation. This was the key characteristic of the 1990-1995 period. Afterwards, the period from 1996 to 2002 saw the additional development of legislative and the institutional framework such as the founding of the Central Depository and Clearing Company and the Securities Commission, with the onset of the first crisis in 1999. Nevertheless, the adoption of the Securities Act in 2002 marks a milestone in the sense of stronger inclusion of shareholders and investors in the capital market. Namely, the government of that time passed an act enabling the adoption of the institute of the so-called „public joint-stock companies“, which states that joint-stock companies meet one of the following criteria:

1. they issue shares through public offering, or
2. they have more than 100 shareholders, and their share capital is at least HRK 30,000,000.00.

The government explanation stated that this prescribes a new category of „public joint-stock companies“, the main characteristic of which is that the capital is distributed to a large number of shareholders, and that their shares are traded in organised markets. Since almost all joint-stock companies ensued by way of conversion, this legal provision established the companies under the legal regime of the capital market, which is narrowly comprised by the Capital Market Act and the Act on the Takeover of Joint-Stock Companies. These companies were listed at the stock market and regulated public market, they dematerialised their shares, drafted and publicly published their quarterly reports and other legally prescribed reports, informed the public on significant business activities and significant changes in shareholders' structure and met other legal provisions. In this way and due to trade strengthening at the Zagreb Stock Exchange, the number of shareholders in the Republic of Croatia exceeded 530 thousand after 2002, and in the period of trade euphoria that lasted to the end of 2007 the share index exceeded 5,400 points, while the CROBEX index increased 11 times in comparison with the crisis-ridden 1999. Nonetheless, the emergence of the global financial and economic crisis was not the only characteristic of the capital market in 2008 in the Republic of Croatia (the share index fell by 74 %), but there was a simultaneous process of adjusting the legal framework and adoption of the EU directives. It all resulted in the passing of a new Capital Market Act in 2008 entering into force on 1 January 2009. The new Capital Market Act included all the EU directives, whereby the regulation of the capital market was completely aligned with the EU acquis. One of the more important provisions of the new Act was the abrogation of „public joint-stock company“ listing, adopted earlier in 2002, and with it the obligation of companies with over 100 shareholders and share capital of over HRK 30m to offer shares on the stock market. This provided the listed joint-stock companies on the ZSE with the possibility to delist. Thus, joint-stock companies started making decisions in their annual assemblies by a three-quarters majority to delist from the ZSE.

The continued delisting process has lasted since 2009, and some joint-stock companies have been converted into limited liability companies. A continued adoption of EU directives and alignment of regulations with the EU *acquis* resulted in a completely new Capital Market Act in 2018. The new Act enables the implementation of the provision of the Regulation on markets in financial instruments and amendments of MiFIR, which together with the directive MiFID II comprises a unique legal framework with regard to: publishing trade data, transaction reporting by competent authorities, derivatives trading in organised places and non-discriminatory approach to alignment and trading with reference values. There is a more detailed description of the authority of competent authorities, ESMA and the European Banking Authority (EBA). Furthermore, the new Act enables the implementation of the provisions of the Market Abuse Regulation, establishing a common regulatory framework forbidding insider trading, unlawful disclosure of inside information and market manipulation, as well as measures to prevent market abuse to ensure financial markets' integrity within the Union and increase protection of investors and confidence in these markets. This Act also enables the implementation of the provisions of the Regulation on improving securities settlement in the European Union and on central securities depositories, whereby unique requests for the settlement of financial instruments in the Union are determined, together with the rules for the organisation and behaviour of central securities depositories (CSDs) for promoting a safe, effective and unhindered settlements of all financial instruments as well as CSDs activities. Each licensed central securities depository will enable to provide their services in the area of any EU member state. The Act also holds the provisions of the new Prospectus Regulation (2017), which is binding in its entirety and is directly implemented in all member states. The Prospectus Regulation is implemented in stages in provision sets, so the third and largest set of provisions will be implemented from 21 July 2019. The Prospectus Regulation represents the main plan of the European Commission for the establishment of capital markets and from 21 July 2019 it will entirely substitute the current prospectus regulation framework. In order to continue with the uniform implementation of the EU regulations in the Republic of Croatia, which is a part of the unique internal market of the EU, this Act ensures the transference of the provisions of the Transparency Directive into the Croatian legal system. Within this context, the subject of this research is the shareholders' structure and its impact on GDP. Through ANFIS analysis this paper establishes models of shareholders' structure that are most likely to contribute to the rise of GDP in Croatia and point to the shortcomings of the underdeveloped capital market.

## **2. THEORETICAL BACKGROUND**

In the last ten years, the European financial latent factor on stock returns has been conditioned by economic, financial and political factors. Industrial production and political instability are the chief driving forces of latent factors that have shaped the demand and supply dynamics of shares and bonds. The movement of these factors is of cyclical nature and can cause significant turning points in investor perceptions (Moreno, Orlando, & Redin, 2016). However, the capital gains and losses, added to income, can complete entirely other risk-sharing channels, i.e. the alignment of revenue and expenditure. This is especially important for countries within the monetary union, since unions are frequently not able to solve asymmetrical „shocks“ caused in cases of productive disproportion of member states by monetary policy measures (Balli & Sorensen, 2008). Unfavourable macroeconomic environment can emerge in cases of breaching the threshold in the sense of current accounts, net international investment position, export market share, nominal units of labour costs, real estate prices, private sector debt, government debt and unemployment rate. Imbalance among these eight indicators can contribute to an unfavourable macroeconomic environment that aids the emergence of intensive crisis phenomena (Pera, 2016).

It has been possible to use the money supply (M2) as a stabilizing agent in the monetary policy of the European countries because it contributes to positive and negative aspects of long-term economic growth in the absence (presence) of institutional quality (Kutan, Samargandi, & Sohag, 2017); however, its potential has not been fully exploited. In fact, we can say that an effective monetary policy framework is frequently observed as a prerequisite for a proper functioning of financial markets. Nevertheless, the effectiveness of monetary policy cannot be measured directly, and it requires empirical research in terms of the effects of financial infrastructure, competitiveness of financial markets and current economic conditions. Most frequently the effectiveness of monetary policy depends on the extent of the impact of the selected interest rate on all other financial prices, including the entire time structure of interest rates, loan rates, exchange rates and asset prices (Avci & Yucel, 2017). Therefore, the policy makers are thinking about the ways of renewing the system that would prevent future crises, having in mind the significance of financial deepening that was proven in previous time periods (especially in the 1990-s). The analysis of this period leads to a conclusion that deep financial markets encourage growth in productivity, but also provide loan borrowers with an incomparable access to loans. Likewise, public shares can improve corporate management, and loan capital markets can serve as a significant alternative to bank loans in times of financial system stress (Roxburgh et al., 2009), because research thus far has proven that countries with a more developed financial markets have significantly lower aggregate volatility (Wang, Wen, & Xu, 2018). These are the most important guidelines the system reforms should be directed towards. However, in order to implement these guidelines, and also encourage market recovery in each of the potential members state of such a common market, it is necessary to observe the shareholders' structure and use it to analyse the impact of interested investors on the market itself and on economic development. In this region, the development of the financial market, which still has not achieved a satisfactory and necessary level for a proper economic development, can be tied to the phenomenon of capital centralisation itself. Although the empirical research has not confirmed the existence of a global tendency toward capital centralisation nor the existence of possible connections between economic crisis and capital centralisation, the trend of this phenomenon dynamics has assumed a more regular and general character since the beginning of the financial crisis of 2007 (Brancaccio, Giammetti, Lopreite, & Puliga, 2018). Apart from centralisation, a weak development of the Croatian capital market is followed by the long-term process of institutional reforms, but also emphasised by the instability of the transition process (Peša, Wronska Bukalska, & Bosna, 2017). The states usually implement reforms of their institutions in times of high social capital, and not when social capital is low. The relationship between social capital and attraction of foreign investment that contributes to economic growth can, therefore, be connected with the development of institutions. Investment is encouraged in conditions in which financial institution reforms are implemented, so both the states with high and low social capital will decide to reform their institutions, but institutional development does not directly lead to investment, i.e. we can say that the institutional framework is related to foreign investment, but it has to foresee foreign investment that will be attracted into a state (Shamaileh, College, & College, 2018). Therefore, the identification of transformative power of dependence on FDI opens questions of key roles of institutions in peripheral political economies with regard to dependency patterns (Maisenbacher, 2018). Nevertheless, in the absence of institutional quality, the predominantly high level of social capital can effectively assume the role of formal institutions, ensuring financial liberalisation, which contributes beneficially to financial deepening (Elkhuizen, Hermes, Jacobs, & Meesters, 2018). Generally speaking, social capital can be defined as a level of mutual trust shared by a group of individuals. Modern economic activity defines and maintains the trust by contracts, that is, it places a certain amount of trust on the individual or entity with whom it concludes a contract, or individuals in charge of implementing the contract

provisions. In cases where there is a low level of trust in society there are less partners with whom an individual is willing to enter into contract, so there is a larger probability that the allocation of resources in society will be less optimal than at times of higher level of trust and higher number of potential partners (Shamaileh et al., 2018). The joint movement of revenue and capital in global economies is determined by integrated financial markets. In a situation that combines risky entrepreneurial activity with moral risk, the switch to a financial integration leads to boom-bust cycles in capital flows, export and consumption. The moral hazard causes the cycles because of financial intermediaries and encourages entrepreneurs to assume a share in their own projects. The size of this share grows with wealth, discouraging entrepreneurship and inhibiting the creation of capital (Kikuchi, Stachurski, & Vachadze, 2018). Thus the role of finances should be shifted from a „self-service“ situation into a mitigating one, so it is necessary to explore the effects on fundamental growth sources in which the functioning of finances serves to direct savings toward physical capital investment (Capolupo, 2018). On the other hand, if we observe the impact of the concentration of large corporations with long-term business on the growth of GDP, it is important to point out that (Fogel, Morck, & Yeung, 2008):

- high income countries in which the structure and concentration of large corporations with long-term business changes less, are characterised by a slower growth in GDP,
- large corporations with long-term business disappear more slowly in countries with large and influential governments, founded on firm civil codes, denser bureaucracy and a dominant influence of banks on the financial structure,
- low income countries in which there is a dominance of partially or fully state-controlled enterprises (SCEs) are characterised by a slow rise in GDP, which additionally points to ineffectiveness of state interventions and
- the growth of GDP encourages the emergence of new corporate giants.

Today, the effectiveness of restructuring, that should ensue after most acquisitions, is increasingly prevalent in economies that used to be dominated by stable ownership structures and several methods of corporate acquisitions. These phenomena are constituents of the so-called marketization of corporate control, i.e. the process through which market mechanisms are expanded onto the area of corporate control and corporate acquisitions. Most literature dealing with marketization of corporate control calls for the approach of separation of varieties of capitalism (VoC), which developed typologies for the characterisation of institutional cooperation among different national capitalist systems (Maisenbacher, 2018). These typologies indicate that corporations literally convert into commodities, i.e. mechanisms for storing, buying and selling corporate shares, and in that regard for generating and maximizing profit. VoC approaches are, thus, frequently exclusively directed toward socioeconomic institutional configurations, such as dominant systems of corporate management that map out institutional changes. However, an institutional change is not limited to the socioeconomic sphere and the usage of a critical institutional approach enables monitoring of basic relationships of power that shape both the corporate sphere and the regulatory framework in which corporate behaviour is embedded (Maisenbacher, 2018). The results of these studies visualise with more clarity the fact that different patterns of foreign direct investment can certainly develop different patterns of institutional change.

### 3. METHODOLOGY AND DATA SET

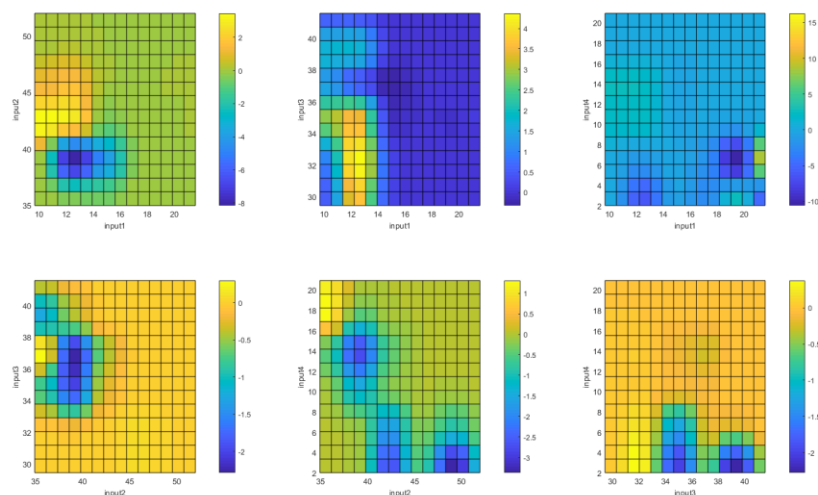
Using data set from CCDC Bulletin and monthly CNB Bulletin about shareholders' structure from 31 March 2006 to 30 March 2018, the way in which shareholders' structure impacts the GDP has been observed (Domestic natural persons – x1, Domestic legal entities – x2, Foreign persons – x3, Others – x4, GDP – y). The GDP and shareholders' structure were observed as percentages of increase or decrease in relation to the previous period.

Shareholders' structure was divided in percentage points (of the total of 100 %) to domestic natural persons, domestic legal entities, foreign persons and others. Domestic legal entities comprise joint-stock companies and limited liability companies, financial institutions (banks) as well as the public sector (state, local municipalities / self-government, agencies and others. Foreign persons comprise foreign natural persons (foreign passport) and foreign (non) legal entities registered in a foreign country. Others comprise mostly portfolio investors, not exclusively, but in a greater majority. In this category there are investors who could not be classified into any of the other categories for various reasons. The data set is analysed through Adaptive Neuro-Fuzzy Inference System (ANFIS) (details on the used methodology in Brlečić Valčić, Samodol, 2018) because these tools are frequently used as an universal approximator in modelling nonlinear functions of multiple variables, but also in predicting chaotic time series, etc. (Jang, 1993). Using an input-output dataset, ANFIS delivers a Fuzzy Inference System (FIS), whereby the membership functions parameters are adapted by a backpropagation learning algorithm or combined with the method of least squares (hybrid learning method). Such a setup allows the FIS system to learn from training data. In selecting the membership function for the needs of this research the model behaviour analysis has been conducted. The model with characteristics MFs – 6, Input MF type – gauss, Output MF – linear, No. of epochs – 150, No. of nodes – 2647, No. of linear parameters – 6480, No. of nonlinear parameters – 48, No. of parameters – 6528, No. of fuzzy rules – 1296, RMSE – 0.000002, has been selected for this research.

#### 4. RESULTS

ANFIS analysis results are shown in Figure 1.

*Figure 1: 2D overview of ANFIS analysis results*



*Source: authors*

It we observe the relationship between domestic natural persons and domestic legal entities and their connection to the GDP, we can conclude that the optimal growth in GDP is caused by the combination of a 10 – 14 % share of domestic natural persons and 42 – 46 % share of domestic legal entities. At the same time, the concentration of domestic natural persons of 12 – 14 % with a simultaneous concentration of legal entities of 37 – 40 % can cause a drop in GDP (even up to -8 %). An increase in the concentration of both (natural persons to 16 and over 20 %, and legal entities to 47 and over 50 %) causes a moderate rise in GDP. The analysis of the relationship of domestic natural persons and foreign persons in relation to rise/fall in GDP

points to conclusions that the highest rise is caused by 12 – 14 % share of domestic natural persons with 30 to 35 % share of foreign persons. An increase in the concentration of both in this relationship does not cause a fall nor a rise in GDP, i.e. either the effect is non-existent or it is very small (up to 1), or in the case of a 38 to 40 % share of foreign persons it is about 1 to 1.5. The analysis of the concentration of domestic natural persons and others indicates a possibility that a share of 10 to 14 % of domestic natural persons with the same share of others causes a growth in GDP from 3 to 5, and a potentially highest rise in GDP (from 7 to 10) could be caused by a combination of domestic natural persons of over 22 % share and others with a share of 6 to 8 %. The analysis of the relationship between domestic legal entities and foreign persons indicates a danger of a fall in GDP to -2 in a combination of 37 – 40 % share of domestic legal entities and 35 – 38 % share of foreign persons. All other combinations of these relationships also point to a fall, a GDP trend of about 0 or an insignificant rise in GDP. The relationship between domestic legal entities and others according to this model also indicates the danger of a fall in GDP with all percentages of domestic legal entities (the highest of 39 – 42 % and from 47 to over 50 %) and the concentration of others from 2 to 18 %. A moderate rise in GDP (from 0.5 to 1.5) could be caused by a combination of 35 – 37 % of domestic legal entities and from 18 to over 20 % of others. On the other hand, if we consider the relationship between foreign persons and others, the concentration of foreign persons of 34 to 36 % and of 38 to 42 % with a simultaneous concentration of others of 2 to 4 % causes a fall in GDP. 30 to over 40 % share of foreign persons and 10 % share of others causes hardly any change in GDP. A small change (about 1) could possibly be caused by a combination of a 31 – 32 % share of foreign persons and 2 – 4 % share of others.

## 5. CONCLUSION

In the context of creating effective common capital markets, it is necessary to observe each market separately. Key characteristics that require attention in case of insufficiently developed capital markets, which Croatia certainly is, relate to the chronological development stages of both the market and shareholding activity, the volume of shareholders in these time cycles, the shareholders' structure and share volume and value trends. The development of a financial market in this part of the EU, which still has not reached a satisfactory and necessary level for a proper economic development, can be connected to capital centralisation at a global level, a long-term process of institutional reforms and the instability of the transition process. The process of delisting and conversion of joint-stock companies to limited liability companies has lasted since as early as 2009 and the passing of the first Capital Market Act, which raised the level of investor protection and increased transparency of trading and ownership. The provisions of the Capital Market Act 2018 only additionally increase investor protection and transparency of operations, so, from previous experience, we can only expect the continuation of the delisting process, a fall in the volume of shareholders and share volume and turnover. The existing shareholders' structure obviously does not appreciate transparency, and the roots of such relationships go back to acquisition methods that did not happen in a market-like and transparent way. The first combination of privatisation and ways of financing share acquisitions in the pre-institutional period (1990 – 1995) favoured privileged groups and those who disposed of insider information, for which there were no legal consequences. A continued development of market institutionalization evidently was not convenient to such an acquisition of ownership and control over financial flows, especially after the implementation of EU directives into the Capital Market Act (2009) and (2018). It is noteworthy that no person in Croatia has ever been convicted for a criminal act of using insider information or stock exchange manipulation, although there have been reports of such acts by regulators. Domestic administration of justice simply could not rise up to these issues and represents the weakest link in strengthening of this area of social capital.

Despite the considerable level of institutional quality as regards financial markets due to alignment with the European regulatory framework, social capital is still missing in the development, which is noticeable from the analysis conclusions of this paper. It is primarily consequently evident in the decrease in the number of listed shares after the last economic crisis, but also in the volume of shareholders and share turnover, which directly caused a fall of the share of regular turnover in GDP. A more determined participation of the Republic of Croatia in the capital market union at a EU level, aimed at decreasing fragmentation in financial markets, the diversification of sources of financing, solidification of capital flows among EU member states and improvements in funding accesses for companies will hardly advance on existing habits and shareholders' structure of existing joint-stock companies. Opportunities for this should be sought in new entities listed on the stock market, in different funding methods for small and medium enterprises on new capital flows and in the framework of the adopted common EU regulation and supervision. Thus, the analyses conducted for the needs of this paper clearly point that the shareholders' structure is also important for the growth in GDP, i.e. we can conclude that it is in the shareholders' structure and its trends in the observed period where structural shortcomings of social capital are evident. The models obtained in the analysis indicate that, in relation to the rise in GDP, the highest percentage of investors should be concentrated in the category of "domestic legal entities" (from 46 – 48 %) and that the overall concentration of the categories "domestic natural persons" and "domestic legal entities" should be over 50 %. The share of the "foreign persons" category should be 22 – 35 %, whereas higher percentages of this category would possibly lead to a fall in GDP. In other words, the analyses indicate that the best ratio for the growth in GDP would be: 11 % domestic natural persons, 46 % domestic legal entities, 35 % foreign persons and 8 % others. Likewise, the volume of active shareholders as well as the turnover should increase considerably. The limitations of the model are comprised in the limitations of the data used in its elaboration. Recommendations for further research relate to the analysis of other markets within the EU by using the same methodology.

## LITERATURE:

1. Anno, R. D., Dollery, B. (2012). Illusion index for the European Union. Munich PersonalRePEc Archive. (42537).
2. Avci, S. B., Yucel, E. (2017). Effectiveness of monetary policy: evidence from Turkey. *Eurasian Economic Review*. 7(2), pp 179–213.
3. Balli, F., Sorensen, B. E. (2008). Risk Sharing among OECD and EU Countries : The Role of Capital Gains . Capital Income . Transfers . and Saving Risk Sharing among OECD and EU Countries : The Role of Capital Gains, Capital Income, Transfers and Saving. MPRA Working Paper No 10223 Univ.
4. Brancaccio, E., Giammetti, R., Lopreite, M., Puliga, M. (2018). Centralization of capital and financial crisis: A global network analysis of corporate control. *Structural Change and Economic Dynamics*, 45. pp 94–104.
5. Braun, B., Hübner, M. (n.d.). Fiscal Fault . Financial Fix ? Capital Markets Union and the Quest for Macroeconomic Stabilization in EMU Benjamin Braun and Marina Hübner MPIfG Discussion Paper.
6. Capolupo, R. (2018). Finance. Investment and Growth: Evidence for Italy. *Economic Notes*, 47, pp 145–186.
7. Elkhuisen, L., Hermes, N., Jacobs, J., Meesters, A. (2018). Financial development . financial liberalization and social capital. *Applied Economics*. 50, pp 1268–1288.
8. Fogel, K., Morck, R., Yeung, B. (2008). Big business stability and economic growth: Is what's good for General Motors good for America? *Journal of Financial Economics*, 89, pp 83–108.

9. Jang, J.-S. R. (1993). ANFIS: adaptive-network-based fuzzy inference system. *IEEE Transactions on Systems, Man, and Cybernetics*, 23, pp 665–685.
10. Kikuchi, T., Stachurski, J., Vachadze, G. (2018). Volatile Capital Flows and Financial Integration : The Role of Moral Hazard. *Journal of Economic Theory*, 176, pp 170–192.
11. Kutan, A. M., Samargandi, N., Sohag, K. (2017). Does Institutional Quality Matter for Financial Development and Growth? Further Evidence from MENA Countries. *Australian Economic Papers*, 56, pp 228–248.
12. Maisenbacher, J. (2018). Transnational capital unbound? A critical institutionalist perspective on the marketization of corporate control in Serbia and Turkey. *Competition and Change*, 22
13. Moreno, A., Orlando, J., Redin, D. M. (2016). The macro-finance environment and asset allocation: A simultaneous equation approach. *Finance Research Letters*, 18, pp 199–204.
14. Pera, J. (2016). Evaluation Of The Macroeconomic Stability Of Central And Eastern European Countries With A View Toward Their Membership In The European Union. *Multidimensional Risk Analysis. Comparative Economic Research*. 19.
15. Peša, A., Wronska Bukalska, E., Bosna, J. (2017). ARDL panel estimation of stock market indices and macroeconomic environment of CEE and SEE countries in the last decade of transition. *Portuguese Economic Journal*, 16, pp 01-17.
16. Roxburgh, C., Lund, S., Atkins, C., Belot, S., Hu, W. W., Pierce, S. M. (2009). Global capital markets : Entering a new era. Retrieved from <https://www.cepal.org/noticias/paginas/3/35143/Global-capital-markets.pdf>
17. Samodol, A., Brlečić Valčić, S. (2018). The impact of shareholder perception of capital on ownership structure in the context of shareholder democracy - Case of the Croatian capital market // *Economic and Social Development - 36th Economic and Social Development (Book of Proceedings)*, 36th International Scientific Conference on Economic and Social Development – "Building Resilient Society", pp 347-356.
18. Shamaileh, A., College, F., College, M. (2018). Barriers to Financial Institutional Development : A Preliminary Theoretical Exploration of Social Capital . *Growth and Institutional Development. Economics Bulletin*, 38, pp 186–195.
19. Wang, P., Wen, Y., Xu, Z. (2018). Financial Development and Long-Run Volatility Trends. *Review of Economic Dynamics*, 28, pp 221–251.
20. Young, K., Pagliari, S. (2015). Capital united ? Business unity in regulatory politics and the special place of finance, (June), pp 1–21.

## INNOVATION IN THE DISTRIBUTION OF TRAVEL SERVICES AND THE USE OF THE INTERNET

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### ABSTRACT

*The phenomenon of innovation takes an important place in the scientific research. Reasons for the discussion have their source in the global trends of socio-economic development, which include, in particular: technical and technological progress, developing the economy of experience, ageing of the population, an increasing role of low-cost airlines, an increasing importance of developing high-speed railway connections in Central and Eastern Europe, development of creativity, entrepreneurship and knowledge. The interest in innovation indeed entails a desire to develop knowledge about new opportunities for the development of phenomena, products, processes and relationships, but it also entails insufficient world resources to create and consume the above efficiently. Some authors of the discourse are inclined to link innovation with knowledge and practice; others draw attention to the organisation's effort to introduce new products or new uses as the essence of innovation. Innovation also means implementation of a new marketing or organizational method that redefines the way the company is working or liaising with the environment. In this context, it is a tool for building a competitive advantage. The purpose of this article is to show the relationship between a theoretical concept of innovation and its practical shape in the process of distributing services in tourism and hospitality. The question of whether the use of the Internet in the distribution of travel and hospitality services exhausts the modern concept of organisational and marketing innovation is essential for the purpose of this study. The method applied in the study is an analysis (based on secondary sources of information) of selected research results from a sub-sector of tourism – the hotel industry – to discern the importance of the Internet for the development of organisational innovations in the distribution processes of these products.*

**Keywords:** *distribution of hotel services, organisational innovation, service innovation,, use of Internet*

### 1. INTRODUCTION

The issue of innovation takes an important place in the literature (including the economic one), especially in the one published in the 21st century. Reasons for this discussion have their source in the global trends of socio-economic development, which include, in particular:

- technical and technological progress,
- developing the economy of experience as a result of changes in consumption, including consumption of travel services,
- ageing of the population,
- an increasing role of low-cost airlines in the process of economic and social dynamism of regions, including through intensification of the tourist traffic,
- an increasing importance of developing high-speed railway connections in Central and Eastern Europe,
- development of creativity, entrepreneurship and knowledge.

The interest in innovation indeed entails a desire to develop knowledge about new opportunities for the development of phenomena, products, processes and relationships between them, but it also entails insufficient world resources to create efficiently and to consume satisfactorily the

above. Some authors of the discourse are inclined to link innovation with knowledge and practice (Bukowski et al., 2012); others draw attention to the organisation's effort to introduce new products or new applications as the essence of innovation. Innovation also means implementation of a new marketing or organizational method that redefines the way the company is working or liaising with the environment. In this context, it is a tool for building a competitive advantage. Innovations involve introducing a new or substantially improved solution to the company's practice in relation to the product (good or service), process, marketing or organization (Marciszewska, 2011; Marciszewska, 2014). Innovation requires implementing novelties in practice for its verification; in the case of a new product (good or service), implementation means offering it on the market. Implementation of a new process, new marketing methods or a new organization relies on their application in the current functioning of the company. Innovation is not the same as creativity, because, in essence, innovation focuses not only on putting forward new ideas, but on deciding which ideas should be chosen and put into practice in order to create a value (the so-called value innovation). In the concept, an emphasis on the creation of new markets not only in the spatial sense but also as an objective and subjective structure of the existing markets takes an important place. Thus, innovations include a process of creating new ideas and then converting them into a market offer or modifying it. So interpreted innovation can constitute a criterion for assessing the competitive ability of a company which functions both in the area of producing tangible goods and services and in the system of distributing them. The purpose of this article is to show the relationship between a theoretical concept of innovation and its practical shape in the process of distributing services in tourism and hospitality. The customer–tourist service is a process that requires an innovative approach, owing to which the tourist will be more satisfied, and the company will gain in its image and strengthen its market position. Therefore, the question of whether the use of the Internet in the distribution of travel and hospitality services exhausts the modern concept of organisational and marketing innovation is essential for the purpose of this study. The method applied in the study is an analysis (based on secondary sources of information) of selected research results from a sub-sector of tourism – the hotel industry – to discern the importance of the Internet for the development of organisational innovations in the distribution processes of these products.

## **2. THE PROCESS OF TOURIST SERVICE AND THE DISTRIBUTION OF SERVICE PRODUCTS**

The tourist service has its origins on the market, more precisely in the space of the market containing the offer, i.e. in the distribution channel. Reacting to information about the offer, the tourist directly or through a medium (e.g. the Internet) contacts the service provider to gain additional information or to conclude a transaction. The process of using travel and paratravel services by a single tourist is a component of the broadly understood tourist traffic and results from an effective distribution of these services. 'The socio-economic phenomenon of the tourist traffic is created by a set of travellers motivated by different socio-cultural and professional aims which they intend to achieve after temporarily and voluntarily leaving their permanent place of residence in the country or abroad' (Gaworecki, 2010, p. 19). Realization of tourist aims requires that a selected travel service should "leave" the distribution zone and shift into consumption (of course, the point is not in physical displacement of products, because this is impossible due to the specificity of services). The distribution of travel services and their simultaneous production and consumption – regardless of their length or intensity – fall into a process understood as a time-ordered sequence of activities. Thus, the tourist traffic as a consequence of the act of buying–selling (and hence effective distribution) means a specific phenomenon whose essential characteristic is a voluntary and temporary change of the place of stay by a tourist (visitor) in which he will be able to pursue a variety of interests in terms of the

organization of leisure. Taking into account the fact that individual tourists have dissimilar possibilities of realising their travel interests (among others, due to diverse social and economic conditions), their expectations vary, for example, in terms of the nature and the quality of service; their preferences in terms of the distribution of travel services will differ, for example due to the availability of various channels of distribution (e.g. only 15 years ago, Internet distribution channels were not widely available in Poland, and for many customers of the older generation – this is still not a popular distribution channel).

### **3. ONLINE DISTRIBUTION CHANNELS ON THE TOURIST MARKET AND GLOBAL DISTRIBUTION SYSTEMS**

For the purposes of this article, it is assumed that the Internet distribution channels, somehow evolving since their first uses among operators on the tourist market in Poland, are characterised by complementarity with traditional channels. Internet channels of distribution are largely based on computerised reservations systems and global distribution systems; the latter two systems will be discussed further below. Internet distribution channels on the tourist market are 'channels in which at least some of the flows [of information, data] between the end user (client) and the service manufacturer or provider fully or mostly take place over the Internet and Internet information technologies, the latter meaning publicly available or specialist software enabling access to the resources of economic entities who offer their tourist product in this way' (Nalazek, 2010, p.22) Thus, these are all the systems and solutions that allow partial or complete booking of a tourist service or product over the Internet. Already in the 1950s, data about flights, bookings, etc. were mainly recorded manually by airlines. (Buhalis, 2003, p. 194). Likewise, ticketing and any related activities, such as payments and tariff calculations, were made manually, while customer service, more specifically informing customers about timetables, availability of seats, prices, etc. was made in traditional points of sale, with the help of regularly published guidebooks. However, with the growth and expansion of airlines and with a growing role of computers, saving, storing and communicating increasingly more complex information brought many problems without the latter being used. In those days, computers were devices that were mainly used to create and store databases. In the 1960s, American Airlines commissioned IBM to create a booking system that would streamline the distribution of airline tickets. Initially, it was used to record and read data on the number and distribution of seats on particular flights and reservations. It could be accessed only by employees of the so-called reservations centres who were, in turn, contacted among others by employees of individual sales offices by phone. Gradually, other airlines have implemented the SABRE system or its equivalents. Finally, these systems were called computerized reservations systems – CRS (Nalazek, 2010, p. 35). The CRS functions were continuously expanded. Over time, they have enabled, among others, invoicing, ticket printing, billing, and drawing up statistical statements. The first hotel chain that implemented a computerised reservations system in the mid-1960s was the Holiday Inn chain and then the Sheraton, the Forte, the Hilton, the Intercontinental, and the Marriott (Cooper, 2005, p. 718). Similarly to airlines, initially the hotel CRS provided information on the availability of rooms in particular establishments, room rates and reservations, and only the central reservation offices had access to this information. However, hotel computer reservations systems have also developed. Functions of preparing reports and statistics, handling loyalty programs, managing revenues and CRM have been implemented (Nalazek, 2010, pp. 35–36). Owing to CRM, it is possible to establish and maintain relationships with customers. Today, this system is gaining popularity, among others, thanks to entrepreneurs' growing awareness of its importance as a tool that can contribute to the growth of the company's revenues. In the market of tour operators, CRS started to be introduced much later than in the airlines and hotel markets. The first main reason was the complexity of the offered products which consisted of many individual services which, in turn, required

computerised reservations systems to be even more complex. Another reason was the dispersion of entities with which tour operators liaise (Kaercher, 1996). When travel agencies joined the ranks of CRS users, computerised reservations systems began to be identified as computer distribution systems (CDS). The first agencies joined in the mid-1970, which was connected with the development of telecommunications networks. The next stage was the emergence of a few so-called national distribution systems (NDS) in Europe at the turn of the 1970s and the 1980s, among others in Italy, France, Great Britain, and Germany. This facilitated service at travel agencies, since the various CDS of different service providers significantly complicated the efficiency of distribution as they required installation, employee training, etc. National distribution systems ensured access through one terminal to many different CDS of travel companies within one country. Unfortunately, NDS had a lot of shortcomings and limitations, and soon they were to be replaced by better systems. The 1980s mark the beginning of the development of global distribution systems (GDS). Undoubtedly, the advantage of the GDS lies in the ability to access tourism products and services of various producers from around the world. Therefore, using these systems significantly expands both the scope of the distributed services and the number of their consumers when compared to the possibilities of national distribution systems. In Europe two distribution systems, Galileo and Amadeus, were created as a specific counterbalance to the US systems on the world market. The European GDS have absorbed some of the national distribution systems and now, in addition to Amadeus and Galileo, also Sabre and Worldspan are in operation. The use of GDS by service providers is conditional not only on having their own CRS but also on adapting them to global distribution systems; only then is it possible to provide data, among others, about flight schedules, fares, room rates and room availability. Although the cost of using each GDS is high, being a user of a global system opens up wider distribution opportunities and is profitable. Some authors point out that using GDS results in a higher level of travel agency services and in an increase in labour productivity (Nalazek, 2010). Access to the offer of all major tourist market players is real thanks to the functioning of the GDS.

#### **4. INTERNET DISTRIBUTION CHANNELS FOR HOTEL SERVICES**

The selection of distribution models in the hospitality industry is shaped by a number of factors, including: membership in groups of economic cooperation (such as hotel chains) and market segments targeted by tourism/hotel products. Being a member of a group of economic cooperation determines the distribution models due to higher financial resources that can be earmarked for distribution and marketing than in the case of individual companies (economies of scale). From an economic point of view, direct distribution is preferable to the indirect one, but the use of GDS by hotel establishments is an opportunity for further development of this market. In the near past, one could witness a situation in which rates of the same hotel rooms differed from each other in each distribution channel. Most commonly, this resulted from one reason: discounts received by travel agents from the hotel establishments. Currently, prices and availability of hotel rooms are controlled by the facilities themselves, and there is an attempt at standardising prices in all distribution channels, despite the phenomenon of price discrimination (Bieluszeko and Marciszewska, 2018). At present, more and more frequently there are provisions in agreements between the online distribution channel and the hospitality company that prices in competing channels cannot be lower. It is the responsibility of the employees of some distribution channels to check that the hotel complies with the agreement and to caution the hotel if it does not. The most important phenomena occurring in the area of the distribution of hotel services on the Internet include:

- a continuously increasing use of online distribution channels – direct and indirect ones;
- increasing more widespread use of the Internet for marketing purposes;
- applying price discrimination.

The increase in the share of online distribution channels for the sale of hotel services primarily takes place at the expense of the global distribution systems, although the latter still play an important role in the booking of accommodation. The potential of the Internet for the purchase of hotel services is still not exploited, although there are favourable changes in this regard. From among all distribution channels, the hotel's own website inspires the highest confidence among guests of many hotel facilities, and it is vital to take care of its appearance and functionality. Arguably, adding new language versions as well as interesting and suggestive visualization of rooms or even services is an important aspect of the development of these websites. Expandable and modifiable service packages that can be purchased via the website are an interesting solution, too. Thanks to the extensive tools, Internet distribution significantly contributes to building a competitive advantage of the company and to providing consumers with better access to the offer, in particular the current information about it and the updated (attractive) price. Although the Internet still is a complementary channel of distribution for the traditional ones, it is a prerequisite for the survival and empowerment of companies in the widely understood tourism sector of the market.

## **5. INNOVATION IN CUSTOMER SERVICE: CREATING TOURIST VALUE**

Product innovations have a wide range of different layers in the structure of the tourist product perceived from the marketing point of view, as in the case of a particular form of tourism (Dryglas 2009, pp. 168-169). In the pursuit to improve travel services and customer service, the customer constitutes the main area of interest, and it is for him that new offers are created, including innovative solutions covering the service process. According to Panasiuk (2008, p. 55), "customer service means a reliable supply of goods and services at the agreed time and place, according to his expectations". In the context of such an understanding of service, at least three areas of the impacts of innovation become apparent: reliability, timeliness, and customising the product to customer's expectations. Given the fact that tourists' expectations are diverse, the innovative approach to service is inseparably linked with the necessity of such customisation. During a tourism trip, a number of services are offered to the customer, ranging from the information provided at the travel agency to the service during the trip, for example, on board the plane, at the hotel, in a restaurant or in a museum. His satisfaction with service in these places depends on many service providers. Innovative service must take place in these entities in order to bring about the synergistic effect in terms of increased customer satisfaction with respect to meeting his expectations. The innovation of the tourism service can focus on the following aspects of the travel service (Marciszewska, 2014):

1. reliability of service, i.e. performing it according to the arrangements with the customer,
2. readiness to provide a service made up of various components which give the client a choice of the best option for him,
3. communicativeness related to giving the client information which should be expressed in an understandable manner,
4. physical security and discretion to ensure the tourist's comfort,
5. personality of the person serving the tourist (guide, resort representative, etc.).
6. fair treatment of the customer – also after the consumption of the service has been completed.

Each of the above aspects directly or indirectly shapes the service of a tourist who expects the providers' behaviours such as: friendly attitude, empathy, fairness, ability to control the service, access to the current information, access to alternative solutions, etc. Therefore, all components of customer service are designed to increase his satisfaction, which is largely dependent on the customised and innovative approach to the client-tourist. Innovation in the approach to the service processes of a customer-tourist is increasingly being discussed in the literature of the

subject, especially in the first twenty years of the current century (Andrwes et al. 2002; Butcher 2001; Marciszewska and Fache 2003). This direction of discourse indicates a need for innovation in service as a consequence of the ongoing changes in the market on the one hand and social development entailing the evolution of tourists' needs and expectations on the other hand. Attention is drawn, among others, to the correlation between market factors and the attitude of hotel management towards innovation (Orfila-Sintes et al., 2005, p. 863); only open attitudes towards innovation give rise to the desired pro-innovation behaviours. The openness in the attitudes of hotel management towards innovation is expressed, among others, in recognising the need for staff training as well as tourist education through planned actions aimed at promotion and strengthening mutual relations. In this context, both a particular role of the human capital and the tourists' attitudes to creating and consuming the effects of innovative product, organisational and marketing solutions need to be emphasised. The complexity and intangibility of travel services, as well as the particular role of information in providing them, make small and medium-sized tourism enterprises more likely to pay attention to non-technological innovations (Comisión and Monfort-Mir, 2012, p. 782). Hence it can be concluded that human investment is becoming a factor stimulating to innovative activity in terms of organisation or service (cf. Marciszewska, 1999; Grobelna., 2015). In many cases, failure to recognise the relationship between decent pay and the quality of work in tourism companies is the reason for the lack of employees' interest in non-technological innovations in the tourism sector, which, in consequence, is negatively reflected in the course and the effects the customer service process. In the literature of the subject there is also a slightly different approach to understanding the essence of innovation in the hospitality sector. Martinez-Ros and Orfila-Sintes (2009, p. 632) suggest that innovations in hospitality companies should be understood as introducing additional features of the service or its new attributes, even if these changes come from the process innovation; they suggest that thereby innovations can vary depending on the pace of introducing the changes. Such an understanding of innovation "enters" the process itself as a subject. As regards the process of serving a tourist, the main focus shifts towards the provider (at different stages of proving the service), who is required to ensure a rapid response to the tourist's expectations, sometimes even those without logical justification. Thus, this approach to the essence of innovation in the hospitality sector (a sub-sector of tourism) strengthens the role of the human factor in the development of innovative processes in tourism, which has been highlighted in previous studies (Grobelna, 2015; Wanagos, 2018). However, better performance of the service – and thus better service of the tourist – is significantly determined by the company policy, as long as it stimulates creative thinking, accepts new ideas and processes suggested by employees to improve the relationship with a tourist (Tajeddini 2010, p. 229). These relationships could be strengthened if managers continually modify and expand their offer (Marciszewska, 2014). On the other hand, the mere enrichment of the offer is insufficient to retain customers; it is necessary to develop creative thinking towards innovative solutions in the service process, whereby the returning customer will encounter non-trivial and non-repetitive ways of building a service provider-beneficiary relationship. The application of innovation in hotel services also has a different range depending on the hotel category, membership in a chain and the target clientele. Rather, it should be remembered that innovative solutions in the service of a hotel guest should go beyond the standardised solutions and require customisation.

