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**Article**

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# Understanding Customer-Vendor Power Relations as a Driver to a Successful Implementation of Enterprise Resource Planning in Tanzania Manufacturing Industry

**Victor G. Wilson[1], Tumsifu E. Thomas[2], and Ulingeta O.L. Mbamba[3]**

## ABSTRACT
*Enterprise resource planning (ERP) systems contribute much to supporting manufacturing operations. Upon implementation, the manufacturing firms rely on the interactions with ERP system vendors to support and maintain this complex system. This study assesses the influence of customer-vendor power relations that help in strengthening the long-term relationship while resolving conflict of interest based on ERP fit. The study employs the power transition framework (PTF) and strategic alignment model (SAM) to explain the key driving factors of ERP implementation success. To this end, this paper develops and verifies a model in which customer-vendor power relations and ERP fit serve as the key driving factor and mediator of the manufacturer's ERP implementation success, respectively. A cross-section survey was conducted in manufacturing organizations in Tanzania, with a total of 217 questionnaires collected. The data collected were analyzed using PLS-SEM assisted by smartpls3.0. The results suggest that higher levels of customer-vendor power relations positively influence ERP fit and Implementation success; meanwhile, the higher levels of ERP fit positively influence implementation success. It was also found that ERP fit has a partial mediation effect on the relationship between the customer-vendor power relations and ERP implementation success positively. The study has a theoretical contribution by combining the SAM and PTF to explain the ERP implementation success in the collaborative networks where actors engage in a long-term relationship. However, the study was biased to include only ERP customers as key informants in the customer-vendor relationship.*

***Key words**: ERP Fit, Power Relations, ERP Implementation Success, Manufacturing Industry*

## INTRODUCTION
The business environment in the 21st century is highly composed of solid competition, resulting in the automation of the manufacturing industry to optimize operations (PCG, 2020). Demand for automation has increased the need for manufacturing comprehensive information systems such as enterprise resource planning (ERP) (Raut, Gardas, Narkhede, & Narwane, 2019). With ERP systems, manufacturing industries optimize their order and inventory management, minimize transaction costs, increase their flexibility in handling customers and suppliers, and become more profitable with higher levels of satisfied customers (Cheng, 2020). However, ERP implementations have high failure rates (Ali & Miller, 2017; Mahmood, Khan, & Bokhari, 2020; Garg & Garg, 2013). Reports indicate that most ERP implementation projects take longer than the scheduled timeframe, exceed the planned budget, and realize less than 50% of expected profits (PCG, 2020). Studies argue that the inability of the manufacturing industry to achieve a fit between

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the ERP standard functionalities and their actual requirement is one of the most explanations of the high failure rate (Garg and Gard (2013); Ali & Miller, (2017); Cheng, (2020); Mamoghli, Goepp, & Botta-Genoulaz (2017). Accordingly, manufacturing organizations need to understand the system implementation from customer-vendor perspectives to analyze the ERP fit-gap that influences implementation success. Indeed, the strategic alignment model (SAM) provides the basis for understanding the ERP fit through providing the fit-gap analysis to attain an information systems success (Venkatraman, 1989).

This paper examines the critical driving factors (CDFs) for ERP implementation success from the perspective of ERP vendors. The paper examines ERP implementation in manufacturing organizations in developing countries in particular. CDFs are factors or characteristics that are believed to substantially impact the success rates of ERP systems (Finney & Corbett, 2007). Although prior research has revealed ERP CDFs, most notably in the service sector (Saygili, Ozturkoglu, & Kocakulah, 2017; Shatat, 2015), studies focusing exclusively on the industrial sector are scarce (Ranjan, Jha, & Pal, 2018). Studies indicate differences in expectations of ERP implementations in service and manufacturing sectors (Weerakkody, El-Haddadeh, Sivarajah, Omar, & Molnar, 2019). A good number of researches in ERP implementation focus the customer attributes (Bansal & Agarwal, 2015; Reitsma & Hilletofth, 2018; Saygili, Ozturkoglu, & Kocakulah, 2017), the vendor perspective has been largely ignored in ERP implementations research (Garg & Garg, 2013; Van Wart, Roman, Wang, & Liu, 2017; Claybaugh, Haried, Chen, & Chen, 2021). On the other hand, vendors are critical for implementing ERP systems in industrial organizations, owing to the intricacy involved (Chang, Wang, Jiang, & Klein, 2013; Weerakkody et al., 2019). Additionally, most manufacturing clients in developing countries rely exclusively on multinational ERP vendors, which present unique challenges (Baykasoğlu & Gölcük, 2017). This paper takes the customer and vendor perspective in explaining drivers influencing ERP implementation success in the manufacturing industry.