## 6. CONCLUSION

The challenge for today's tourism and hospitality companies is not so much new or modified products, but the relationships between them and their customers, which are a special resource of the organization. Serving a tourist on the domestic and global market requires changes in the approach to the tourist-client: organisational changes of the service process and the

development of awareness and competence of the (as well as the tourist) come to the forefront as areas of potential innovation. Traditional methods of communication give way to visualisation and experience, and the customer's dominant position creates new ideas. Taking this into account, it is important to strive to improve the competitiveness of tourism and hospitality companies on the market by supporting activities such as the customisation of travel services and the process of providing them, as this constitutes one of the main challenges of innovation in tourism, with a particular emphasis on the modification of market phenomena and processes and on taking into account personality predispositions of the staff, as they play a significant role in creating value for tourists – these are no less important than professional knowledge and skills. It should also be noted that the innovative approach to training of hotel staff should mainly include solving real problems (Marciszewska and Fache, 2003), which is not only a source of new ideas but also a development of professional competences (Marciszewska, 2016). The changing environment necessitates the introduction of continual changes and ongoing monitoring of the effectiveness of the undertaken actions, both in terms of shaping the market as a trading space and in relation to the individual tourist and serving him.

#### LITERATURE:

1. Andrwes, N., Flanagan S. and Ruddy J. (ed) (2002), *Innovations in Tourism Planning*. Dublin: DIT.
2. Bieluszko K. and Marciszewska B. (2018) Room rate parity vs. rate fences in the context of price discrimination theory: the case of the Polish hospitality market. *Argumenta Oeconomica*, Nr. 41 (2), pp. 113-133
3. Buhalis D. (2003) *eTourism*. Harlow: FT Prentice Hall.
4. Bukowski, M., Szpor, A. and Śniegocki, A. (2012). *Potencjał i bariery polskiej innowacyjności*, Warszawa: Instytut Badań Strukturalnych.
5. Butcher, J.(2001), *Innovations in Cultural Tourism*. Tilburg: ATLAS.
6. Comisón, C., and Monfort-Mir, V.M., 2012, *Measuring innovation in tourism from the Schumpeterian and the dynamic-capabilities perspectives*, *Tourism Management*, 33, pp.776-789.
7. Cooper Ch. et al. (2005) *Tourism Principles and Practice*. Harlow: Pearson Education.
8. Dryglas, D. (2009) *Innowacje produktowe turystyki uzdrowiskowej*, w: *Innowacyjne kierunki rozwoju turystyki uzdrowiskowej i lecznictwa uzdrowiskowego*, Stowarzyszenie Gmin Uzdrowiskowych RP, Krynica Zdrój, pp.168-169.
9. Fache, W., Marciszewska, B. (2001) *Improving Quality and Innovations in Cultural Tourism*. Gdańsk. AWF (Report from Intensive Programme of EC).
10. Gaworecki (2010) *Turystyka*. Warszawa: PWE.
11. Grobelna A. (2015) Role ambiguity: a problem or a challenge facing contemporary hospitality industry. The critical role of employees' creativity. *International Journal of Contemporary Management*, 14 (3), pp. 77-98.
12. *How top London hotels train and retain staff*. Retrieved 16.06.2019 from <http://londonhotelsinsight.com/2009/07/31/how-top-london-hotels-train-motivate-and-retain-staff/>
13. Kaercher K. (1994) *Re-Engineering the Package Holiday Business*. Retrieved 16.06.2019 from [https://genesys.net/karcherenter\\_0196.pdf](https://genesys.net/karcherenter_0196.pdf).
14. Kruczek, Z. (2011) *Obsługa ruchu turystycznego*. Kraków: Wyd. Proksenia.
15. Marciszewska B. (1999) *Konsumpcja usług rekreacyjno-sportowych*. Gdańsk: Wyd. AWF.
16. Marciszewska B. (2011) Współpraca międzysektorowa przedsiębiorstw a innowacyjność produktu turystycznego. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*. nr 157, pp. 281-290.

17. Marciszewska B. (2014) Rola innowacyjności w procesie obsługi turysty. *Turystyka wobec zmian współczesnego świata. Zmiany, bariery, innowacje*. Poznań: UE.
18. Marciszewska, B. (2016) Fieldwork: Is it a Competitive or Complementary Tool in e-Learning for Tourism? *Proceedings of the 15th European Conference on E-Learning (Ecel 2016)*.
19. Marciszewska, B., Fache, W.(2003), *Fieldwork: an innovative approach to tourism education*, Gdansk AWFIS. Unpublished Research Report.
20. Martinez-Ros, E., Orfila-Sintes, F. (2009) *Innovation activity in the hotel industry. Technovation*, 29, pp. 632–641.
21. Nalazek M. (2010) *Internetowe kanały dystrybucji na rynku turystycznym*, Warszawa: Difin
22. Orfila-Sintes, S.A., Crespi-Cladera, F., Martinez-Ros E.(2005) *Innovation activity in the hotel industry: Evidence from Balearic Islands*, *Tourism Management* 26, pp. 851–865.
23. Panasiuk, A.(2008) *Gospodarka turystyczna*, Warszawa: Wydawnictwo Naukowe PWN.
24. Tajeddini, K. (2010) Effect of customer orientation and entrepreneurial orientation on innovativeness: Evidence from the hotel industry in Switzerland, *Tourism Management*. 31, pp.221–231.
25. Wanagos M.(2018) Znaczenie monitoringu w kształtowaniu regionalnych produktów sieciowych w turystyce. *Marketing i Zarządzanie*. ZN US nr 2 (52), pp. 235-246.

## **PEDAGOGY AND EFFECTUATION: STUDENT IMMERSION IN THE ENTREPRENEUR'S REALITY**

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### **ABSTRACT**

*Identifying an opportunity in the environment, deciding to exploit it, gathering the necessary resources for this exploitation, symbolizing everything by a business plan: this is the recurring rational entrepreneurial learning at the Moroccan University. However, Sarasvathy (2001,2003) showed through her research that the reality experienced by entrepreneurs has little to do with the causal entrepreneurial approach. She says that entrepreneurs are behaving in an effectual way, that is, they start from the means at their disposal: what they are, what they know and who they know. This entrepreneurial position is rather challenging:*

- How can effectuation be integrated into entrepreneurial learning while student training implies prior programming of the course?*
- How to use a business plan, the focus of the rational entrepreneurial approach, in an effectual entrepreneurial learning?*

*While remaining consistent with the objective of the course: to introduce students to the techniques of business creation, we projected the students, in teams, in the reality of the entrepreneur, via an effectual learning process. The pedagogical support for this process is the design of a business plan for a young entrepreneur whose project has been unbanked. Our aim in this presentation is to show that the use of effectuation constitutes a new fruitful opportunity for entrepreneurship training and teachers can refer to it in order to bridge the gap between theory and the entrepreneur's reality.*

**Keywords:** *Awareness Raising, Enterprise Creation, Effectuation, Entrepreneur, Pedagogy*

### **1. INTRODUCTION**

There is no doubt that the business plan remains the epicenter of entrepreneurship education both at the international level and at the University of Morocco. "It is one of the few tools that connects the academic, professional and political worlds involved in supporting entrepreneurship development" (Fayolle & Witmeur, 2012). This role makes of it the most favoured educational tool by a large majority of trainers in entrepreneurship. However, some teacher-researchers in the pedagogy of entrepreneurship are skeptical about its relevance to training entrepreneurship. Audet (Carrier, 2009) demonstrated that subjecting students to the realization of a business plan could ultimately reduce their perception of desirability in the face of an entrepreneurial career, the experience seemed complex and arduous. Carrier (2009) questions the pedagogical tools or approaches to be mobilized for entrepreneurship training at the University, beyond the business plan. Fayolle and Witmeur (2012) question the possibility of continuing to teach business plan practice or abandoning it.

Toutain and Fayolle (2012) argue for a greater diversity of support and teaching methods in which the business plan plays a significant role. From their point of view, the problem is not so much the business plan itself-even rather how it is too systematically used as the universal guarantor of orthodoxy and/or as the main axis of analysis of the entrepreneurial approach. It is precisely at the level of the linear, rational, analytical and deductive strategic planning process that this poses the problem of maintaining the business plan. Because this analytical and predictive approach is completely contrary to the real activity of the entrepreneur, which, by its very nature, is contingent, creative and inductive. Moreover, Chaabouni et al (2012) state that the business plan is a management tool that does not or does not incorporate the specificities of entrepreneurship and in particular the principles of the effective approach. As an archetype of management tool, it appears to be very rigid and not very open to the consideration of contingencies and other constraints that dot the chaotic route taken by entrepreneurs. The creation of a business leaves too much room for uncertainty for a predictive tool to be of great use. In the same vein, Hjorth and Johannisson (Verzat & Granger, 2012) believe that the business plan conveys to students a model of managerial role based on foresight and control rather than allowing an identity building. Typically entrepreneurial, that is, creative, effectual, tolerant of ambiguities and errors. Honig argues that entrepreneurship is an inductive process by which products, services and ideas are examined, tested, modified and adopted (Toutain & Fayolle, 2012) while the conception of this business plan is subject to a causal pedagogical logic, separating thought from action, the student from his actions. This causal learning can be detrimental to taking into account the student's mode of thought and action and the specificity of his or her context. Avenier and Schmitt (2007) deplore the fact that the epistemological framework of this causal logic does not take into account the specificity of the entrepreneur's profile such as his/her consciousness, reflexivity, creativity, desires. This logic considers entrepreneurship from an ontological point of view, independent of the process of finalisation of the entrepreneur and his/her context; neglecting the teleological nature of the entrepreneurial phenomenon; they are not looking at entrepreneurship in a self-directed and dynamic way. This logic does not consider the act of enterprising as a social artifact within which the entrepreneur is capable of self-determination, adaptation and evolution. On a conceptual level and on the basis of a rigorous scientific analysis, the best presentation of the differences between the process of drawing up a business plan and the logic of action of entrepreneurs was provided by Saras Sarasvathy (Fayolle and Witmeur, 2012). Her proposals and the numerous research projects that have resulted from them throughout the world underline to what extent an essentially planning logic, based on predictions, may be unsuitable in the face of very uncertain situations in which entrepreneurs are engaged. By placing contingency at the heart of understanding entrepreneurial processes, Sarasvathy (2001, 2003) challenges the simplifying idea of predicting the future using controlled rationality. The author states that the reality experienced by entrepreneurs has little to do with the causal entrepreneurial approach. Entrepreneurs behave according to a practical approach; that is, they rely on the resources they have: what they are, who they know, what they know. Effectuation, thus challenging the determinism of the business plan and relating the entrepreneur to his/her actions, therefore seems a way to explore in entrepreneurship awareness raising. Hence, the effectual logic. This entrepreneurial posture challenged us during the start-up of a training in business creation techniques that we were going to give to students at the master level and at a meeting of an entrepreneur, in an associative context, who was refused a bank loan. The coincidence of these two meetings and the questioning of the business plan that weighed on our minds led us to abandon the idea of educating students about entrepreneurship based on a causal approach and made us choose to immerse them in the reality of business creation through the reconsideration of the entrepreneur's project design.

And the questions we then asked ourselves were:

- How to integrate effectuation into entrepreneurial learning, when training involves pre-programming the course?
- How can the business plan, the main axis of the rational entrepreneurial approach, be used in practical entrepreneurial learning?

While remaining consistent with the objective of the course: to introduce students to the techniques of business creation, we decided to undertake the educational project by putting them, in project teams, in the reality of the entrepreneur, through an effectual learning process. This article relies on three levers.

- The first identifies the emergence of the student learning project through effectuation theory.
- The second examines the methodological approach to immersing students in the entrepreneur's reality.
- The final lever analyzes and discusses the results of this immersion through some aspects of the theory of effectuation.

## **2. EMERGENCE OF THE STUDENT EFFECTUAL LEARNING PEDAGOGICAL PROJECT**

According to Danjou, "an individual's entrepreneurial stature is an emerging and contingent dimension" (2005, p.1). Sarasvathy points out that the entrepreneur's project can emerge from three types of resources: his identity, his skills or his relational network. It is from this last resource that our pedagogic project is born. We will present below :

- the emergence of the idea of this pedagogic project;
- the feasibility study of this project with the students and the entrepreneur ;
- stakeholders who, along the way, have joined this pedagogic project and contributed to the training of students and the funding of the entrepreneur's project ;
- the resulting entrepreneurial pedagogic process.

### **2.1. Pedagogic Project idea = Teacher + trigger**

The first meeting concerns the launch of a module "Enterprise Creation Techniques", part of the Master Research in "Finance and Management of Financial Institutions in Social Economy and Human Development", affiliated with the Faculty of Law, Economics and Social Sciences, Rabat-Souissi. The preliminary session of the course, focusing on the students' questions about their professional project, revealed that, between the ages of 24 and 30, students only consider an entrepreneurial career path in the very long term and for only 3/19 students. On the other hand, they showed almost unanimous resistance to proposing business creation projects based on their social training. These students' perception of business creation as a career path was outright absent. As for the second meeting, it was held with an entrepreneur in an associative context where we provided training to young graduates in order to prepare them to enter the labour market. The 31-year-old entrepreneur applied<sup>1</sup> for help at the end of the training. It was an opportunity to listen to her interpret the business plan she had developed with the help of a state agency called Al'Amana. This organization was part of the network specialized in supporting project promoters that the National Agency for the Promotion of Employment and Skills (ANAPEC) coordinates. And, as it was conceived before, this business plan had already been rejected by the bank regarding its financing; and this, for over a year. The entrepreneur's interpretation of her business plan showed that the undertaking of the latter was beyond her control and was a source of discomfort when starting her business.

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<sup>1</sup> The application video taped by the association

Her most obvious need was therefore to represent herself, in a coherent way, her career, the functioning of her company and the future of that company. In other words, she had to take ownership of her own business start-up project in order to make it bankable. These two meetings have triggered in us the click to make students emerge, by project team, in the reality of the entrepreneur, via a process of learning that will eventually lead to developing a business plan for this young entrepreneur. While remaining in line with the objective of the course which is to introduce students to business start-up techniques, students will experiment with a business start-up approach that includes all phases of the project design idea up to the completion of the business plan and development of their profile and entrepreneurial skills.

## **2.2. Opportunity = Idea of the pedagogic project + Action**

To this end, we have proposed this pedagogical project to students. It was through an audio-visual document that they discovered the entrepreneur's business creation journey and some of the difficulties she encountered in starting her business. They had the opportunity to engage in a discussion on the story of the entrepreneur's project journey through a copy of her business plan that we provided to them. The discrepancy they identified between this "story" and the business plan challenged them. As a result, they themselves took the initiative to invite, over a half-day period, a representative of the main coordinating body for state support of ANAPEC. The objective of this exchange<sup>2</sup> is for the speaker<sup>3</sup> to enlighten them on the modalities of pre and post enterprise support and on the distribution of the work of project conception between the project leader and the support structure. The exchange showed that despite the great importance of the support methodology for project holders, its recent application by few human resources undermines its relevance. Subsequently, the students expressed a desire to meet with the entrepreneur. During this meeting<sup>4</sup>, the entrepreneur described the process of her support since her registration with Al'Amana, the pre-selection of her project, the business plan training she received, the pre-creation support she benefited from through the region's managers of the Regional Investment Centre (IRC), up to the funding obstacle she encountered. After discussing with the entrepreneur her career path, her motivations, the students directed the exchange towards the difficulties she encountered in starting her craft tapestry activity. In a second phase, the first three stakeholders in this educational and entrepreneurial project: the teacher, the students and the entrepreneur, have negotiated the terms of the contract for this project, specifying the value added they would bring to it respectively and what they expected in return. These three main stakeholders agreed that the association would, of course, rely on a logic of expertise focused on the design of a business plan; but preceded and based on a logic of modelling this business plan while observing the empowerment of students in their learning and of the entrepreneur in the appropriation of his project. As for the development of the co-design of the business plan, it was specified that the business plan design sequences would be the subject of two types of learning:

- The first is to develop the entrepreneurial profile and students skills. The evaluation of this learning had to take into account, on the one hand, the provision of reports of actions carried out by the project teams (rated at 50%) and, on the other hand, the deliverable; the business plan, co-designed with the entrepreneur, would be the subject of a public defence which a jury would assess at the rate of 50% (oral and written presentation).
- The second learning focuses on the entrepreneur in finalizing her business plan and ownership of her project. The entrepreneur's involvement in this co-design work will be sanctioned by obtaining funding for her business creation project.

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<sup>2</sup> Meeting video taped by students

<sup>3</sup> The speaker was involved in the defence of the business plans developed by the students and the entrepreneur.

<sup>4</sup> Meeting video taped by students

### 2.3. Viable Pedagogic Project = Opportunity + Stakeholders

Our pedagogic project has involved the following stakeholders :

- The teacher researcher who initiated this project, as part of an action research project, wanted to make the co-design of a business plan from modeling, a practical effectual learning medium.
- The entrepreneur who has agreed to make her business creation project a pedagogical support for entrepreneurial learning and to engage in this co-construction work with the students, in order to bankrize her project;
- The University, which, through the Department of Economics & Management, welcomed the idea of supporting this entrepreneur in the design of her business creation project, professionalize student learning and thus be part of the entrepreneurial ecosystem of its Region.
- Students were supportive of co-designing the entrepreneur's business plan to master business creation techniques and develop entrepreneurial skills. They have mobilized the skills they have already developed, through the other modules of the master's, technical entrepreneurial skills in marketing, enabling them to develop a marketing strategy (marketing techniques and approaches) in finance, leading them to draw up a balance sheet, an operating account and a cash plan and calculate the cost price; in taxation, leading them to calculate tax costs; in strategic management, allowing them to do the SWOT<sup>5</sup> analysis and identify key success factors, etc. They also mobilized their relational network to develop the three processes and have their business plan evaluated.
- ANAPEC, which facilitated a seminar on the modalities of mentoring of pre- and post-start-up project promoters and was part of the jury for the evaluation of projects developed by students, contributed to the promotion of creation corporate services for students;
- Business development professionals, who graciously agreed to evaluate the business plans co-developed by the students and the entrepreneur, also contributed to the students' awareness of business creation.

### 2.4. The process of student effectual learning

These different concepts make it possible to draw the process of the effectual entrepreneurial pedagogical project as follows:

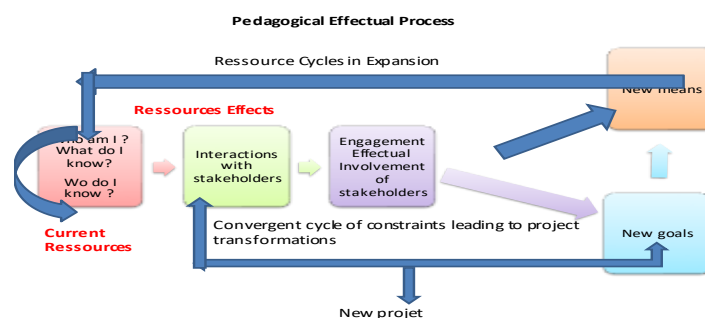


Figure 1: Pedagogical Effectual Process

In this process, let us specify that the key part of the effectuation is related to the stakeholders who have taken in this pedagogical project. The commitment of each stakeholder to the project brings new means, thus allowing to define new goals, more friendly to the pedagogical project

<sup>5</sup> - A strategic analysis matrix summarising the strengths (Strenghts), weaknesses (weaknesses), threats (Threats) and opportunities (Opportunities) of a business start-up project. It is also known as the LCAG Matrix, named after its four developers at Harvard Business School (Learned, Christensen, Andrws, Guth).

and the entrepreneur's project. This commitment also places constraints on the pedagogical project and on the entrepreneur's project to adapt to the stakeholders. This additional constraint is fundamental to the success of both projects. This double cycle of increasing resources and constraints is the essence of the pedagogical project and the entrepreneur's project.

### **3. THE PROCESS OF STUDENTS IMMERSION IN THE ENTREPRENEUR'S REALITY**

This process, introduced by a discussion of the burdens that hinder the entrepreneurial momentum of students, goes through three scenarios which allows the students to get out of their classical role of knowledge receivers. The first is to put the students in the position of evaluators of the initial business plan of the entrepreneur who did not have the financial support of the bank. The second one puts them in the position of co-designers of a new business plan for the entrepreneur's project. The third scenario aims to situate their positioning as a bearer or stakeholder in this enterprise creation project.

#### **3.1. Working with students on the hinderances that restrict their entrepreneurial endeavors**

In order to enhance their entrepreneurial imagination, an entrepreneurial scenario, through two case studies involving two teams of university-based entrepreneurs, seemed to us an excellent first step. These cases deal with the process of setting up a business with two teams of entrepreneurs, one of which has been implemented (ghrib Ben Ammar, 2008). These two case studies had as background the discussion of the article by Danjou (2005): «The act of enterprise where the emergence of the "subject"». This discussion also provided an opportunity to work on the conceptual aspects of entrepreneurship such as the definition of entrepreneurship, the spirit of enterprise, the spirit of enterprise creation. It was also an opportunity to discuss, on the one hand, some theoretical approaches related to entrepreneurship such as the functional approach, the indicative approach and the practical approach (Fayolle, 2005; Capron, 2009; Janssen, 2009) and to demystify, on the other hand, the act of enterprise in relation to the Moroccan reality (culture, media, television, etc.).

#### **3.2. Putting students in the position of evaluating a business plan**

In an ontological manner, the business plan was, on the one hand, evaluated using a business plan guide. The students have taken ownership of the design criteria for this business plan that they must follow when writing their own business plan. On the other hand, the business plan was discussed, via an article (Coster and Marion, 1999) dealing with the evaluation of business start-up projects. This evaluation was detailed from a financial perspective, which led the students to identify the flaws in the entrepreneur's project and to discuss key prescriptions to address them. In this way, students have understood the requirements of financial logic in the evaluation of projects.

#### **3.3. Putting students in the position of designing a business start-up project**

The first version of the business plan was revisited, in a systemic (synchronic and diachronic) manner, based on the "EFD" matrix. This model was the subject of a training seminar. This trialectic (EFD) (Lemoigne, 1983, 1990) is the ideal matrix for business plan modelling. The "5M"<sup>6</sup> and "8F"<sup>7</sup> grids of Russon's, James O et al (2008) applied autonomous diagnosis make the use of this trialectic pragmatic (Horr & Belakhder, 2015). Using this model allows students to provide answers to the deficiencies identified in the two previous evaluations and to design the missing parts of the project to make it financially feasible.

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<sup>6</sup> Market, money, man, management, machines.

<sup>7</sup> Production, information, control, regulation, coordination, organization, evaluation, guidance.

The students gave free rein to their imagination and creativity to model this project in a different way. Given the entrepreneur's level of maturity, the co-design of the four versions of the business plan was punctuated in three sequences that concern the marketing, technical and financial processes. This co-design allowed the students and the entrepreneur to compare their representation of the business plan with a view to the emergence of a common business plan for each project team. The entrepreneur therefore took ownership of her project. She has really become aware of the value of identifying and "prospecting" her client herself; of reconsidering the business processes of her company from a marketing, technical, organisational and financial point of view; and, Finally, to build new scenarios to develop her business.

### **3.4. Putting students in a position of bearer or stakeholder in a business creation project**

The four teams of students structured the modelling work into four relevant business plan designs. In order not to be judge and jury, we have delegated this second evaluation of the business plan to start-up professionals and to the members of the jury of the public defence of these business plans. The four versions were then deliberated on in two ways.

- The first is to assess the opportunity to invest in this project that students can capture and express in terms of shares to be held in the company.
- As potential associates, the four teams of students sought to have their business plans evaluated by bankers, industry and business chambers and accountants. The actors who agreed to discuss their business plans with them reinforced their respective conceptions that could be financed by a funder. As a result, they themselves assessed the feasibility of their design.

The second evaluation – a public defence<sup>8</sup> – concerns the co-design of the business plan and is the responsibility of a jury. The jury is composed of the entrepreneur, two professionals: a representative of ANAPEC and a companion to the project promoters in the framework of the Moukawalati<sup>9</sup> Programme and an international expert in the evaluation of social projects, and two academics: one is an expert in the evaluation of bio-technical projects and the other is responsible for the Master's programme and a key reference in the social field. This jury was going to evaluate the four versions of the business plans finalized by the students taking into account the position of the students as an associate or not.

## **4. RESULTS : ANALYSIS AND DISCUSSION**

This experience reveals two types of immersion. One is for students and the other is related to the entrepreneur.

### **4.1. Immersion of students in the entrepreneur's reality**

The students symbolized this immersion in different ways. Some have shown that it is possible to inject new resources into this project and propose other goals that invite the entrepreneur to reconsider her original idea. Others have become promoters of this project or consultants of this company. The first team appropriated the project and ruled out any possibility of association with the entrepreneur and named the Mob'Deco project. This project is financed 100% by a personal contribution of around €15,000.

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<sup>8</sup> This session was videotaped by the students.

<sup>9</sup> The National Support Programme for the Creation of Enterprises "Moukawalati", initiated by the Moroccan government during the employment initiatives in Skhirat, The main aim is to gradually reduce the unemployment rate and to ensure the sustainability of the businesses created. It also guarantees bank loans up to 85% and an interest-free advance up to 10% of the total project amount. The investment amount must not exceed 250,000 DH (25,000 euros) per project holder and double in the case of an association between two persons. The young promoters of the projects pre-selected by the Moukawalati counters will benefit from pre and post creation support provided by ANAPEC. The aim of this programme was to create 30,000 small businesses.

The association is made in unequal shares according to the representation of the acceptable risk of each partner: the contribution of the first partner is €6,000, that of the second and third is €3,000 each, that of the fourth and fifth is €1,500 each. The senior financial partner has replaced the role of the entrepreneur. The second team took ownership of the project and named it *MafrouchatBayiti*. She freely presented her conception of the business plan, pointing out in passing the points of divergence with the entrepreneur such as the targeting of an affluent customer, the choice of modern tapestry; but while retaining the opportunity to partner with the entrepreneur. The amount of the partner's personal contribution is about €6,000, at the rate of €1,000 per partner; the desired amount of credit is €5,000. The third team outlined the business plan as the entrepreneur's associates by maintaining the name "Amzil Tapestry". Five students showed themselves ready to inject money into this project on condition that they take care of the administrative management of the company and entrust the production to the entrepreneur. Their personal contribution is estimated at €4,000 in equal part: €800 per student, the amount of the credit always being estimated at €15,000. This team is the one that is most involved in this project. The last team presented their business plan as the firm's consulting team. They recognized that the design of a business plan through modeling is an intense, exciting, creative, reflective team work. It is also rewarding to judge by the rates that business startups have charged them, just to "flip through the pages of their business plan." They drew up their proposal on the basis of a capital of €15,000. These different conceptions of business plans show that what is essential in effectuation is the individual and not the project idea which has evolved in different ways based on stakeholder involvement in the design of this project. They also attest that the entrepreneur has a better chance of success within a team than being alone. As Danjou (2004) points out, «Enterprising is not to create alone as the artist in front of his canvas, it is to create with others». "It is the social character of the entrepreneurial process that is important." All project teams sought to control the risk, symbolizing the acceptable loss through the amount of their participation in the project and sharing the risk with other stakeholders, by seeking to limit investments, by being predisposed to move forward in stages. Moreover, convinced of the feasibility of this project, the majority of students showed themselves ready to inject money into it in case the bank again refuses to finance this project. There is no doubt that the original version of the entrepreneur's project made progress thanks to the commitment of the students who brought new resources and proposed more ambitious goals to the entrepreneur.

#### **4.2. Transition from Entrepreneur to Leader**

The jury evaluated the oral and written presentations of the business plans very positively and congratulated all the participants on their approach to co-construction of the business plans. These various presentations show that entrepreneurship is a finalized act (Lemoigne, 1990), the result of design work and design (avenier and Schmitt, 2007). They were an opportunity to decide on the innovative orientations proposed by the students in relation to the representation of the entrepreneur and on the basis, this time, of exchanges with the jury. The latter discussed with the entrepreneur her transition from the project leader phase to that of company leader by deliberating on issues such as the downward revision of the credit amount, the control of working capital in relation to a real level of activity, business expenditure planning in relation to the release of appropriations and the gradual development of the level of activity, etc. The entrepreneur reconsidered the first version of her business plan by adopting the appropriate proposals to obtain funding for her business start-up project. Three student volunteers agreed, on the basis of the four versions of the business plans, to skim with the entrepreneur a fifth version, in her company. They took into account her motivations, the products she intends to market, her strategy and her overall vision of the evolution of her activity, in relation to a new credit amount of around €19000.

Negotiation with the bank on the basis of this new version of the business plan allowed the entrepreneur to obtain a credit amount of around €14,000. After having deposited the company status, she organized, with the support of the same students, the launch of her activity according to the amount of credit granted to her. She reconsidered her expenditure planning. She did her own market research. The students translated their survey questionnaire into "dialectal Arabic" and interpreted the survey results with her.

## 5. CONCLUSION

Effectual and causal logic are both part of human reasoning. One is not better than the other, but they are simply relevant in different contexts. The effectual logic is based on the creative paradigm that we have mobilized in the modelling of the enterprise project through the "EFD" matrix. Whereas causal logic is based on the paradigm of choice that we have engaged in the evaluation and design of a business plan. In other words, by combining these two logics, the pedagogical process of effectual learning, has enabled us, at the same time:

- to get students to model a business plan via the "EFD" matrix, with reference to certain principles of the theory of performance such as acceptable loss, the importance of the individual in relation to the project idea, the opportunity given to everyone to undertake, the conception of entrepreneurship as a social process;
- and train students to skim a business plan from this modelling.

According to the opinion of business start-up professionals and members of the jury, the students have certainly developed, thanks to this practical learning process, professionalizing entrepreneurial skills. According to the results achieved by the students and their own testimonies, this experience has changed their perception of entrepreneurship as a highly conceivable career path. If our first exchange with the students about their professional project revealed that most of them (16/19) were reluctant to start a business as a professional project, their assessment of this experience, in the presence of the course director, shows a gained awareness of the relevance of the entrepreneurial career path, a certain predisposition to start a business. This change in vision has received different media coverage. Some expressed their predisposition to seize opportunities for financing profitable projects such as that of the entrepreneur. 7/19 students, even if they have a real awareness of their entrepreneurial profile, maintain their professional plan as an employee, 4 of them have manifested themselves as potential project bearers after a professional experience, 2 students have chosen the path of research, the last 2 have identified themselves as leaders of immediate projects. Three years after this experience, the results of the students' follow up questionnaire revealed a positive relationship maintained between this experience and the professional choices they have made. Of all the previous cohorts, this one knew a more developed employability : the 19 students reached key positions of responsibility. One of them created a travel agency shortly after the educational experience; another held the position of manager at the bank, 7 students joined the civil service, as executives; 3 have joined the private sector as executives, one of whom has become a consultant; 2 have persisted in research, one of whom has been interested in social entrepreneurship; 3 have chosen a project manager position in associations, one of which is international; 3 have worked as trainers in the Semi-Public Service and teaching entrepreneurship besides other subjects. After three years of experience, these trainers set joined their efforts and set up a consulting firm and associating a colleague who has chosen to leave his management position at a bank. Nevertheless, this experience is not without some limitations. The first relates to the time spent on workshops, which were officially two hours in the afternoon. The last is about the different postures that the teacher combined to accompany the students and the entrepreneur, taking into account their respective demands and ensuring their empowerment.

All in all, this effectual learning process shows that the use of effectuation is a new and successful opportunity for entrepreneurial training that allows students to take control of their learning. Teachers can refer to effectuation in order to bridge the gap between the entrepreneur's theory and reality that the deterministic learning of a business plan usually draws. This experiment needs to be rethought in the light of the « Generation, Compensation and Sharing » model (Verstraete and Jouisson-Laffitte, 2009) as a model matrix for the enterprise creation project.

## LITERATURE:

1. Avenier, M.J., Schmitt, C. (2007). «*Quelles perspectives le paradigme des sciences de l'artificiel offre-t-il à la recherche en entrepreneuriat ?*». [https://www.researchgate.net/publication/50344554\\_Quelles\\_perspectives\\_le\\_](https://www.researchgate.net/publication/50344554_Quelles_perspectives_le_)
2. Capron, H. (2009). *Entrepreneuriat et création d'entreprise. Facteurs déterminants de l'esprit d'entreprise*. Bruxelles : De Boeck.
3. Carrier C. 2009, L'enseignement de l'entrepreneuriat au-delà des cours magistraux, des études de cas et du plan d'affaires, *Revue de l'Entrepreneuriat* » 2009/2 Vol. 8 | pages 17 à 33 <https://www.cairn.info/revue-de-l-entrepreneuriat-2009-2-page-17.htm>.
4. Chaabouni H. Fayolle, Ghorbel, Boujelbene 2012, « L'entrepreneuriat effectual face aux limites du plan d'affaires », in *Entreprendre et innover*, N°15.
5. Coster, M., Marion, S. (1999). « L'évaluation de projets de création d'entreprises », dans A. Marion. *Le diagnostic d'entreprise. Méthode et processus*. Paris : Economica.
6. Danjou, I. (2005). « L'acte d'entreprendre où l'émergence du sujet », *Cahiers de recherche du CDEE n°05-01*, Centre de développement des entreprises et de l'entrepreneuriat, ESC Lille.
7. Fayolle, A. (2005). *Introduction à l'entrepreneuriat*, Paris, Dunod.
8. Ghrib Ben Ammar, S. (2008). Enseignement de l'étude de cas en entrepreneuriat, *1e conférence internationale « Culture entrepreneuriale et création d'entreprise »*, pp. 27-30, Monastir, Tunisie.
9. Horr, L., Bel Lakhdar, A. (2015). Partenariat « Région- Université » - « Structures d'appui à la Création d'Entreprise » : Levier de sensibilisation des étudiants à la culture entrepreneuriale et d'accompagnement des porteurs de projets de création d'entreprise », *Revue Internationale de sociologie et de sciences sociales*, numéro spécial « La formation dans tous ses états dans les pays du Maghreb ».
10. Janssen, F. (2009). *Entreprendre. Une introduction à l'entrepreneuriat*, Bruxelles, De Boeck.
11. Lemoigne J.-L., 1990, *La Modélisation des systèmes complexes*, Paris, Dunod.
12. Lemoigne, J.L. (1983). *La Théorie du Système général – Théorie de la Modélisation*, Paris, Presses Universitaires de France.
13. *Revue Entreprendre et Innover* 2012, « Le plan d'affaires sous les projecteurs », novembre n°15.
14. Russon C. H., Dujoux M., 2008, « Initiation pratique à la modélisation AeSR », p.118, IFEAS ; Support du Séminaire P-AeSR, Edition 03 – D/2008/7704/3.
15. Russon C. H., James O., Dujoux M., Mullender D., 2008, *Diagnostic court appliqué DCA – système, mode d'emploi version 9.0*, The BookEdition.
16. Sarasvathy S. D., 2001, « What makes entrepreneurs entrepreneurial? », *Harvard Business Review*, p.2-9.
17. Sarasvathy S. D., 2003, « Entrepreneurship as a science of artificial », *Journal of Economic Psychology*.

18. Sarasvathy, S. 2001, « Causation and effectuation toward a theoretical shift from economic inevitability to entrepreneurial contingency », *Academy of Management Review* 26, p (243-263).
19. Toutain O. et Fayolle A. 2009, L'expansion Entrepreneuriat, « Le créateur d'entreprise est « un bricoleur », Dossier mythes et réalité de l'entrepreneuriat, N°1.
20. Toutain O., Fayolle, A. 2012, « Ni excès d'honneur ni indignité pour le plan d'affaires », in le plan d'affaire est sous les projecteurs, *Entreprendre et innover*, °15.
21. Verstraete T., Jouisson-Laffitte E., 2009, *Business Model pour entreprendre. Le modèle GRP : théorie et pratique*, Bruxelles, De Boeck.
22. Verzat, Granger, 2012, « Accompanyer plutôt qu'enseigner le business plan : bilan d'une expérimentation pédagogique », in le plan d'affaire est sous les projecteurs, *Entreprendre et innover*, N°15.

## SUPPLY CHAIN MANAGEMENT AND LOGISTICS - RELATIONSHIP DETERMINED BY COMPETITIVENESS

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### **ABSTRACT**

*Supply chain management is management concept built on the foundations of logistics with the aim of optimizing flows throughout the supply chain. Although in the past fifteen years very accepted in both business practice and in science, critics of supply chain management indicate that there are still no fully standardized and accepted components of supply chain management, and not clearly defined and limited scope of the study. For this reason it is often identified with the logistics, whereby one group of scientists believes that supply chain management is part of the logistics, and the others that supply chain management is a broader concept than logistics. If the problem is viewed from the perspective of business practices, it can be concluded that due to the growth of concentration in many industries there is increase competitiveness through optimization of the flow not only between companies, but also between their supply chains. In this sense, the paper concludes that the future holds sway approach to supply chain management in relation to logistics. The aim of this paper is to give a brief historical overview of supply chain management, and clarify the differences between supply chain management and logistics. For this purpose analysis of relevant secondary sources has been conducted. The work aims to clarify the role and importance of supply chain management in modern business.*  
**Keywords:** *supply chain management, business logistics, competitiveness*

### **1. INTRODUCTION**

Logistics industry has substantial influence on all parts of economy. Development of logistics practice directly influence regional or national economic growth (Wang, 2010; Chu, 2012; Bolumole et al., 2015; Liu, 2009). Logistics also enables successful domestic and international, or even global trade. Additionally, Hoekman & Nicita (2010) pointed to significant positive connection between logistics performance and intensity of trade. In practice and theory, logistics has evolved in new concept called supply chain management with the ambition of optimizing flows throughout the supply chain. In the 21st century, supply chain management has been globally accepted as a key competitive advantage of contemporary companies and their supply chains. Although in the past fifteen years accepted in science as well, critics of supply chain management indicate that there are still no fully standardized and accepted components of supply chain management, not clearly defined and limited scope of the study or universally accepted definition. For this reason it is often identified with the logistics, whereby one group of scientists believes that supply chain management is part of the logistics, and the others that supply chain management is a broader concept than logistics. If the problem is viewed from the perspective of business practices, it can be concluded that due to the growth of concentration in many industries there is increase competitiveness through optimization of the flow not only between companies, but also between their supply chains. The aim of this paper is to give a brief historical overview of supply chain management, and clarify the differences between supply chain management and logistics. Additionally, paper aims to clarify the role and importance of supply chain management in modern business. For this purpose extensive analysis of relevant secondary sources has been conducted.

## 2. TERMINOLOGY

This chapter strives to define and analyse the true meaning of the term supply chain management, as well as its development path. It is impossible to talk about supply chain management, and at the same time not to start from term logistics.

### 2.1. Logistics

Scientific and professional sources as well as most of the business and operations whose main activity is supply chain management, inevitably talk about logistics as the basis of supply chain management. Logistics is a discipline that appears as a support in a variety of human activities (economy, military, healthcare, etc.) but its roots are pulled out from the army. Logistics in army exists since there are organized military units, and we can find it in activities carried out by some of the most successful soldiers in history such as Alexander of Macedonia, Napoleon, and the famous warlords of the Second World War (more in Sutherland, 2009). Contemporary logistics can be defined as "logistics concerns the efficient transfer of goods from the source of supply through the place of manufacture to the point of consumption in a cost-effective way while providing an acceptable service to the customer." (Rushton, Croucher & Baker, 2017, p. 6). Particularly important is the role of logistics in the economy. Business logistics occurs in the second half of the 20th century with the end of Second World War and results obtained in growing development of military logistics that was necessary for success in global war. Many authors have highlighted logistics as a "backbone of economy" (Lee and Yang, 2003; Hesse, 2004; Kasarda, 2000; Schuldt et al., 2010; Xiu and Chen, 2012; Wei, 2010). Through its nerves (transportation routes and modes) it touches and connects all parts of economy, and by its flexibility logistics industry responsively adopts to highly demanding requirements of different fields of economy. The first professional organization of logistics, which is also probably the most influential organization in the world of business logistics, is the Council of Supply Chain Management Professionals (CSCMP). CSCMP was founded in 1963, and named National Council of Physical Distribution Management (NCPDM). In 1985 it was renamed as the Council of Logistics Management (CLM) and kept that name until 2004 when, as a result of the dominant supply management chain relationship over logistics, changed its name into today's CSCMP. In accordance with the importance of this organization, many authors in defining supply chain management use their Council of Supply Chain Management Glossary (Vitasek, 2013), which is continually supplementing and changing, adapting to the current development of the situation in the academic and business community. Customization can be well recognized from adapting definition of logistics. The "old" definition of logistics brought by CLM has been: "the process of planning, implementing, and controlling the efficient, effective flow and storage of goods, services, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements." (CLM referred in Waters, 2003, p 14). Today, CSCMP defines logistics management as "that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements. " (Vitasek; 2010, str. 114). Hence, CSCMP consider supply chain management broader term than logistics, i.e. logistics is its most important part. Furthermore, this modern definition of logistics emphasizes the importance of the return flow of goods, which did not have such importance for the business ten or more years ago. It can be said that this is the predominant position in Anglo-Saxon literature today, so Coyle, Bardi and Langley explain the relationship between logistics and supply chain management in a way that supply chain management is actually a network of logistic systems and related activities of all individual economic entities / organisations that are part of a given supply chain and state that here is the key challenge of coordination and integration of logistics systems into the supply chain (Coyle, Bardi, & Langley; 2003, str. 33.).

Some authors see logistics as a modern management concept that is crucial for successful business operations, but also for optimizing the entire value chain or supply chain and define it as: "a modern management concept for the development, design, management and realization of efficient and successful the flows of objects (goods, information, money and finance) into widely-established value-creation systems in the enterprise and those that cross the company's boundaries" (Göpfert, 2001). There is also a large number of authors looking at supply chain management as the latest stage in logistics' development. Frazelle (2002, p. 6) describes the evolution of logistics with respect to the area in which it was applied in a given period, as well as the extent of its influence. While in the 1950s logistics was primarily focused on optimizing workplace activities, in the 1960s, the entire plant (mostly a factory or warehouse) was viewed. In the 1970s, we are talking about the real development of business logistics, that is, logistic that permeates and integrates all corporate functions, while in the 1980s and early 1990s logistics has crossed the enterprise borders and expanded to optimize supply chain flows (supply chain management development). Given that today's supply chains are increasingly global, we can also talk about global logistics.

## **2.2. Supply Chain Management**

The supply chain management roots can be traced back to 1958 when Forrester in his article introduces a management theory that recognizes the integrative nature of organizational relationships in the distribution channel<sup>1</sup>. However, the term supply chain management for the first time appeared in the literature in the 1982 article by Oliver & Webber (1982) entitled "Supply Chain Management: Logistics Catches Up with Strategy". The authors state that the logistic problems became much more significant and that a new approach is needed: supply chain management, and suggest integration of internal functions. The most significant implementation of supply chain management concept begins to emerge in the second half of the 1980s when other key supply chain relations initiatives are being developed (Table 1).

*Table following on the next page*

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<sup>1</sup> Forrester, Jay W. (1958): Industrial dynamics: A mayor breakthrough for decision makers, Harvard Business Review, 38 (July/August), str. 37 - 66 prema (Mentzer, i dr., What is Supply Chain Management?, 2001, str. 3)

*Table 1: Chronological sequence of the first appearance of the most important initials in the area of supply chain relationships*

Concept title	The year of the first mention in the literature	Publication in which it is mentioned
SCM - Supply Chain Management	1982	Oliver, R. K., & Webber, M. D. (1982). Supply-chain management: logistics catches up with strategy. <i>Outlook</i> , 5(1), 42-47.
QR - Quick Response	1987	American Apparel Manufacturers Association (1987) <i>Getting started in Quick Response</i> , Arlington. VA.,USA
ECR - Efficient Consumer Response	1993	Kurt Salmon Associates Inc. Management Consultants (1993): <i>Efficient Consumer Response – Enhancing consumer value in the grocery industry</i> , Food Marketing Institute, Washington DC
VMI - Vendor Managed Inventory	Late 1980s	Walmart & P&G Initiative
CPFR - Collaborative Planning Forecasting and Replenishment	1998	VICS CPFR Voluntary Guidelines

*Source: compiled by author according to:*

- a) Oliver, R. K., & Webber, M. D. (1982). *Supply-chain management: logistics catches up with strategy. Outlook*, 5(1), 42-47.
- b) Lowson, B., King, R., & Hunter, A. (1999). *Quick response: Managing the supply chain to meet consumer demand*. Wiley, p. 89.
- a) Kurt Salmon Associates (1993). *Efficient Consumer Response: Enhancing Consumer Value in the Grocery Industry*. Research Department Food Marketing Institute.
- b) <http://www.vics.org> (18.09.2012.)

There are many authors who believe that all other initiatives are actually supply chain management techniques (Finne & Sivonen, 2008; Chopra & Meindl, 2016; Handfield & Nichols, 2002). Although all of these concepts are based on co-operation in the supply chain, their acceptance and extent of use are different. Only concept of supply chain management is not specific to just one industry, but is used by all industries in the world. This is not the case with the QR which is primarily characteristic of the fashion or clothing industry, or the concept ECR which is primarily related to the food industry. Additionally, supply chain management has gained significant recognition through the development of its own scientific discipline and is studying and its implementation is far more advanced than any other specified initiative or management concept. The actual dissemination of the term supply chain management (both in literature and practice) follows in the 1990s, and this is true *decade of supply chain initiatives* (Table 2). The new, 21<sup>st</sup> century, is characterized by global acceptance of supply chain management.

*Table following on the next page*

*Table 2: A decade of supply chain initiatives*

<b>Year / Period</b>	<b>Initiative</b>
1992	Lean manufacturing/just-in-time Third-party logistics Quality circles Manufacturing resource planning II Warehouse management Manufacturing execution systems
During 1993 - 1994	Supplier integration Manufacturing outsourcing Total Quality Management During 1999–2000 eProcurement
During 1994 - 1995	Product data management
During 1995 – 1996	Integrated product and process development Advanced planning and scheduling
Duringx 1996 - 1997	Enterprise resource planning
1997	Six sigma
1998	Product life cycle management
During 1998 - 1999	Integrated supply chain Collaborative planning
1999	Customer relationship management
During 1999 – 2000	eProcurement eFulfillment
2000	Exchanges
2001	Collaborative product commerce

*Source: Kumar & Zander, 2006, p. 12.*

Mentzer (2001, p. 7) studied the SCM definitions and classified them in three groups: managerial philosophy, implementation of managerial philosophy, and a set of management processes. In process sense supply chain management could be defined as “the management of relationships in the network of organizations, from end customer through original suppliers, using key cross-functional business processes to create value for customers and stakeholders” (Lambert: 2014, str.2). Summing up the three principles of modern SCM (Handfield & Nichols, 2002, p. 6), it can be said that a SCM requires a systematic approach based on trust that must be oriented primarily towards meeting the final customer and increasing the original demand and must be aimed at increasing economic value throughout the supply chain. Table 3 gives brief overview of most important contemporary supply chain professional organizations’ and supply chain author’s definition of the term supply chain management.

*Table following on the next page*

*Table 3: Contemporary definitions of supply chain management (SCM)*

Author(s)	Definition
Council of Supply Chain Management Professionals	<i>Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies.</i>
<b>Global Supply Chain Forum from Ohio State University</b>	<i>SCM is the management of relationships in the network of organizations, from end customers through original suppliers, using key cross-functional business processes to create value for customers and other stakeholders.</i>
<b>University of Tennessee Supply Chain Research Group</b>	<i>SCM is the systemic, strategic coordination of the traditional business functions within a particular company and accross businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.</i>
Martin Christopher	<i>The management of upstream and downstream relationships with suppliers and customers in order to deliver superior customer value at less cost to the supply chain as a whole.</i>
Cecile C. Bozarth & Roberth B. Handfield	<i>The active management of supply chain activities and relationships in order to maximize customer value and achieve a sustainable competitive advantage. It represents a conscious effort by a firm or group of firms to develop and run supply chains in the most effective and efficient ways possible.</i>
Sunil Chopra & Peter Meindl	<i>Effective SCM involves the management of supply chain assets and product, information, and fund flows to grow the total supply chain surplus.</i>
James B. Ayers & Mary Ann Odegaard	<i>Design, maintenance, and operation of supply chain processes, including those for base and extended products, for satisfaction of end-user needs.</i>
John T. Mentzer	<i>SCM is strategic management of all the traditional business functions that are involved in any flows, upstream or downstream, across any aspect of the supply chain system.</i>
Robert B. Handfield & Ernest L. Nichols, Jr.	<i>SCM is the integration and management of supply chain organizations and activities through cooperative organizational relationships, effective business processes, and high levels of information sharing to create high-performing value systems that provide member organizations sustainable competitive advantage.</i>
Arthur V. Hill	<i>Supply chain management is the integration of and coordination between a number of traditional business functions, including sourcing, purchasing, operations, transportation/distribution/logistics, marketing/sales, and information systems. It also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies.</i>
Michael Hugos	<i>SCM is the coordination of production, inventory, location, and trnasportation among the participants in a supply chain to achieve the best mix of responsiveness and efficiency for the market being served.</i>
Hartmut Stadtler	<i>SCM is the task of integrating organizational units along a supply chain and coordinating material, information and financial flows in order to fulfill (ultimate) customer demands with the aim of improving the competitiveness of a supply chain as a whole</i>
Bowersox, Closs & Cooper	<i>SCM consists of firms collaborating to leverage strategic positioning and to improve operating efficiency.</i>
Harrison, van Hoek & Skipworth	<i>SCM involves planning and controlling all the processes from raw material production to purchase by the end-user to recycling of the used cans.</i>

*Source: compiled by author according to (Vitasek, 2013; Lambert, 2014; Mentzer, 2001; Christopher, 2016; Bozarth & Handfield, 2016; Chopra & Meindl, 2016; Ayers & Odegaard, M. A., 2017; Handfield & Nichols, 2002; Hill, 2012; Hugos, 2018; Stadtler, 2015; Bowersox, David, & Cooper, 2012, Harrison, van Hoek & Skipworth, 2014)*

Given the young age of the supply chain management as a scientific discipline, it is normal that there is not yet a complete consensus about the supply chain management definition, but from

the above definitions one can conclude several basic characteristics of supply chain management:

- It is represented with processes or activities;
- These processes are primarily focused on flows, i.e. on logistics activities;
- In ensuring optimal conditions for flows, it also enters the area of other business functions in order to facilitate the optimization of flows,
- Optimization of flows is implemented at the level of the entire supply chain, and it is mostly directed towards physical, information and money flows;
- The basis for optimization is in coordination and collaboration (co-operation) of all members of the supply chain.

### **3. RELATIONSHIP BETWEEN SUPPLY CHAIN MANAGEMENT AND LOGISTICS**

Although the distinction between the term and concept of logistics and the concept of supply chain management at first glance is clear, there are two main conceptions of the relationship between logistics and supply chain management – the first one is specific for continental Europe and the second one is specific for Anglo-Saxon area (primarily the United States, Canada and United Kingdom). The Delfmann and Abers (2000, p. 6-10) provide an overview of the development of business logistics and supply chain management as a discipline in the two most influential geographic and scientific areas. Development is divided into three levels. When it comes to the development of logistics in the continental Europe area (hereafter: Europe), the first level is described as the original logistical domain described by logistic systems, which refers to all structures and processes that serve to transfer objects in space and time - therefore, physical transfer (transportation, warehousing). The second level of logistics development in continental Europe is called logistics management, which represents effective and efficient planning, control and implementation of first level logistic systems. At the third level, logistics continues to develop in the direction of logistic philosophy that represents the specific behavioral way of designing and implementing of logistic management as a precision of a metatheoretical system approach. Logistics in this sense goes beyond the functions of an economic entity and becomes a management approach (concept) that includes the following principles:

- systematic perspectives and total costs approach,
- orientation to the flow regardless of the functional and organizational boundaries (based on this principle is also introduced the concept of supply chain management in Europe),
- orientation towards customers and services.

If we consider the development of logistics in the United States (the place where business logistics is born!), i.e. in the Anglo-American area, authors (Delfmann & Abers, 2000) state that understanding of logistics has always been limited to operational logistic level and basically consisted of transportation, storage and inventory control. The concept of logistics management is also developed in the United States with quite similar meaning to that of the first and second level of European understanding. After that, there was no further development of term and concept of logistics, but instead the concept of supply chain management evolved from logistic discipline. Of course, this concept has further evolved in its meaning, in relation to the original meaning given to it by Oliver and Webber in 1982, and according to further development of inter-organizational relationships and the integration of the entire supply chain. In this way, the meaning of supply chain management largely coincided with the third level of understanding of logistics in Europe. The difference in relation to the European perspective remains only at the theoretical level, i.e. in the fact that supply chain management is not derived from the metatheoretical concept and to date there is still no harmonized conceptual framework. As a result of this mismatch, some US authors perceive logistics as part of supply chain management

(Lambert, Cooper & Pagh, 1998; Vitasek, 2013), and some European authors understand supply chain management as part of logistics (Gudehus & Kotzab, 2012). We believe that the modern practice in supply chains prevails on the side of the American point of view according to which the supply chain management is broader concept than logistics and therefore below are listed several fundamental differences between traditional views on logistics and view of supply chain management (Rushton, Croucher & Baker 2017; Lambert, 2014, p. 2-15) :

1. The focus of the flow monitoring is shifted from one enterprise to the entire supply chain as a whole;
2. The supply chain is viewed as a single entity rather than as a series of fragmented elements such as procurement, production, distribution, and so on;
3. Supply chain management is mostly a strategic planning process (with particular emphasis on making strategic decisions more than on operational systems);
4. Supply chain management provides a new, different approach to inventory management - supplies are only the last resort to balancing the integrated product flow through the chain;
5. The use of integrated information systems which are part of the entire supply chain, rather than the isolation of each separate part of the supply chain (this approach has become possible with the development of modern information technologies);
6. Ensures product demand visibility as well as inventory levels throughout the supply chain;
7. To successfully manage the supply chain, it is necessary to include all business functions "as a network of companies cannot be managed with fewer functions than are necessary to manage one company" (Lambert, 2014). Given that the problem of one of the supply chain members becomes the problem of the entire supply chain, it is no longer enough to use just logistics. Thus, supply chain management is use and closely cooperates with marketing, finance, production, logistics, procurement, and research and development.

This approach to relationship between these to terms and concept mostly arises from changing market situation in last 20-30 years and will be elaborated below.

### 3.1. Influence of growing competition on supply chain management and logistics

The wideness of supply chain management concept could be recognized by its components or area analysis, that represent its activity areas, as well as study areas. Figure 1 presents main supply chain management areas as well as supporting supply chain management tools.

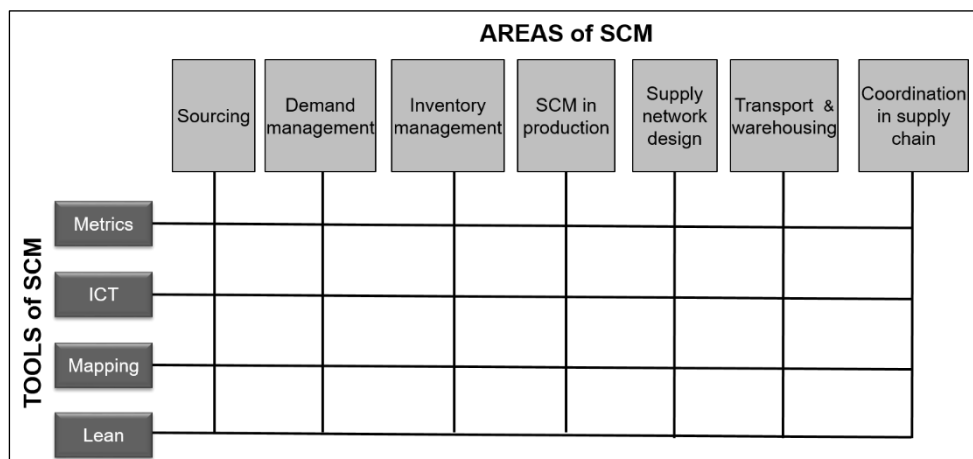


Figure 1: Supply chain management areas and tools (Author)

While logistics in traditional, narrower sense is dealing primarily with transportation, warehousing and inventory management, supply chain management also actively works on

optimization of sourcing, demand management, production, supply network design and increased coordination in supply chain. Main tools used in this areas of activities can be grouped in use of information and communication technology (ICT), metrics, mapping and lean approach. This wideness of activities (processes) arises from a need to manage material, information, financial and value flows in more than one company, ideally in whole supply chain. When a company reaches a certain size, competition on the market becomes a battle between its supply chain, and supply chain of its competitors. As "individual business no longer compete as solely autonomous entities, but rather within supply chains", Lambert claims that this is one of the most significant paradigm shifts of modern business management (Lambert, 2014, p. 2).

#### 4. CONCLUSION

Although logistics industry is seen as backbone of economy, undoubtedly supply chain management has been globally accepted as a key competitive advantage of contemporary companies and their supply chains in the 21st century. The fact is that both logistics studies and supply chain management studies deals with many identical processes and problems in them, and that these processes are increasingly important for the survival of an economic entity in turbulent and crisis times. On the other hand, these logistical and supply chain management processes are at the same time the basis for further development of companies and supply chains in the times of recovery and expansion. This paper give extended analysis of meaning and understanding of terms logistics and supply chain management, both in theory and practice. Although it is not of crucial importance whether these processes are called modern logistics or supply chain management, in the interest of linguistic clarity, we recommend a view that prevails in Anglo-Saxon literature and use the term "supply chain management" as a term that can be identified with the term "modern logistics" and which is broader than the term "logistics in the narrow sense". Additionally, we suggest use of term "logistics" or "logistics in the narrow sense", which implies a traditional view of business logistics.

#### LITERATURE:

1. Bozarth, C. B., & Handfield, R. B. (2015). Introduction to Operations and Supply Chain Management, Global Edition, 4<sup>th</sup> Edition, Pearson.
2. Christopher, M. (2016). *Logistics & supply chain management*. Pearson UK.
3. Coyle, J. C., Bardi, E. J. i Langley, C. J.: The Management of Business Logistics : A Supply Chain Perspective. South-Western, Thomson Learning, 2003.
4. Delfmann, W., & Albers, S. (2000): Supply Chain Management in the Global Context, Working Paper No. 102, Department of General Management, Business Planning and Logistics of the University of Cologne, Cologne, str. 6 - 10
5. Finne, S., & Sivonen, H. (2008). *The retail value chain: How to gain competitive advantage through Efficient Consumer Response (ECR) strategies*. Kogan Page Publishers.
6. Frazelle, E. (2002). *Supply Chain Strategy : The Logistics of Supply Chain Management*. The McGraw-Hill Companies, Inc.
7. Göpfert, I. (2001). Die Anwendung der Zukunftsforschung für die Logistik. In *Logistik der Zukunft—Logistics for the Future* (pp. 39-77). Gabler Verlag.
8. Gudehus, T., & Kotzab, H. (2012). *Comprehensive logistics*. Springer Science & Business Media.
9. Handfield, R. B., & Nichols, E. L. (2002). *Supply chain redesign: Transforming supply chains into integrated value systems*. Ft Press.
10. Hesse, M. (2004). Land for logistics: locational dynamics, real estate markets and political regulation of regional distribution complexes. *Tijdschrift voor economische en sociale geografie*, 95(2), 162-173.

11. Hill, A. V. (2012). *The encyclopedia of operations management: a field manual and glossary of operations management terms and concepts*. FT Press.
12. <http://www.careersinsupplychain.org/what-is-scm/definition.asp> (12.05.2011.)
13. <http://www.vics.org> (18.09.2011.)
14. Hugos, M. H. (2018). *Essentials of supply chain management*. Fourth Edition, John Wiley & Sons.
15. Kasarda, J. D. (2000, August). New logistics technologies and infrastructure for the digitized economy. In *4th International Conference on Technology Policy and Innovation* (pp. 28-31).
16. Kumar, S. & Zander, M. (2006). *Supply chain cost control using activity-based management*. Auerbach Publications, Taylor & Francis Group.
17. Kurt Salmon Associates (1993). *Efficient Consumer Response: Enhancing Consumer Value in the Grocery Industry*. Research Department Food Marketing Institute.
18. Lambert, D. M. (2014). *Supply chain management: processes, partnerships, performance*. Fourth Edition, Supply Chain Management Inst.
19. Lambert, D. M., Cooper, M. C., & Pagh, J. D. (1998). Supply chain management: implementation issues and research opportunities. *The international journal of logistics management*, 9(2), 1-20.
20. Lee, H., & Yang, H. M. (2003). Strategies for a global logistics and economic hub: Incheon International Airport. *Journal of Air Transport Management*, 9(2), 113-121.
21. Lowson, B., King, R., & Hunter, A. (1999). *Quick response: Managing the supply chain to meet consumer demand*. Wiley, p. 89.
22. Mentzer, J.T. (Ed.): *Supply Chain Management*, Sage Publications, Inc., Thousand Oaks, California, 2001.
23. Oliver, R. K., & Webber, M. D. (1982). Supply-chain management: logistics catches up with strategy. *Outlook*, 5(1), 42-47.
24. Rushton, A., Croucher, P., & Baker, P. (2017). *The Handbook of Logistics and Distribution Management: Understanding the Supply Chain*. 6th Edition, Kogan Page Publishers.
25. Schuldt, A., Hribernik, K., Gehrke, J. D., Thoben, K. D., & Herzog, O. (2010, September). Cloud Computing for Autonomous Control in Logistics. In *GI Jahrestagung (1)* (pp. 305-310).
26. Stadtler, H. (2015). Supply chain management: An overview. In *Supply chain management and advanced planning* (pp. 3-28). Springer, Berlin, Heidelberg.
27. Sutherland, J. L. (2009). Logistics from a Historical Perspective. In G. D. Taylor (Ur.), *Introduction to Logistics Engineering*. p. 1-14, CRC Press, Taylor & Francis Group.
28. Vitasek, K. (2013). *Supply chain management terms and glossary*. Supply Chain Visions.
29. Waters, D. (2003). *Logistics: an Introduction to Supply Chain Management*, Palgrave Macmillan.
30. Wei, L. (2010, August). The Contribution of Logistics Industry to Economic Growth Based on Logis Model. In *Information Science and Management Engineering (ISME), 2010 International Conference of* (Vol. 2, pp. 489-492). IEEE.
31. Xiu, G., & Chen, X. (2012). Research on green logistics development at home and abroad. *Journal of Computers*, 7(11), 2765-2772.
32. Donald, J., Bowersox, C., David, J., & Cooper, M. (2012). *Supply chain logistics management*. Fourth Edition, McGraw-Hill Education.
33. Skipworth, H., Harrison, A., & van Hoek, R. (2014). *Logistics management and strategy: competing through the supply chain*. Pearson.
34. Ayers, J. B., & Odegaard, M. A. (2017). *Retail supply chain management*. CRC Press.

## AN ECONOMIC AND FINANCIAL ANALYSIS OF TOURISM FIRMS OPERATING IN OUTDOOR TOURISM

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### ABSTRACT

*In an era of globalization, the growing number of leisure trips led to mass tourism in a scale prone to generate economic growth. However, and despite the economic impacts, mass tourism can also generate negative impacts on ecological, social and economic terms and a need for a sustainable tourism development has been envisioned. Sustainable tourism is related to a more environmentally friendly tourism, while ensuring viable, long-term economic operations, through providing fairly distributed socio-economic benefits to all stakeholders, including employment and income-earning opportunities. Understanding how sustainable tourism can be developed is important for destinations, to identify regional policies and to potentiate its attractiveness to tourists, who are increasingly looking for cultural and nautical activities and experiences in close contact with nature. The nature activities are appealing to firms, not only because of its potential economic profit, but also because they may require less infrastructures and, thus, less costs. Hence, this paper analyses the financial data of tourism firms operating in nature/adventure, cultural or nautical activities in Northern Portugal. Traditional sustainability measurement tools include non-integrated, regional and integrated indicators/indices. This paper draws the conceptual analysis on measurement of economic sustainability. In particular, here economic sustainability encompasses mainly financial costs and benefits and, thus, a financial analysis is performed. Data on touristic firms in the Northern Portugal, by tourism typology, are collected from the National Tourism Registry and financial data are collected from SABI database. Firms operating in more than one tourism typology were withdrawn. From the registered 732 firms, 9% operate exclusively in nature/adventure tourism; 74% in cultural tourism, and 17% in nautical tourism. A set of indicators of profitability and financial structure and leverage are applied to a sample of 386 firms. However, results show that firms operating in nature tourism do not exhibit the highest levels of profitability.*

**Keywords:** *Financial Analysis, Nature Tourism, Northern Portugal, Outdoor Tourism, Sustainability, Tourism Management Policies*

## 1. INTRODUCTION

The technological progress and the growth of organizations, observed in the end of the 20th century, have unleashed concerns about the environment and overall well-being. As a result, sustainability has assumed a key role on corporate strategy in order to ensure social, economic and environmental well-being and benefits (Enquist et.al., 2007; Epstein 2008). In this context, it is important to emphasize that sustainability is not untied to economic growth, but represents a factor of competitive advantage and value creation (Perlin et al., 2013). According to Silva et al. (2009), the concept of sustainability applied to firms represents a new approach of doing business that fosters social responsibility and reduces the use of natural resources and the negative effects on the environment, promoting the integrity of the environment for future generations, without losing sight of firms' profitability. The literature offers numerous indicators of sustainability, most of which are still under development, discussion and improvement. A number of authors (Azapagic and Perdan, 2000; Estender and Pitta, 2008; Sousa and Lopes, 2010; Kneipp, 2012; Perlin et al., 2013) argue that sustainability is based on three dimensions- economic, social and environmental (triple bottom lines)- that must be properly structured and balanced, in accordance with specific characteristics of each place or territory. In this framework, in the model proposed by Azapagic (2004), the environmental indicators measure the firm's effects on natural systems, including humans, ecosystems, water, air and land; economic indicators measure the economic impact of the firm on its internal and external stakeholders and on economic systems; and social indicators assess the aspects and practices often associated with social responsibility, translated into sustainable work, human rights, society, and product responsibility (Kneipp, 2012). Corporate sustainability practices are based on a three-way strategy; transparency, stakeholder engagement and thinking ahead. The first is grounded on the belief that an engaging environment within a company/community through open communications (i.e., high levels of information disclosure, clarity, and accuracy) will improve performance and increase profits. The second can be achieved by increasing the ecological literacy of the personnel and stakeholders. Finally, the third can be attained by stimulating the generation of ideas towards reducing productions costs and/or increasing profits. Yet, just as there are cross-country differences in firms, there are differences in firm performance, within countries, that are not captured by national aggregates. Hence, this paper employs financial ratios applied at firm level, since such ratios allow to identify deteriorating financial positions and bankruptcies in the private sector (Beaver et al, 2005). It is assumed that better financial performances are positively related to higher economic profitability, but also to higher engagement of firms in environmental and social responsibility, contributing to region's sustainable development. Furthermore, it is expected that nature/adventure tourism firms, not only demonstrate environmental awareness, and more concern with contributing to preserving environmental resources, as they depend on them, but also, to some extent, to show better financial performances and thus higher economic sustainability. This is the case when firms do not have their own facilities, and use public or common use resources (natural or protected areas and common lands) without having to pay for them, and/or deal with very cheap license costs compared to those firms with their own facilities, with higher maintenance costs and costs of adequacy to the practice of their activities. In this paper we set out to review the financial performance of Portuguese firms operating in Outdoor Tourism activities during the period of 2002-2017. The analysis in a 16-year period allows to understand how business operations are affected by business cycles and how these firms respond to turbulent environments in terms of Profitability, liquidity and financial structure and leverage. Following the introduction, the literature review is used to help construct the financial performance measurement framework. Information on the data source of Portuguese firms is provided in the next section, as well on the empirical framework applied to the Portuguese firms operating in outdoor tourism activities during 2002-2017.

Additional analyses by firm size and year are performed, to assess the impact of size and business cycles on firm performance. Results are presented and used to facilitate benchmarking of financial performance across tourism typologies. In the final section, some conclusions are drawn.

## 2. LITERATURE REVIEW

Different terms are used to refer to activities developed by tourists involving the contact with nature, such as Nature-based Tourism (e.g. Fennell, 2000; Nyaupane et al., 2004), Ecotourism, Outdoor Recreation and Tourism (Bell et al., 2007), Active Outdoor Tourism (Buckley, 2009), Adventure Tourism (Houge et al., 2016), Outdoor Adventure Tourism (Weber, 2001), Adventure Tourism in Mountain areas (Beedie & Hudson, 2003), and Nautical Tourism (Jovanovic et al., 2017). Some of these concepts and definitions, more specifically, Outdoor Recreation, Nature-based Tourism, Adventure Tourism are simultaneously dissimilar and contiguous (Margaryan & Fredman, 2017). There is not a comprehensive view and an established definition incorporating the commonalities of the previously referred forms of tourism and although a distinct approach of these terms and forms of tourism is undeniably important, a detailed revision of the literature regarding the diverse terminology is beyond the scope of this study. Therefore, for this study, Outdoor Tourism activities refer to varied activities that motivate tourists to visit a certain region and that can be developed, not only in rural areas (Lopes et al., 2017), but also in urban geographical contexts (Margaryan & Fredman; 2017), in sport-related contexts (Geffroy, 2017). These activities include tourists' contact and engagement with nature along with some physical activity, as well as cultural interaction and learning about both, material and immaterial heritage (Margaryan & Fredman; 2017). The before mentioned activities imply physical effort, to a greater or lesser extent, and these activities range from passive (e.g. sitting, relaxing, enjoying a view) to active, (e.g. skiing, mountain biking, horse riding), and they can be undertaken by individuals alone, or in family or groups of friends (Bell et al., 2007). When the focus is rather on adventure, it also involves challenge, and risk-taking (Houge et al., 2016). Based on Beedie & Hudson (2003), these activities can be distinguished between 'hard' and 'soft', where activities like rafting, scuba diving, mountain biking, rappelling, cliff jumping, river crossing, paragliding, rock climbing, and bouldering can be considered as 'hard', whereas 'soft' outdoor activities include walking, cycling, camping, hiking, biking, wildlife watching, horseback riding, canoeing, and water skiing. In recent years, these activities have become increasingly important for visited regions given its economic implications, and therefore, different forms of tourism have grown in popularity, and have captured practitioners' interest (Bell et al., 2007). This recognition creates opportunities to extend the existing knowledge about the impacts of outdoor tourism activities by approaching these activities from a supply perspective. Understanding and researching Outdoor Tourism is critical to destinations' and businesses' marketing strategies and sustainable tourism development. One of the types of tourism that is expected to better meet sustainability standards is nature tourism because it emphasizes the provision of opportunities for tourists to learn and develop a more positive attitude towards environmental resources (Walker and Moscardo, 2014; Ocampo et al., 2018). When widespread, ecofriendly, or environmentally responsible attitudes, both from businesses and tourists alike, can also enable economic, social and ecological benefits such as job creation, community development, environmental conservation and education and cultural preservation (Cobbinah, 2015; Cordeiro, et al., 2015). Measuring sustainability requires some elements based on the economic, ecological, and societal subjects (Desimone and Popoff, 2003; Schaltegger and Wagner, 2006; Johnson, 2007; Waddock and Bodwell, 2007; Epstein, 2008). The purpose of sustainability indicators for industries is to measure firms' economic, environmental, and social performance by providing information on how it contributes to sustainable development (Azapagic and

Perdan, 2000). In particular, on economic grounds, management accounting techniques assist managers to plan and control firms' activities in order to maximize their profits. These techniques allow to report economic performance of the organization to the shareholders (Dutescu et al., 2014). The link between sustainability and corporate financial performance has been an extensively debated topic. However, the empirical results on the impact of sustainability practices on corporate profitability are far from being conclusive (Lassala et al, 2017). For example, some studies conclude that sustainability induces profitability (e.g., Eccles et al., 2011; Singal, 2014; Bagur-Femenías, 2015; Chen, 2015; Alonso-Almeida et al., 2018); while another found that the implementation of sustainability practices in a firm do not impact on firms' profitability (Perera et al., 2011); or impact negatively (Mcpeak et al., 2010). One possible reason for the contradicting results can be the different methodologies employed and different periods of time. For example, Bagur-Femenías (2015) in a study for 546 Spanish hotels and restaurants for 2012, used factorial analysis and a set of structural equations; also for Spain, another study of Alonso-Almeida et al. (2018) for 374 small restaurants in 2010 used a survey and Global Reporting Initiative (GRI) performance indicators. Eccles et al. (2011) and Singal (2014) study 180 and 624 US firms, in the periods of 1993-2009 and 1991-2011, respectively. While the first authors use a multivariate analysis, the second apply financial ratios in their analysis. Pereira et al. (2011) in a study for 36 Brazilian firms for 2005-2008 use a narrative quantitative analysis. Finally, Mcpeak et al., 2010, in a study for 302 US firms in 2005-2007, performed a comparison analysis between the growth of stock price and the S&P 500 index. Traditional sustainability measurement tools include non-integrated, regional and integrated indicators/indices. Sustainability indicators should be simple with a wide scope, quantifiable, sensitive to changes and allow for the tracking of longer-term trends and thus enabling the of making short-term projections and relevant decisions for the future (Harger and Meyer, 1996). The tools are non-integrated, regional flow and integrated indicators. Examples of non-integrated indicators include water quality, national education levels, population growth rates, GNP per capita, and the number of ratified global agreements (UNCSD, 2001). Regional flow indicators are non-integrated as they only focus on environmental aspects. Analysis of material and energy flows allows an overview of the structure of resource flows and identification of inefficiencies within a system (Anderberg et al., 2000). Regarding integrated indicators, a range of alternative measurement tools have been conceived, due to the shortcomings of GDP not taking environmental considerations into account. A detailed description of many of these indicators along with assessment results can also be found in Hanley et al. (1999). At corporate level, one of the most used methods to determine the overall performance, measured through financial analysis is the financial statements analysis and ratio analysis (Borovčanin, 2015). The financial analysis of a firm may be performed for a diversity of reasons, for example valuing equity securities, assessing credit risk or assessing a subsidiary's performance. Financial analysis tools can be useful in measuring firms' performance and trends in that performance. Basically, analysts convert data into financial metrics that assist in decision making, trying to respond to such questions as: How effectively has the firm performed, relative to its own past performance and/ or relative to its competitors? How is the firm liable to perform in the future? Grounded on expectations about future performance, what is the value of this firm? Financial statements comprise data about the past performance of a firm (income and cash flows) along with its present financial condition (assets, liabilities, and equities). The financial analyst must be proficient in using financial statements combined with other information to reach valid conclusions and make predictions. A key source of data is firms' annual reports, comprising the financial statements, records and management commentary (operating and financial review or management's discussion and analysis). The analysis of financial reports is an important instrument for the assessment of business strengths and weaknesses (Carmeli, 2002).

The importance of traditional financial ratios in assessing firm financial health is conventional. Accounting information regarding profitability, liquidity and indebtedness is critical to measuring financial performance (Wu et al. 2010). Indeed, studies show that firms with relatively lower earnings, larger declines in operating income and high debt-to-asset ratios are more likely to experience bankruptcy. In the private sector, models predicting deteriorating financial condition typically include accounting data.

### **3. DATA SOURCE AND METHODOLOGY**

#### **3.1. Data**

The goal of this paper is to compare firm performances across outdoor tourism typologies using key financial indicators. Thus, the identification of firms operating exclusively in one type of outdoor tourism was required, in order to assess which typology would display a better financial and/or economic performance. Data on touristic firms in the Northern Portugal, by tourism typology, were collected from the National Tourism Registry (RNAAT). Firms operating in more than one type of tourism were withdrawn. The database from RNAAT showed 1012 touristic agents. However, since SABI database does not have information on entrepreneurs' financial reports, those were withdrawn. Though the number of firms is 732, the SABI database does not represent 100% of the universe of firms. Thus the sample was narrowed to 386 firms, of which 13% offer exclusively nature/adventure-related activities tourism; 64% cultural-related activities, and 23% in nautical-related activities. In this regard, one should keep in mind that not all Cultural Tourism firms are engaged in outdoor activities, and those engaged in these activities may also include indoor activities. However, due to the impossibility of making this distinction, and for the sake of sample size it was decided to include all Cultural Tourism firms in the sample. Thus, the sample size allows to draw conclusions with 95% confidence. Subsequently, there was a need to collect financial data from the SABI database financial reports. The SABI database, owned by Bureau Van Dijke, contains financial data for 800,000 firms operating in Portugal and 2,600,000 in Spain, including standardised annual accounts, financial ratios, sectoral activities and ownership. A major aspect in the construction of a database is data integrity. In other words, it is necessary to ensure that the database is in accordance with the rules and measures of statistical quality (Dyer, 1992). According to Fox et al. (1994), the four key factors that guarantee a database of high-quality are accuracy, timeliness, completeness and consistency. Bureau van Dijk (BvD) collects and harmonises the data from the mandated firm reports. In particular, in the Portuguese case, financial data come from Informação Empresarial Simplificada (IES).<sup>1</sup> This information is collected in a massive way by Coface, BvD's partner for Portugal, that send it to BvD for subsequent upload in SABI and AMADEUS databases. Therefore, the fulfilment of each of these obligations entailed the need for firms to transmit substantially identical information on their annual accounts to four different entities through various means. With the creation of IES, all reporting obligations are transmitted electronically to a single entity in a single moment in time. Thus, we think the four parameters of quality are met.

#### **3.2. Methodology**

The empirical strategy of this paper relies on key accounting data incorporated into financial ratios available from published financial reports in SABI database. According to Steurer et al. (2005), business economic sustainability is classified through its business financial performance, competitiveness and the economic impact generated by the firm and its stakeholders. Thus, this paper analyses economic sustainability in its financial aspect. This paper performs an analysis that encompasses mainly financial costs and benefits for firms operating tourism outdoor activities in the North Region of Portugal.

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<sup>1</sup> Simplified Business Information

It applies a numerical and narrative analysis of key financial performance indicators to 386 Portuguese firms operating in Outdoor Tourism activities in Northern Portugal, during 2002-2017.<sup>2</sup> In particular, the framework includes measures reflecting considerations in the literature of appropriate financial performance measures for firms. Using 5 indicators, 4 broad financial performance measures are employed in Stata 13.0, assessing profitability, liquidity, financial structure and financial leverage. Profitability ratio analysis is a good approach to measure firm's performance, because profitability means the ability of a firm to earn a profit. Firms' profitability is essential both for shareholders and creditors because profits allow for dividends and funds for covering debts. Examples include return on equity (ROE), return on assets (ROA), cash return on assets, return on debt, return on retained earnings, return on revenue, risk-adjusted return, return on invested capital, and return on capital employed. This paper employs the two first measures. The ROE measures the ability of a firm to generate profits from the shareholders' investments, i.e., the financial profitability. The calculation formula is as follows:

$$\text{Return on Equity (ROE)} = \text{Net Profit After Taxes} / \text{Equity} \quad (1)$$

This ratio shows how much profit is generated by 1 Euro of shareholders' equity. In other words, it measures how effectively money from shareholders is being used for the generation of profits. In view of this, a high value of the ROE is desirable because that would mean efficient usage of investors' funds.

The ROA measures the economic profitability and can be used as an indicator of a firm's effort of minimizing the assets, which are not taking part in the process of generation returns. The formula is:

$$\text{Return on Assets (ROA)} = \text{Net Profit After Taxes} / \text{Total Assets} \quad (2)$$

Liquidity ratios measure firms' ability to pay off current debt obligations without raising external capital and its margin of safety through the calculation of metrics, including the current ratio, quick ratio, and operating cash flow ratio. This paper uses the current liquidity ratio measured as:

$$\text{Current Liquidity Ratio} = \text{Current Assets} / \text{Current Liabilities} \quad (3)$$

This ratio measures a firm's capacity to pay off its current liabilities (payable within one year) with its current assets (cash, accounts receivable and inventories), to evaluate the coverage of short-term debts in an emergency. The higher the ratio, the better the firm's liquidity position. This analysis may be internal or external. Internal analysis involves comparing previous time periods to current operations; while external analysis involves comparing the liquidity ratios of one firm or a group of firms to another firm or group of firms. This ratio is useful to compare the firm's strategic positioning concerning its competitors when creating standard goals. Financial structure ratios are very useful to assess long term financial risk since it provides information about firms' capacity to fulfill their long term financial commitments. This paper uses the ratio of financial autonomy which designates the share of the firm's total applications, i.e. goods and investment applications, financial applications, stocks applications, credit granted to clients, etc., which was maintained by capitals owned by the firm, the equity.

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<sup>2</sup> Rua (2017), drawing on a non-parametric approach that emulates the system developed at the NBER for the identification of business cycle turning points, has identified three troughs (February 2003, April 2009 and April 2013) in this period; but also two peaks (November 2007 and September 2010).

It is measured by:

$$\text{Financial Autonomy Ratio} = \text{Equity} / \text{Total Assets} \quad (4)$$

Financial leverage ratios (also known as equity or debt ratios) compare the overall debt load of a firm with the assets or equity. This shows how much of the firm assets belong to the shareholders rather than creditors. When shareholders own a majority of the assets, the firm is said to be less leveraged; conversely, when creditors own a majority of the assets, the firm is considered highly leveraged and the firm is regarded as riskier for lenders. The most common is the debt ratio, that shows how many assets the firm must sell in order to pay off all of its liabilities, and it is calculated as:

$$\text{Debt Ratio} = \text{Total Liabilities} / \text{Total Assets} \quad (5)$$

This ratio helps investors and creditors to analyze the overall debt burden on the firm as well as the firm's ability to pay off the debt in the future.

## 4. RESULTS AND DISCUSSION

### 4.1. Results

We calculate a set of performance indicators: profitability, liquidity, financial structure and financial leverage ratios. This exercise will allow to assess which typology of firms operating in Outdoor Tourism activities displayed a better financial and economic performance in 2002-2017. The results are summarized in Table 1. The sample comprises 386 firms, of which 51 operate in nature/adventure tourism; 246 in cultural tourism and 89 in nautical tourism, which grants the reliability of conclusions at 95% level of confidence. Regarding the profitability ratios, we find that during this 16-year period, firms operating in cultural tourism show a higher value for ROE, which means that these type of firms generated on average 0.28 € by 1€ of shareholders' equity, in 2002-2017 period. In other words, firms operating in cultural tourism activities make a more efficient usage of investors' funds. Concerning the ROA ratio, despite the fact that all three typologies show negative values for this indicator, firms operating in nautical tourism display less negative values. That means that firms operating in nautical tourism activities make more efforts to minimize the assets that do not take part in the revenue generation process.