Dezdar and Sulaiman (2009) reviewed the research published between 1999 and 2008 on the CDFs of ERP systems and came up with a taxonomy comprising 17 factors, more than 70% of which were consistent with the work of Finney and Corbett (2007). Ram, Corkindale, and Wu (2015) reviewed the cumulative CDFs of ERP systems in the literature to categorize the factors identified prior to, during, and after the implementation of ERP systems. Wijaya, Prabowo, and Kosala (2017) identified six organizational CDFs through a comprehensive assessment of ERP CDFs literature published between 2005 and 2016. A thorough assessment of ERP CDF literature published between 2006 and 2016 identified six primary CDFs: culture, communication and change management, infrastructure, business process reengineering management, training and education, project management, and project team management (Mahraz, Benabbou, & Berrado, 2020). The studies, as mentioned earlier, conducted meta-analyses of the literature on ERP system implementation in order to compile complete lists of CDFs for researchers. However, Dezdar and Sulaiman (2009) discovered that the majority of study on the CDFs of ERP systems has concentrated on the customer perspective. In contrast, Vargas and Comuzzi (2020) emphasized the critical nature of identifying CDFs while taking contextual factors such as power relations between the ERP customer and vendor. As a contribution to ERP CDFs, this paper introduces the power transition framework (PTF) approach to better understand the relationship between ERP customer-vendor power relations and ERP fit as well as the implementation success (Avelino & Rotmans, 2011; Turner, et al., 2020; Chang, et al., 2013). Thus, this paper tackles this under-researched but critical research gap. Thus, this paper aims to address a research gap related to the customer-vendor power relations and ERP fit, a gap that has not been fully addressed in previous research in the setting of ERP implementation.

The implementation of ERP-packed software in the manufacturing industry aims at improving efficiency and effectiveness in operations (Hong, Siau, & Kim, 2016). Generally, ERP systems are complex and large in scope, creating challenges in managing their implementation (Hong et al., 2016; Althonayan & Althonayan, 2017; Kang, Park, & Yang, 2008; Davenport, 1998). The challenges result in the manufacturing industry realizes over-expected resources use, scheduled time, and cost allocated in ERP implementation projects. These trends have been reported over the years (Venkatraman & Fahd, 2016; Fryling, 2015). Furthermore, engineering pre-packaged software to fit the implementation and post-implementation phase cannot consistently achieve 100% success (Grabis, 2019; Hong et al., 2016). Thus, effective management of both business processes and software functionalities referred hereto as ERP fit is inevitable. ERP fit is the alteration of the pre-packaged software to resolve the functionality gap between embedded processes in the software and existing business process in the manufacturing industry (Mamoghli et al., 2017). ERP fit is typically not in favor with ERP vendor whose interest is a perfect generic solution to a broad market, while ERP implementing organization desires unique business solutions. Hence a conflict of interest causes instabilities and difficulties in managing the system (Chang, Wang, Jiang, & Klein, 2013; Swan, Newell, & Robertson, 1999; Fryling, 2015; Hong & Kim, 2002).

Principally, ERP implementing manufacturer goes in a long-term relationship with ERP vendor (Al-Sabri, Al-Mashari, & Chikh, 2018) with the reason that, the ERP system average lifespan is reasonably from 10 to 15 years (Claybaugh, Haried, Chen, & Chen, 2021; Al-Sabri, et al., 2018). Thus, software upgrades and functionalities depending on the Vendor because ERP systems are embedded with best-practice solutions designed in advance to fit a broad range of manufacturing needs (Fischer, Heim, Janiesch, & Winkelmann, 2017; Chang et al., 2013; Swan, et al., 1999). These best practices result from Vendors collaborating with the leading ERP customer requirement and thus do not reflect the majority of the customers with specific needs in the manufacturing industry (Summer, 2009; Zhou, Collier, & Wilson, 2008). Moreover, ERP implementation philosophy is process-based rather than function-based; its success requires managing a series of activities than just a software installation effort (Volkoff, Strong, & Elmes, 2014, 2017). These activities demand high levels of enterprise power in resolving conflict of interest among the actors, which can be manifested through the power relations gained between the actors (Sørensen, 2014). These actors may include the information technology (IT) managers and & some business personnel, and external actors may include IT consultants, implementation partners, and ERP vendors (Alkraiji, et al., 2020). The growing need for ERP systems software has been a means to connect and motivate multiple actors seeking a common goal, shape new long-term relationships and potential pathways to change the existing role perceptions of ERP customer-vendor relationship (Esparcia, Escribano, & Serrano, 2015; Choksy, 2015; Rossi et al., 2019).