*Table following on the next page*

*Table 1: Financial analysis by typology of Outdoor Tourism activities, 2002-2017*

Outdoor Tourism Typology	Ratios	Obs	Mean	St. deviation	Min	Max
Nature/Adventure	<b>Profitability Ratios</b>					
	<i>Return on Equity (ROE)</i>	346	-0,37	6,75	-108,90	20,54
	<i>Return On operating Assets (ROA)</i>	344	-0,23	1,39	-20,08	0,83
	<b>Liquidity Ratios</b>					
	<i>Current Liquidity Ratio</i>	328	8,13	48,77	0,00	591,00
	<b>Financial Structure Ratios</b>					
	<i>Financial Autonomy</i>	344	-0,12	2,06	-19,73	1,00
Cultural	<b>Financial Leverage Ratios</b>					
	<i>Debt Ratio</i>	344	1,12	2,06	0,00	20,73
	<b>Profitability Ratios</b>					
	<i>Return on Equity (ROE)</i>	909	0.28	11.13	-237.10	175.42
	<i>Return On operating Assets (ROA)</i>	908	-0.83	12.75	-349.17	0.97
	<b>Liquidity Ratios</b>					
	<i>Current Liquidity Ratio</i>	862	8,76	39,00	0,00	622,00
Nautical	<b>Financial Structure Ratios</b>					
	<i>Financial Autonomy</i>	906	0.05	1.51	-22.05	1,00
	<b>Financial Leverage Ratios</b>					
	<i>Debt Ratio</i>	906	0.95	1.51	0	23.05
	<b>Profitability Ratios</b>					
	<i>Return on Equity (ROE)</i>	596	-6,83	167,96	-4 100,00	14,84
	<i>Return On operating Assets (ROA)</i>	596	-0,06	0,48	-6,89	0,93
	<b>Liquidity Ratios</b>					
	<i>Current Liquidity Ratio</i>	574	6,82	28,79	0,00	403,00
	<b>Financial Structure Ratios</b>					
	<i>Financial Autonomy</i>	596	0,23	0,55	-4,20	1,00
	<b>Financial Leverage Ratios</b>					
	<i>Debt Ratio</i>	596	0,77	0,55	0,00	5,20

*Source: own analysis on Stata 13.0*

As far as liquidity is concerned, cultural tourism firms show higher values, although this ratio has positive values for the 3 types of tourism typologies. This indicates that firms operating in cultural tourism activities are more capable of pay off their short-term debts in an emergency. Regarding financial autonomy, the values for this ratio are negative for nature/adventure but positive for cultural and nautical tourism firms. The results show that nautical tourism firms are more capable of fulfilling their long-term financial commitments. The debt ratio confirms the better position for nautical tourism firms, which may indicate that nautical tourism firms are less leveraged and hence present a lesser financial risk for lenders. To sum-up, firms operating in cultural tourism activities make a more efficient usage of investors' funds and display a better liquidity position, however regarding the remaining indicators, nautical tourism firms are in a relative better position. Thus, contrary to what was expected, firms operating in nautical tourism activities are more financially sustainable than firms that operate in nature/adventure tourism or cultural tourism activities. Considering that the literature points the majority of firms operating in outdoor / active tourism as being small and of a family nature the sample was divided into small and large firms, according to firms up to 50 employees and with 50 or more employees. The sample of Nature tourism firms shows that all are small. The results for small firms confirm the analysis for the full sample. However, the analysis for larger firms presents different results. In the 16-year period, larger nautical tourism firms show better positions regarding ROE, ROA and liquidity; whereas larger cultural tourism firms display better financial structures and leverage.

In addition, we calculate all ratios for the years that Rua (2017) identified as peaks (2007 and 2010) and troughs (2003, 2009 and 2013) to test the robustness of these findings in Table 2.

*Table 2: Financial analysis (mean values) by typology of Outdoor Tourism activities and business cycles, 2002-2017*

Outdoor Tourism Typology	Ratios	2003	2007	2009	2010	2013
<b>Nature/Adventure</b>		0.05	-0.19	-0.36	0.55	0.12
<i>Cultural</i>	Return on Equity (ROE)	0.01	0.38	-0.44	1.26	-1.17
<i>Nautical</i>		0.32	0.14	-0.15	-0.63	-0.34
<i>Nature/Adventure</i>		0.05	-0.03	-0.03	-0.10	-0.39
<i>Cultural</i>	Return On operating Assets (ROA)	0.05	0.02	-0.12	-0.08	-0.05
<i>Nautical</i>		-0.26	0.03	-0.02	-0.10	-0.04
<i>Nature/Adventure</i>		2.67	3.79	6.05	7.14	2.83
<i>Cultural</i>	Current Liquidity Ratio	2.00	5.54	1.91	16.03	7.65
<i>Nautical</i>		2.00	3.71	4.80	9.39	3.02
<i>Nature/Adventure</i>		0.37	0.20	0.16	0.08	-0.09
<i>Cultural</i>	Financial Autonomy	0.46	0.46	0.31	0.26	0.24
<i>Nautical</i>		0.32	0.24	0.33	0.32	0.23
<i>Nature/Adventure</i>		0.63	0.80	0.84	0.92	1.09
<i>Cultural</i>	Debt Ratio	0.54	0.54	0.69	0.74	0.76
<i>Nautical</i>		0.68	0.76	0.67	0.68	0.77

*Source: own analysis*

In trough periods, in terms of ROE (financial profitability) cultural tourism firms are in the worst position, nevertheless in peak periods they are also in the best position, which seems to indicate that this type of outdoor tourism firms is more vulnerable to periods of crisis and expansion than the other two types. In terms of ROA (economic profitability) nautical tourism firms are in the worst position in 2003; however, in 2009, they were surpassed by cultural tourism firms and, in 2013, by nature/ adventure tourism firms. In times of expansion, nautical tourism firms are in a better position in 2007 but ceded this position to cultural tourism firms, in 2010. Nevertheless, in that year the values for this ratio are negative for all types of tourism firms. As for liquidity, cultural tourism firms are in the worst position in trough periods and in the best position in peak periods; except in 2013 where the worst position belonged to the nature/ adventure tourism firms. Concerning the financial structure/leverage ratios, nautical cultural tourism firms are in the worst position in 2003, but this position is assumed by nature/adventure tourism firms in 2009 and 2013; whereas, in peak periods, cultural tourism firms show better performances in 2007 and nautical tourism firms perform better in 2010.

## 4.2. Discussion

Modern society need to pursue clear goals of sustainability that can be measured by sustainability indicators. Because Sustainability indicators are multi-dimensional, multidisciplinary indices, often context-specific, there is no single broad measure of sustainable development. There are no perfect sustainability indicators, hence their development involves a methodological compromise among consistency, technical feasibility and data availability (Ness et al., 2007). Following Pastille (2002) sustainability indicators should allow to: understand sustainability, i.e., to identify key elements of sustainable development and show the state of local sustainability; supporting decisions; involving stakeholders; directing to provide feedback on progress; and solving conflict and building consensus by showing the advantages and disadvantages of different alternatives. The focus of this paper is the economic sustainability of tourism firms, due to data limitations. However, economic effectiveness does not warrant ecologic and social sustainability because the financial indicators do not reflect it. Consequently, the assessment of sustainable development needs an integrated approach, i.e., a set of multi-dimensional indicators, which evaluate both separate parts of the system and their relationships.

On the other hand, there is an inconsistency regarding the future development of sustainability assessment tools. In fact, on the one hand it is required a more specific assessment performance approach, i.e., more case- and site-specific; and on the other hand, there is a demand for broader tools for differing case circumstances. In addition, there is also the need for more standardized tools that give more transparent results. On theoretical grounds, it was assumed that nature/adventure tourism firms could exhibit better financial performances and thus higher economic sustainability. This happens because any tourism firm that do not have its own facilities, makes use of public or common use resources (natural resources or common lands) without having to pay for them, and/or deal with very cheap license costs compared to those firms with their own facilities, with higher maintenance costs and costs of adequacy to the practice of their activities. On the other hand, some of those firms have other costs such as the purchase of equipment that is costly (boats, canoes, special equipment and clothing for the practice of the modalities such as canyoning, vehicles to transport clients) which depreciate over a reduced number of years. Concerning the empirical results, contrary to what was expected, firms operating in nature/ adventure tourism do not present the best position concerning profitability, liquidity or financial structure and leverage. The analysis for single years, according to the business cycles, seems to indicate that this result is mainly due to difficulties encountered during the periods of trough of 2009 and especially of 2013. These difficulties, due to their magnitude, are reflected in the average of the 16-year period. Although it has been consensual in the literature that financial analysis is an adequate approach to measure firm's performance, the applied ratios are not exempt from criticisms. Indeed, profitability ratios provide information about the ability of firms to generate profit. Return on assets and return on equity are two of the most important ratios for measuring the efficiency of usage of the shareholders' costs. However, the liquidity ratio may not be as effective in an inter-industry analysis, especially with firms with different sizes, because different businesses and firm sizes require different financing structures. Indeed, the cost structure and the impact of fixed and variable costs on firms' revenues depend on the tourism typologies (e.g. tourism animation versus accommodation and catering), firms' size and the amount of investment in the infrastructure (for example, comparing hotels with 100 rooms or 20 rooms). Concerning the financial autonomy, the bigger its value, the bigger will be the part of firm's applications that are being funded by equity and, therefore, smaller will be the firm's indebtedness. The bigger or smaller financial autonomy of a firm is a direct consequence of three key factors: firms' profitability, because the bigger the profits the bigger will be the firms' capacity of self-funding; investments and funding policy, since that firms with aggressive investment policies and that rely more on external funding, will have a lower financial autonomy; and the type of activity because capital intensive firms and firms with larger stocks, *ceteris paribus* will need a larger amount of external funding and, therefore, their financial autonomy will be lower, when compared to services firms. Indeed, investments with resource to external funding reduces the financial autonomy of a firm and consequently raises the long-term default risk and even bankruptcy. The financial leverage ratios are important for investors to understand how risky the capital structure of a firm and if it is worth investing in. The debt ratio calculates total liabilities as a percentage of total assets and shows the overall debt burden of the firm—not just the current debt. The debt ratio is a fundamental solvency ratio because creditors are always concerned about being repaid. As with many solvency ratios, lower ratios are more favorable than higher ratios. A lower debt ratio typically implies a more stable business with the potential of durability because firms with lower ratios also have lower overall debt. Firms with higher debt ratios are better off looking to equity financing to grow their operations, and to be more willing to be involved in environmentally responsible strategies, because more stable and available to look at their future from a more holistic, altruistic perspective.

## 5. CONCLUSION

The assessment of Tourism firm's performance has become a major issue worldwide since tourism firms incorporate social and environmental concerns in their business undertaking, strategies and operations in addition to their dealings with stakeholders (Lund-Durlacher et al, 2019). In this context, filling stakeholders' needs is fundamental to retaining societal legitimacy and financial liability in the long-run. Financial analysis shows if a firm can get profit from tourism activity and to draw some conclusions on some types of tourism abilities to generate enough incomes to cover its costs and achieve a reasonable profit, i.e., to be economically and/or financially sustainable. Through the application of this financial performance measurement framework using a benchmarking methodology, it is possible to identify relatively strong and weak typologies of Tourism firms. The results indicate that firms operating in cultural tourism activities make a more efficient usage of investors' funds and display a better liquidity position, however regarding the remaining indicators, nautical tourism firms are in a relative better position. Thus, contrary to what was expected, in a financial perspective, firms operating in nautical tourism activities apparently are more economically sustainable than firms that operate in nature/adventure tourism or cultural tourism activities. Nevertheless, the analysis during peak periods showed that cultural tourism firms apparently perform better, especially concerning the financial structure/leverage ratios, when compared to the other typologies of tourism firms. The adoption of this framework of analysis can help policymakers to distinguish between relatively well-performing typologies of Tourism firms, and those showing signs of financial trouble, with a view to early identification those typologies in financial difficulty and those more sustainable in financial terms. Furthermore, such a methodology applied to financial data from AMADEUS™, another database from Bureau Van Dijke with the same source as SABI, that covers a great number of European countries, could be particularly useful for performance assessment in the context of European Union countries.

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## LITERATURE:

1. Alonso-Almeida, M. D. M., Bagur-Femenias, L., Llach, J., & Perramon, J. (2018). Sustainability in small tourist businesses: the link between initiatives and performance. *Current Issues in Tourism*, 21(1), 1-20.
2. Anderberg, S., Prieler, S., Olendzyski, K., de Bruyn, S., (2000). *Old Sins — Industrial Metabolism, Heavy Metal Pollution and Environmental Transition in Central Europe*. UN University Press, Tokyo.
3. Azapagic, A. (2004). Development a framework for sustainable developing indicators for the mining and minerals industry. *Journal of Cleaner Production*. 12 (6): 639-662.
4. Azapagic, A. and Perdan, S. (2000). Indicators of sustainable development for industry: a general framework. *Process Safety and Environmental Protection*. 78 (4): 243-261.
5. Bagur-Femenías, L., Martí, J., & Rocafort, A. (2015). Impact Of Sustainable Management Policies On Tourism Companies' Performance: The Case Of The Metropolitan Region Of Madrid. *Current Issues In Tourism*, 18(4), 376-390.

6. Beaver, W., M. McNichols, and J.-W. Rhie. (2005). Have Financial Statements Become Less Informative? Evidence from the Ability of Financial Ratios to Predict Bankruptcy. *Review of Accounting Studies* 10 (1): 93–122. doi:10.1007/s11142-004-6341-9.
7. Beedie, P., & Hudson, S. (2003). Emergence of mountain-based adventure tourism. *Annals of Tourism Research*, 30(3), 625–643. [http://doi.org/10.1016/S0160-7383\(03\)00043-4](http://doi.org/10.1016/S0160-7383(03)00043-4)
8. Bell, S., Tyrvaenen, L., Sievanen, T., Probstl, U., & Simpson, M. (2007). Outdoor Recreation and Nature Tourism: A European Perspective. *Living Reviews in Landscape Research*, 1(2), 2. <http://doi.org/10.12942/lrlr-2007-2>
9. Borovčanin, D. (2015). A Comparative Analysis On Hotel Financial Performance. In *Sitcon 2015-Singidunum International Tourism Conference* (Pp. 198-201). Singidunum University.
10. Buckley, C. (2009). *Ecotourism: Principles and Practices*. Oxford, UK: CABI.
11. Carmeli, A. (2002). A Conceptual and Practical Framework of Measuring Performance of Local Authorities in Financial Terms: Analysing the Case of Israel. *Local Government Studies*. 28 (1): 21–36. doi:10.1080/714004135.
12. Chen, L. (2015). Sustainability and Firm Performance: Evidence from the Manufacturing Industry. Unpublished Ph.D. Thesis, Linköping Studies in Science and Technology, Dissertations No. 1698, Linköping University Department of Management and Engineering, Sweden.
13. Cobbinah, P.B. (2015). Contextualising the meaning of ecotourism. *Tourism Management Perspect.* 16, 179–189.
14. Cordeiro, B., Alves, L, Carvalho, P., (2015) O Ecoturismo em Portugal: Uma Análise Exploratória aos Agentes de Animação Turística e a Sua Relação Particular com o Ecobusiness. *Revista Turismo e Desenvolplo Local*, 8 (18), 1-19.
15. DeSimone, Livio D. and Popoff, F. (2003). *Eco-Efficiency: The business link to sustainable development*. Cambridge, MA: The MIT Press.
16. Dutescu, A., Popa, A. F., & Ponorîca, A. G. (2014). Sustainability of the tourism industry, based on financial key performance indicators. *Amfiteatru Economic Journal*, 16 (Special No. 8), 1048-1062.
17. Dyer, M. (1992). *The Cleanroom Approach to Quality Software Development*. John Wiley. New York.
18. Eccles, R. G, Ioannou, I. and Serafeim, G. (2011). The Impact of Corporate Sustainability on Organizational Processes and Performance. Working Paper, Electronic copy available at <http://ssrn.com/abstract=1964011>.
19. Enquist, B., Edvardsson, B. and Petros S. S. (2007). Values Based Service Quality for Sustainable Business. *Managing Service Quality*. 17 (4): 385-403.
20. Epstein, M. J. (2008). *Making Sustainability Work: Best practices in managing and measuring social and environmental impacts*, Greenleaf, Sheffield
21. Estender, A. C. and Pitta, T. de T. M. (2008). O conceito de desenvolvimento sustentável. *Revista Terceiro Setor, UNG*. 2 (1): 22-28.
22. Fennell, D. A. (2000). What's in a name? Conceptualizing natural resource-based tourism. *Tourism Recreation Research*, 25(1), 97–100. <https://doi.org/10.1080/02508281.2000.11014903>
23. Fox, C., Levitin, A. and Redman, T. (1994). The notion of data and its quality dimensions, *Information Processing and Management*. 30 (1): 9-19.
24. Geffroy, V. (2017). 'Playing with space': a conceptual basis for investigating active sport tourism practices. *Journal of Sport and Tourism*, 21(2), 95–113. <https://doi.org/10.1080/14775085.2016.1271349>
25. Hanley, N., Moffatt, I., Faichney, R., Wilson, M., (1999). Measuring sustainability: a time series of alternative indicators for Scotland. *Ecological Economics* 28, 55–73.

26. Harger, J.R.E., Meyer, F.M., (1996). Definition of indicators for environmentally sustainable development. *Chemosphere* 33 (9), 1749–1775.
27. Houge Mackenzie, S., & Kerr, J. H. (2016). Positive motivational experience over a three-day outdoor adventure trek in Peru. *Journal of Adventure Education and Outdoor Learning*, 9679(June), 1–14. <http://doi.org/10.1080/14729679.2016.1189837>
28. Johnson, M. (2007). Stakeholder dialogue for sustainable service. Doctoral dissertation, Karlstad, Karlstad University Studies.
29. Jovanovic, T., Dragin, A., Armenski, T., Pavic, D., & Davidovic, N. (2013). What demotivates the tourist? Constraining factors of nautical tourism. *Journal of Travel & Tourism Marketing*, 30(8), 858–872.
30. Kneipp, M. J. (2012). Gestão para a sustentabilidade e desempenho em empresas do setor mineral. Tese de Mestrado em Administração. Universidade Federal de Santa Maria, Santa Maria.
31. Lassala, C., Apetrei, A., & Sapena, J. (2017). Sustainability matter and financial performance of companies. *Sustainability*, 9(9), 1498.
32. Lopes, R., Barroco, C., & Antunes, J. (2017). Turismo de Aventura Acessível: Análise da oferta na Região Centro de Portugal, 319–332.
33. Lund-Durlacher, D., Dinica, V., Reiser, D., and Fifka, M. S. (2019). *Corporate Sustainability and Responsibility in Tourism*. Springer.
34. Margaryan, L., & Fredman, P. (2017). Bridging outdoor recreation and nature-based tourism in a commercial context: Insights from the Swedish service providers. *Journal of Outdoor Recreation and Tourism*, 17(July 2016), 84–92.  
<http://doi.org/10.1016/j.jort.2017.01.003>
35. McPeak, C., Devirian, J., & Seaman, S. (2010). Do environmentally friendly companies outperform the market?. *Journal of Global Business Issues*, 4(1), 61.
36. Ness, B., Urbel-Piirsalu, E., Anderberg, S., & Olsson, L. (2007). Categorising tools for sustainability assessment. *Ecological economics*, 60(3), 498-508.
37. Nyaupane, G. P., Morais, D. B., & Graefe, A. R. (2004). Nature tourism constraints: A cross-activity comparison. *Annals of Tourism Research*, 31(3), 540–555.
38. Ocampo, L., Ebisa, J. A., Ombe, J., & Escoto, M. G. (2018). Sustainable ecotourism indicators with fuzzy Delphi method—A Philippine perspective. *Ecological indicators*, 93, 874-888.
39. PASTILLE Consortium (2002). Indicators into Action: Local Sustainability Indicator Sets in their Context. Final report.
40. Perera, L.C. L., Goncalves, R., Antunes, M. T. and Imoniana, P. (2011). Sustainable Practice and Business Profitability in Brazil. *Journal of International Business and Economics*. 11 (3): 14-24.
41. Perlin, A. P., Guedes, G. B., Nunes, M. L. and Ferreira, P. V. (2013). Indicadores de sustentabilidade da indústria corticeira Portuguesa. *Revista Portuguesa e Brasileira de Gestão*. 47-56.
42. Rua, A. (2017). Dating the Portuguese business cycle. *Revista de Estudos Económicos do Banco de Portugal*.
43. Schaltegger, S. and Wagner, M. (2006). Integrative management of sustainability performance, measurement and reporting. *Int. J. Accounting, Auditing and Performance Evaluation*. 3 (1): 1–19.
44. Silva, J. O, Rocha, I., Wienhage, P. and Rausch, R. B. (2009). Gestão Ambiental: uma análise da evidenciação das empresas que compõem o Índice de Sustentabilidade Empresarial (IES). *Revista de Gestão Social Ambiental – RGSA*. 3 (3): 56-71.
45. Singal, M. (2014). The link between firm financial performance and investment in sustainability initiatives. *Cornell Hospitality Quarterly*, 55(1), 19-30.

46. Sousa, T.M.A. (2014) Fatores Críticos de Sucesso das Empresas de Animação Turística da Região Autónoma dos Açores. Dissertação de Mestrado/MBA, Universidade dos Açores.
47. Souza, R. de B. and Lopes, P. da C. (2010). Indicadores de sustentabilidade em simulações de negócios: uma proposição no contexto do jogo de empresas SEE. *Revista Contemporânea de Economia e Gestão*. 8 (2).
48. Steurer, R.; Langer, M. E.; Konrad, A. and Martinuzzi, A. (2005). Corporations, stakeholders and sustainable development: a theoretical exploration of business society relations. *Journal of Business Ethics*, Netherlands. 61 (3): 263-281.
49. UNCSD (2001). *Indicators of Sustainable Development: Guidelines and Methodologies*. United Nations, New York.
50. Waddock, S. and Bodwell, C. (2007). *Total Responsibility Management: The Manual*. Greenleaf Publishing: Sheffield, UK.
51. Walker, K., Moscardo, G., (2014). Encouraging sustainability beyond the tourist experience: ecotourism, interpretation and values. *J. Sustainable Tourism* 22 (8), 1175–1196.
52. Weber, K. (2001). Outdoor adventure tourism a review of research approaches. *Annals of Tourism Research*, 28(2), 360–377. [http://doi.org/10.1016/S0160-7383\(00\)00051-7](http://doi.org/10.1016/S0160-7383(00)00051-7)
53. Wu, Y., C. Gaunt, and S. Gray. (2010). A Comparison of Alternative Bankruptcy Prediction Models. *Journal of Contemporary Accounting & Economics*. 6 (1): 34–45.

## AN EXAMINATION OF FOOD DISTRIBUTION AND SPECIALISED RETAIL SALES IN PORTUGAL

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### ABSTRACT

*The food retail sector in Portugal is mostly concentrated in five main players holding 69.6% of its market share, with two groups leading the Portuguese preference, Continente with 21.9% market share, Pingo Doce with 20.8% market share, followed by Jumbo, Lidl and Intermarché with 9.5%, 8.8% and 8.6%, respectively. These operators up to the year 2012 have guided their performance and price strategy by applying the strategy Every-day-Low-Price that privileges the application of low and stable prices. In this paper we aim to characterize the food retail market in Portugal after the year 2012, identifying the main factors and contextualizing the economic climate. This analysis takes into account that most retailers opted to follow a strategy of high low pricing, which determined that 47% of sales of the year 2018 correspond to promotional sales; in this way, we will devote the analysis of the promotion and the impacts that it has for forecasting sales and supply chain management. Thus, to evaluate the influence of promotions on global sales, we will use weekly data referring to sales in the hypermarkets & "Superstores" channel that includes hypermarkets > 2,500 m<sup>2</sup>; Supermarkets 400-2,500 m<sup>2</sup>; Proximity <400 m<sup>2</sup>, in the period between the first week of 2012 and the last week of 2018, and also data on the number of promotions printed on promotional leaflets on the same the period in question. Applying multiple linear regression models and a previous exploratory analysis of the data we can conclude that the promotions carried out via leaflets actions have a weak capacity to explain the sales obtained in the Hypermarkets & Superstores channel and that are explained in large scale by other variables and the impact of these variables should be object of study in future works.*

**Keywords:** *Portuguese retail market, Promotion, Retail, Retail pricing strategy*

### 1. INTRODUCTION

The 2007 subprime crisis that began with the bankruptcy of the American bank Lehman Brothers had worldwide repercussions felt in several countries. In the Portuguese case the pressure exerted on the financial conditions of the country, led to an escalation of the interest rates with which Portugal was financed in the international markets. This process culminated in the international request for financial aid on 7 April 2011, since then and during the following 3 years Portugal was conditioned in its governance by the memorandum signed with the Troika.

The economic and financial adjustment that country was made through the instantaneous interruption of public investment, the reduction of public expenditure, particularly the cut of wages and social benefits, and also by the implementation of measures on the revenue side, such as the increase of taxation on labor and consumption (Rodrigues & Silva, 2015). As we can see in Figure 1, between 2011 and 2014, the constant prices GDP contracted significantly reaching its low in 2013, with a decrease of 6.85% in relation to 2010.

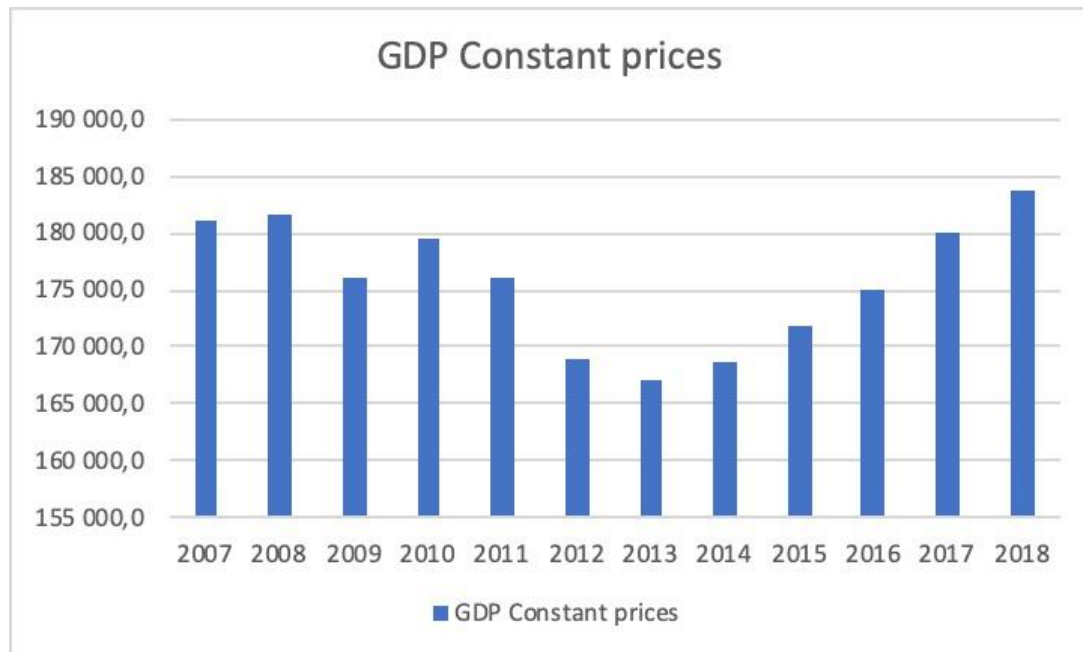


Figure 7: Gross Domestic Product Constant Prices (Pordata, 2019)

Private consumption was also significantly affected during the years of the adjustment program, as can be seen in Figure 2 during the program period, private consumption reached its minimum in 2013 which corresponds to a decline of 6.1% compared to 2010.

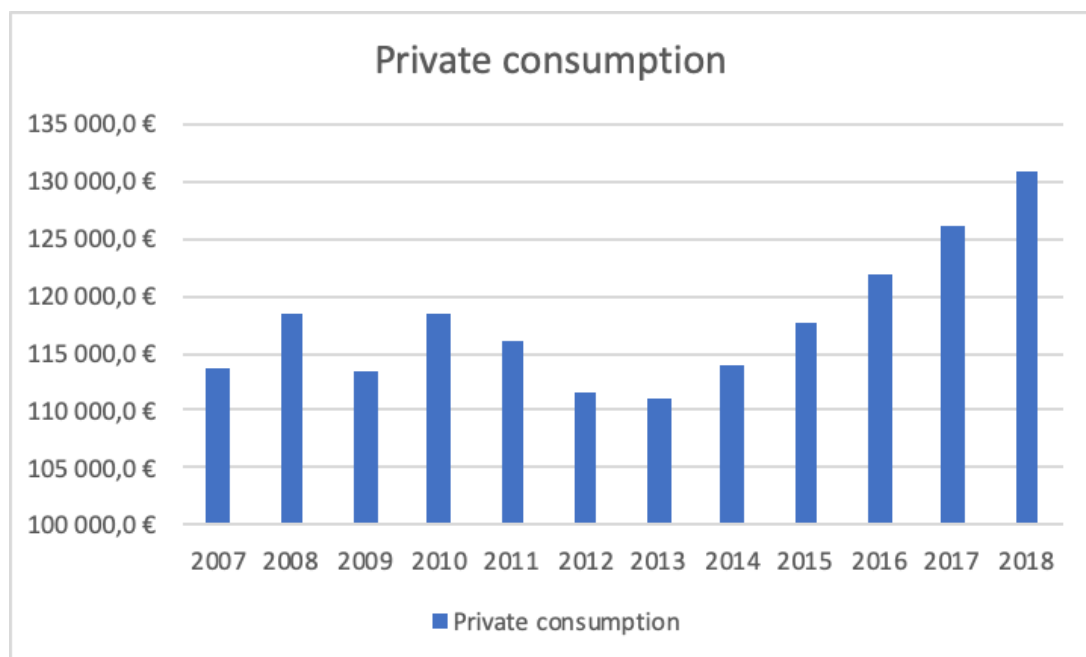


Figure 2: Private Consumption (Pordata, 2019)

As is shown in Figure 3, during the economic adjustment program, the consumer confidence index reached its minimum in 2012, whit the indicator decreasing 52% compared to the year of 2010.

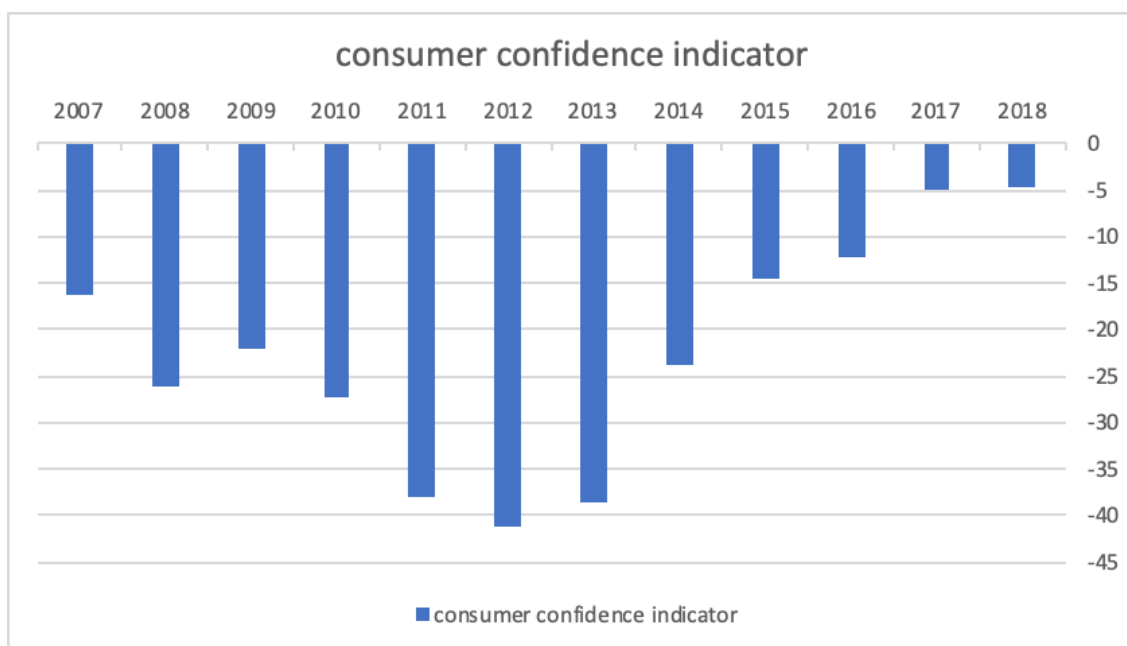


Figure 3: Consumer Confidence Indicator (INE, 2019)

Thus, taking into account the national context, there were several changes in the consumer profile, who began to plan and organize the purchase acts in a more rational way, buying less quantity and increasing the frequency of visits to stores. This "new" consumer who emerges in the midst of the crisis, is characterized by the constant demand for promotions, discounts and lower prices, is concerned with acquiring private label or first price products, this consumer is also characterized by being unreliable in relation with the point of sale (Beirão, 2001). Retailers have also did adjusts to deal with the changes in consumer habits, highlighting mainly the shift in their strategy. Up to 2012, retailers set their performance and price strategy by applying the Everyday Low-Price model, which is defined by a low and stable price (Pechtl, 2004). However, from 2012 most of the players have chosen to implement a High Low Pricing strategy, which is characterized by promoting temporary price variations with the propose to attract customers (Pechtl, 2004) . The prices advocated in a strategy everyday low price are characterized by being lower than the prices, out of the promotional moment, of the High Low Pricing strategy, however in the case of products in promotion, the high low pricing strategy presents a more competitive price than the everyday low price strategy. (Hoch, et al, 1994; and Lal & Rao, 1997).

## 2. THE PORTUGUESE FOOD RETAIL MARKET

The food retail sector in Portugal is mostly concentrated in five main players holding 69.6% of its market share, with two groups leading the Portuguese preference, Continente with 21.9% market share, Pingo Doce with 20.8% market share, followed by Jumbo, Lidl and Intermarché with 9.5%, 8.8% and 8.6%, respectively.

*Figure following on the next page*

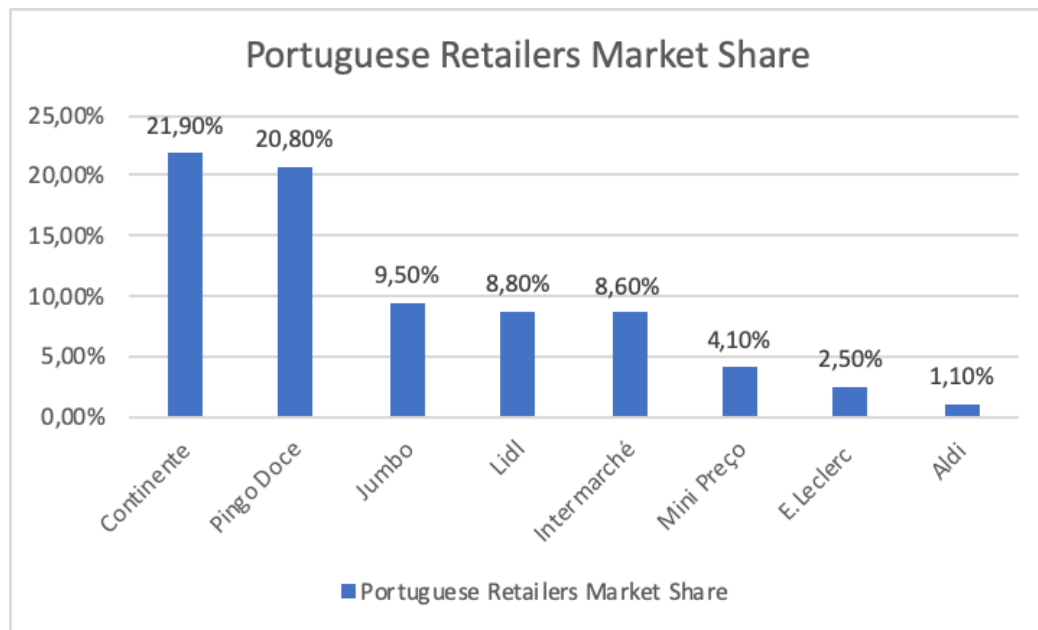


Figure 4: Portuguese Retailers Market Share, (CMVM, 2018)

It is therefore possible to affirm that the focus of retailers is on promotions, these are characterized as short-term actions that aim to influence and stimulate the product acquisition process, the power of this variable is based on its ability to create an extra motive for impulse buying, experimentation of new / other products or even promote the stock disposal (Honea & Dahl, 2005). Thus, since 2012 we have witnessed a great increase in the number of promotions via leaflet, according to (Huang et al, 2014) it is in promotions that retailers spend a large part of their budget. Promotional leaflets are the main tool to retailers impulse promotions, they are used to promote new products, store openings and special price communication (Miranda & Kónya, 2007). According to Figure 5, the number of promotional inserts has increase by 439.9% between 2012 and 2018, indicating that to meet new consumer demands, retailers have made the promotional sales their principal focus.

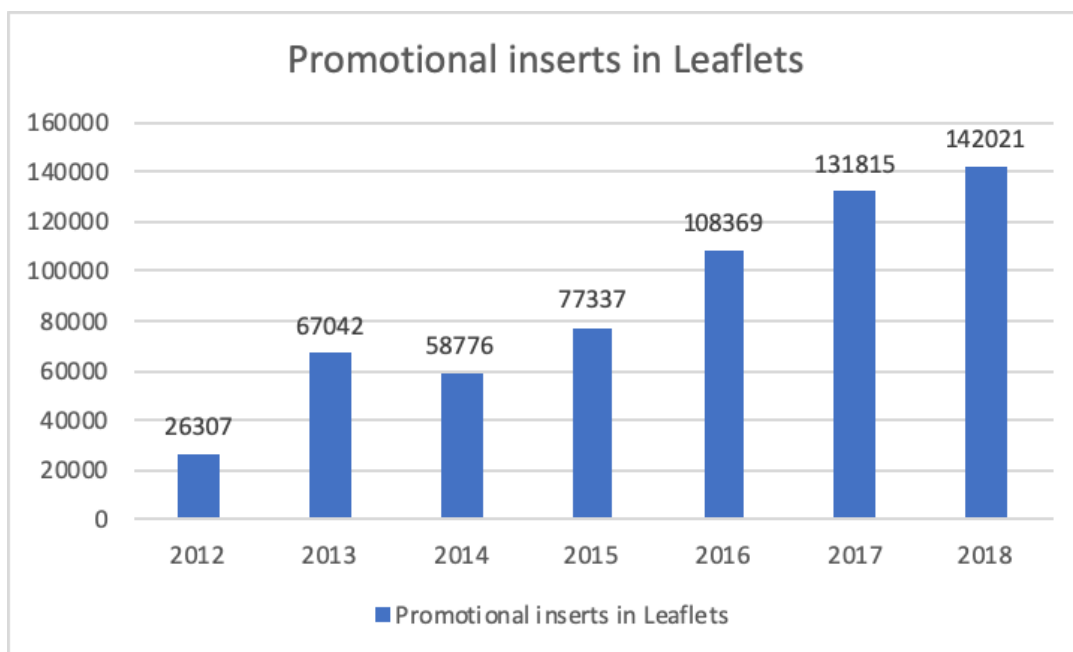


Figure 5: Promotional inserts in Leaflets, (Action Focus, 2018)

Taking into account the information presented above, the weight of domestic market promotional increased by 80.8% between 2012 and 2018, from 26% to 47%, as can be seen from the information in Figure 6.

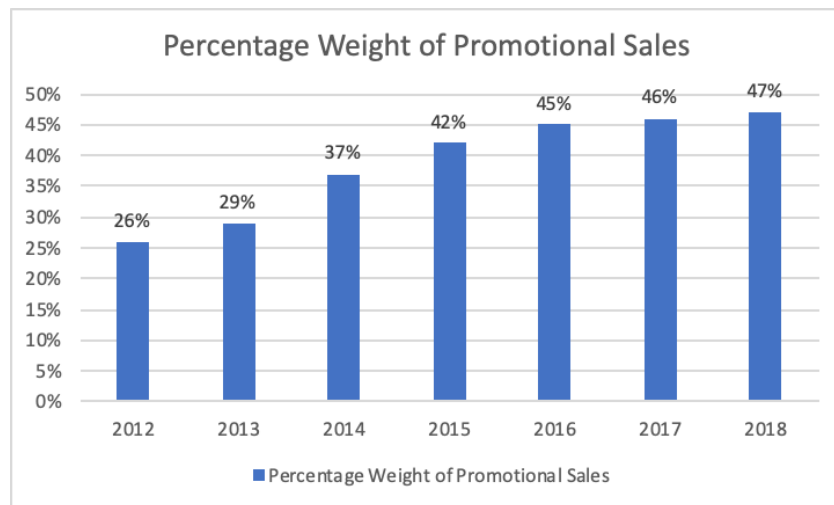


Figure 6: Percentage Weight of Promotional Sales, (Nielsen, 2019)

The values presented, in Figure 6, show that almost 50% of retail sales are promotional sales promotion, which proves the preponderances they have in competitive retail dynamics. However, although promotional campaigns cause short-term sales to increase, they also increase consumers' price sensitivity and lower reference prices that consumers attribute to products (Gedenk et al, 2006). Thus, taking into account the weight of promotions, these should be planned and analyzed in detail, giving to managers the freedom to define the best strategy. they should promote well-designed campaigns with the capacity to predict the competitors' actions and responses (Ma & Fildes, 2017).

### 3. THE IMPACT OF LEAFLETS INSERTIONS ON SALES

To evaluate the impact that leaflets promotional actions have on sales, we will use a simple linear regression model, where the variable explained are global sales and the explanatory variable are the leaflets inserts. The data of the explained variable corresponds to the global sales of the channel Hypermarkets & "Superstores" that includes hypermarkets > 2,500 m<sup>2</sup>; Supermarkets 400-2,500 m<sup>2</sup>; Proximity <400 m<sup>2</sup>. These amount included the sales of the groups, Auchan, Continente, Dia / Minipreço, El Corte Inglés, E.Leclerc, Mosqueteiros and Pingo Doce, in the period from the first week of 2012 to the last week of the year 2018. In the case of the explanatory variable number of leaflet insertions, this number represents the number of promotional photographs presented in the described above insignia leaflets, during the weeks in question, for the accounting of this variable it was assumed that a highlight of the brand is the same number if inserts that an individual highlight of a product.



Figure 7: Promotional insertion example, (leaflet continente,2019)

In Figure 7, despite including several articles the Quaker brand is counted as one promotional insert just like the Fitness cereals were considered as one promotional insert. Although there are leaflets who crosses more than one-week duration, for this study we considered the starting date of the leaflet was to be the date of the leaflet. Thus, by applying a simple linear regression using the number of weeks as explanatory variable and the global sales as explained variable, we obtain a line of equation  $Y = 0.1167X + 186.34$  (Figure 8), who have associated with this regression a coefficient of determination of 0.2591 which means that the variable number of weeks can explain 25.91% of the total variation of the global sales variable.

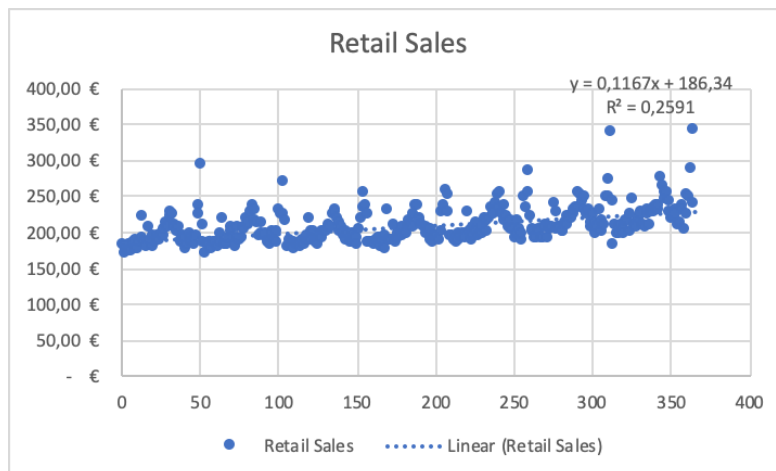


Figure 8: Portuguese Retail Sales, (Nielsen, 2019)

Applying a simple linear regression using the number of inserts in leaflet as explanatory variable and the global sales as explained variable, we obtain a line of equation  $Y = 0.0116X + 188.29$  (Figure 9), who have associated to the regression a coefficient of determination of 0.1551 which means that the leaflet inserts variable can explain 15.51% of the total variation in the global sales variable.

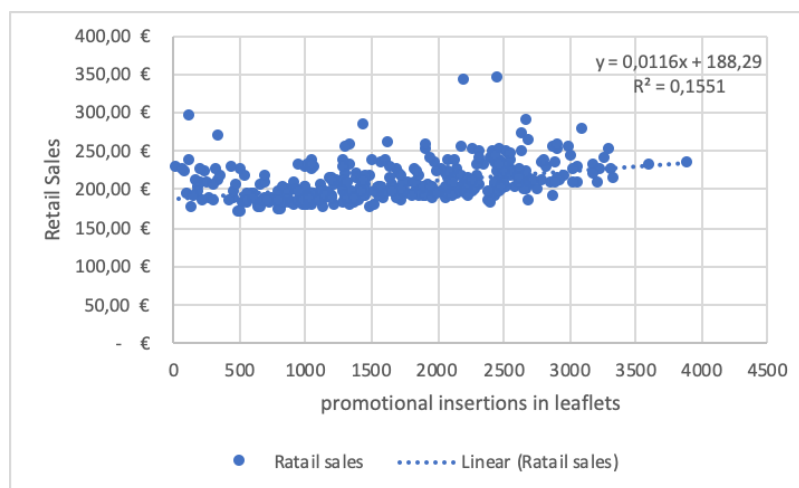


Figure 9: Portuguese retail sales/Promotional insertions in leaflets  
 (Nielsen & Action Focus 2019)

#### 4. CONCLUSIONS

Portugal went through a severe period of economic adjustment, which has significantly affected the purchasing power of most of the people, from the restrictions stemming through this program has emerged new consumption habits and a high sensitivity to price by the consumer.

This sensitivity made the act of consumption become much more pondered and scrutinized, leading the consumer to make several comparisons between the various retailers before making the purchase. The Portuguese food distribution chains, in order to fit with the changes in the consumer preferences have adapted their strategies of price, moving from an everyday low prices to continuously focusing on promotional mechanics. The most visible part of this promotional mechanic is the leaflets, these have significantly evolved in quantity during the analyzed period. This new work model has resulted in an increase in promotional sales, having reached 47% of total sales in 2018, although its growth rate has declined in the last 3 years. As such, it would be expected that leaflet promotional insertions would be able to explain much of the global sales, however as we have seen through the simple linear regression method this is not true and the insertions can only explain 15.51% of the total variation in global sales. Taking into account the above, it would be pertinent in future work to test other variables and methods in order to formulate a better fit model to explain Portuguese global retail.

## LITERATURE:

1. Action Focus (2019), Promotional Leaflet Insertions, Physical Data.
2. Beirão, A. F. (2001). *O Impacto das promoções de vendas no valor da marca*. Master thesis, Universidade Católica Portuguesa.
3. CMVM (2018). Portuguese Securities Market Commission, Portuguese Retail Market Share, <https://web3.cmvm.pt/sdi/emitentes/docs/FR69840.pdf>, October 2018.
4. Continente (2019). Leaflet insertion example, Sabe bem pagar tão pouco 2 a 8 julho, <http://folhetos.continente.pt/2019/6/semanal-s27-ts11/?page=12>, July 2019.
5. Gedenk, K., Neslin, A. S.; Ailawadi, K. L. (2006), Sales Promotion, *Retailing in the 21st Century-Current and Future Trends*, 1<sup>st</sup> edition, , pp. 341–359, Germany: Springer–Verlag.
6. Hoch, S.; Drèze, X.; Purk, M. (1994). EDLP, Hi-Lo, and Margin Arithmetic. *Journal of Marketing*. 58 (10), 16-27.
7. Honea, H.; Dahl, D. (2005). The promotion affect sale: defining the affective dimensions of promotion. *Journal of Business Research* 58(4), 543-551.
8. Huang, T., Fildes, R.; Soopramanien, D. (2014), The value of competitive information in forecasting FMCG retail product sales and the variable selection problem, *European Journal of Operational Research*, Vol. 237, No2, pp. 738–748.
9. INE (2019), Statistics Portugal, Consumer Confidence Index, <http://ine.pt>, June 2019.
10. Lal, R.; Rao, R. (1997). Supermarket competition: the case of everyday low pricing, *Marketing Science* 16(1), pages iii-vi.
11. Ma, S.; Fildes, R. (2017), A retail store SKU promotions optimization model for category multi-period profit maximization, *European Journal of Operational Research*, Vol. 260, No2, pp. 680–692.
12. Miranda, M.; Kónya, L. (2007). Directing store flyers to the appropriate audience, *Journal of Retailing and Consumer Services*, 4(3), 175-181.
13. Nielsen (2019). Nielsen market Track hiper + super universe, <https://www.nielsen.com/pt/pt/insights/article/2019/large-consumer-goods-grow-in-2018>, February 2019.
14. Pechtl, H. (2004). Profiling intrinsic deal proneness for HILO and EDLP price promotion strategies, *Journal of Retailing and Consumer Services* 11(4), 223-233.
15. PorData (2019), Francisco Manuel dos Santos Foundation, GDP & Private Consumption Data, <https://www.pordata.pt>, June 2019.
16. Rodrigues, M.; Silva, P. A. (2015). *Governar com a Troika: Políticas Públicas em Tempo de Austeridade*. Lisbon: Almedina.

## **ELEMENTS OF INVESTMENT ANALYSIS CONSIDERED BY INVESTORS AND CAPITAL MARKET ANALYSTS IN BRAZIL AT ENTERTAINMENT, AIR TRANSPORT AND TOURISM SECTORS**

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### **ABSTRACT**

*The objective of this article is to identify the factors of influence considered by investors and capital market analysts in the decision-making about investments, through the information evidenced in the Financial Statements of companies that recognize their revenues in different moments. The data were collected in interviews with investors and capital market analysts. They act directly in the analysis of the Financial Statements of companies that recognize their revenues in moments other than their sales. The author selected companies listed on BM & FBovespa, which operate in entertainment, air transport and tourism segments. It was noted that the accounting information, mainly its content - which is evidenced in the Financial Statements of these companies - are essential and fundamental for investors and capital market analysts to complete their analysis and their interpretations about the company. This work has practical implications for investors and capital market analysts because it raises several issues related to the difficulties they encounter when analyzing the financial statements of these companies. The issues explored in this paper help to highlight the factors influencing investment decision making as well as the challenges of investors and market analysts. This research offers important contributions that can potentially improve communication between companies and the capital market, through the emphasis given to the quality of the accounting information contained in the Financial Statements, which would consequently improve the efficiency of the capital market.*

**Keywords:** *Revenue Recognition, Financial Statements, Capital market*

### **1. INTRODUCTION**

The information produced in the accounting reports can become an essential competitive advantage for companies to capitalize on new investors, especially in complex and dynamic environments such as capital markets, where disclosure of business performance is substantial for investors to be attracted to to make new investments (Pace; Basso; Silva, 2003). According to Martinez (2004), the competitive advantage of a company towards the capital market may also be related to the way the capital market analyst evaluates its Financial Statements. The capital market analyst must be sensitive to identify the points at which the company has a competitive advantage over the competition and thus prescribe it in its investor

recommendation report. The analyst is the informational intermediary between the investor and the company. Martinez (2004) also states that, after performing the necessary steps for the process of evaluating a company through the Financial Statements, the capital market analyst makes a recommendation, which for many is the most important step because it is at that moment that he expresses his opinion about the company and recommends an attitude of investment in one way or another. In this sense, Ball and Brown (1968), showed that the accounting information presents informative content capable of changing the expectations of the investors, which are captured through the variation in the market values of the company, being usually calculated in the price of the action. From this research, several others were developed, indicating that the accounting results have information relevant to the capital market, such as the works of Francis and Schipper (1999), Easton (1999) and Lopes (2001). In Brazil, empirical studies on the relevance of accounting information in the capital market are, in addition to scarce, recent. For example, the researches of Leite and Sanvicente (1999), Schiehl (1996), Prux Jr. (1998), Perobelli and Ness Jr. (2000), Lopes (2002) and Sarlo Neto et al. (2005), Castro and Marques (2013), Ramos and Lustosa (2013), among others. Francis and Schipper (1999) explain that the information produced by accounting is considered relevant when it can be used to predict future results, dividends or cash flow. They also state that the importance of accounting information is measured by the ability of accounting information to capture or summarize data, regardless of source, which affects stock values. Thus, if an accounting information has an association with market values, then that information captures or aggregates data that is used by its external users, especially by market participants in order to determine prices or returns. Palepu, Healy and Bernard (2004) argue that accounting information converted into company-issued reports is potentially an important means for management to communicate company performance and governance to investors and other stakeholders. This communication given to the market is important and, as Iudícibus (1998) explains, the form and content by which the company communicates with the market is denominated by disclosure of the Financial Statements, or disclosure. Therefore, disclosure is understood as any deliberate disclosure of company information to the market, whether quantitative or qualitative, required or voluntary, via formal or informal channels (Souza, 1995). In order to improve the disclosure of information, European countries have adopted more sophisticated accounting standards through the movement of harmonization of accounting standards in the continent, to the requirement to be employed through the International Financial Reporting Standards (IFRS). According to a survey by Deloitte (2010), 123 countries had adopted IFRS for their listed companies. These countries expected the acceptance of IFRS to provide them with a number of advantages, such as: greater transparency and comparability of financial statements, integration of international financial markets, consolidation of economic blocs, institutions and bodies in several countries jointly and internationally, and financial stability. The global accounting convergence is definitively part of the Brazilian context through the mandatory adoption of the IFRS for public companies listed on the BM & FBovespa and for companies considered large in 2010 (Lima, 2011). With the regulation of a norm with international standards and the admission of it by several countries, it is expected to reduce the information asymmetry. Hendriksen and Van Breda (1999) argue that when the disclosure of accounting information is not regulated or mandatory, there is an increase in informational asymmetry. On the other hand, it is important to note that informational asymmetry exists. Segura (2012) asserts that managers have, as an asset, asymmetric information regarding investors and that they can use it for their own benefit, particularly in decisions about financing and investments of the company. This means that, because of this informational asymmetry, managers' decisions are affected when it is necessary to choose, for example, between internal and external financing, and between debt issues and market actions, that is, managers' work there is a hierarchy of preferences, in general, between sources of

funding. Thus Ball (2001) addresses the quality of the accounting information presented, such as public information made available to economic agents, and economic efficiency so that they promote the reduction of informational asymmetry between the managers and contracting parties of the companies (shareholders, investors, lenders, financiers, suppliers, customers and employees). According to Guerreiro, Pereira and Lopes (2004), the publication of accounting information has played a fundamental role in the development of the financial analysis of companies, since the disclosure of clearer and more comprehensible information diminishes information asymmetry, investors to make decisions. In the context that investors' decisions are linked to the search for information that helps them to predict risks and financial returns on possible investments, the evidence and the quality of the information presented in the Financial Statements are extremely important, as Bueno (1999, p. 06). Investors decide based on expectations about the future cash flows of the company, in broad terms, or the asset subject of the decision, in restricted terms. In this sense, investors seek information that helps them in these forecasts, and the Financial Statements are an important element in this process (Lustosa; Santos, 2007). However, there are companies that do not follow the same operational or financial cycle as companies in general. The sales of these companies are different, and when analyzing them analysts need additional information. As the regulation of information exists for companies in general, the Financial Statements of companies with specific segments usually present particular information to the business, or concepts differentiated from those present in the accounting standards. However, the disclosure of this information cited in some studies, such as Moreira (2014), Resende and Sales (2005), Bonizio (2001), are not disclosed to the market in a detailed or attractive format, making it difficult for users to analyze, in the capital market. In view of the foregoing, this study set out to answer the following research question: "What are the factors that influence the analysis of the financial statements in the entertainment, air transport and tourism segments?". These segments were chosen because they are the ones that recognize their revenues at a different time to the moment of their sales, providing information in their Financial Statements in a differentiated way when compared to the industry in general. The overall objective of the research is to identify the factors considered by investors and capital market analysts when they encounter the information published in the Financial Statements of companies in the entertainment, air transport and tourism segments that may influence the investor's decision to make investments in this group of companies. As specific objectives this work aims to know the influence of the accounting-financial report in the decision-making of the investor in companies of these segments; Know the main indicators analyzed; to know the main difficulties from the point of view of investors and capital market analysts; to identify the influence of informational asymmetry and to understand the perspectives, from the perspective of investors and capital market analysts, on the impact on the stock price of companies, based on the information disclosed in the Financial Statements. Although some research has been carried out on factors that influence the use of the analysis of Financial Statements for decision making, such as (Nunes; Serrasqueiro, 2004; Borges; Nunes; Alves, 2012) mainly for the US market, in which the Financial Statements are informative and maintain a strong relation with the price and the return of the shares (Fama, French, 1992, 1993, 1996, Lev, Thiagarajan, 1993, Abarbanell, Bushee, 1997). The contribution of this research relates to the external users in solving their difficulties in analyzing the Financial Statements of unusual companies (for having the recognition of their revenues at moments different from the sales moments of their products and their services) when compared with recognition of industry revenues in general. Second, understand what information is not possible to verify and what would help users to improve their analysis, starting from the Financial Statements. In addition, the research also intends to contribute to the publicly traded companies that will be analyzed in this work.

## 2. REVIEW OF LITERATURE

Information is an essential aspect for strategic decision making in companies. It is from the information the company has about itself and its competitors that decisions will be taken. In this sense, information has a priority role within an organization (Pires, 2009). Hendriksen and Van Breda (1999, p. 139) define that "[...] owners are said to be information assessors; its agents are decision makers.". The theory of the agency, according to Pinto Júnior and Pires (2002), is a part of the theory of contracts by which this theory is interested due to the relationship between the principal and the agent. In this sense, from this relationship arise the agency conflicts due to the asymmetry of information. Informational asymmetry can be defined as the perspectives, risks and values of the company that managers have access to and are not shared with the market (Segura, 2012). Procianny and Antunes (2001, p.4) define information asymmetry as information owned by people who are inside the organization and who have access to them in an exclusive way. Pindyck and Rubinfeld (1994) point out that informational asymmetry is one of the most important causes of market misalignment. In the presence of informational asymmetry, stock prices do not reflect all the relevant information, being possible to evaluate only the return flow of the company that is perceived by the market. In the capital market, there may be the problem of adverse selection. According to Ross, Westerfield and Jaffe (1995), any announcement by companies about decisions on investment, financing and distribution of dividends that is disclosed by managers to the market can be considered as a signal that conveys relevant information. After the perception of this signal by the market, it is expected that there will be a reaction in the price of the action with the reflection of the new information. Accounting information is a tool for decision making. Its quality is essential for those users who are interested in evaluating a company's financial and economic performance and its future potential for profit and cash generation. Given the assertion that accounting is the basis for the preparation of information for decision-making, authors Hendriksen and Van Breda (1999) conclude that agency theory supports the basis for accounting in providing information after the occurrence of an event, which would have a decisive role. In this scenario, this role is often associated with the accounting custody function, in which an agent informs the principal of the period's events. Thus, a return value is generated for its users, in addition to its predictive value. Following the reasoning that information needs to be accompanied by qualities and other consistencies, Technical Pronouncement CPC 00 (Committee On Financial Pronouncements, 2011a) explains that the useful qualitative characteristics of the information should be applied to the accounting and financial information provided by the financial statements accounting information provided by other means. The standard has brought innovations to both the Financial Statements and the accounting practices, since these standards are based much more on principles than on rules (Saiki; Antunes, 2010). Hendriksen and Van Breda (1999) argue that consistency can and should be interpreted broadly in the sense of disclosing, at each period, all necessary information relevant to users' predictions. Several studies have found a positive approach to the relevance of accounting information in the capital market, with an emphasis on investment composition, capital return maximization and agency theory (Ball, Brown, 1968; Beler, 1968; Landsman, 2001; Lopes, 2002). Lopes (2002) observes that the conditions of operation in the capital market in Brazil have high volatility, governmental influence and characteristics of highly regulated accounting model and strongly influencing by fiscal legislation. The Brazilian capital market is extremely concentrated, with few companies having stock-exchange control when compared to the US capital market, for example. According to Terra and Lima (2006), the accounting information disclosed by companies plays a central role for the minority shareholders of the companies and is often the main source of information about the company's situation. Brealey and Myers (1995) define efficient markets as those in which participants form price expectations, based on all available information on events that may influence the prices of the traded asset.

According to Leroy (1989), in evaluating market information, investors must consider, in addition to their veracity, their degree of disclosure, that is, whether they are already public and of general knowledge and therefore already incorporated in the prices of securities in the market. The acquisition and evaluation of information will depend on the position of the investors on the EMH: if the market is efficient, it will be an expenditure of necessary resources. Financial market analysts, in general, use some methods and some indicators to evaluate companies through the Financial Accounting Statements. Martinez (1999) explains that in practice, the evaluator usually uses several methods and weighs the result for the concrete case, reaching a value that represents the best possible estimate of the economic value of the company. From the Financial Statements of a company, information can be extracted regarding your economic and financial situation. Therefore, it is through this accounting-financial report that an analyst can draw conclusions about the attractiveness of investing in shares of a particular company. Currently, Technical Pronouncement CPC 29 (Accounting Pronouncements Committee, 2009), correlated with the International Accounting Standard (IAS 41), is the only one that establishes an accounting treatment for some types of unusual segments, such as the areas of biological assets and agricultural products. Technical Pronouncement CPC 29 (Accounting Pronouncements Committee, 2009) establishes an accounting treatment mainly for the recognition and measurement of gains and losses, as well as for the disclosure of the accounting information in the Financial Statements. In summary, the analysis of balance sheets for non-usual segments (which do not have accounting treatment) and the respective disclosures defined and regulated by competent bodies have become more complex, especially for those companies that disclose their information to the market and do not have others players for information to be compared.

### **3. METHODOLOGY**

This study will be carried out by exploratory and descriptive research. It is exploratory, since it sought to obtain greater knowledge about what are the factors that influence the analysis of the Financial Statements of companies of unusual segments, according to the perception of investors and capital market analysts, in order to develop concepts, ideas, and understandings through patterns found in the data, rather than collecting data to prove preconceived theories, hypotheses, and models. It is descriptive, because it sought to understand how the phenomena related to the analysis of the Financial Statements of unusual segments can influence the investment decision making, object of study, trying to describe, classify and interpret them. Diehl and Tatim (2004) attest that qualitative research describes the complexity of a given problem, and it is necessary to understand and classify the dynamic processes experienced in the groups, to contribute to the change process, allowing the understanding of the most varied individualities. Following Godoy's (1995) reasoning, the qualitative research involves the obtaining of data, trying to understand the phenomena according to the perspective of the participants of the study situation. In view of the above, this research is characterized as an exploratory type study, since it sought to know the factors that influence the analysis of the Financial Statements of companies of unusual segments. This study will be carried out with the participation of investors and capital market analysts who have relationships, have knowledge about companies whose shares are traded by BM & FBOVESPA and which operate in the entertainment, air transport and tourism segments. This research will use, as a "population", the personnel of publicly traded companies traded on the BM & FBovespa, belonging to the entertainment, air transport and tourism segments. The initial sample of this survey will be composed of 15 interviewees, being investors and capital market analysts who have, directly or indirectly, a relationship and knowledge about the published Financial Statements of publicly traded companies with shares traded on BM & FBovespa, belonging to the segments of entertainment, air travel and tourism.

**Entertainment Segment:** In the entertainment segment, sales are related to products and services from live entertainment in general, such as sporting, artistic, cultural events, shows, shows of any kind or genre. These sales come from tickets, that is, from the box office, which are always available to customers well in advance of the moment of consumption of the product marketed or the performance of contracted services. However, the recognition of the revenues from the sale of tickets, that is, from the box office, is perceived at the time of the entertainment events. In other words, recognition only happens when there is a transfer of assets and rights to clients, following in accordance with the accounting practices adopted by Brazilian legislation. The remaining sold but not yet used tickets are recorded in the Company's balance sheet as pre-sales of tickets, representing a deferred revenue of tickets sold to be consumed at a future date. This criterion used by the entertainment segment, operationally, dissociates the moment in which the sales occurred from the moment the revenue recognition occurs in the disclosure of its Financial Statements.

**Air Transport Segment:** In the air transport segment, sales are related to the products and services coming from regular and non-regular air transportation, at national and international level, of passengers, cargo, or postal bags. For the purchase of air transport service, sales are made in physical stores, online channel and through mileage programs. Tickets can be marketed well in advance of the time the services are contracted. However, the recognition of revenues from the sale of air tickets, ie tickets, for example, is made only when the air transport service is effectively provided, which occurs on the customer's landing. In summary, when the aircraft lands and completes its destination, that is, when the assets and rights are transferred to customers, the revenues are recognized in accordance with the accounting practices adopted by Brazilian legislation. Other tickets sold, but not yet used, are recorded in the company's balance sheet as transportation services to be performed, representing a deferred revenue of tickets sold to be used at a future date. This criterion used by the air transport segment, operationally, dissociates the moment in which sales occurred at the time the revenue recognition occurs in the disclosure of its Financial Statements.

**Tourism Segment:** In the tourism segment, sales are related to the products and services coming from the sale of tourist packages, nationally and internationally, originated, substantially, by the intermediation of tourist services. Sales of products and services to customers are made in physical stores, online channel and through the work of multibrand agents. However, the marketing of products and services to customers can occur well in advance of the time of delivery of contracted services. However, revenue from the sale of tourist packages is recognized on the basis of service contracts with its customers. Revenue values are recognized when services are rendered, and for tourist services, this occurs at the moment of the passenger's boarding. In summary, when the passenger checks in on his contracted destination. In this context, revenue recognition for the tourism segment is evident at the moment of transfer of assets and rights to customers, in accordance with accounting practices adopted by Brazilian legislation. The other contracts sold, but not yet made, are recorded in the Company's balance sheet as contracts to be shipped, representing a deferred revenue from contracts sold to be carried out at a future date. This criterion used by the tourism segment, operationally, dissociates the moment the sales occurred when the revenue recognition occurs in the disclosure of its Financial Statements.

The data were collected through face-to-face interviews or teleconferences, from March to April 2017. Recordings of the full interviews and notes made during the process were the forms chosen as data collection procedures. The group of respondents is made up of investors and capital market analysts who work directly in the companies T4F, Gol and CVC, which have shares traded on the BM & FBOVESPA, in a total of six interviewees, four investors and two capital market analysts. Semi-structured interviews were conducted with investors and capital market analysts who relate, use and / or hold knowledge about the Financial Statements of companies with shares traded at any level on the BM & FBovespa, and that are from the entertainment, air transport and tourism segments.

This research used the content analysis with procedure of interpretation of the obtained data. Flick (2009) explains that content analysis, besides performing the interpretation after the data collection, is developed through more or less refined techniques.

#### **4. DATA RESULTS**

In order to know the influence of the accounting-financial report on the decision-making of the investors in these segments, it was possible to observe that the interviewees do not consider that the Financial Statements bring some kind of competitive information when there is a comparison with the information generated in the analysis of the industrial sector. On the other hand, respondents also stated that accounting information is fundamental for a better understanding of the nature of their business, mainly because it is a segment that has a different format in the recognition of its revenues when compared to the industry in general. According to 50% of the interviewees, the independent auditors' report is one of the most important items in the Financial Statements, since it can hurt a company in these segments to obtain new investors. They mentioned that reservations or questions raised by the auditor may require the investor or the capital market analyst to have a greater degree of depth of analysis about the accounting information of the company, especially in the case of unusual segments such as those being dealt with in this research, which by themselves already generate difficulties in the understanding of their accounting in the Financial Statements. Respondents also noted that the caveats about accounting information create investors' mistrust of investors and capital market analysts, which may lead to potential investments in the company. In addition to the auditors' report, 33% of the respondents consider the management report, and 17% the explanatory notes, as the main items that can hurt investments in companies in these segments. The management report may privilege company information, inducing investors or capital market analysts to misinterpret the business and figures presented in the Financial Statements, thus concealing a real company problem, according to respondents. They conclude by saying that they do not welcome the fact that management does not admit or try to hide the company's real problems. Regarding the explanatory notes, the interviewees mentioned that - because they are information with greater wealth and subtlety, and due to the obligation to be disclosed due to the requirements of the auditor - the information shown in the explanatory notes brings possible contingencies and risks on its operation, and may prevent new investments. Regarding the objective of knowing the influence of the accounting-financial report on the decision-making, it was possible to observe that the accounting information can contribute and, consequently, increase the possibility of investment since the information has transparency, greater disclosure and also brings more predictability of the company's current situation. For the interviewees, the more information available, especially within unusual segments such as the ones we are addressing in this research, the more confidence the investor or the capital market analyst will have in order to project the company's future performance and thus invest actions and assets of these companies. According to the interviewees, it is through the cash flow that the mismatch of the company's revenue can be minimized, especially for these segments, ie, observing the flow assists in evaluating the operational cash generation to identify a solvency problem in the future. Regarding operating and net profits, the interviewees pointed out that it is through them that the investor or the capital market analyst can make future projections of the company's operating performance. Regarding the management report, they say that it is important because it has operational data in conjunction with the perceptions of company managers. Finally, the independent report of the auditors brings reliability to the Financial Statements because they show complex accounting due to the segment's performance in the market. Based on the results found in the survey, 83% of respondents considered it to be very relevant, and 17% consider the influence of the accounting information presented in the Financial Statements to be relevant for the decision-making of investment in companies in non-usual segments.

With the purpose of knowing the main indicators analyzed in the Financial Statements of companies of these segments from the perspective of investors and capital market analysts, it was possible to observe that, according to 35% of the interviewees, cash flow is one of the main indicators used by investors or by capital market analysts in the balance sheet analysis. They mentioned that it is through cash flow that they can minimize the impact of the mismatch of sales with that of revenue recognition. In this way, they can evaluate in an unbiased way the cash flow of the operation and, thus, project the value of the company. Following the cash flow, the respondents pointed out, with 29% of the answers, the return on investment; 12%, operating income; 8%, indebtedness; 6%, revenue recognized and return on equity; and 4%, net income. Respondents said that return on investment is important to visualize the company's trajectory and to see if resources are being allocated correctly, generating value in the company. With regard to operating profit, they reported that it is important for them to be able to assess the company's operating performance, especially in unusual segments that have the mismatch between sales and revenue recognition. Already the debt is observed so that the interviewees can understand if the company will need money in the future, or if it can finance its own operations. As for the acknowledgment of the recipe cited by the interviewees, it serves precisely to understand the mismatch with the sales and evaluate the average term of effectiveness of the revenue. Finally, return on equity and net income were cited by respondents to get an idea of how profitable the business is. They also reported that in order to complement the analysis for decision making, they need to use qualitative information such as: competition, industry analysis and macroeconomic issues. The respondents also answered on the influence of the indicators extracted from the Financial Statements in the investment decision making, 67% considered very relevant, and 33%, relevant. The indicators extracted from the Financial Statements translate in the best way the understanding of the business, especially with regard to the trajectory and historical ones. They went on to explain that in addition to historically analyzing indicators, the most important thing is to be able to assess the perception of what might happen in the future through these indicators. It is understood that, according to the interviewees, the main difficulty of analysis is the mismatch of sales with revenue recognition. They said it is complicated to make future forecasts of the company's revenue, because there is always a mismatch between the growth of revenue recognized and that of the sales reported in the performance report. These sales may hang for a long time before being recognized in the company balance sheet. In this process, according to them, there is much difficulty in understanding this transformation and predicting future revenues. They also pointed out difficulties in passing on the results to an investor or capital market analyst who does not follow the company regularly, so they suggested that companies in these unusual segments provide more information about the mismatch in their Financial Statements. Regarding the usefulness of the presented information, it is noted that investors need to seek timely information on the mismatch between the time of sale and the recognition of revenue in the non-usual segments. Such information need not be sought in the industry data at large because the numbers are immutable. There is still a need to clarify whether this mismatch (timing of the sale with the moment of revenue recognition) is recurring in all periods for the data to be truly comparable, and also for the perception of the time distinction of accounting records presented in the Financial Statements. Regarding the quality of the information presented, 83% of respondents stated that it is satisfactory for them to be able to make an investment decision through the accounting-financial report, and 17% did not know how to respond because they said that decision, linked to the quality of Financial Statements, depends on each company analyzed, even if they are from unusual segments. According to 67% of the interviewees, the opinion of an independent audit improves the ability to analyze the financial statements of an unusual company. This is because the auditor's opinion conveys confidence to investors or capital market analysts, especially within segments that have particularities in their accounting.

Respondents said that the ability to analyze the financial statements of these segments improves considerably, since the information becomes standard and comparable. In addition, they follow compliance criteria required by the local accounting standard, especially ensuring the form of verification of revenue recognition and company costs. Already 33% of respondents said that the opinion of an independent audit generates confidence to investors and capital market analysts, because it conveys credibility, but does not increase the capacity for analysis on the Financial Statements. Respondents said they seek complementary information from the associations that represent the sector, in order to understand the timing of the business. They also talk with market advisors to understand the company's market share position, talk to financial experts in order to seek macroeconomic information from the country and abroad, as well as seek strategic and investment information from the managers who run the company. Finally, they affirmed that they seek professional information from the current managers of the company in order to understand if they have experience in the sector and, mainly, what their performance was in the last companies in which they acted. In order to identify the influence of informational asymmetry, it is noted that, with regard to managers, respondents stated that they seek to complement the analysis with more detailed information about the managers of the companies. They said that they encourage managers to obtain further clarification on the figures published in the Financial Statements in relation to possible interpretations assumed by them. They also seek to extract information that is not configured in the Financial Statements, such as: sales trend, competitive scenario, growth potential by channel, strategies and future investments. When asked about their relationship with the suppliers of the companies in these segments, the respondents said that they also seek to complement the analysis with more detailed information coming from the suppliers of those companies. Such information is not set forth in the Financial Statements, as they are also part of the general context of qualitative analysis. Respondents stated that they seek information on the business relationship between the supplier and the company in order to understand the advantages and differentiated conditions granted to the company, as well as its influence on the products that are sold and offered to the clients of the analyzed company. The collection of this information before the suppliers is necessary and important, mainly, in companies of unusual segments. According to them, this procedure has as main goal to mitigate possible risks of non-delivery of the product sold to the clients of the analyzed company and, consequently, to predict if there will be future losses and contingencies for the company. Respondents also stated that they seek to complement the analysis with more detailed information from their peers, such as: metrics and financial indicators, such as return on invested capital and the level of indebtedness, revenue growth and operating margin, risks and opportunities, information, as well as strategic information. They seek information from peers, especially from companies in the same segments, to compare and re-evaluate their own interpretations. The Financial Statements have an influence on the pricing of shares, since, in the view of investors or capital market analysts, the Financial Statements have fundamental essences to draw some conclusions and a panorama of company analysis. Respondents continue to assert that this influence also occurs because there is a certain expectation in the market about the company's results (expectation generated before the disclosure and publication of the information to the market). When the information becomes public in the market, with positive or negative numbers, the market adjusts to that expectation, which has consequences in the pricing of the company's shares. In this context, the interviewees explain that the Financial Statements can not be evaluated in isolation, since investors and capital market analysts need complementary information to help them predict future results.

## 5. CONCLUSIONS

This work investigated the influence of the analysis of the Financial Statements in the decision making of investments in companies that operate in segments that recognize their revenues at a different time from those of their sales. It is demonstrated that, even under the specific characteristics of the market and the Brazilian accounting system of investment, based on accounting information, they are useful and have influence for the decision making of investments for these companies. The first analysis is carried out on the relevance, usefulness and content of the accounting information evidenced through the Accounting Statements of these companies in the decision-making of the investors in their actions and assets. The results indicate that the relevance of the accounting information in the capital market presents informative content, capable of changing the expectations of the investors, which, in this sense, causes the information produced by the accounting to be considered relevant when used to predict future results, dividends and cash flow. This result can be explained on the basis of the theory of the accounting information found in empirical studies (Iudícibus, 1998; Hendriksen; Van Breda, 1999; Ball, 2001; Martinez, 2004; Macedo; Machado; Machado, 2013). In addition, this research also found that the accounting information converted into reports issued by the company are potentially important and fundamental means for management to communicate with the market through the Financial Statements. This result supports the fundamental concept of the IFAC study, produced by Palepu, Healy and Bernard (2004). In this scenario, the way companies in these segments communicate with the market is necessary and fundamental for investors and capital market analysts to complete the analyzes clearly and with the certainty that the interpretations are correct about the information they are published on the market. Regarding the content of the information presented in the Financial Statements, mainly on the explanatory notes, the results indicate that they have a direct influence on the decision to purchase shares and assets of these companies due to the complexity of the business and to the negotiation of revenue recognition occurring at a time different from the moment of sales occurred within the same period, which generates many doubts, uncertainties and different interpretations between investors and capital market analysts. In addition, the results of this research show that the disclosure of the published information also has direct interference in the decision making of the investors, that is, the more information published, the more assertive the analysis of these companies will be. This result can be explained by studies carried out in Europe, in the situation in which the IFRS was adopted, and in other empirical studies (Souza, 1995). The second analysis was on the type of complementary information that investors seek to support the analyzes. The results indicate that some investors are more aware of the information that is published by the companies, since they seek to complement the analysis with information obtained directly from the managers of the companies, such as: future investments and strategies that provide exclusive access to information about expectations of the future cash flows of these companies. Given this scenario, it is possible to observe that the data obtained consistently correspond to the theory about information asymmetry, specifically in the studies of Procianoy and Antunes (2001) and Segura (2012). We sought to study the factors through the analysis of the Financial Statements that influence the decision-making of investors in segment companies that recognize their revenues at a different time than their sales. According to the available literature, a series of factors was elaborated that, once evaluated through the answers of the questionnaire of this research, proposed the influence of the Financial Statements in the decision making of investors for each of the interviewees. The main results of this research indicate that there are factors considered by investors and capital market analysts, which influence the analysis of companies that recognize their revenues at times other than their sales.

The main factors are:

- a) the accounting information is fundamental for a better understanding of the nature of the business of these companies; contributing significantly to investor analysis, since its content directly interferes with their decision to invest in the shares and assets of these companies;
- b) Accounting Statements have an influence on the pricing of actions, since they have fundamental essences to draw conclusions and analysis scenarios. Therefore, they are key pieces for investors to construct the analyzes and their perceptions about the company and, consequently, be influenced in the decision making about investments in a certain company.

The first point to be considered is that the interviewees are investors and capital market analysts of the companies that operate in the segments of entertainment, air transport and tourism, respectively T4F, Gol and CVC. However, there may be other cases - groups of other companies operating in segments that also recognize revenues at times other than their sales - that were not contemplated in this work. Another important issue is that the research was carried out with a population of six interviewees, four of them investors, and two, capital market analysts. There may be other cases or groups of other investors and market analysts working in the entertainment, air travel and tourism segments that have other interpretations.

## LITERATURE:

1. Abarbanell, J. S.; Bushee, B. J. Fundamental analysis, future earnings, and stock prices. *Journal of Accounting Research*, v. 35, n. 1, p. 1-24, 1997.
2. Ball, R. Infrastructure requirements for an economically efficient system of public financial reporting and disclosure. *Brookings-Wharton Papers on Financial Services*, v. 2001, n. 1, p. 127-169, 2001.
3. Ball, R.; Brown, P. An Empirical evaluation of accounting income numbers. *Journal of Account Research*, v. 6, p. 159-178, 1968. Disponível em: <[http://www.sendsms.cn/old/download/month\\_0811/20081114\\_4bc76701b7ff8400f9c5p4MhpIvyLI8I.pdf](http://www.sendsms.cn/old/download/month_0811/20081114_4bc76701b7ff8400f9c5p4MhpIvyLI8I.pdf)>. Acesso em: 01 jun. 2017.
4. Beaver, W. H. The information content of annual earnings announcements. *Journal of Accounting Research*, v. 6, p. 67-92, 1968.
5. BM&FBOVESPA. Disponível em: <[http://www.bmfbovespa.com.br/pt\\_br/index.htm](http://www.bmfbovespa.com.br/pt_br/index.htm)>. Acesso em: 01 jun. 2017.
6. Bonizio, R. C. Um estudo sobre os aspectos relevantes da contabilidade e o seu uso em empresas do setor de construção civil. 2001. 198f. Dissertação (Mestrado em Controladoria e Contabilidade) – Programa de Pós-Graduação em Controladoria e Contabilidade, Universidade de São Paulo (USP), São Paulo (SP). Disponível em: <<file:///C:/Users/100745/Downloads/dissertacaoronibonizio.pdf>>. Acesso em: 03 jun. 2017.
7. Borges, M. S. D.; Nunes, S. C. D.; Alves, M. T. V. D. A Demonstração dos fluxos de caixa e sua contribuição para uma tomada de decisão mais informada. *Revista Universo Contábil*, Blumenau, v. 8, n. 1, p. 141-158, jan./mar. 2012. Disponível em: <<http://gorila.furb.br/ojs/index.php/universocontabil/article/viewFile/2677/1891>>. Acesso em: 01 jun. 2017.
8. Brealey, R. A. Y.; Myers, S. C. Fundamentos de financiación empresarial. Madrid: McGraw-Hill, 1995.
9. Bueno, A. F. Problemas de *disclosure* no Brasil – o caso das empresas com ação no exterior. *Caderno de Estudos FIEPECAFI*, São Paulo, n. 20, p. 01-13, jan./abr. 1999. Disponível em: <<http://www.scielo.br/pdf/cest/n20/n20a02.pdf>>. Acesso em: 01 jun. 2017.

10. Castro, R. D. De.; Marques, V. A. Relevância da informação contábil para o mercado de capitais: evidências no mercado brasileiro. *Enfoque: Reflexão Contábil*, v. 32, n. 1, p. 109-124, 2013.
11. Comitê De Pronunciamentos Contábeis. CPC 00 – Pronunciamento Conceitual Básico – Estrutura Conceitual para a Elaboração e Apresentação das Demonstrações Contábeis. 2011a. Disponível em:  
<[http://static.cpc.mediagroup.com.br/Documentos/147\\_CPC00\\_R1.pdf](http://static.cpc.mediagroup.com.br/Documentos/147_CPC00_R1.pdf)>. Acesso em: 12 dez. 2016.
12. Comitê De Pronunciamentos Contábeis. CPC 26 – Apresentação das Demonstrações Contábeis. 2011b. Disponível em:  
<[http://static.cpc.mediagroup.com.br/Documentos/312\\_CPC\\_26\\_R1\\_rev%2009.pdf](http://static.cpc.mediagroup.com.br/Documentos/312_CPC_26_R1_rev%2009.pdf)>. Acesso em: 12 dez. 2016.
13. Comitê De Pronunciamentos Contábeis. CPC 29 – Ativo Biológico e Produto Agrícola. 2009. Disponível em:  
<[http://static.cpc.mediagroup.com.br/Documentos/324\\_CPC\\_29\\_rev%2008.pdf](http://static.cpc.mediagroup.com.br/Documentos/324_CPC_29_rev%2008.pdf)>. Acesso em: 12 dez. 2016.
14. Comitê De Pronunciamentos Contábeis. CPC 30 – Receitas. 2012. Disponível em:  
<[http://static.cpc.mediagroup.com.br/Documentos/332\\_CPC%2030%20\(R1\)%2031102012-limpo%20final.pdf](http://static.cpc.mediagroup.com.br/Documentos/332_CPC%2030%20(R1)%2031102012-limpo%20final.pdf)>. Acesso em: 12 dez. 2016.
15. Comitê De Pronunciamentos Contábeis. Turismo - princípios e práticas. São Paulo: Bookman, 2001.
16. DELOITTE. IFRS ao seu alcance. 2010. Disponível em:  
<[http://www.deloitte.com/assets/Documents/Pocket\\_2010.pdf](http://www.deloitte.com/assets/Documents/Pocket_2010.pdf)>. Acesso em: 01 jun. 2017.
17. Doukas, J. A.; Kim, C. F.; Pantzalis, C. A test of the errors in expectations explanation of the Value/Glamour stock returns performance: evidence from analysts' forecasts. *The Journal of Finance*, v. 57, n. 5, p. 2143-2165, 2002.
18. Easton, P. D. Security returns and the value relevance of accounting data. *Accounting horizons*, v. 13, n. 4, p. 399-412, 1999.
19. Fama, E. F.; French, K. R. The cross section of expected stock returns. *Journal of Finance*, v. 47, n. 2, p. 427-465, 1992.
20. Fama, E. F.; French, K. R.. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, v. 33, n. 1, p. 3-56, 1993.
21. Fama, E. F.; French, K. R.. Size and book-to market factors in earnings and returns. *Journal of Finance*, v. 50, n. 1, p. 131-155, 1995.
22. Flick, U. *Introducción a la investigación cualitativa*. Madrid: Morata, 2009.
23. Francis, J.; Schipper, K. Have financial statements lost their relevance? *Journal of Accounting Research*, v. 37, n. 2, p. 319-352, 1999.
24. Guerreiro, R.; Pereira, C. A.; Lopes, A. B. Uma contribuição ao entendimento da estabilidade e da mudança da contabilidade gerencial sob a ótica da teoria institucional. Disponível em: <<http://www.anpad.org.br/admin/pdf/enanpad2004-ccg-0549.pdf>>. Acesso em: 11 fev. 2017.
25. Hendriksen, E. S.; Van Breda, M. F. *Teoria da contabilidade*. São Paulo: Atlas, 1999.
26. Iudícibus, S. de. *Análise de balanços: análise da liquidez e do endividamento; análise do giro, rentabilidade e alavancagem financeira*. São Paulo, Atlas, 1998.
27. Iudícibus, S. de. *Teoria da contabilidade*. 9. ed. São Paulo: Atlas, 2009.
28. Landsman, R. W.; Lee, W.-Y. Ad controller for use in implementing user-transparent network-distributed advertising and for interstitially displaying an advertisement so distributed. U.S. Patent n. 6,314,451, 6 nov. 2001.