Studies indicate the value of interacting with dominant actors in the business industry when a potential ERP vendor is promoting a complex business solution like ERP which address challenges, in managing manufacturing inventory, sales, human resource, and finance (Eidt, Pant, & Hickey, 2020; Esparcia, et al., 2015; Chang, et al., 2013; Kang, et al., 2008; Rossi & Marsden, 2019). When actors are brought together, there is a high possibility of manifesting power towards a change in the existing roles in their relationship (Claybaugh, et al., 2021; Avelino & Wittmayer, 2016; Eidt, et al., 2020). The meeting of the actors creates room for parties to resolve conflicts of interest resulting from their differences in their role perceptions related to existing best practices in packaged software solutions (Sørensen, 2014; Rossi et al., 2019). Seldom, these conflicts are made explicit because the existing power relations influence the dynamics of interactions among actors, scope, joint learning, and conflicts resolution (Turner, et al., 2020; Esparcia, et al., 2015; Sørensen, 2014; Eidt et al., 2020; Rossi et al., 2019). Admittedly, there is a lack of research that theoretically examines the influence of power relations in minimizing the conflict of interest in ERP customer-vendor relationship to likely influence higher levels of ERP fit in the business enterprise and its implementation success. Except for the few case studies like in the software industry (Choksy, 2015), innovation platforms (Turner, et al., 2020), and international business (Lee & Gereffi, 2015). Thus, this paper extends knowledge in ERP implementation through understanding how power relations among actors influence the ERP fit and its implementation success.

*ERP system and manufacturing industry*

There have been critics of manufacturing legacy systems for lacking integration of functions across units. Legacy systems process the same information multiple times at different places, resulting in difficulties in getting real-time information (Baykasoğlu & Gölcük, 2017; Davenport, 1998). When the legacy systems were developed, the manufacturing industry was defined with narrow tasks and processes. Information was regarded as a local good, creating information asymmetries across units and functional groups. With the introduction of ERP in the manufacturing industry, such challenges were resolved through implementing the standard, manufacturing-wide processes, and databases (Ghobakhloo, 2018; Volkoff, Strong, & Elmes, 2017). The nature of ERP systems was then developed to encourage manufacturing industries to set standardizations in their operations and business processes because ERP systems are based on the best way of doing a process (Chang, et al., 2013; Swan, et al., 1999).

Scholars vary in their definition and scope of ERP systems. For example, according to Davenport (1998), an ERP system is “a set of applications designed to bring business functions into balance”. Kang, et al. (2008) argued that ERP refers to system software that integrates data from inventory sales, finance, and human resources to efficiently determine product prices, prepare financial statements and manage resources like raw materials, human, and finances. Volkoff, et al. (2017) referred to an ERP system as software package integrating information and information-processing processes across functions in a business firm. This study takes a generic look, including the aspects of ERP provided by previous scholars to refer ERP system software to a set of applications that integrate, support operations, and manage efficiently to optimize the manufacturing resources in a competitive business environment.