29. Leite, H. P.; Sanvincente, A. Z. Valor patrimonial: usos, abusos e conteúdo informacional. *Revista de Administração e Empresas da Fundação Getúlio Vargas*, v. 30, n. 3, p. 17-31, 1999.
30. Leroy, S. F. Efficient capital markets and martingales. *Journal of Economic Literature*, v. 27, n. 4, p. 1583-1621, 1989.
31. Lev, B.; Zarowin, P. The boundaries of financial reporting and how to extend them. *Journal of Accounting Research*, v. 37, n. 2, p. 353-385, 1999.
32. Lima, G. A. S. F. de. Utilização da teoria da divulgação para avaliação da relação do nível de *disclosure* com o custo da dívida das empresas brasileira. 2007. 118f. Tese (Doutorado em Controladoria e Contabilidade) - Faculdade de Economia, Administração e Contabilidade da Universidade de São Paulo (USP), São Paulo (SP). Disponível em: <<http://www.teses.usp.br/teses/disponiveis/12/12136/tde-26112007-165145/pt-br.php>>. Acesso em: 01 jun. 2017.
33. Lopes, A. B. A. Informação contábil e o mercado de capitais. Cengage Learning Editores, 2002.
34. Lopes, A. B. A. Relevância da informação contábil para o mercado de capitais: o Modelo de Ohlson aplicado à Bovespa. 2001. 198f. Tese (Doutorado em Contabilidade e Controladoria) – Departamento de Contabilidade e Atuária, Universidade de São Paulo (USP), São Paulo (SP).
35. Lopes, A. B. A.; Martins, E. Teoria da contabilidade: uma nova abordagem. 2. ed. São Paulo: Atlas, 2007.
36. Lutosa, P. R. B.; Santos, A. Poder do lucro contábil e do fluxo de caixa das operações para prever fluxo de caixa futuros: um estudo empírico no Brasil. *Revista de Educação e Pesquisa em Contabilidade*, Brasília, v. 1, n. 1, p. 39-58, jan./abr. 2007. Disponível em: <<http://www.repec.org.br/index.php/repec/article/viewFile/4/4>>. Acesso em: 01 jun. 2017.
37. Macedo, M. A. Da S.; Machado, M. A. V.; Machado, M. R. Análise da relevância da informação contábil no Brasil num contexto de convergência às normas internacionais de contabilidade. *Revista Universo Contábil*, v. 9, n. 1, p. 65-73, 2013.
38. Martinez, A. L. Measuring and reporting intellectual capital: the accounting challenge for the next millenium. In: Encontro Anual Da Associação Nacional Dos Programas De Pós-Graduação Em Administração, XXIII, 1999, Salvador (BA). Anais... Salvador: ANPAD, 1999, 1 CD-ROM.
39. Martinez, A. L.. Analisando os analistas: estudo empírico das projeções de lucros e das recomendações dos analistas de mercado de capitais para as empresas brasileiras de capital aberto. 2004. 250f. Tese (Doutorado em Administração de Empresas) – Programa de Pós-Graduação da Escola de Administração de Empresas de São Paulo, Fundação Getúlio Vargas (FGV), São Paulo (SP), 2004. Disponível em: <<http://bibliotecadigital.fgv.br/dspace/bitstream/handle/10438/2464/68472.pdf?sequence=2>>. Acesso em: 01 jun. 2017.
40. Matarazzo, D. C. Análise financeira de balanços: abordagem gerencial. 7. ed. São Paulo: Atlas, 2010.
41. Mohanram, P. S. Separating winners from losers among lowbook-to-market stocks using financial statement analysis. *Review of Accounting Studies*, v. 10, n. 2, p. 133-170, 2005.
42. Moreira, S. C. perfil dos autores na produção científica em mercadofinanceiro de crédito e de capitais nos congressos da usp de controladoria e contabilidade e congresso ANPCONT 1, *Revista Evidenciação Contábil & Finanças*, João Pessoa, v. 2, n. 2, p. 55-68, maio/ago. 2014. Disponível em: <<http://periodicos.ufpb.br/ojs2/index.php/recfin>>.
43. Nunes, L. Da C. F.; Serrasqueiro, Z. M. A informação contabilística nas decisões financeiras das pequenas empresas. *Revista Contabilidade & Finanças*, v. 15, n. 36, p. 87-96, 2004.

44. Ohlson, J. A. Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research*, v. 11, n. 2, p. 661-687, 1995.
45. Pace, E. S. U.; Basso, L. F. C.; Silva, M. A. da. Indicadores de desempenho como direcionadores de valor. *Revista de Administração Contemporânea*, v. 7, n. 1, p. 37-65, 2003.
46. Pace, E. S. U.; Basso, L. F. C.; Silva, M. A. Da.; Lima, J. B. N. de. Governança corporativa e a reação do mercado de capitais à divulgação das informações contábeis. *Revista Contabilidade & Finanças*, v. 17, n. 42, p. 35-49, 2006.
47. Palepu, K.; Healy, P.; Bernard, V. *Business Valuation & Analysis – Using financial statements*. 2. Aufl., Maison, 2004.
48. Perobelli, F. F. C.; Ness Jr, W. L. Reações do mercado acionário a variações inesperadas nos lucros das empresas: um estudo sobre a eficiência informacional no mercado brasileiro. *Resenha BM&F*, v. 140, p. 37-50, 2000.
49. Pindyck, R. S.; Rubinfeld, D. L. *Microeconomia*. São Paulo: Makron Books, 1994.
50. Pinto Júnior, H. Q.; Pires, M. C. P. Assimetria de informações e problemas regulatórios. 2002. Disponível em:  
<file:///C:/Users/100745/Downloads/Nota\_Tecnica\_ANP\_009\_2000.pdf>. Acesso em: 01 jun. 2017.
51. Pires, S. R. I. *Gestão da cadeia de suprimentos (supply chain management): conceitos, estratégias, práticas e casos*. São Paulo: Atlas, 2009.
52. Procianoy, J. L.; Antunes, M. A. Os efeitos das decisões de investimento das empresas sobre os preços de suas ações no mercado de capitais. Disponível em:  
<<http://www.anpad.org.br/admin/pdf/enanpad2001-fin-168.pdf>>. Acesso em: 01 jun. 2017.
53. Prux Jr, J. L. Assimetria informacional e precificação das ações das empresas negociadas na Bolsa de Valores de São Paulo: evidências a partir da faculdade de divulgar demonstrações contábeis em moeda constante a partir de 1996. 1998. 134f. Dissertação (Mestrado em Administração) - Faculdade de Ciências Econômicas, Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre (RS). Disponível:  
<<http://www.lume.ufrgs.br/bitstream/handle/10183/1989/000267388.pdf?sequence=1>>. Acesso em: 12 jan. 2017.
54. Ramos, D. A.; Lustosa, P. R. B. Verificação empírica da *value relevance* na adoção das normas internacionais de contabilidade para o mercado de capitais brasileiro. *Contexto*, v. 13, n. 25, 2013. Disponível em:  
<[http://seer.ufrgs.br/index.php/ConTexto/article/view/36450/pdf\\_11](http://seer.ufrgs.br/index.php/ConTexto/article/view/36450/pdf_11)>. Acesso em: 01 jun. 2017.
55. Resende, A. L.; Sales, E. C. H. Evidenciação das informações contábeis: uma análise de conteúdo aplicada ao setor de transporte aéreo brasileiro. Disponível em:  
<<http://docplayer.com.br/7435507-Evidenciacao-das-informacoes-contabeis-uma-analise-de-conteudo-aplicada-ao-setor-de-transporte-aereo-brasileiro.html>>. Acesso em: 12 jan. 2017.
56. Ross, S.; Westerfield, R.; Jaffe, J. *Administração financeira*. São Paulo: Atlas, 1995.
57. Saiki, T. G.; Antunes, M. T. P. Reconhecimento de ativos intangíveis em situação de business combinations: um exemplo prático da aplicação dos CPC 04 e CPC 15. *Boletim IOB – Temática Contábil e Balanços*, n. 46, p. 1-14, nov. 2010. Disponível em:  
<[http://livepublish.iob.com.br/abr/abr2010.dll/Infobase/conteudo/TC46\\_10.pdf](http://livepublish.iob.com.br/abr/abr2010.dll/Infobase/conteudo/TC46_10.pdf)>. Acesso em: 01 jun. 2017.
58. Salles, A. A. Eficiência informacional do mercado futuro do Ibovespa. XV ENANPAD, 15º, Anais... Salvador: ANPAD, p. 151-164, 1991.

59. Sarlo Neto, A. et al. O diferencial no impacto dos resultados contábeis nas ações ordinárias e preferenciais no mercado brasileiro. *Revista Contabilidade & Finanças*, v. 16, n. 37, p. 46-58, 2005.
60. Schiehl, E. O efeito da divulgação das demonstrações contábeis no mercado de capitais brasileiro: um estudo sobre a variação no preço das ações. *Anais...* v. 27, p. 289-303, 1996.
61. Segura, L. C. A influência da gestão e do controle familiares e do fundador sobre o endividamento das empresas abertas brasileiras: evidências empíricas. 2012. 214f. Tese (Doutorado em Administração de Empresas) – Programa de Pós-graduação em Administração de Empresas, Universidade Presbiteriana Mackenzie, São Paulo (SP). Disponível em:  
<<http://tede.mackenzie.br/jspui/bitstream/tede/791/1/Liliane%20Cristina%20Segura.pdf>>. Acesso em: 01 jun. 2017.
62. Souza, P. R. Hierarquização das fontes de *corporate disclosure* – uma abordagem comparativa. 1995. Disponível em: <<http://www.anpad.org.br/admin/pdf/enanpad2002-fin-311.pdf>>. Acesso em: 08 jun. 2017.

## INSIGHTS ON FINANCIAL AUTONOMY OF LITHUANIAN HIGH SCHOOL STUDENTS

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### ABSTRACT

*Financial autonomy of adolescents is an important factor affecting both the financial well-being of each individual and the overall quality of life in the country (i.e. Lusardi, Mitchel, Curto, 2010). Young people name financial autonomy as an attribute of adulthood (Arnet, 2004; Xiao, Chatterjee, Kim, 2014). They do not perceive the value of money completely until they gain full control and responsibility for their own finance. This leads to a lack of motivation for purposeful learning of financial disciplines or rational financial planning decisions. Research shows that families spend approximately 10% of their annual income to support their young adult children of ages 18 to 21 (Settersten and Ray, 2010). According to scientists, the transition to adulthood and financial independence take longer under current socioeconomic conditions, which resulted in lower social status for the transitioning adults (Cote and Bynner, 2008). The goal of this study is to assess the level of financial autonomy of Lithuanian high school students and to determine the impact of parental financial socialization factors on its formation in contemporary society. A representative sample of students from Lithuanian schools (2 last grades) were surveyed. The results revealed that the level of financial autonomy of the surveyed students is above average. The statistically significant factors of parental financial socialization were also determined: ex. parents who provided their children with the opportunity to work helped to increase their financial autonomy level; also, the parental education level and income level is crucial for the formation of financial autonomy of their children; the involvement of children in family financial matters plays an important role.*

**Keywords:** Financial autonomy, Financial Socialization, Personal Finance, Generation Z

### 1. INTRODUCTION

Relevance of the topic: The importance of financial autonomy of adolescents is highlighted in many countries around the world by media (Luhr, 2018) and researchers (Lee, Mortimer, 2009, Lusardi, Mitchel, Curto, 2010; Xiao et al., 2014; Manzoni, 2016 et al.). The lack of financial autonomy of adolescents intertemporarily affects both their personal finances, as well as their parents or other social agents (ex. Spouse, friends). It is therefore important to measure both the level of financial autonomy and the factors that influence it. The financial autonomy of young people, especially schoolchildren, might have an impact on their financial decisions and financial well-being in the future (Jorgensen, Savla, 2010; Bruhn, 2013; Serido, Deenanath, 2016; Luhr, 2018, etc.). Research on financial autonomy and its factors is scarce and fragmented (Lee, Mortimer, 2009; Serido, Deenanath, 2016; Manzoni, 2016). The influence of parents, as one of the most important financial socialization agents, research is ambiguous, both in terms of content, i.e. what socialization factors are evaluated, and in terms of results, i.e. what impact separate financial socialization factors have. Thus the research problem is: How parental financial socialization factors impact the level of financial autonomy of Lithuanian high school students? Research object: parental financial socialization factors of financial autonomy.

Research goal: to assess the impact of parental financial socialization factors on high school students' financial autonomy after revealing the theoretical aspects of financial socialization and financial autonomy.

## **2. THEORETICAL APPROACHES TO FINANCIAL AUTONOMY PHENOMENON**

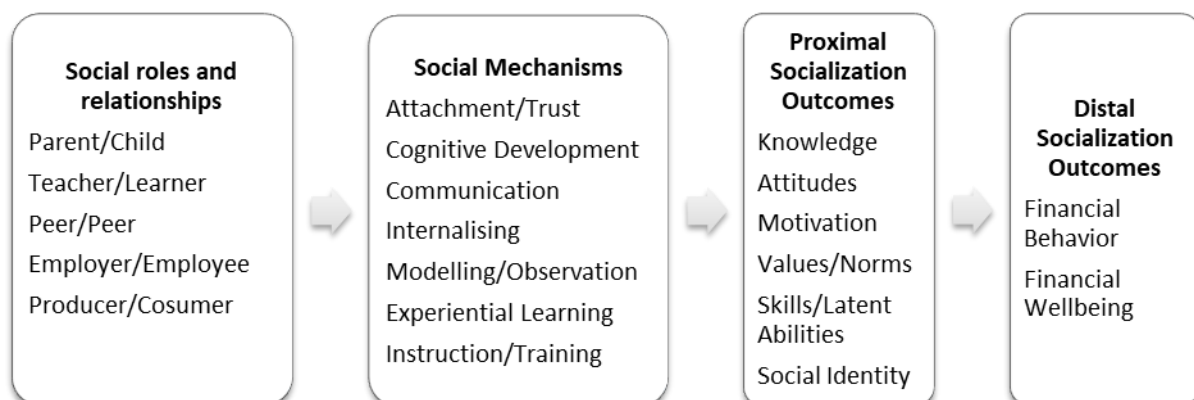
Financial self-reliance is considered a key component of the transition to adulthood (ex. Luhr, 2018). According to Serido and Deenanath (2016), financial self-reliance encompasses both financial autonomy and financial capability (i.e., financial knowledge, skills) as well as the ability to make prudent financial decisions based on available options and resources. Research specifically on the financial autonomy of adolescents is very limited (Lee, Mortimer, 2009). Adolescent's autonomy can be viewed from both economic and sociopsychological perspective (Xiao, Chatterjee, Kim, 2014; Manzoni, 2016). Bruhn et al. (2013) summarized that autonomy has been studied in sociology and psychology to understand and encompass attributes of independence, confidence, optimism, self-control, and conformity to parents and peers. One of the main psychological aspects of autonomy of adolescent is described by Manzoni (2016) as self-perceived autonomy (Johnson et al., 2007; Pallas, 2006). Youths may perceive themselves as more or less independent based on the role transitions they experienced, as well as based on intra-individual attributes, such as responsibility or decision making (Berg, 2007). According to economic perspective of adolescents' autonomy, the child's demand for privacy is assumed to be a normal good in economic terms (Xiao et al., 2014). One stream of the studies oriented towards economic perspective of adolescents' autonomy typically emphasize residential independence which is viewed as children separation from parents (i.e. living separately) (Settersten, 2012; White, 2002). Another group of studies representing the economic perspective of adolescents' autonomy focus on financial aspects, i.e. ability to take care of their own finance (Lee and Mortimer, 2009). According to Manzoni (2016), less commonly, researchers have analyzed residential and financial situations jointly (ex. Whittington and Peters, 1996). There is also no typical method of measuring financial autonomy. In this paper we follow the definition and measurement of financial autonomy used by Bruhn et al. (2013) and Manzoni (2016). Bruhn et al. (2013) developed financial autonomy index that aggregates a series of questions designed to measure whether students feel empowered, confident, and capable of making independent financial decisions and influencing the financial decisions of their households. Bruhn et al. (2013) followed Noom et al. (2001) who synthesized autonomy into attitudinal, emotional, and functional parts. Attitudinal autonomy refers to the ability to set goals, thinking before acting, and encompasses the notions of knowledge, consciousness, and responsibility. Emotional autonomy relates to the perception of emotional independence in the face of parents, relatives, and peer groups, and the feeling of confidence in one's own choices. Lastly, functional autonomy refers to perceptions of competence, control, and responsibility in making decisions. We accompany this definition with a concept of self-perceived level of financial autonomy adapting methodology used by Manzoni (2016).

### **2.1. Family financial socialization as a driver of adolescent's financial autonomy**

Parents play an important role in shaping the financial knowledge and skills their children need to achieve financial self-reliance which also includes financial autonomy aspect (Serido, Deenanath, 2016). Lee and Mortimer (2009) also emphasize the importance of family socialization for formation of financial autonomy of young adults. Research in this area is dominated by measurement of financial literacy and evaluation of the process of acquiring these financial knowledge in the social contexts (Kim, Chatterjee, 2013; Grohmann, Menkhoff, 2015; Gudmunson, Danes, 2011, etc.). Research specifically on the financial autonomy of adolescents is very limited (Lee, Mortimer, 2009).

Still researchers raise questions on how family financial socialization can promote financial autonomy of young adults (Serido, Deenanath, 2016). Particularly relevant is financial socialization issues for modern society as nowadays more young adults rely upon parents for extended financial support, parents continue to influence the financial decision-making of their children well into the third decade of life (Settersten, 2012). Children and teenagers acquire financial knowledge, skills and attitudes through different agents of financial socialization. Moschis (1987) distinguishes four major agents of financial socialization: parents, peers, education, media. According to Moschis (1987), financial socialization agents can be described as interaction with the social environment, through which individual acquire financial knowledge or formed financial behavior. In scientific literature, parents are considered to be the main and most influential agent of financial socialization (Gutter, Copur, 2011). Earlier studies (Moschis, 1987; Shim et al., 2010; Jorgensen and Salva, 2010; Kim et al., 2011) confirmed that the financial socialization and upbringing of the parents in the financial sphere have a positive impact on the child's efforts to acquire financial knowledge, skills and attitudes. Parents provide an informal environment for teaching skills and raise awareness of the proper behavior of children, and through this interaction children receive information about financial processes (Danes and Haberman, 2007). As previously summarized in Gaigaliene, Lecke, Legenzova (2019), parental financial socialization in scientific literature (Gudmunson and Danes, 2011; Kolb, 2014; Serido and Deenanath, 2016; LeBaron et al., 2018) is divided into three main teaching / learning methods: modeling (ex. financial behavior monitoring), targeted socialization (ex. financial discussions) and experiential learning (ex. daily allowances). Based on the theory of social learning (Bandura, 1986), modeling is an important method of parental financial socialization, as children, adolescents interact with their parents in social and financial contexts and tend to adopt the observed behavior. According to Mandrik, Fern and Bao (2005), children are a reflection of their parents. Children tend to choose the same financial products, brands, and make similar financial decisions as their parents. For example, if parents tend to keep savings in a particular bank, it is likely that children will also have their first accounts with the same bank. Pritchard and Myers (1992) found that by monitoring the financial practices and behavior of their parents, children acquire same or similar financial knowledge, skills and values as their parents. According to Moschis (1987), parents make an indirect contribution to improving children's financial management and improving their financial skills by enabling children to monitor their financial behavior. Peng et al. (2007) claim that children of saving parents also tend to save. Targeted socialization as a method of parental financial socialization is understood as conscious and premeditated family relationships and interactions aimed at increasing a person's socialization (Gudmunson, Danes, 2011). For example, parents and children at home are discussing money saving, investing providing them with the knowledge they need to invest successfully in the future. Anderson and Niwritte (2006) say that parents with securities will tend to discuss and pass on financial information to their children in the family. According to the authors, parenting is not only about the current financial literacy of children, but also about their future financial management skills. Conger and Dogan (2007) agree with Anderson and Niwritte (2006), arguing that parents with financial resources (savings, investments) can significantly increase children's social, human and financial capital. An experiential model of parental financial socialization is understood as the use of life experience to internalize knowledge (Kolb, 2014). Based on the definition of experiential learning, children can gain financial knowledge, skills through their own and their parents' experience. Parents with more experience in financial management are likely to transfer their knowledge and skills to children. Research is growing (Clarke et al., 2005; Sherraden et al., 2011) finding that children's financial knowledge and skills are much better when children, adolescents have the opportunity to practice financial practices at home and thus prepare for financial independence in the future.

Britt (2016) believes that pocket money in early childhood is one of the first lessons in financial management. Children are given the right to decide how and where they will use the incoming pocket money, which is a great financial practice that helps to develop and deepen financial skills. When children are given the opportunity to manage small amounts of money themselves, they start to understand financial responsibility better and increase their confidence in the financial decisions they make (Jorgensen and Savla, 2010). Fundamentals of financial management are linked to actions such as budgeting, saving or investing. In his study LeBaron et al. (2018) presented examples of initial financial management such as encouraging children to record their receipts (pocket money) and spending on a board visible to all family members, opening a personal bank account, making decisions about family shopping, collecting checks. Such every day and domestic situations are an important aspect in shaping a child's financial knowledge and skills. Summarizing the parents as financial socialization agent, it can be said that it is one of the most influential and important agents in shaping children's financial knowledge, skills, attitudes, values, and behavior. According to Serido and Deenanath (2016), as children learn about financial topics, they develop a sense of empowerment over their finances. As children practice new skills, they develop self-beliefs about independently performing those skills, which serve as the catalyst for becoming self-reliant adults. Robb (2007) also reported a positive relationship between college students' financial independence and their financial knowledge. As we see from Figure 1 (Gudmunson et al., 2016), gaining financial knowledge or practicing new skills are considered as proximal outcomes of financial socialization which in time develops to abilities to independently perform particular financial activities gradually transforming adolescent into financially autonomous adult.



*Figure 1: Integrated model of financial socialization processes  
 (Gudmunson et al., 2016, p. 66)*

According to Lee and Mortimer (2009) rarely are experiences in the family setting examined as sources of financial independence. Some of the few can be named studies by Whittington and Peters, (1996), Xiao et al. (2014), Seride, Deenanath (2016). One of the recent studies in this field by Seride, Deenanath (2016) examined theoretical perspective of financial parenting and its role in promoting or constraining financial self-reliance that also incorporates aspects of financial autonomy of adolescents. These authors confirmed that research in this field is scareced and fragmentated. Manzoni (2016) on the other hand, integrated aspects of financial autonomy of your adolescents into a complex concept of overall adolescent's autonomy and found that financial, residential and sociopsychological aspects of adolescents autonomy not always align and complement one another. Most of these researchers analysed parental resources or social class as a financial socialization determinant of financial independence. For instance as summarized by Seride and Deenanath (2016), Whittington and Peters (1996) found

that parental income was associated with greater dependence in late adolescence (ages 18–19) but greater independence afterwards. In contrast, Xiao et al. (2014) found that greater parental resources (i.e., parental income, stock holding, and financial assistance) were negatively associated with young adults' financial independence. Empirical support for the indirect association between parental social class and financial independence is found in a study by Lee and Mortimer (2009). Some other authors related daily allowances or financial support to financial wellbeing of young adults (Scodellaro, Khlát, Jusot, 2012; Johnston, 2013). Their results are also very contradictory. Some research evidenced that higher financial support from parents is positively linked to higher well-being (Scodellaro, Khlát, Jusot, 2012), while others found that financial support from parents might lead to lower self-esteem or motivation to study and work. Another group of research focuses on parental financial socialization issues as determinant of financial literacy of adolescents which in turn supports their transition into adulthood. One of the recent researchers in this field (Luhr (2018)) examined parental financial socialization issues in the context of social reproduction theory which emphasizes that the "structures and activities that transmit social inequality from one generation to the next" (Doob 2013, p.10). Luhr (2018) revealed that it is conceivable that parents in different social class positions teach their children differently because they are preparing them for very different economic futures. This research also revealed that middleclass parents were ready to support their children financially for longer period than working-class parents. Children from middleclass families also admitted their expectations for financial support through their 20s. These results correspond with previous research (Whittington, Peters, 1996; Xiao et al., 2014) and proves that proximal parental financial socialization outcomes are lower level of financial independence of adolescents.

### **3. RESEARCH METHODOLOGY**

#### **3.1. Sampling**

General population of this research is Lithuanian high school students of 11th and 12th grade (two last years of high-school). According to the Department of Statistics of Lithuanian Republic, 52698 high school students were registered in 11th and 12th grades of high schools in Lithuania for the school year of 2018/2019. In this survey the sample size was determined according to convenience sampling technique. The results of this survey are accurate at the 95% confidence level. A part of 304 questionnaires collected were eliminated from research sample as they were incomplete. The final sample size - 274 questionnaires.

#### **3.2. Characteristics of respondents**

The research sample is dominated by women (61% of female respondents). All living areas are represented in this research, but more than 70% of survey participants live in cities or larger towns of Lithuania.

#### **3.3. Questionnaire**

The quantitative questionnaire instrument has been chosen due to limited availability of the existing empirical data. The research questionnaire consisted of 27 questions. Three questions were designed for identification of respondent's personal characteristics (such as gender, living area and monthly budget). Sixteen questions were devoted for measurement of different patterns of financial autonomy of researched high school students. Financial autonomy of respondents was measured based on a Likert type scale. Each respondent had to score statements in four categories of financial autonomy. The questions were grouped according to the purpose of measurement: attitudinal autonomy, emotional autonomy, functional autonomy and self-perceived autonomy. The questionnaire statements were formulated according to Noom et al. (2001), Bruhn et al. (2013) and Manzoni, (2016). Bruhn et al. (2013) points out that these

measures aim to signal preferences on current as well as future financial decision-making potential of students. The remaining 8 questions were targeted at the specific aspects of parental financial socialization. Questions on parental financial socialization can be grouped according to their purpose. There were questions devoted for identification of respondents' family characteristics. This information was necessary to evaluate the education or income level of respondents' parents as well as their financial investments. The other part of the questionnaire was devoted for testing the deliberate parental financial socialization, such as daily allowances strategy; family discussions of financial matters or financial teaching. The structure and content of the questionnaire part on parental financial socialization was based on the earlier research in this field by other researchers (Rooij, Lusardi, Alessie, 2011; Gudmunson, Danes, 2011; Beutler, Dickson, 2008; Grohmann, Menkhoff, 2015, Kim, Chatterjee, 2013) as well as theoretical insights by the authors.

### **3.4. Research methods**

To measure financial autonomy, respondents had to evaluate provided statements on a scale ranging from 1 (very low level) to 7 (very high level). Five questions were asked in each category measuring attitudinal autonomy, emotional autonomy and functional autonomy (according to Bruhn et al., 2013). Responses (1-15 statements) were then aggregated into a summative scale of measured financial autonomy value. The descriptive statistics of the survey results was performed in order to evaluate the patterns of separate parental financial socialization aspects, such as: education level of each parent; income level of parents; the availability of stocks or bonds in their financial products portfolio; the strategy of daily allowances; the involvement of children in family discussions of financial matters and their frequency. Separate statistical tests (One-way ANOVA; Mann-Whitney U test; Kruskal-Wallis H test) were run in order to reveal the comparative importance of particular parental financial socialization determinants on the level of financial autonomy of respondents.

### **3.5. Timeline and distribution**

The research data was collected with the help of survey method. The questionnaire was uploaded in a special web site and the link was distributed to the targeted auditorium by e-mail, within targeted social media groups and other channels with the assistance of school administration. The survey was conducted over the period of April 5-23, 2019.

### **3.6. Limitations of the research**

It is important to note that the research sample demographic and social structure does not fully match the researched population (gender distribution; geographical scope of research and etc.) therefore might not fully represent the financial autonomy of all Lithuanian high school students. The second limitation could be caused by the chosen data collecting method. As the survey method always leaves a possibility to misinterpretation of questions by respondents or not correctly disclosed information.

## **4. RESEARCH RESULTS**

### **4.1. The financial autonomy level of respondents**

After summarizing the scores of respondents using summative scale, we received a financial autonomy score for each respondent. On average our respondents' financial autonomy was evaluated with the score of 60 in a range from 0 (no financial autonomy) to 105 (high level of financial autonomy). Only 30% of respondents' financial autonomy was measured under the score of 50 points. It means that majority of our respondents attributed medium to higher levels of financial autonomy. A Mann-Whitney U test was run to determine if there were differences in financial autonomy score between males and females.

Distributions of the financial autonomy scores for males and females were not similar, as assessed by visual inspection. Financial autonomy scores for males (mean rank = 140,95) were higher than for females (mean rank = 135,29), but this difference could not be considered as statistically significant.

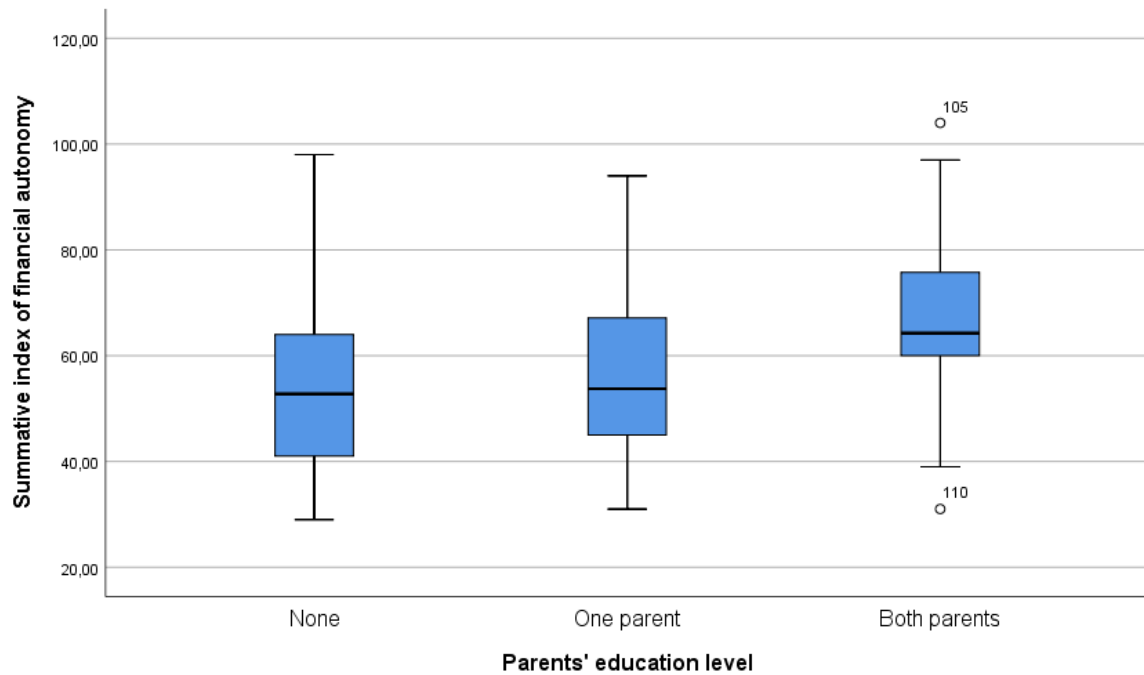
#### 4.2. Family financial socialisation as a determinant of financial autonomy level of respondents

One of the mostly researched aspects of family financial socialization is the social status of respondent's family (Whittington, Peters, 1996; Lee and Mortimer, 2009; Xiao et al., 2014; Luhr, 2018). In this research social status is represented by these commonly used determinants: parental income level; parental possessions of financial assets and parental education level. As mentioned earlier the effect of parental income on adolescents' financial autonomy is rather contradictory. Whittington and Peters (1996) found that parental income was associated with greater adolescents' autonomy in longer term. In contrast, Xiao et al. (2014) found that greater parental resources (i.e., parental income, stock holding, and financial assistance) were negatively associated with young adults' financial independence. A Kruskal-Wallis H test was used to determine how parental income level is associated with the adolescent's financial autonomy level. Median financial autonomy scores increased in families with higher level of parents' income and these differences were statistically significant,  $\chi^2(3) = 14,576$ ,  $p = 0,002$ . The results are presented in Table 1. It is evident that children from families with highest income level have much higher levels of financial autonomy. These results correspond with the results of Whittington and Peters (1996). Children from richer families might feel more secure about their future and more confident in their financial decisions.

Table 1: Financial autonomy scores of adolescents from families with different income levels

Income level	N	Median
Low income level	24	57,0000
Lower medium income level	122	57,3750
Higher medium income level	83	59,5000
High income level	45	65,0000
Total	274	60,0000

According to other authors, children that come from families where parents have higher levels of education tend to achieve significantly higher level of financial literacy (Pinto et al., 2005; Jorgensen, 2007; Mandell, 2008; Potrich et al., 2015). Our research confirmed that children from families where parents are more educated tend to have higher levels of autonomy as well. 110 respondents came from families where both parents had higher levels of education. At least one parent of 95 respondent had higher level of education. The rest of the sample originated from families where none of the parents attained higher level of education. A Kruskal-Wallis H test was run to determine if there were differences in financial autonomy score between three groups of participants with different levels of parent education: one parent (N=95), both parents (N=110) or none parents (N=69) have attained higher level of education. Median financial autonomy scores increased in families with higher level of parents' education from none parents (52,75), to one parent (53,75), to both parents (64,25) with higher education level, and these differences were statistically significant,  $\chi^2(2) = 38,56$ ,  $p = 0,000$ . Pairwise comparisons were also performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons. Adjusted p-values are presented. This post hoc analysis revealed statistically significant differences in median financial autonomy scores between the none parent and both parents with higher level of education ( $p = .000$ ), and one parent and both parents with higher level of education ( $p = .000$ ). These results are evident in Figure 2.



*Figure 2: Summative index of financial autonomy according to the levels of education of respondent's parents*

In the research sample there were 18% of respondent who come from families that have some financial assets, such as stocks or bonds. Other 82% of respondents reported that their parents do not have any securities or that they are not aware of that. A Mann-Whitney U test results revealed that respondents whose parents have holdings of financial assets (i.e. stocks or bonds), exhibit higher levels of financial autonomy (mean rank=151,33) than their colleagues who declared that their parents do not hold any financial assets or they are not aware of it (mean rank=134,49), even though this difference was evaluated as statistically insignificant. A Mann-Whitney U test was run to determine if there were differences in financial autonomy score between respondents who had some work experience (19% of all respondents) and those who had not. It was determined that respondents with any work experience (mean rank=162,67) had statistically significantly higher financial autonomy scores than the respondents without any working experience (mean rank=131,60),  $p = 0,011$ . This was also true if a respondent had other external source of income (i.e. social transfers). Those respondents also exhibited higher levels of financial autonomy (mean rank=166,74).

*Figure following on the next page*

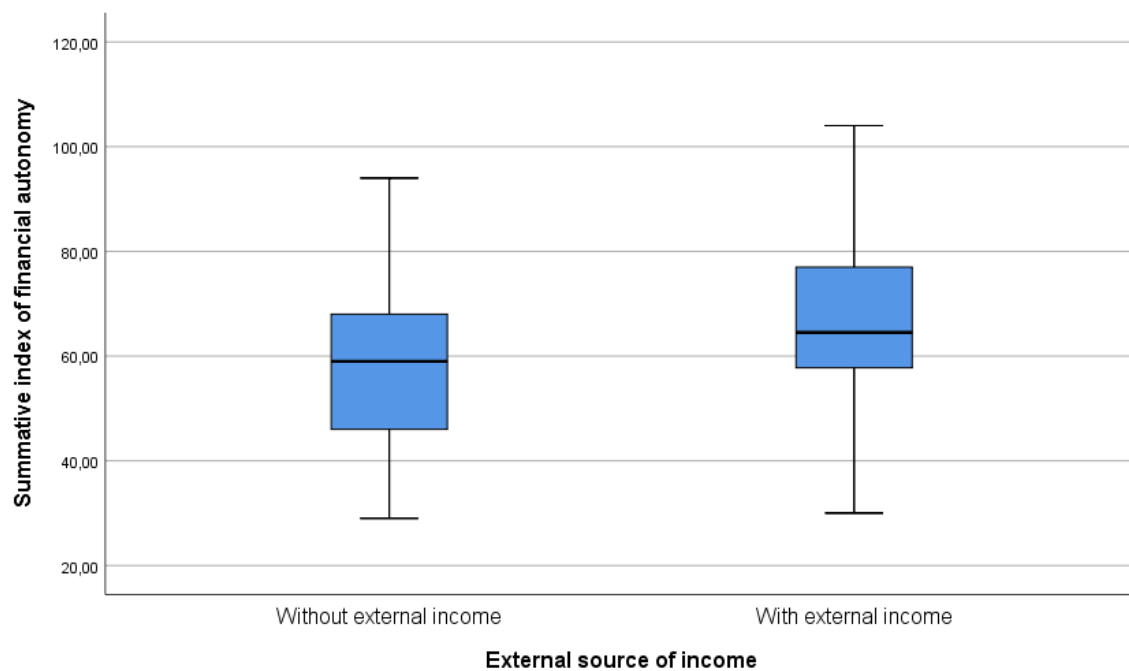


Figure 3: Summative index of financial autonomy according to the working experience of respondent

One-way ANOVA test revealed that there were no statistically significant differences in financial autonomy score between the different daily allowances strategies (i.e. the frequency of allowances), Welch's  $F(3; 77,05) = 0,621$ ,  $p = 0,603$ . There was also no statistically significant interaction between the frequency of allowances and allowances control,  $F(3, 263) = 0,168$ ,  $p = 0,918$ , partial  $\eta^2 = 0,002$ . According to earlier research, parents often share their plans with their children and allow them to participate in making important decisions about holiday planning or big items shopping. They thus develop the skills to plan their budget, to save or to make extra money. It also fosters children's financial autonomy. A similar approach is taken by Grohmann, Menkhoff (2015), while they explain that parents who often talk to children about finance, financial well-being, improve their financial literacy. A Kruskal-Wallis H test was run to determine if there were differences in financial autonomy score between four groups of participants with different involvement into family financial discussions: participation in family financial discussions can be organized weekly, monthly, semiannually, yearly or never. Distributions of financial autonomy scores were not similar for all groups, as assessed by visual inspection of a boxplot. The distributions of financial autonomy score were statistically significantly different between groups,  $H(4) = 54,962$ ,  $p = 0,000$ . As it can be seen from research results, respondents who did not participate in any family discussions on financial issues had lower level of financial autonomy. It is also visible that up to some point, parents' strategy to give allowances less frequently might foster higher levels of financial autonomy of adolescents.

## 5. CONSLUSION

Adolescents autonomy is a multidimensional concept where financial aspects play crucial role. Financial autonomy of adolescents is being considered of highest importance to individual himself as well as his family and society in general. Despite that there is a lack of research in this field, as the existing research is scarce and fragmented. The research results revealed that Lithuanian high school students are rather financially autonomous, as the average score of financial autonomy of the research sample reached 60 points in a range from 0 (no financial autonomy) to 105 (high level of financial autonomy).

Research results revealed that most of family financial socialization factors have statistically significant effect on the formation of financial autonomy of Lithuanian adolescents. Different aspects of the social status of adolescent's family were researched. It can be concluded that the education level of parents, possession of financial assets as well as parental income levels are all positively related with financial autonomy of adolescent. Such results corresponded with some previous research (f.ex. Whittington, Peters, 1996), but contradicted other (ex. Xiao et al., 2014). Working experience or other external source of income is also positively related with the adolescents' autonomy level. As it can be seen from research results, respondents who did not participate in any family discussions on financial issues had lower level of financial autonomy. It is also visible that up to some point, parents' strategy to give allowances less frequently might foster higher levels of financial autonomy of adolescents. The levels of financial autonomy of adolescents did not differ according to the daily allowances strategies that were used in their families. Other researchers state that when children are given the opportunity to manage small amounts of money themselves, they start to understand financial responsibility better and increase their confidence in the financial decisions they make (Jorgensen and Savla, 2010; Britt, 2016).

#### LITERATURE:

1. Anderson, C. L., Nevitte, N. (2006). Teach your children well: Values of thrift and saving. *Journal of Economic Psychology*, 27(2), 247–261.
2. Arnett, J. J. (2004). *Emerging adulthood: The winding road from the late teens through the twenties*. New York: Oxford University Press.
3. Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, CA: Prentice Hall.
4. Berg, J.A. (2007). Subjective age identity during the transition to adulthood: Psychological and sociological perspectives. *Social Thought and Research*, 28, 145–163.
5. Beutler, I. F., Dickson, L. (2008). Consumer economic socialization. In J. J. Xiao (Ed.), *Handbook of consumer finance research* (pp. 83-102). New York, NY: Springer
6. Britt, S. L. (2016). The intergenerational transference of money attitudes and behaviors. *Journal of Consumer Affairs*, 50(3), 539–556.
7. Bruhn, M., Souza, L., Legovini, A., Marchetti, R., Zia, B. (2013). The Impact of High School Financial Education: Experimental Evidence in Brazil. *Policy Research Working Paper* 6723
8. Clarke, M. D., Heaton, M.B., Israelsen, C.L.; Eggett, D.L. (2005). The acquisition of family financial roles and responsibilities. *Family & Consumer Sciences Research Journal*, 33(4), 321-340.
9. Conger, R. D., Dogan, S. J. (2007). Social class and socialization in families. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization: Theory and research*. New York: Guilford Press.
10. Cote, J., Bynner, J. (2008). Changes in the transition to adulthood in the UK and Canada: the role of structure and agency in emerging adulthood. *Journal of Youth Studies*, 11, 251–268.
11. Danes, S.M., Haberman, H.R. (2007). Teen financial knowledge, self-efficacy, and behavior: A gendered view. *Financial Counseling and Planning*, 18(2), 48–60.
12. Doob, C. B. (2013). *Social Inequality and Social Stratification in US Society*. Upper Saddle River, NJ: Pearson Education.
13. Gaigalienė, A., Leckė, G., Legenzova, R. (2019). Impact of parental financial socialization factors on financial literacy of Lithuanian high school students. *Acta Prosperitatis*, 10.
14. Grohmann, A., Menkhoff, L. (2015). *School, parents, and financial literacy shape future financial behavior*. DIW Economic Bulletin.

15. Gudmunson, C. G., Ray, S. K., Xiao, J. J. (2016). Financial socialization. In J. J. Xiao (Ed.), *Handbook of consumer finance research* (2nd ed., pp. 61-73). New York, NY: Springer.
16. Gudmunson, C. G., Danes, S. M. (2011). Family Financial Socialization: Theory and Critical Review. *Journal of Family and Economic Issues*, 32(4), 644-667.
17. Gutter, M., Copur, Z. (2011). Financial Behaviors and Financial Well-Being of College Students: Evidence from a National Survey. *Journal of Family and Economic Issues*, 32(4), 699-714.
18. Johnson, E., Sherraden, M. (2007). From financial literacy to financial capability among youth. *Journal of Sociology and Social Welfare*, 34 (3), 119-145.
19. Johnston, M. K. (2013). Parental financial assistance and young adults' relationships with parents and wellbeing. *Journal of Marriage and Family*, 75 , 713-733. doi: 10.1111/jomf.12029 .
20. Jorgensen, B. L. (2007). *Financial literacy of college students: parental and peer influences*. Unpublished master's thesis. Virginia Polytechnic Institute and State University, Blacksburg, Virginia
21. Jorgensen, B. L., Savla, J. (2010). Financial Literacy of Young Adults: The Importance of Parental Socialization. *Family Relations*, 59(4), 465-478.
22. Kim, J., LaTaillade, J., Kim, H. (2011). Family process and adolescents' financial behaviors. *Journal of Family Economic Issues*, 32 (4), 668-679. doi: 10.1007/s10834-011-9270-3 .
23. Kim, J., Chatterjee, S. (2013). Childhood Financial Socialization and Young Adults' Financial Management. *Journal of Financial Counseling and Planning*, 24(1), 61-79.
24. Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development*. Upper Saddle River, NJ: FT Press.
25. Lebaron, A.B., Runyan, S.D., Jorgensen, B.L., Marks, L.D., Li, X., & Hill, E. J. (2018). Practice makes perfect: experiential learning as a method for financial socialization. *Journal of Family Issues*, 39, 1-29.
26. Lee, J. C., Mortimer, J. T. (2009) Family socialization, economic self-efficacy, and the attainment of financial independence in early adulthood. *Longitudinal and Life Course Studies*, 1, 45-62.
27. Luhr, S. (2018). How Social Class Shapes Adolescent Financial Socialization: Understanding Differences in the Transition to Adulthood, *Journal of Family and Economic Issues*, 39(3), 457-473.
28. Lusardi, A., Mitchell, O. S., Curto, V., (2009). Financial Literacy among the Young: Evidence and Implications for Consumer Policy. *CeRP Working Papers*, 91.
29. Mandell, L. (2008). Financial literacy of high school students. *Handbook of Consumer Finance Research*, New York: Springer.
30. Mandrik, C., Fern, E.F., Bao, Y. (2005). Intergenerational influence: roles of conformity to peers and communication effectiveness. *Psychology and Marketing*, 22(10), 813-832.
31. Manzoni, A. (2016). Conceptualizing and measuring youth independence multidimensionally in the United States. *Acta Sociologica*, 59(4), 362-377.
32. Moschis, G. P. (1987). *Consumer socialization: A life cycle perspective*. Lexington, MA: Lexington.
33. Noom, M. J., Dekovic, M., Meeus, W. (2001). Conceptual analysis and Measurement of Adolescent Autonomy, *Journal of Youth and Adolescence*, 30(5): 577-595.
34. Pallas, A.M. (2006). A subjective approach to schooling and the transition to adulthood. *Advances in Life Course Research* 11(1): 173-197.
35. Peng, T. M., Bartholomae, S., Fox, J. J., Cravener, G. (2007). The impact of personal finance education delivered in high school and college courses. *Journal of Family and Economic Issues*, 28(2), 265-284.

36. Pinto, M. B., Parente, D. H., Mansfield, P. M. (2005). Information learned from socialization agents: its relationship to credit card use. *Family and Consumer Sciences Research Journal*, 33(4), 357-367.
37. Potrich, A.C.G., Vieira, K.M., Kirch, G. (2015). Determinants of Financial Literacy: Analysis of the Influence of Socioeconomic and Demographic Variables. *Revista Contabilidade & Finanças*, 26(69), DOI: 10.1590/1808-057x201501040
38. Pritchard, M.E., Myers, B.K. (1992). Consumer education: A partnership between schools and families. *Journal of Consumer Education*, 10, 38 – 43.
39. Robb, C. A. (2007). *College students and credit card use: The effect of personal financial knowledge on debt behavior*. Ph.D. Dissertation, University of Missouri, Columbia, MO.
40. Rooij, M., Lusardi, A., Alessie, R. (2011). Financial Literacy and Retirement Planning in the Netherlands. *Journal of economic psychology*, 32(4), 593-608.
41. Scodellaro, C., Khlal, M., & Jusot, F. (2012). Intergenerational financial transfers and health in a national sample from France. *Social Science & Medicine*, 75 (7), 1296–1302. doi: 10.1016/j.socscimed.2012.04.042 .
42. Serido, J., Deenanath, V. (2016). Financial parenting: Promoting financial selfreliance of young consumers. In J. J. Xiao (Ed.), *Handbook of consumer finance research* (2nd ed., pp. 291-300). New York, NY: Springer.
43. Settersten RA (2012) The contemporary context of young adulthood in the USA: From demography to development, from private troubles to public issues. In: Booth A, Brown SL, Landale NS, et al. (eds) *Early Adulthood in a Family Context* (Vol. 2). New York: Springer Science&Business Media, pp.3–26.;
44. Settersten, R.A. Ray, B. (2010) What's going on with young people today? the long and twisting path to adulthood. *The Future of Children*, 20, 19-41.
45. Sherraden, M.S., Johnson, L., Guo, B., Elliott, W. (2011). Financial capability in children: Effects of participation in school-based financial education and savings program. *Journal of Family and Economic Issues*, 32(3), 385-399.
46. Shim, S., Barber, L. B., Card, A. N., Xiao, J. J., Serido, J. (2010). Financial Socialization of First-year College Students: The Roles of Parents, Work, and Education. *Journal of Youth and Adolescence*, 39(12), 1457-1470.
47. White, N.R. (2002) "Not under my roof!": Young people's experience of home. *Youth & Society* 34(2): 214–231.
48. Whittington, L. A., Peters, E. H. (1996). Economic incentives for financial and residential independence. *Demography*, 33 , 82–97.
49. Xiao, J. J., Chatterjee, S. (2014). Factors Associated with Financial Independence of Young Adults. *International Journal of Consumer Studies*, 38, 394-403.

# FUEL RETAIL MARKET: ASSESSING THE DETERMINANTS THAT INFLUENCES THE PERFORMANCE OF SALES OF FUEL STATIONS

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## ABSTRACT

*The oil and energy sector is a very traditional, controversial and competitive sector. This study is based on a Portuguese fuel company and its main objective is to identify and characterize potential variables with predictive capacity for sales of new fuel stations. The database consists of a set of context variables with predictive potential for sales of fuel stations and monthly sales in terms of fuel volume. The research methodology focused on statistical methods of exploratory data analysis, clusters analysis and regression models. The fuel station context variables tend to characterize the socio-economic conditions of the area of influence of each station, such as population density variable, others related to the similar existing supply of both the company itself and the competing companies, and others related to geographical location and accessibility. The exploratory data analysis allowed to identify several patterns in the time series of sales indicating that the investigation of factors must be segmented. Homogeneous groups of fuel stations were identified through a hierarchical agglomerative clustering procedure considering the Ward's minimum variance method and the square Euclidian distance as distance measure. For each of the groups identified, multiple linear regression models were adjusted considering the annual fuel sales in the 1st, 2nd and 3rd years of operation of the stations as dependent variables. The results show that not all the exogenous variables are statistically significant. However, it is possible to conclude that the average daily traffic is the variable with predicted capacity for the most of the groups of fuel stations analyzed.*

**Keywords:** *Fuel Retail Market, Fuel stations, Multivariate analyses, Sales determinants, Sales forecasting*

## 1. INTRODUCTION

To model time series sales behavior with the intent to be a useful tool to forecasting is a great challenge. All types of energy consumption, including car fuel, are growing in almost every country in the world, forced by several factors such as the increase in population and the search for better living conditions. In this context, the capacity to model and forecast with adequate techniques is essential for accurate planning, production and distribution capacities by the firm's operation in these areas. The development of trustworthy models is difficult for a variety of reasons, but usually, one of the biggest problems are related to the difficulty of having access

to necessary information and data. Nowadays, markets in almost every activity sectors are increasingly competitive, and the fuel sector is no exception, particularly at the retail moment. In this way, it is fundamental for companies competing in this area, to adopt management strategies that could allow them to enhance the competitive advantage they may have against the competition. The ability to take advantage of all the information they generate, transforming raw data into useful information to help management level is essential for companies to succeed and face the enormous challenges ahead. The understanding of the phenomenon that guide and influence sales are a key element in the decision-making process of management activities. This can make firms to more accurately make sales forecasting and in that way also predict the major factors that influence their performance and results. In this work, the main objective is to identify and characterize potential variables with the capacity to explain the sales behavior of the fuel stations in Portugal. The work will have the following structure. In section 2 it is made a brief literature review about some of the models used. Section 3 shows the methodology that was used throughout this study and explains the data collection process. Section 4 analyses the results. In this part, we used multiple linear regression models and variable selection techniques for three different groups, in the first, second and third year of activity sales, in order to find variables with predictive capacity. Finally, Section 5 refers to some conclusions about the results.

## **2. LITERATURE REVIEW**

Forecasting plays an essential role in the planning process of all future activity, decision making and control in any company. The uncertainty related to many temporal phenomena does not allow the exact knowledge of its behavior in the future, and therefore, leads us to the necessity to make predictions (Caiado, 2016). Being able to accurately predict sales allow firms to improve market performance, minimize profit losses and to plan manufacturing processes and marketing policies more efficiently (Fantazzinia and Toktamysova, 2015). This is particularly relevant in this market, where the uncertainty and the risk companies face are phenomena at a global scale. In order to mitigate the problems that could derive from there, and do a more careful and efficient supply chain and operation management, to accurately be able to forecast sales is crucial in fuel retail activity. At a more organizational level, sales forecasts are necessary as a crucial input to decision activities in many functional areas, for instance in marketing, sales, production, purchasing, finance and accounting (Mentzer and Bienstock, 1998). An accurate sales model permits more efficient inventory management and has long been recognized that provide the basis for firms' delivery and refill procedures. The connection among retail stocks and sales is examined at an aggregate level and has been found that effective inventory management is contingent to a large extent on the correct estimating of retail sales Barksdale and Hilliard (1975). This is also what Thall (1992) and Agrawal and Schorling (1996) explain about the importance of demand predicting, since they consider that plays a serious role in the profit of retail operations and point out that a poor forecast would result in too much or too little stocks directly affecting firm revenue and the competitive position of the retail business. Montgomery et al. (2008), point out that the main objective of using forecasting methods is to predict future events, with the aim of reducing risk in decision making. They also argue that the greater availability of resources in the implemented forecasting method could allow being able to improve the accuracy of the forecast and thus reduce some of the losses resulting from uncertainty in the decision-making process. Even though Gas stations fuel sales is not a very addressed topic in the literature, there are many studies trying to model the behavior in other related markets, namely in the energy sector, are much more common and share some of the specifics. Harris and Lon-Mu (1993) have analyzed the relationship between electricity consumption using a number of potentially relevant variables, such as weather, price and consumer income, finding out a high seasonality of electricity demand.

Analyzing the consumption pattern of electrical energy, Ranjan and Jain (1999) apply multiple linear regression models and population and weather parameters as explanatory variables of the energy consumption for different seasons. Bianco et al. (2013) studied the residential and non-residential annual electricity consumption applying simple and multiple regression models using historical electricity consumption, gross domestic product (GDP), GDP per capita and population as independent variables. Their results demonstrate that the selected explanatory variables are strongly correlated to the electricity consumption, and in some of the models the coefficient of determination for the simple and multiple regression models was extremely high (0.975 and 0.990). Using stepwise selection techniques, like the ones applied in this paper, Filippína et al. (2013) applied multivariate analysis to assess the historical consumption of natural gas for heating in multifamily buildings. With data from 72 apartments from different buildings, with different orientations, different energy groups (clusters) were generated. After the stepwise method applied the authors to select the variables categorizing the annual energy consumption. In a study made about the selection of location for gas stations Semih and Seyhan (2011) points out that this is one of the key factors of any business success, and for that reason also in the fuel sector. According to them, the problem of fuel station selection involves numerous quantitative and qualitative factors, such as the number of other stations in the area, traffic directions, social composition of surrounding residential area, and curb appeal of the station structure.

### **3. METHODOLOGY AND DATA**

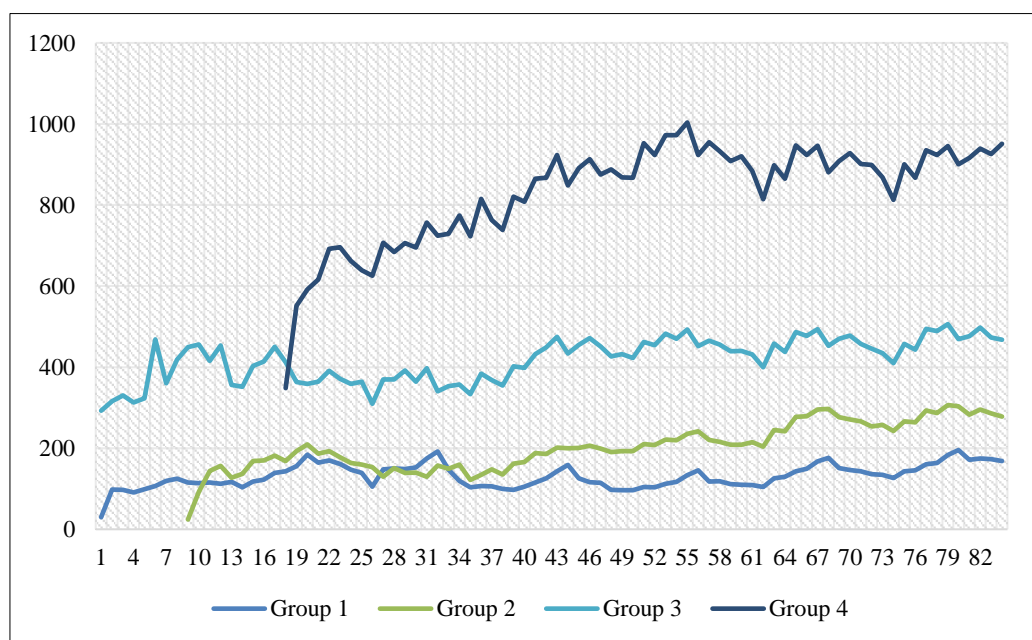
The data used in the paper is originated from a set of variables with theoretically explanatory potential to model fuel sales, namely gasoline and diesel, at a retail level. The information is related to forty-eight fuel stations, located in Portugal mainland. The dependent variable, whose behavior is sought to be explained, is the monthly sales in terms of fuel volume, measured in cubic meters. The independent variables associated with each fuel station tend to characterize the socioeconomic conditions of the area of influence of each location, such as population density and purchasing power, competition issues, namely the existence and proximity of a rival firm and rivals' company's geographical location and accessibility. Regarding the population density, this is represented in two variables, population density by town and population density by county, in both cases, this is measured by the ratio between the number of inhabitants and the area of the zone. The purchasing power in the ratio of county purchasing power to the national average. In relation to the distance to the nearest arterial route, that is, the distance to the nearest motorway, it is visible in two variables, linear distance, and real distance, both measured in kilometers. The competition is also presented by two variables, the number of the low-cost gas station within a 10 km radius and the number of regular gas stations within a 2 km radius. In table 1 are shown the description of the variables and the basic summary descriptive statistics.

*Table following on the next page*

*Table 1: Variables description and summary descriptive statistics*

VARIABLES	Mean	Median	Standard deviation
Average daily traffic (no. vehicles per day)	8703.19	8042.00	5105.609
Population density of the town (hab/km <sup>2</sup> )	2230.95	481.47	3896.481
Population density of the municipality (hab/km <sup>2</sup> )	1296.20	399.95	1877.244
Ratio between the purchasing power of the municipality and the national average (%)	98.8850	93.7400	26.20711
Linear distance to nearest arterial pathway (km)	2.117	2.000	1.5904
Actual distance to nearest arterial line (km)	3.252	3.000	2.2317
No. of low cost, within a 10 km radius	2.90	3.00	1.708
No. of gas station, within a 2 km radius	2.71	2.00	3.445
Average monthly sales in the 1st year of activity (m <sup>3</sup> )	213.4774	168.2260	152.71901
Average monthly sales in the 2nd year of activity (m <sup>3</sup> )	267.9661	226.9925	166.69976
Average monthly sales in the 3rd year of activity (m <sup>3</sup> )	287.8882	247.0095	173.11307

The methodology used is focused on statistical methods of exploratory data analysis, using descriptive statistics, cluster analysis and regression models, in particular multiple linear regression models. The variables selection techniques used were stepwise, forward and backwise. The exploratory analysis of the data allowed to identify several patterns in the time series of sales, indicating that the investigation of factors must be segmented. Through the SPSS software, homogeneous groups of fuel stations were identified through a Agglomerative Hierarchical Clustering (AHC) procedure considering Ward's minimum variance method and the square euclidean distance as a measure of distance. Subsequently, the monthly sales of the respective gas stations were grouped into these four groups that arose through the clustering procedure. In order to facilitate the analysis and reading of the data, for each group the average monthly sales of the gas stations belonging to each group were calculated. Through the analysis of figure 1, it is possible to verify that the gas stations were grouped by the sales volume. Group 1 and group 2 initially have very close sales, however, as of month 36, the sales of group 2 increase significantly. Comparing the last month, group 2 sells 65% more than group 1. Group 3 sells 177% more than group 1 and 68% more than group 2. Finally, group 4 that is only constituted by gas station 9 is the one that sells the most, not been grouped because its sales are much higher than the rest.



*Figure 8: Sales by four group (gas stations average within each group)*

For each group, table 2 was constructed with the mean and median of each variable. From this table we can analyze that the value of the variables of the average daily traffic, the population density per town and the population density per municipality increases throughout the three groups, showing a positive relation with the sales volume, which is in line with intuition regarding the importance of the number of potential consumers as an explanation of sales behavior. The number of low costs within a 10 km radius and the number of non-discount competing gas stations within a 2 km radius is also increasing throughout the three groups, although this behavior may seem anti-intuitive, i.e. more competition and more sales, this proves that the weight the number of consumers has in this business area is extremely important.

*Table 2: Variables by group*

Variables	Group 1		Group 2		Group 3	
	Mean	Median	Mean	Median	Mean	Median
Average daily traffic (ADT)	6336.14	6197.5	8420.93	7232	11611.46	11225
Population density of the town (PDT)	675.92	142.18	1176.11	485.14	4073.68	1940.28
Population density of the municipality (PDM)	371.37	66.3	553.43	399.95	2609.82	2173.6
Ratio between the purchasing power of the municipality and the national average (PP)	86.3971	87.215	86.2766	91.835	118.997	101.36
Linear distance to nearest arterial pathway (LD)	2.179	1.95	2.193	2.05	2.1	2
Actual distance to nearest arterial line (ALD)	3.529	3.1	3.329	3.25	3.069	2.5
No. of low cost, within a 10 km radius (N10)	2.43	2	2.86	3.5	3.46	4
No. of gas station, within a 2 km radius (N2)	0.93	0	2.5	2	4.08	3
Average monthly sales in the 1st year of activity (AVG1)	90.74	92.721	173.4043	168.6855	357.0362	338.445
Average monthly sales in the 2nd year of activity (AVG2)	120.7094	125.0495	225.7085	226.9925	433.6079	414.946
Average monthly sales in the 3rd year of activity (AVG3)	134.6162	140.0925	245.7799	247.0095	451.2858	406.169

On the other hand, the value of the purchasing power variables, the linear distance to the nearest arterial pathway and the actual distance to the nearest arterial pathway, do not show differences between groups, but may also contain predictive capacities.

#### 4. RESULTS AND ANALYSES

Population density per town and population density per municipality are strongly correlated, so the introduction of both variables in the model would generate multicollinearity problems. The same happens with the linear distance to the nearest arterial pathway and the actual distance to the nearest arterial pathway. The choice of variables to be placed in the model as potential explanatory variables was made using the ordinal correlation of these variables with the independent variable (sales). As can be seen in table 3, for group 1, the variable population density of the town has higher correlations than the population density of the municipality. Relatively to distances to the nearest arterial pathway, the actual distance to the nearest arterial pathway has correlations higher than the linear distance to the nearest arterial pathway. Compared to the population density of group 2, the population density variable of the parish also has correlations higher than the population density of the county, in the monthly sales of the 1st and 2nd year of activity.

*Table 3: Spearman's ordinal correlation coefficient by group*

	ADT	PDT	PDM	PP	LD	ALD	N10	N2
<b>Group 1</b>								
AVG1	.436 (.081)	.602 (.010)	.411 (.101)	.266 (.302)	.381 (.179)	.456 (.101)	.274 (.287)	.019 (.943)
AVG2	.412 (.100)	.410 (.102)	.199 (.444)	.307 (.231)	.355 (.213)	.443 (.113)	.179 (.492)	.007 (.980)
AVG3	.216 (.405)	.321 (.208)	.228 (.378)	.363 (.152)	.145 (.620)	.242 (.404)	.333 (.192)	.145 (.578)
<b>Group 2</b>								
AVG1	-.241 (.352)	.054 (.837)	-.088 (.736)	-.572 (.016)	.053 (.856)	-.119 (.684)	.103 (.695)	-.182 (.484)
AVG2	-.030 (.911)	.126 (.629)	.063 (.811)	-.480 (.051)	.102 (.728)	.110 (.707)	.336 (.187)	-.237 (.360)
AVG3	.055 (.833)	-.285 (.268)	-.246 (.342)	-.219 (.399)	-.193 (.508)	-.217 (.457)	.221 (.395)	.076 (.772)
<b>Group 3</b>								
AVG1	.696 (.008)	.553 (.050)	.574 (.040)	.061 (.844)	.345 (.248)	.328 (.274)	-.242 (.425)	.272 (.369)
AVG2	.715 (.006)	.539 (.057)	.577 (.039)	.074 (.809)	.420 (.153)	.413 (.160)	-.339 (.257)	.227 (.455)
AVG3	.583 (.036)	.622 (.023)	.585 (.036)	.072 (.816)	.199 (.515)	.187 (.540)	-.114 (.711)	.386 (.193)

*The values in parentheses are the p-value.*

For group 3, it is the population density variable of the municipality that has higher correlations to the monthly sales of the 1st and 2nd year of activity, however, in the monthly sales of the 3rd year, is the variable population density of the town that has higher correlations. Regarding the distances to the nearest arterial pathway, in this group is the linear distance to the nearest arterial pathway that has higher correlations than the actual distance to the nearest arterial pathway. For each of the identified groups, the models were adjusted considering the fuels annual sales in the 1st, 2nd and 3rd years as dependent variables. From the modeling point of view, statistically significant variables were those that have coefficients associated with p-values lower than 0.2 since this is a study with socio-economic variables and regional/local context. Analyzing table 4, for the first year of group 1, for each kilometer that the actual distance to the nearest arterial route increases, sales in the first year of activity increase by 11.106 m<sup>3</sup> and by each number of cars that average daily traffic increases, sales in the first year of activity increase by 0.006 m<sup>3</sup>. For the second year of group 1, for each kilometer that the actual distance to the nearest arterial route increases, sales in the second year of activity increase by 8.417 m<sup>3</sup> and by each number of cars that average daily traffic increases, sales in the second year of activity increase by 0.009 m<sup>3</sup>. Relatively to the sales of the third year, analyzing table 4 we can conclude that of the variables studied, there is none that has explanatory capacity.

*Table following on the next page*

*Table 4: Coefficients of group 1*

Sales	1 <sup>o</sup> year	2 <sup>o</sup> year	3 <sup>o</sup> year
(Constant)	11.905 (0.711)	36.180 (0.286)	–
ALD	11.106 (0.030)	8.417 (0.095)	–
ADT	0.006 (0.143)	0.009 (0.058)	–
<b>R<sup>2</sup></b>	<b>0.442</b>	<b>0.416</b>	–
<b>DW</b>	<b>1.960</b>	<b>1.854</b>	–

*The values in parentheses are the p-value.*

The coefficient of determination for the first year of sales is  $R^2 = 0.442$ , that is, 44.2% of the variance of sales in the first year is explained by the model. For the second year of sales, since  $R^2 = 0.416$ , this means that 41.6% of the sales variance in the second year is explained by the variables actual distance to the nearest arterial route and average daily traffic. The Durbin-Watson test for the first and the second year of sales are close to two, so it's possible to accept that the residuals are independent, that is, there is no autocorrelation issues that may be concerning. Looking at table 5, for the first year of group 2, if the ratio of the purchasing power of the municipality increases by 1pp, sales in the first year of activity decreased by 3.185 m<sup>3</sup>, for each increase of one new low cost competitor within a 10 km radius, sales in the first year of activity increase by 11.321 m<sup>3</sup> and for each unit increase in the population density of the town, sales are expected to increase by 0.011 m<sup>3</sup>. For the second year, for each perceptual point increase in the purchasing power ratio, sales decreased by 4.484 m<sup>3</sup> and the increase of a low cost competing gas station in a 10 km radius will result in an increase in sales of 24.678 m<sup>3</sup>. Relative to the sales of the third year, none of the studied variables has predictive capacity.

*Table 5: Coefficients of group 2*

Sales	1 <sup>o</sup> year	2 <sup>o</sup> year	3 <sup>o</sup> year
(Constant)	430.037 (0.000)	580.924 (0.001)	–
PP	-3.185 (0.004)	-4.484 (0.013)	–
N10	11.321 (0.040)	24.678 (0.020)	–
PDT	0.011 (0.48)	–	–
<b>R<sup>2</sup></b>	<b>0.585</b>	<b>0.496</b>	–
<b>DW</b>	<b>1.243</b>	<b>1.666</b>	–

*The values in parentheses are the p-value.*

Both the first year and the second year, the variables ratio between the purchasing power of the county and the national average and the number of low costs are statistically significant to model. The coefficient of determination for the first year is  $R^2 = 0.585$ , that is, 58.5% of the variance of sales in the first year is explained by the variables of purchasing power ratio, competitor within a 10 km radius and town density. For the second year of sales  $R^2 = 0.496$ , this means that 49.6% of the variance of sales in the second year is explained by the independent variables, purchasing power ratio and number of competing low costs. Unlike the other two groups, the variable selection techniques used in group 3 do not achieve the same results, which may mean some lack of robustness since they depend on the technique used. In this way, the results of group 1 and group 2 turn out to be more robust because regardless of the technique used the results are always the same.

The results for group 3, using the stepwise forward regression technique, are presented in table 6. In those result is possible to see that in the first year of sales, for each unit increase in the average daily traffic, sales increase by  $0.020 \text{ m}^3$ , for each increase of inhabitants per  $\text{km}^2$ , sales increase by  $0.054 \text{ m}^3$ , for each increase of competing fuel gas station within a 2km radius, sales decrease by  $14.142 \text{ m}^3$  and for every kilometer that the linear distance to the nearest arterial route increases, sales decrease by  $17.845 \text{ m}^3$ . For the second year, for each increase in average daily traffic, will result in an increase of sales by  $0.013 \text{ m}^3$ , for each increase of inhabitants per  $\text{km}^2$ , sales increase by  $0.041 \text{ m}^3$  and per every increase of a competing fuel station within a 2km radius, sales decrease by  $9.353 \text{ m}^3$ . For the third year, for each car per day increases, sales will increase by  $0.009 \text{ m}^3$ , for each unitary increase of inhabitants per  $\text{km}^2$ , sales increase  $0.024 \text{ m}^3$ .

*Table 6: Coefficients of group 3 – Stepwise Forward*

Sales	1° year	2° year	3° year
(Constant)	66.586 (0.261)	200.960 (0.008)	261.791 (0.001)
ADT	0.020 (0.001)	0.013 (0.007)	0.009 (0.027)
PDM	0.054 (0.001)	0.041 (0.008)	0.024 (0.036)
N2	-14.142 (0.039)	-9.353 (0.161)	–
LD	-17.845 (0.194)	–	–
<b>R<sup>2</sup></b>	<b>0.859</b>	<b>0.728</b>	<b>0.541</b>
<b>DW</b>	<b>2.053</b>	<b>2.7</b>	<b>2.683</b>

*The values in parentheses are the p-value.*

The coefficient of determination for the first year of sales is  $R^2 = 0.859$ , that is, 85.9% of the variance of sales in the first year is explained by the four variables in the model. This explanatory capacity of the model reveals a very good fit. For the second year the  $R^2 = 0.728$ , this means that 72.8% of the variance of sales is explained by the variables average daily traffic, population density of the municipality and number of competing stations within a 2 km radius. For the third year the  $R^2 = 0.541$ , that is, 54.1% of the variance of sales is explained by the variables average daily traffic and population density of the municipality.

## 5. CONCLUSION

The main purpose of this study was to find a set of variables with explanatory capabilities that could model the behavior of the sales made by gas stations. Since gas stations are very heterogeneous it was important to group them into clusters. In this way it's possible to analyze gas stations with similar characteristics, and in that way obtain the best adjustment to the possible model, allowing a better understanding of the mechanism behind the evolution of diesel and gasoline sales. After applying stepwise regression techniques, we conclude that for group 1, for both first and second year sales, variables with predictive capacity are the actual distance to the nearest arterial route and average daily traffic. For group 2 in the first year of sales, the variables with explanatory capacity are the purchasing power ratio of the municipality, the number of competing low cost gas stations within a 10 km radius and the population density of the town. For the second year of sales, only the variable ratio between the purchasing power of the municipality and the number of competing low costs are maintained in the model. For the sales of the first year of group 3, the variables with predictable capacity are the average daily traffic, the population density of the municipality, the number of competing stations and the linear distance to the nearest arterial route, however, for sales in the second year, the variables with predictive capacity are the average daily traffic, the population

density of the county and the number of competing stations. Finally, for the third year sales, there are only two variables with predictive capacity, namely average daily traffic and population density of the municipality. Overall, the average daily traffic is the variable which shows explanatory capacity in the majority of the gas station groups and models applied. This is a very interesting result since it would be expected that many other of the available variables could have some importance explaining the behavior of gas station sales. The purchasing power of the inhabitants of a local would be expected to have more relevance, but the variable didn't reveal to be statistical significant in almost every model. This could be in part explained by the use Portuguese make of their cars, mainly for travelling to work, due to the lack of public transportations options. In this context, even in poorer regions, gas stations can achieve similar sales when compared with regions with more buying capacity.

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#### **LITERATURE:**

1. Agrawal, D. & Schorling, C. (1996). Market share forecasting: An empirical comparison of artificial neural networks and multinomial logit model. *Journal of Retailing*, 72 (4), pages 383–407.
2. Barksdale, H. & Hilliard, J. (1975). A cross-spectral analysis of retail inventories and sales. *Journal of Business*. 48 (3), pages 365–382.
3. Bianco, V., Manca, O. & Nardini, S. (2013). Linear regression models to forecast electricity consumption in Italy. *Energy Sources*, Vol 8, pages 86–93.
4. Caiado, J. (2016). Métodos de Previsão em Gestão – Com Aplicações em Excel (2ª Edição). Lisboa: Edições Sílabo.
5. Fantazzinia, D. & Toktamysova, Z. (2015). Forecasting German car sales using Google data and multivariate models. *International Journal of Production Economics*, Vol. 170, Part A, pages 97-135.
6. Filippína, C., Ricard, F. & Flores L. (2013). Evaluation of heating energy consumption patterns in the residential building sector using stepwise selection and multivariate analysis. *Energy Build*, Vol 66, pages 571–81.
7. Harris, J. & Lon-Mu, L. (1993). Dynamic structural analysis and forecasting of residential electricity consumption. *International Journal fo Forecasting*, Vol 9, Issue 4, pages 437-455.
8. Mentzer, J. & Bienstock, C. (1998). Sales Forecasting Management. Sage, Thousand Oaks, CA.
9. Montgomery, D., Johnson, L. & Gardiner, J. (2008). Introduction to Time Series Analysis and Forecasting. John Wiley & Sons. New Jersey.
10. Ranjan M. & Jain V. (1999) Modelling of electrical energy consumption in Delhi. *Energy*, Vol 24(4) pages 351–61.
11. Semih, T. & Seyhan, S. (2011). A Multi-Criteria Factor Evaluation Model for Gas Station Site Selection. *Journal of Global Management*, 2 (1), pages 12-21.
12. Thall, N. (1992). Neural forecasts: A retail sales booster. *Discount Merchandiser*, Vol.23 (10), pages 41–42.

## WHO AND WHAT REALLY MATTERS? STAKEHOLDERS AND PHILANTHROPIC RELIGIOUS HOSPITALS

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### ABSTRACT

*The strategic dimension of stakeholder management is now widely recognized. In the context of hospital organizations, health professionals often appear as key stakeholders. This article seeks to identify health professional's perceptions of the relative relevance of the various stakeholders. Data were collected by means of a questionnaire to health professionals of a philanthropic Brazilian hospital. The results identified as the most relevant stakeholders the Patients, Physician, Ministry of health, Unified Health systems – SUS and the medical hospital Material, Medical equipment and Pharmaceutical Industries. When analyzed the tree attributes – Power, legitimacy and Urgency - proposed by Mitchell, et. al., (1997), we found that only the ministry of health and SUS were considered as definite stakeholders. Since these are philanthropic institutions of a religious nature, highly dependent on social legitimation, it is surprising how little importance is attached to donors. This paper provides new insights into the identification of stakeholders in these hospitals and explores key opportunities and challenges in stakeholder management.*

**Keywords:** *stakeholders, power, legitimacy, emergency, religious hospitals*

### 1. INTRODUCTION

Stakeholder management can be considered a fundamental act for the organizational strategy. The literature on the subject presents the identification of stakeholders as a fundamental part of strategic management (Mchugh, Domegan and Duane, 2018; Gambeta, Koka, and Hoskisson, 2019). Hospital organizations, being complex organizations, cross the interest of many stakeholders, interests that are not always easy to reconcile. (Hwabamungu, Brown, Williams, 2018). Bringing together the interests of different stakeholders often forces organizations into a trade-off that is difficult to manage (Chandler and Werther 2014). Thus, the involvement of stakeholders in the management of organizations and health systems is considered crucial for the promotion of efficiency in the use of resources (Brugha, and Varvasovszky, 2000; Sinha, Ali, Lohra, Bhandari, and Fatima, 2018). Philanthropic hospitals add to these constraints the condition of having a social mission. Although there is a broad consensus on which stakeholders in hospitals in general, each hospital, and especially non-profit hospitals, has its own stakeholder map. This research aims to identify the most relevant actors in philanthropic and religious hospitals, and their influence, from the perspective of health professionals. The interpretation of the results was expressed by means of a graphic representation that intends to translate the relative importance of the relationship of influence of health professionals as an interested party. This work takes the form of a descriptive and exploratory research. A survey was conducted using a questionnaire sent by e-mail- via a monkey survey.

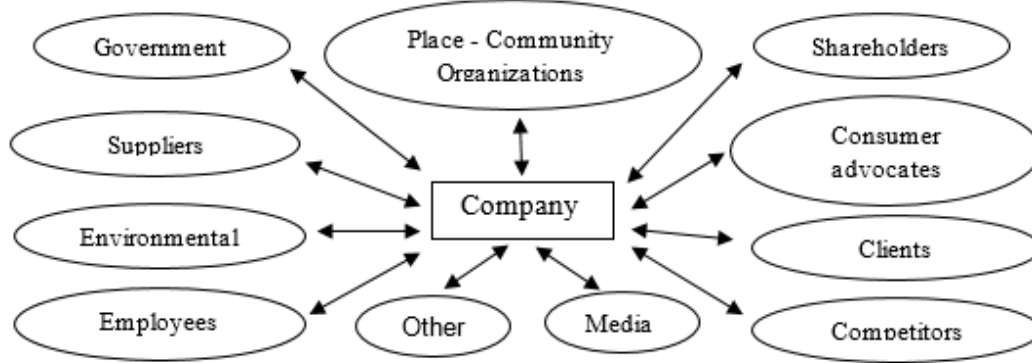
Of the 87 questionnaires sent, 5 returned, representing 40% of the respondents. In the following sections we seek to present the fundamentals of the stakeholder theory, its relevance and applicability, based on international publications. Next, we present the methodology applied in this study. This is followed by the presentation and discussion of the results obtained by means of diagrams and dendograms. Considering the limitations of the sample used in this study, any generalization requires care. Nevertheless, although the data was insufficient to obtain complete matrix, we believe that the work still provides new insights into the identification of stakeholder groups in philanthropic hospitals of religious origin.

## 2. FRAMEWORK

The stakeholder analysis has developed as a tool or set of tools with different purposes in its application in the areas of policy (Perez- Duran, 2019), management (Raum, 2018) and project implementation (Eskerod and Larsen, 2018; Nguyen, Chileshe, Rameezdeen, Wood, 2019), so that the ability of the organization to create close relationships with a stakeholder can represent a source of competitive advantage (Jones, Harrison, Felts, 2018). The introduction of the stakeholders perspective, within the scope of strategic management, appeared in the mid-1980's- with the publication of the book *A stakeholder approach to strategic management*, by Freeman (1984) – and has provided a vast field of research in management. Stakeholders analyses are now, without a doubt, extremely relevant, thanks to the nature of the world that is increasingly interconnected (Bryson, 2004). Thus, the actors' involvement has become a highly visible issue, both in the academic field and organizational practice (Achterkamp, & Vos, 2007). Stakeholder theory states that companies have a social responsibility to consider the interests of all actors affected by their business decisions (Avetisyan & Ferray, 2013). Indirectly (Tullberg, 2013), virtually everyone can be affected, to some degree, by an organized institution. But without making a contribution or having a specific role in the organization, this should not be considered sufficient. An extremely important task, established by the strategic development, is in the act of managing many demands, competing with each other- sometimes from the most distinct stakeholders of an organization in accordance with its strategic objectives (Ackermann & Eden, 2011). "to survive, companies must set goals with their current and potential stakeholders as part of a continuous strategic management process" (Lyra, Gomes & Jacovine, 2009, p.42). However, according to Vos (2003), Achterkamp and Vos (2007), identifying the interested groups had not been an easily solved material problem; especially in structurally complex institutions (Mainardis, 2010), there is great difficulty in this achievement. Any definition of stakeholder should be taken into account its relations with the organizational institution (Avetisyan & Ferray, 2013). A summary of fifty-five stakeholder definitions was provided by Friedman and Miles (2006). Although the oldest definition is credited to an internal memorandum produced in 1963 by the Stanford Research Institute, which is commonly considered as a seminal text of the interested parties – the classical definition (Freeman, 1984), establishes that a participant of an organization can be any group or individual that can affect or be affected by organizational results (figure 1). Avetisyan & Ferray (2013) assert that stakeholders are those who relate voluntarily, with the company and may affect it within the single framework of implicit or moral contract.

*Figure following on the next page*

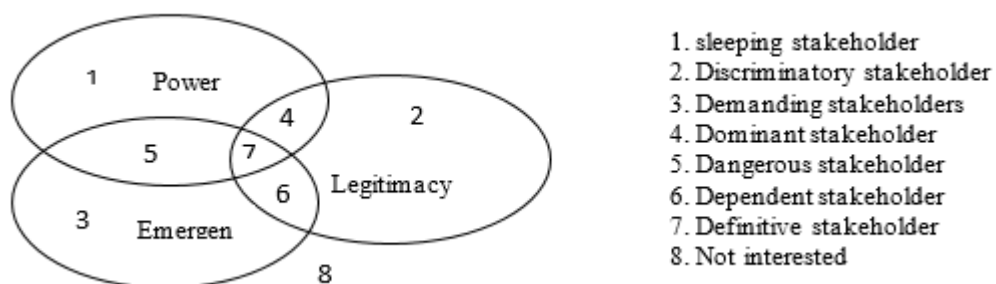
*Figure 1: Participation model*



*Source: Adapted from Freeman (1984, p.25)*

There is not much disagreement about what kind of entity can be one of the stakeholders (Mitchell et. al. (1997). Stakeholders are many groups and organizations of people who have partial responsibility to act (Bryson, 2004). People, groups, neighborhoods, organizations, institutions, societies and even the natural environment are generally thought to qualify as actual or potential actors (Mitchell et. al. (1997). However Fassin (2009) draws our attention to the fact that not always those who may affect an organization may be affected by it. Therefore among the scholars of the subject, there is no agreement on who are the interested in the company and, not, to whom their managers should pay due attention (Mitchell et. al., 1997). For this reason, the assertion of Kaler (2002), which is not expected to be a globally accepted definition, is justified. It is clear then, that this is a very contested concept. Such contestability is highly problematic for the development of theory and empirical testing; however, the solution lies not in a universal definition of stakeholders, but in discussing the limits of stakeholder identification (miles,2015). Mahoney (2012) argues that stakeholders often win substantially when the company is doing well and suffers economic losses when the company is doing badly. Mitchell et. al. (1997), in order to define the principle of who and what really matters , gave way to a stakeholder theory and based on the relevance of the interested groups that have one or more of the three attributes (figure 2) of relationship: stakeholder power to influence the company (a part of a relationship has power, to the extent that it has or can have access to coercive, utilitarian , or normative means, to impose its will on the relationship – power is transitory , which can be acquired as well as lost) , legitimacy of the stakeholder's relationship with the organization ( it is perceived right of the individual or group to request or demand from another party – it is variable instead of a state of balance and may be present or absent ) and urgency( it is the immediate need for action- it is not an attribute of stable state), that is, the degree to which the stakeholders claim the immediate call for attention by the business.