## THEORY AND HYPOTHESIS

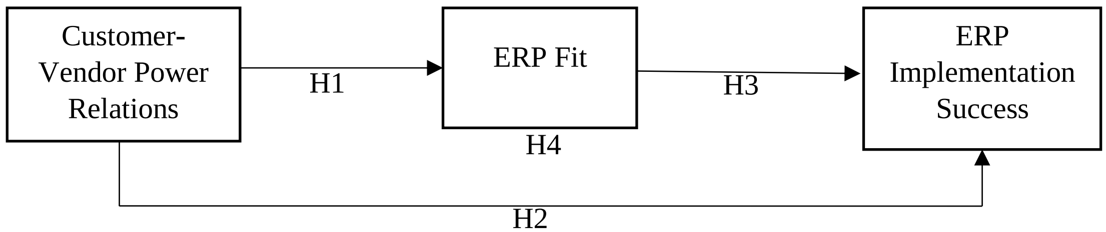
*Enterprise Resource Planning Fit*

Enterprise resource planning fit (ERPFIT) is well addressed through the lens of the strategic alignment model (SAM). The SAM is an attempt to refine the range of strategic choices managers confronts in order to achieve strategic alignment. Further SAM model also attempts to investigate the relationships between these choices to influence management practices (Henderson and Venkatraman 1989). The choices are segmented into business and information technology domains and capture both external and internal levels. The SAM model makes a clear separation between the exterior and internal levels of information technology (Ahriz, Benmoussa, El Yamami, Mansouri, & Qbadou, 2018). Thus, SAM lifts information technology beyond its conventional position as an internal support mechanism and recognizes its capacity to support and modify business processes to attain desired organization goals (Millet, Schmitt, & Botta-Genoulaz, 2009). This process is intriguing because it draws attention to the domains that play a strategic role in alignment. The relationship between the choices is conceptualized using two building blocks: strategic fit and functional integration. These building blocks enable the analysis of the interactions between the choices that must be made in order to achieve strategic alignment (Goepp & Avila, 2015). However, the SAM model remains very conceptual and thus difficult to use in its current form. Additionally, the SAM model states that a business firm's information system success results from a better fit between its business and information systems strategy, organization, and infrastructure (Venkatraman & Fahd, 2016; Swan et al., 1999). By examining these four components of the SAM, this paper focuses on the model's organizational and information system infrastructure components. Under the SAM model, ERP fit refers to a situation in which the manufacturing industry's ERP system software features are appropriately aligned with its business processes to ensure ERP solutions' success (Claybaugh, et al., 2021).

Additionally, researchers have devoted their time exploiting and expanding the SAM for decades to enhance its utility. This paper investigated three distinct research streams. As in Avison, Jones, Powell, and Wilson (2004), Luftman (1996), and Luftman, Lewis, and Oldach (1993), the first stream operationalizes the SAM by directing its usage by top management. The model's structure is not altered; instead, techniques are proposed to leverage the model. These processes, however, remain highly macroscopic. The second research stream focuses on expanding the model's domains, levels, or dimensions. This holds true for Campbell, Kay, and Avison (2005) and Goepp and Millet (2011). The addition of domains and dimensions enables explicit consideration of them. However, these studies do not include procedures for utilizing the newly developed model. The third and final research stream focuses on applying the SAM and its philosophy to specific fields, such as inter-organizational alignment in Neubert, Dominguez, and Ageron (2011), or manufacturing information systems development in Lopata, Ambraziunas, and Gudas (2011) and Goepp and Avila (2015). This article addresses the third stream and structures the upstream phases of manufacturing information system design and development using the SAM model. Manufacturing information systems are typically implemented as Enterprise Resource Planning (ERP) systems (Goepp & Avila, 2015). Furthermore, Tafti, Abdolvand, and Harandi, (2019) emphasize that the manufacturing operation is the firm's most significant and most complicated component, affecting and influencing several organizations both within and outside the firm. This is especially critical because manufacturing information systems are frequently integrated into the organization's strategy to achieve its objectives (Tafti, et al., 2019; Goepp, et al., 2015).

Therefore, the discussion indicates that the literature is divided on how firms should and do align. While some of this deficiency is due to a preference for theoretical rather than empirical investigations, other elements hint at disagreement about the ideal method for researching alignment. According to Neubert et al. (2011), alignment between network capabilities and IT requirements, strategies, and architecture determines the strategic alignment between organizational units. According to the research conducted based on the SAM model, the majority of studies have focused on alignment within the organization, with relatively few on alignment between organizations, particularly in collaborative networks, where achieving alignment requires collaboration between various actors, which in this paper refers to the ERP customer and vendor (Goepp & Avila, 2015; Claybaugh, et al., 2021; Venkatraman & Fahd, 2016; Tafti, et al., 2019; Abdolvand & Sepehri, 2016; Alaeddini & Salekfard, 2013). As a contribution to SAM, this article examines the conceptual model where ERP fit mediates the relationship between customer-vendor power relations and ERP implementation success, as illustrated in figure 1.

**Figure 1. Hypothesized Conceptual Model**




*Power Relations and ERP Fit*

In understanding power relations among actors, Avelino and Rotmans (2011) proposed a power transition framework as an interdisciplinary framework in studying relationships, practices, changes, and improving the role perception of involved actors (Avelino & Rotmans, 2011; Avelino & Wittmayer, 2016). According to Choksy (2015), power relations can be in structural or relational form. The structural power is embedded in most influential organizations, while the relational power results from interactions of actors in the relationship. The concept of power has been looked at from different perspectives in information technology platforms research. For example, in analyzing levels of power manifestation, Cullen, Tucker, Snyder, Lema, & Duncan (2014) looked at power as a cube, Swan and Scarbrough (2005) employed the three dimensions of power (resources, processes, and meaning) in assessing how politics influence the network of business innovation. Authors like Osei-Amponsah, Paassen, and Klerkx (2018); Kholeif, Abdel-Kader, and Sherer (2007) use institutional perspectives of power dynamics to analyze how power emerges and influence actors with differing interest. On the other hand, researchers have looked at power relations from the perspective of resources used by the actors in manifesting power to resolve conflict of interest and hence change the existing perceived roles (Turner, et al., 2020; Avelino & Wittmayer, 2016).

This paper conceptualizes power relations as not the force exerted over others but rather the force influencing the outcome (Hardy, 1996). Most scholars in power relations and information technology studies recommend Hard (1996) conceptualization of power (Claybaugh, et al., 2021; Chang, et al., 2013; Choksy, 2015; Swan & Scarbrough, 2005). Differences in power relations among the actors result from differences in their mobilization abilities and the manifestation of power (Cullen et al., 2014).

The direction of power relations among the actors depends on their ability to create resources and manifest power. For example, when vendors view ERP customers as an implementer and not co-designers they create a one-sided dependency (Cullen et al., 2014). According to Avelino and Rotmans (2011), the classification of power relations in the perspectives of power over, power with, and power is not mutually exclusive but dynamic and can occur in combination. This classification of power relations provides a reasonable ground for explaining conflicts of interest in ERP customer-vendor relationships that influence ERP fit and implementation success (Swan, et al., 1999). The source of conflicts of interest is differences in the role perception of actors in realizing competing benefits through adjusting their actions. When a point is reached where actors experience a change in their role perceptions, a conflict becomes transformative, enabling actors to reconceptualize their relations (Sørensen, 2014; Chang, et al., 2013). The highest resolution of the conflict depends on the extent actors can mobilize resources required to manifest power to challenge current role perceptions (Turner, et al., 2020; Sørensen, 2014). These role perceptions are the traditional images actors have of themselves and each other in the existing relationship (Sørensen, 2014; Choksy, 2015). Changes in the traditional images between the ERP customer and vendor improve the long-term relationship that impacts ERP implementation success (Choksy, 2015).

The Aspects of the relationship among actors are reproduced by parties involved in different roles. These parties may support the existing relationship in some contexts but want to change it in other contexts (Avelino et al., 2016; Rossi et al., 2019). Traditionally, the ERP vendors assume the power of producing the generic specifications of the ERP solution. At the same time, the ERP customer accepts some of the best practices embedded in ERP solutions but would wish to have an ERP packaged software solution closer to the perfect fit of their manufacturing requirements to realize business success (Alkraiji, et al., 2020; Cheng, 2020; Claybaugh, et al., 2021). From the discussion, it can be argued that an organization with high capabilities of creating resources in exercising power relations is likely to gain more resolution in the conflicts of interest based on the ERP customer-vendor relationship. Therefore, it is hypothesized that:

> *H1: The higher the ERP customer-vendor power relations, the greater the positive influence on ERP fit*
>
> *H2: The ERP customer-vendor power relations have a positive influence on ERP implementation success*