*Figure 2: Qualitative classes of stakeholders*



*Source: Adapted (Mitchell et. al., 1997, p. 872)*

Therefore, there are arguments that the focus of Mitchell and its employees was centered on how managers identify their stakeholders and how the claims of competing stakeholders are prioritized (Archeamo and vos, 2007). Subsequently, Smudde and Coutright (2011) argued that the attributes suggested by Mitchell et al. (1997) would be useful in the development of a stakeholder map so that the management knew exactly to whom it should pay attention, what interests, and in what way. Miragaia, Ferreira and Carreira (2014) sought to prove, empirically, how the stakeholders theory, especially the approach of the attributes – power, legitimacy-making by sports organizations. Organizational success is very dependent on cooperation with stakeholders (Tullberg, 2013). From what follows the board to pay close attention to the needs and wishes of these stakeholders. Table 1 presents a summary table of the qualitative classes stakeholders, their positions, ownership of attributes and three characteristics, according to the model of Mitchell et al. (1997).

*Table 1: Summary table- position, ownership and characteristics of relationship attributes*

POSITION	POSSESSION	TYPE	CHARACTERISTICS
Stakeholder relevance will be low	LATENT <i>stakeholders with only one attribute</i>	The sleeping interested party	It has the power to impose its will on a company, but because it has no legitimacy or urgency, its power remains unused. But it needs to be monitored, because at any time you can get another attribute.
		The discriminatory Interested Party	It has the attribute of legitimacy, but they have no power to influence the company and no urgent claims. They are non-profit organizations, such as schools, soup kitchens and hospitals, which receive donations and volunteer work from companies.
		The demanding Interested Party	Those with urgent demands, but without power or legitimacy, are the ones who bother - "mosquito buzzing in the ears of managers". Requires monitoring, because there is possibility and acquire another attribute.
The relevance of stakeholders will be moderate	EXPECTANT <i>stakeholders with possession of two attributes</i>	The dominant stakeholder	They are powerful and legitimate, their influence on the company is guaranteed. The expectation of this type is important for the manager.
		Dangerous stakeholder	When urgency and power characterize a <i>stakeholder</i> who lacks legitimacy, the stakeholder will be coercive and possibly violent, which generates a danger for the organization.
		Dependent stakeholder	They have no power, but they have urgent legitimate demands, they depend on others for the power necessary to carry out their will.
The relevance of stakeholders will be high	POTENTIAL <i>stakeholders with the possession of the three attributes</i>	Definitive stakeholder	Showing power and legitimacy you will already be a member of the dominant coalition of a company. With urgent claims from stakeholders, managers have a clear and immediate mandate to address and prioritize the claims of these <i>stakeholders</i> . Any expectant interested party may become one of the interested parties for the definitive acquisition of the missing attribute.

*Source: Adapted (Mitchell et al., 1997)*

The emphasis of the stakeholder theory, to date (Frooman, 1999), has been on the actors, on relationships; not on the relationships themselves. Frooman sought to investigate two questions about the strategic influences of stakeholders: (1) what are the different types of strategic influences? And (2) what are the determinants of the choice of strategic influence? If for Mitchell et al. (1997) and then also for Smudde and Coutright (2011), power has been traded has an attribute of the interested party, Frooman (1999) considered the dimension of the resources of a relationship and the power that derives from it, as an attribute of the relationship

between interested parties – and not the stakeholders themselves. As the reality is much more complex than Freeman's (1984) simplified graphical model of participation- as shown in figure 1 – Fassin (2008) analyzed some deficiencies and imperfections: heterogeneity within interest groups, multiple inclusion or double membership, difference in dependence among stakeholders, variability in relevance and impact of various stakeholders, existence of a central place within the model, multiple connections and network relationships. There is a big discussion about what kind of entity, the stakeholder theory really is. For some, there are no testable propositions, so it is not considered a theory. According to Parmar et. al. (2010) the "stakeholder theory" is like a "framework", a set of ideas from which a series of theories can be derived. There are those who perceive it has a holistic organizational function, based not only on rhetoric but also on the question of how stakeholders are created and how their relationships are maintained and improved with other stakeholders has so far neglected the reciprocity, since stakeholders can also affect the organization and not simply the stakeholders are affected by business results. Donaldson and Preston (1995), divided the theory of interested parties under three aspects: the descriptive, the instrumental and the narrative. The stakeholder descriptive perspective is to describe how organizations manage or interact with stakeholders. It describes the corporation as a constellation of cooperative and competitive interests that have intrinsic value. The theory is also instrumental in that it used to identify the connections, or lack of connections, between stakeholders, the management and achievement of traditional corporate objectives, such as profitability, growth and stability. But it is in the normative scope that is the fundamental basis of the theory, because it prescribes how organizational institutions should treat their stakeholders. To this end, it is necessary to admit that stakeholders are people or groups with legitimate interests with a business background and intrinsic value. According to Freeman (1999), what needs to be done is no longer theory that converges, but narratives, that are more divergent, and can point to different ways, more useful, to understand organizations, in terms of stakeholders. Freeman also argues that we need more instrumental theories, that is, we need more studies on the types of links postulated in the instrumental thesis, and less on the type of studies that only declare the "duties of management" of the general principles. In its current state of theoretical development, the stakeholder theory can be prejudiced from at least two directions: distortions and friendly mistakes (Phillips, Freeman & Wicks, 2003.) For these researchers some academics have sought to criticize theory based its own stylized conception of theory and its implications. Even in the face of so many divergences in the scope of whether or not it is an acceptable theoretical perspective, the investigations around the theoretical framework, developed so far, continue in various directions and applicability's. A structure was developed for understanding and measuring the effects on the organizational institution of interaction between competition, complementary and cooperation interest groups, which can be claimed to be the multiplicity of stakeholders (Neville and Menguc, 2006). Parent and Deephouse (2007), through an exploratory research, used comparative cases of two organizing committees of major sports events, when examining the identification of stakeholders and the prioritization by managers - based on the theoretical framework of Mitchell et. al. (1997) - concluded that power has the most important effect on relevance, followed by urgency and legitimacy. A combination of the framework of relevance of the stakeholders of Mitchell et. al. (1997) with the strategic performance of influence of stakeholders proposed by Freeman (1999), was used to identify the strategies that the actors try to use to increase their degree of importance in the eyes of project managers and thus influence the proposed result in global projects (Aaltone, Jaakko & Oijala, 2008). Gonçalves, Boaventura, Costa and Fischmann (2008) identified the stakeholders through interviews with professionals from the hospital sector, in the state of Sao Paulo, when they suggested a list of stakeholders to the interviewees (Table 2), with the option of including others.

*Table 2: Suggestive list of stakeholders of the hospital sector in the state of Sao Paulo*

1. pharmaceutical industry	2. Medical Equipment Industry	3. Medical and Hospital Material Industry	4. Supplementary Health
5. Research Institutions	6. Ministry of Health	7. SUS	8. Doctors
9. Patients	10. Trade Unions	11. NGOs	12. Financial Institutions
13. Press	14. Competitors	15. Associations (AHESP, AMB, ANAHP, COREN, etc.)	16. Other (please specify)

*Source: Adapted from Goncalves et.al., (2008, p.93)*

Unlike most researchers who identify stakeholders related to universities through literary assumptions, Mainardes, Alves, Raposo and Domingues (2010) when identifying the stakeholders of the eleven Portuguese Public Universities, chose to do so in an empirical way. The definition of stakeholders has been predominated solely by their generic economic function of consuming, investing, providing (Crane and Ruebottom, 2011) as if they were secondary actors who play a subservient role to the primary ones (Handelman, 2006). These categories generally ignore important functions of a reflective nature in the social sphere, in the bonds of group cohesion, in their identity and in the difference that usually form the basis for making claims in relation to the company. Much more than just suppliers, buyers or employees, stakeholders are individuals or groups with specific identities and interests (Crane and Ruebottom, 2011); they are culturally adapted social actors that present themselves to companies with a range of conflicting social and economic interests (Handelman, 2006). A border critique, to solve the problem of identification of stakeholders in the sense of what it is and who is included or excluded, is crucial (Achterkamp & Vos (2007). Through narrative research, Lafreniere, Deshpade, Bjornlund and Huntera (2013) sought to understand how actors perceive their interests in an organization and, consequently, how they decide to influence it; to this end, they used the model of Mitchell et al. (1997); as a basis to investigate stakeholders for their ability to focus on the identification, categorization and prioritization of stakeholder claims, the management of water transfer in the province of Alberta, Canada. In order for organized, non-profit institutions to succeed, their leaders need to deeply understand the complex nature that surrounds the relationships of groups interested in organizational activities (Grandy, 2013). Martins, Ferreira-da-Silva and Machado-dos-Santos (2014), through qualitative and exploratory research, sought to understand the potential association between stakeholder management and success in attracting voluntary financial contributions. To this end, they developed a comparative study, through semi-structured interviews with the presidents of the board of directors and documentary research, of two Brazilian hospital organizations, non-profit and of religious origin. When investigating two contrasting methods to categorize stakeholders (intuitive categorization and categorization based on evidence), given the information collected in the literature available between 2007 and 2012, Duggan, Farnsworth and Kraak (2013) concluded that evidence-based categorization can lead to a coherent and homogeneous categorization, minimizing the assumptions about the interests of stakeholders, because too much confidence in intuition can lead to deception. Although a rich literary framework involving the Stakeholders Theory, a systematized process for the identification of health stakeholders, in practice, does not yet exist; Schiller, Winters, Hanson and Ashe (2013) argue that this field of research can generate critical perspectives and unpublished insights on the eminent complexity of health, given the relevance of stakeholders

as a source of information. For an assessment of the extent to which stakeholders management practices actually seem to reflect the various ideal management concepts of the theoretically presented stakeholders, Trapp (2014) sought to understand the central characteristics of influence of stakeholders in strategic decision-making on social responsibility. This researcher based his assessment on the analysis of structured in-depth interviews with leaders of corporate social responsibility management in sixteen Danish industries. Strand and Freeman (2015), based on the long-standing experience of Scandinavian companies of cooperation among themselves and for their stakeholders, argue that a focus on cooperative advantage is a more accurate description of value than the creation of strategies with a focus on competitive advantage. Mitchell, Weaver, Agle, Bailey and Carlson (2015) observed that, in theory and practice, social well-being appears to be a multidimensional, pluralistic, multifaceted concept. Based on this observation, they developed a report of a company with multiple objectives, as a means to allow a wider range of management decisions, in order to allow the involvement of companies more directly in the various objectives of the various stakeholders. In investigating the interference of stakeholder relationships in the strategic design of Information Systems in South African public hospitals, Hwabamungu and Williams (2018) found that this influence involves a large and complex network of stakeholder groups at different levels and time periods. This investigation took place through semi-structured interviews, meetings and documentary analysis, and through observation. The results indicated that the cause of the dynamics of stakeholder relations and the strategic effectiveness starts from a diversified contextual condition, concomitantly, with the actions and the interaction between stakeholders

### 3. METHODS

This study takes the form of a descriptive survey consisting of a questionnaire survey, virtually sent, via monkey survey, to health professionals. Seventy-seven forms were sent to question the professionals' perception of the main groups interested in the activities of the philanthropic hospital organization and of religious origin. The objective here was to know the importance perceived by health professionals on the three relationship attributes proposed by Mitchell et. al (1997): power, legitimacy and urgency. Thus, a survey was carried out involving professionals belonging or not to the Hospitals. As a methodological technique to measure the relevance of each stakeholder, we used the Semantic Differential Scale, which according to Gil (2009, p.145) "is a technique used to measure the meaning attributed to concepts, developed by Osgood, Suci and Tannenbaum". The scale defined for use was: 1 - irrelevant; 2 - not relevant; 3 - not relevant; 4 - relevant; 5 - very relevant. For this, we suggest a list of stakeholders, defined in a previous research conducted in the hospital sector in the state of Sao Paulo (Gonçalves et. al., 2008), which was sent electronically to the respondents. The collected data were presented in a diagram (Figure 1) in the format of a wheel, where the hospital is in the center and the stakeholders at the ends of the spokes, according to the model recommended by Freeman (1984). The degree of relevance (according to the Semantic Differential Scale) was defined as being the selection of stakeholders from the clusters of much power, much legitimacy and much urgency, through the cluster analysis with the construction of dendograms by attributes and represented, in the diagram, in different formats, being the greater the ellipsis (stakeholders) and closer to the center (hospital), the more relevant is the stakeholder. The ellipses were linked with strong or weak arrows, with one or two indicative points, considering the influence relationship between each group of stakeholders and the hospital. This relationship was divided into 6 categories:

- 1 - Only influences the hospital (only a strong arrow directed to the hospital);
- 2 - More influence than is influenced by the hospital (two arrows: a strong arrow directed to the hospital and another weak arrow directed to the interested party);

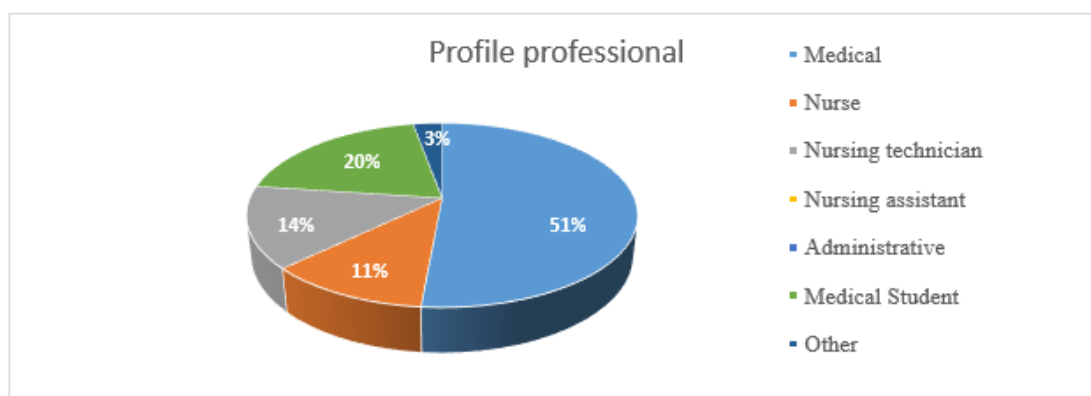
- 3 - Influence and is influenced by the hospital in a balanced way (only one strong arrow with the two indicative points);
- 4 - It is more influenced than it influences the hospital (two arrows: a strong arrow directed to the interested party and another weak arrow directed to the hospital);
- 5 - It is only influenced by the hospital (only a strong arrow directed to the interested party);
- 6 - Does not influence and is not influenced by the hospital (only a straight line without indicative tips); and
- 7 - Does not know how to answer.

To define the category of influence ratio we used, as a criterion, the category with the highest percentage indicated by the respondents. For this purpose, we use the Microsoft spreadsheet, Excel. It was also used for the analysis of the three attributes of relationships proposed by Mitchell et. al. (1997) - the power, legitimacy and urgency - the software Past for statistical treatment and cluster analysis The scale used in the investigative inquiry instrument was: without power, little power, medium power, much power and does not know how to respond (the same for legitimacy and urgency).

#### 4. RESULTS

Using the survey monkey tool, 87 survey questionnaires were sent by e-mail to health professionals chosen at random. The idea was to promote an analysis of the importance perceived by respondents regarding the three attributes of relationship, proposed by Mitchell et. al (1997): power, legitimacy and urgency. Thirty-five answers were obtained, representing 40% of the total number of questionnaires sent, being 60% male and 40% female professionals. The profile of the respondents, shown graphically, according to Figure 3, shows more than half of the physicians.

*Figure 3: Professional profile*



*Source: Produced by the main author*

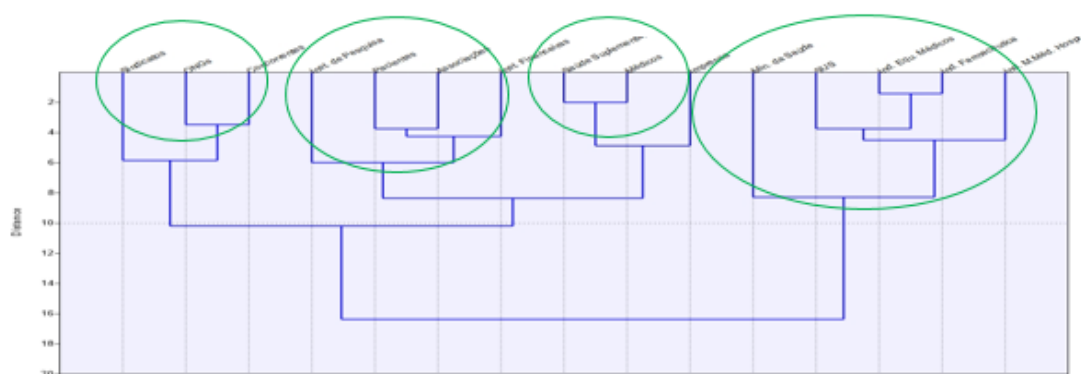
After using the instrument, via monkey survey, we transported the Graph data Area to the Microsoft Excel spreadsheet, where we found that the highest degree of relevance of the main stakeholder groups was classified as follows: Patients (83%), Physician (77%), Ministry of Health (57%), Unified Health —SysteEk - SUS (54%), Medical and Hospital Material Industry (49%), Medical Equipment Industry (46%) and Pharmaceutical Industry (37%). The relationship of influence with the highest percentage highlighted, according to the respondents beyond the borders of the hospitals surveyed, were only three categories thus distributed:

- More influence than is influenced by the hospital: Ministry of Health (43%) SUS (31%).

- It influences and is influenced by the hospital in a balanced way: Doctors (54%), Medical Equipment Industry (43%), Medical and Hospital Material Industry (43%), Research Institutions (40%) and Pharmaceutical Industry (37%).
- More influenced than influenced the hospital: Patient (43%).

The interested groups that the respondents in this phase, had greater difficulty in identifying the relationship of influence with the hospital were as follows: NGOs (23%), Trade Unions (14%), Competitors (11%) and Press (9%). The dendrogram, as shown in Figure 4, presents the grouping of 15 stakeholders per degree of power and highlights 5 stakeholders with greater degree of power: Ministry of Health, SUS, Pharmaceutical Industry, Industry of Medical Equipment and Industry of Medical "Material-Hospitalar". At the other extreme, there is another highlight that concerns 3 interested groups that do not have any degree of power: Unions, NGOs and Competitors. It is also evident, 4 stakeholders with little degree of power: Research Institutes, Patients, Associations and Financial Institutions; and 3 stakeholders with medium degree of power: Supplementary Health, Physicians and Press.

*Figure 4: Grouping diagram of the 15 stakeholders by degree of power*

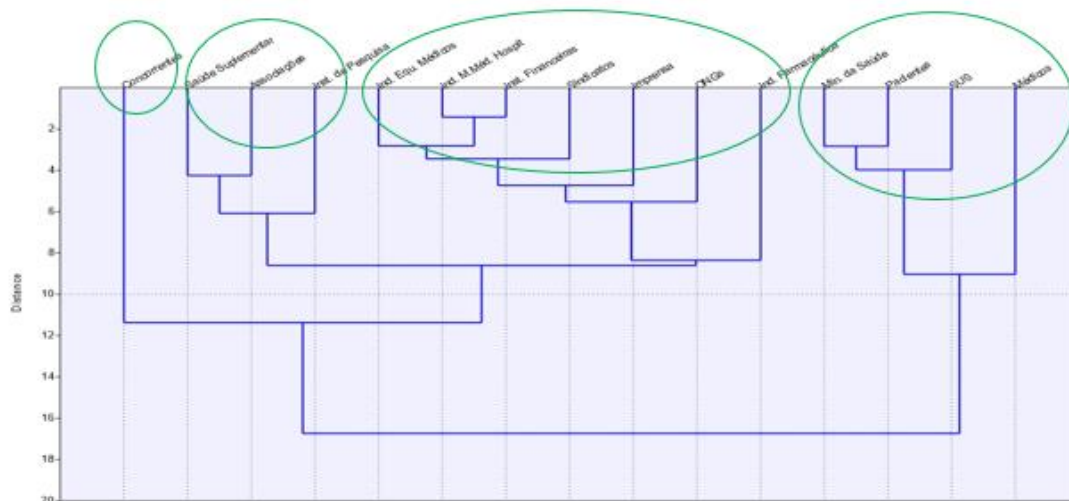


*Source: Produced by the main author*

The dendrogram, as shown in Figure 5, presents the grouping of 15 stakeholders by degree of legitimacy and highlights 4 stakeholders with higher degree of legitimacy: Ministry of Health, SUS, Physicians and Patients. At the other extreme, there is another highlight that concerns only one interested party that does not have any degree of legitimacy: competitors. With little legitimacy, the dendrogram presents 3 stakeholders: Supplementary Health, Associations and Research Institutions; and 7 are the stakeholders with medium legitimacy: Medical Equipment Industry, Medical Material Industry, Financial Institutions, Unions, Press and NGOs.

*Figure following on te next page*

Figure 5: Grouping diagram of the 15 stakeholders by degree of legitimacy



Source: Produced by the main author

The dendrogram presents the grouping of 15 stakeholders per degree of urgency and highlights 4 stakeholders with higher degree of this attribute: Ministry of Health, SUS, Physicians and Patients. At the other extreme, there is another highlight that concerns only 1 group of interested parties that does not have any degree of urgency: competitors. With little urgency, the dendrogram presents 7 stakeholders: Medical Equipment Industry, Hospital Material Industry, Supplementary Health, Financial Institutions, Research Institutions, Associations and Press; and 3 groups of stakeholders with medium urgency: Trade Unions, NGOs and Pharmaceutical Industry. The construction of the grouping dendograms, by attribute (power, legitimacy and urgency), enabled us to produce the analysis of the classes of interested groups that results from various combinations of these attributes, as shown in Table 3. The criterion used to identify the classes of stakeholders proposed by Mitchell et. al (1997) was defined as being the selection of stakeholders from the clusters of much power, much legitimacy and much urgency. Thus, according to the criteria established in the Methods (section 2). Those stakeholder groups that were classified into medium, low and powerless. Legitimacy or urgency clusters were not selected as relevant stakeholders. Thus, only 7 of the 15 stakeholders suggested in the list were selected.

Table 3: Stakeholders selection by group

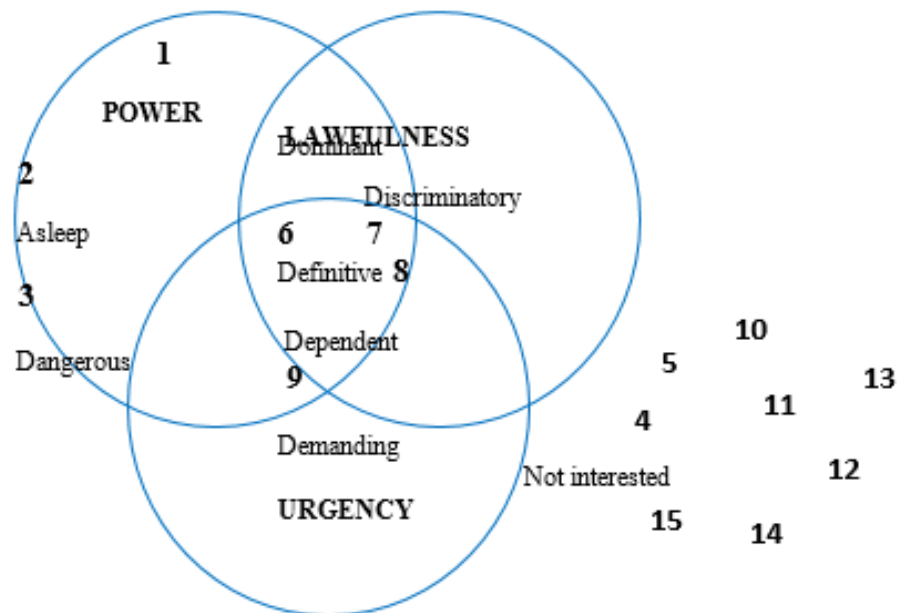
Stakeholder	Power	Legitimacy	Urgency	Type
1 – Pharmaceutical Industry	X			Asleep
2 – Medical Equipment Industry	X			Asleep
3 – Medical and Hospital Material Industry	X			Asleep
6 – Ministry of Health	X	X	X	Definitive
7 – SUS	X	X	X	Definitive
8 – Doctors		X	X	Dependent
9 – Patients		X	X	Dependent

Source: Dendograms built by the authors

Figure 6 presents the representative diagram of the qualitative classes of stakeholders, based on the data in Table 3, which highlights stakeholders 1, 2 and 3 (Pharmaceutical Industry, Medical Equipment Industry and Medical Material Industry - Hospital) as sleeping stakeholders, because they have only the power attribute: stakeholders 8 and 9 (Physicians and Patients) as dependents because they have the attributes of legitimacy and urgency: and those of numbers 6

and 7 (Ministry of Health and SUS) as the definitive. Stakeholders, because they have the three attributes: power, legitimacy and urgency. This illustration also presents, based on the data in Table 2, eight groups that were not considered as interested because they did not have one of the attributes according to Table 3.

*Figure 6: Qualitative class of stakeholders based on groupings*

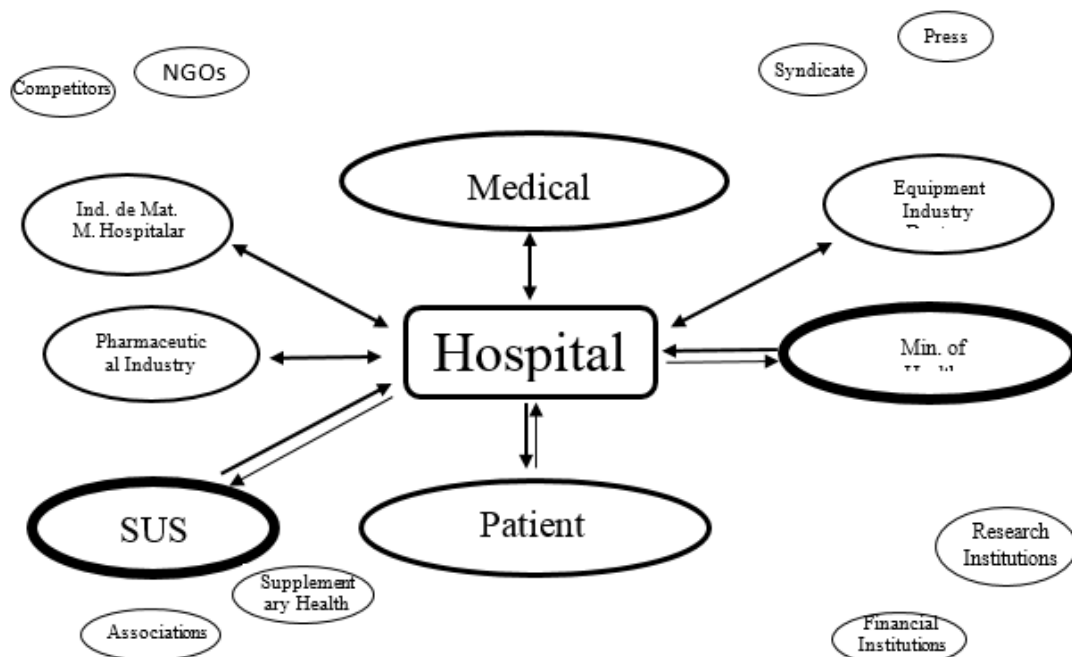


*Source: Data from tables 2 and 3*

The results obtained so far enabled the construction of a representative diagram presenting the stakeholder map (Figure 7), where we consider only the relevant stakeholders, indicated by the cluster analysis, according to the criteria previously established in section 2, entitled Methods. On the map, it is evident the distinction between stakeholder groups in terms of related attributes: the more the line of the ellipse is spaced, the greater the number of attributes that the interested party has. Another evidence shown in this map is related to the links between the interested groups and the hospital organization, which, on the other hand, although not considered, the other groups on the suggestive list also appear represented in isolation, i.e., with no connection to the hospital.

*Figure following on the next page*

Figure 7: Diagram – Stakeholder map under cluster analysis



Source: Produced by the main author

## 5. CONCLUSIONS

Regarding the degree of relevance of the interested groups, this research offers, therefore, evidence that while Doctors, Patients, Ministry of Health, SUS and the Hospital Medical, Medical Equipment and Pharmaceutical Industries, are seen as the main interested parties by health professionals, to whom a philanthropic hospital should be responsible, the relevance of charitable donors is questionable. In the survey form there was a space for the suggestion of other stakeholders, where we expected the inclusion, by the participants, of collaborating companies, municipal governments of neighbouring cities, religious communities and class institutions, as examples. These results are viewed with surprise, since these hospitals are highly dependent on donors, specifically because of social legitimation. By using the attributes suggested by Mitchell et. al (1997) - power, legitimacy and urgency - through cluster analysis, we found that only the Ministry of Health and the SUS are the stakeholders classified as the definitive stakeholders, that is, classified by the respondents with much power, much urgency and much legitimacy, as demonstrated in Figure 6. Another finding, no less important, is that the stakeholders Supplementary Health, Research Institutions, Trade Unions, NGOs, Financial Institutions, Press, Competitors and Associations do not make up any of the three clusters of much power, urgency and legitimacy, and that, according to our criteria, were not considered relevant stakeholders. Thus, the reason why these 8 interest groups appear discreetly on the map represented in Figure 7, where there are no lines of connection between these stakeholders (without relevance) and the hospital organization, is justified. Six categories were considered to portray the influence relationship between each stakeholder group and the hospital. However, only three categories portraying the relationship of influence between stakeholders and the hospital organization stood out. The first category to be highlighted was "More influence than is influenced by the hospital", represented on the map (Figure 7) with a strong arrow directed to the hospital and another weak arrow directed to the following groups of stakeholders: Ministry of Health (43%) and SUS (31%). It was these two stakeholders that were related to the three attributes - much power, much urgency and much legitimacy - being called the definitive stakeholders.

The second category with emphasis was the "Influence and is influenced by the hospital in a balanced way" represented on the map with a strong arrow with both ends directed, one to the hospital and another to the following stakeholders: Physicians (54%), Medical Equipment Industry (43%), Hospital Material Industry (43%), Research Institutions (40%) and Pharmaceutical Industry (37%). The stakeholders called Physicians were related to the attributes of great urgency and great legitimacy, which resulted in the classification of dependent stakeholder (Figure 6). The others, with the exception of the Research Institutions group - which was not related to any of the attributes of much power, much urgency or much legitimacy (not being classified as relevant stakeholder) - were related only to the attribute of much power, being classified as sleeping stakeholders. The third category highlighted was "More influenced than influences the hospital", represented on the map with two arrows, one weak directed to the hospital and the other strong arrow directed to the interested patient (43%). This stakeholder was related to two attributes: of great urgency and great legitimacy: which led to their classification as dependent stakeholders, such as Physicians. Another finding, no less relevant, is that the respondents who had difficulty in identifying the category that portrays the influence between the stakeholder groups and the hospital organization was on average 6%. We highlight four stakeholders, in which the difficulty was above average: NGOs (23%), Unions (14%), Competitors (11%) and Press (9%). We believe that the influence of the press on the hospital is relevant, especially through the information generated to society. However, it was not the reality verified through the numbers of the research. In addition, it is also important to emphasize, once again, the absence of donors that seems to us to directly influence this type of hospital, whose main characteristic is the fact of being philanthropic. Not to mention the religious character of the origin of these health institutions, which would be natural to find a direct relationship of influence of the religious communities over them, and which were not even suggested by any respondent. This research is based on a sample that cannot be considered representative and, therefore, any generalization of the conclusions should be made with great care. In addition, it focuses only on the perceptions of researched health care professionals and therefore analyses only one of the stakeholders, and much more is needed to obtain a complete and effectively representative matrix of stakeholders in hospital organizations. However, this paper provides new insights into the identification of stakeholder groups with respect to Brazilian philanthropic hospitals of religious origin. It also explores the main opportunities and major challenges in stakeholder management. Thus, a motivational environment is created for a more robust and in-depth study, with a larger sample involving the opinion of other important groups interested in hospital institutions.

## LITERATURE:

1. Aaltone, K.; Jaakko, K.; & Tuomas, O. (2008). Stakeholder salience in global projects. *International Journal of Project Management*, 26, 509-516.
2. Achterkamp, M. C. & Vos, F. J. (2007). Critically Identifying Stakeholders: Evaluating boundary critique as a vehicle for stakeholder identification. *Systems Research and Behavioral Science*, 24, 3-14.
3. Ackermann, Fran & Eden, Colin. (2011). Strategic Management of Stakeholders: Theory and Practice. *Long Range Planning*, 44, 179-196.
4. Avetisyan, E. & Ferrary, M. (2013). Dynamics of Stakeholders' Implications in the Institutionalization of the CSR Field in France and in the United States. *J Bus Ethics*, 115, 115-133.
5. Brugha, R. & Varvasovszky, Z. (2000). Stakeholder analysis: a review. *Health Policy and Planning*, 15 (3), 239-246.
6. Bryson, J. M. (2004). What to do when Stakeholders matter: Stakeholder identification and Analysis Techniques. *Public Management Review*, 6 (1), 21-53.

7. Chandler, D., & Werther, W. B., Jr. (2014). Strategic corporate social responsibility: Stakeholders, globalization and sustainable value creation. Thousand Oaks: SAGE Publications
8. Crane, A. & Ruebottom, T. (2011). Stakeholder Theory and Social Identity: Rethinking Stakeholder Identification. *J Bus Ethics*, 102, 77-87.
9. Donaldson, T. e Preston, L. (1995). "The stakeholder theory of the corporation: concepts, evidence and implications", *Academy of Management Review*, vol. 20, n° 1, pp. 65-91.
10. Duggan, D. E.; Farnsworth, K. D.; & Kraak, S. B. M. (2013). Identifying functional stakeholder clusters to maximize communication for the ecosystem approach to fisheries management. *Marine Policy*, 42, 56-67.
11. Eskerod, P., & Larsen, T. (2018). Advancing project stakeholder analysis by the concept 'shadows of the context'. *International Journal of Project Management*, 36(1), 161-169.
12. Fassin, Y. (2008). Imperfections and shortcomings of the stakeholder model's graphical representation. *Journal of Business Ethics*, 80(4), 879–888. doi: 10.1007/s10551007-9474-5
13. Fassin, Y. (2009). The stakeholder model refined. *Journal of Business Ethics*, 84, (1), 113-135.
14. Fassin, Y. (2012). Stakeholder Management, Reciprocity and Stakeholder Responsibility. *Journal of Business Ethics*, 109(1), 83-96. doi: 10.1007/s10551-012-1381-8
15. Freeman, R. E. (1984). *Strategic management: a stakeholders approach*. Boston: Pitman.
16. Freeman, R. E. (1999). Divergent stakeholder theory. *Academy of Management Review*, 24(2), 233–236.
17. Friedman A. L.; & Miles S. (2006). *Stakeholders: theory and practice*. Oxford: Oxford University Press.
18. Frooman, J. (1999). Stakeholders influence strategies. *Academy of Management Review*, 24 (2), 191-205
19. Gambeta, E., Koka, B. R., & Hoskisson, R. E. (2019). Being too good for your own good: A stakeholder perspective on the differential effect of firm-employee relationships on innovation search. *Strategic Management Journal*, 40(1), 108-126.
20. Gil, A. C. (2009). *Métodos e técnicas de pesquisa social*. (6a ed.). São Paulo: Atlas.
21. Gonçalves, P. C.; Boaventura, J. M. G.; Costa B. K. & Fischmann, A. A. (2008). Stakeholders na atividade hospitalar: uma investigação setorial no Estado de São Paulo. *Revista de Administração FACES*, 7(2), 84-101.
22. Grandy, G. (2013). An exploratory study of strategic leadership in churches. *Leadership & Organization Development Journal*, 34 (7), 616 - 638
23. Handelman, J. M. (2006). Corporate identity and the societal constituent. *Journal of the Academy of Marketing Science*, 34 (2), 107–114.
24. Hwabamungu, B., Brown, I., & Williams, Q. (2018). Stakeholder influence in public sector information systems strategy implementation—The case of public hospitals in South Africa. *International journal of medical informatics*, 109, 39-48.
25. Jones, T. M., Harrison, J. S., & Felps, W. (2018). How applying instrumental stakeholder theory can provide sustainable competitive advantage. *Academy of Management Review*, 43(3), 371-391.
26. Kaler, J. (2002). Morality and Strategy in Stakeholder Identification. *Journal of Business Ethics*, 39, 91–99.
27. Lafreniere, K. C.; Deshpade, S.; Bjornlund, H.; & Huntera, M. (2013). Extending stakeholder theory to promote resource management initiatives to key stakeholders: A case study of water transfers in Alberta, Canada. *Journal of Environmental Management*, 129, 81 - 91.

28. Lyra, M. G.; Gomes, R. C.; & Jacovine, L. A. G. (2009). O papel dos stakeholders na sustentabilidade da empresa: contribuições para construção de um modelo de análise. *Revista de Administração Contemporânea (RAC)*, 13 (Edição Especial), 39-52.
29. Mahoney, J. T. 2012. *Towards a stakeholder theory of strategic management*. Working Paper, University of Illinois at Urbana-Champaign.
30. Mainardes, E. W. (2010). *Gestão de Universidades Baseada no Relacionamento com os seus Stakeholders* (Tese de Doutoramento). Universidade da Beira Interior, Covilhã, Portugal.
31. Mainardes, E. W., Alves, H., Raposo, M. & Domingues, M. J. (2010). Categorização por Importância dos Stakeholders das Universidades. *Revista Ibero-Americana de Estratégia - RIAE*, São Paulo, 9 (3), 04-43
32. Martins, F. A., Ferreira-da-Silva, A., & Machado-Santos, C. (2014). Gestão dos Stakeholders na Captação de Recursos nos Hospitais Filantrópicos e Religiosos. *Revista de Administração Contemporânea*, 18(SPE), 65-85.
33. McHugh, P., Domegan, C., & Duane, S. (2018). Protocols for stakeholder participation in social marketing systems. *Social Marketing Quarterly*, 24(3), 164-193.
34. Miles, S. (2015). Stakeholder theory classification: a theoretical and empirical evaluation of definitions. *Journal of Business Ethics*, 1-23.
35. Miragaia, D. A. M.; Ferreira, J.; & Carreira, A. (2014). Do stakeholders matter in strategic decision making of a sports organization? *Revista de Administração de Empresa (RAE)*, 54 (6), 647-658.
36. Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review*, 22, 853-886.
37. Mitchell, R., Weaver, G., Agle, B., Bailey, A., & Carlson, J. (2015). Stakeholder agency and social welfare: Pluralism and decision making in the multi-objective corporation. *Academy of Management Review*, amr-2013.
38. Neville, B. A.; & Menguc B. (2006). Stakeholder Multiplicity: Toward an Understanding of the Interactions between Stakeholders. *Journal of Business Ethics*, 66, 377–391.
39. Nguyen, T. H. D., Chileshe, N., Rameezdeen, R., & Wood, A. (2019). External stakeholder strategic actions in projects: A multi-case study. *International Journal of Project Management*, 37(1), 176-191.
40. Parent, M. M.; & Deephouse, D. L. (2007). A Case Study of Stakeholder Identification and Prioritization by Managers. *Journal of Business Ethics*, 75, 1 – 23.
41. Parmar, B.L; Freeman, R. E.; Harrison, JS ; Wicks, AC ; Purnell, L ; de Colle, S. (2010). Stakeholder theory: the state of the art. *Academy Of Management Annals*, 4(1), 403-445. doi: 10.1080/19416520.2010.495581
42. Pérez-Durán, I. (2019). Political and stakeholder's ties in European Union agencies. *Journal of European Public Policy*, 26(1), 1-22.
43. Phillips, R., Freeman, R. E. & Wicks, A. (2003). What stakeholder theory is not. *Business Ethics Quarterly*, 13(4), 479–502.
44. Raum, S. (2018). A framework for integrating systematic stakeholder analysis in ecosystem services research: Stakeholder mapping for forest ecosystem services in the UK. *Ecosystem services*, 29, 170-184.
45. Schiller, C.; Winters, M.; Hanson, H. M.; & Ashe, M. (2013). A framework for stakeholder identification in concept mapping and health research: a novel process and its application to older adult mobility and the built environment. *BMC Public Health*, 13, 428.
46. Sinha, L. N., Ali, A., Lohra, A., Bhandari, A., & Fatima, S. (2018). A roadmap to improve health care services in Jodhpur city slum through resource mapping. *Indian Journal of Community Health*, 30(1), 96-102.

47. Smudde, P. M.; Courtright, J. L. (2011). A holistic approach to stakeholder management: A rhetorical foundation. *Public Relations Review*, 37 (2), 137-144.
48. Strand, R., & Freeman, R. E. (2015). Scandinavian cooperative advantage: The theory and practice of stakeholder engagement in Scandinavia. *Journal of Business Ethics*, 127(1), 65-85.
49. Trapp, N. L. (2014). Stakeholder involvement in CSR strategy-making? Clues from sixteen Danish companies. *Public Relations Review*, 40, 42– 49.
50. Tullberg, J. (2013). Stakeholder theory: Some revisionist suggestions. *The Journal of Socio-Economics*, 42, 127–135.
51. Vos, Janita F. J. (2003). Corporate social responsibility and the identification of stakeholders. *Corporate Social Responsibility and Environmental Management*, 10, 141–152.