*ERP Fit and Implementation Success*

ERP fit aims to reduce gaps between the needs of manufacturing organizations implementing ERP systems to realize success and what the ERP vendor provides (Grabis, 2019). There are several typologies involved in ERP fit like screen masks, configuration, workflow development, reporting, interface, and package code modification (Cheng, 2020). Garg and Garg (2013) consider ERP fit of interfaces, workflows, reports, forms, enhancements, and portals. At the same time, Hong et al. (2016) developed a framework relating technical and process fit options. ERP fit has received increased attention in the ERP implementation literature (Fryling, 2015; Ali & Miller, 2017; Al-Sabri, et al., 2018, Fischer, et al., 2017). Several researchers argue that ERP fit consumes much time and demands complicated system maintenance (Kholeif, et al., 2007; Althonayan & Althonayan, 2017). Others suggest that ERP fit does not lead to realizing expected and desired outcomes (Garg & Garg, 2013; Ghobakhloo, Azar, & Tang, 2019). Nevertheless, others have shown strong interest in ensuring ERP fit and argue that ERP fit has proved to be critical in maintaining value-added functions to enterprises with packaged software solutions (Volkoff, et al., 2017; Venkatraman et al., 2016).

Researchers also report the high number of unsuccessful ERP implementation projects linked to the excessive degree of ERP system fit (Mamoghli, et al., 2017). There is broad agreement that implementing an ERP system may increase costs, time, resources, and complexity in future upgrades (Grabis, 2019; Ali & Miller, 2017). However, fitting is always required and executed (Cheng, 2020) because information system literature provides that information technology alignment positively affects manufacturing performance (Davenport, 1998; Bhatt & Grover, 2005; Fischer, et al., 2017; PCG, 2020). It is reasonable to expect that the better the ERP fits with functionalities and business processes in a manufacturing organization, the higher the realization of ERP implementation success. Therefore, the following hypothesis is proposed:

> *H3: Manufacturers with high ERP fit levels will positively influence its ERP implementation success.*

*Power Relations and ERP Implementation Success through ERP Fit*

Power relations are incremental at bringing together parties to achieve a common desired goal. As regards ERP systems, they are implemented in a series of activities and phases (Turner, et al., 2020; Lee & Gereffi, 2015). In principle, the ERP implementation projects start with decisions to adopt, select ERP vendor, implement, use, maintain, and modify (Chang, et al., 2013). The ERP implementation projects typically involve internal information system experts, professional business personnel, external consultants, or implementation partners (Chang, et al., 2013; Fryling, 2015). To become successful, the implementing organization should ensure effective selection of the appropriate ERP system, a competent vendor, the actual installation of the system, managing organization and business processes change, and examining the system's compatibility (Fryling, 2015). These attributes demand a strong manifestation of power relations among the parties involved. According to Fischer, et al. (2017), as a paramount factor to information system investment success, power relations enable organizations to invest in a vast information technology solution to attain functional and process fit.

Approaches to ERP implementation require a committed team with clearly defined project management activities (Alkraiji, et al., 2020). Research has revealed that, after the implementation, some manufacturers suffer a shakedown phase, during which they face challenges at the same time as they have to implement new system functionalities and re-aligned business processes (Hong & Kim, 2002; Garg & Garg, 2013; Claybaugh et al., 2019). It might result in operational disruptions or reduced productivity for a certain period. Studying the dynamic powers and capabilities of the potential ERP system implementing organization (here referred to customer) to accommodate the critical business processes is the first step in ensuring ERP success. Literature has provided cases of early ERP retirement and project cancellations because of a wrong selection due to the no fit between the system and the unique business processes (Fryling, 2015).

On the other hand, a better selection emanated from a strong relationship manifested between the vendor and customer reinforces information technology projects' success (Esparciaet, al., 2015). Furthermore, achieving alignment between organization and information system infrastructures is essential to realize a successful packaged software implementation (Grabis, 2019; Venkatraman, 1989). Generally, organizations may encounter implementation challenges because they do not have insight into how an enterprise system aligns with or corresponds to organizational needs. Thus, developing strong power relations is the best strategy that precedes the system alignment to achieve desired success. Therefore, it can be hypothesized that:

> *H4: The level of ERP fit mediates the relationship between the ERP customer-vendor power relations and ERP implementation success*

## METHODOLOGY

*Study Context*

The study context was based in Tanzania's manufacturing industry. This choice was based on several underlined reasons. It is among the best performer in export manufacturing in the East African Community (EAC) and provides excellent room for a profound analysis. Tanzania manufacturing has grown higher in the last two decades, comprising more than 31% of the industrial sector. In 2018, the manufacturing sector generated USD 4.1 billion, representing a 39% increase in just four years (2014 as a base year) (URT, 2020). However, over 2,300 manufacturers in Tanzania, with only about 29%, have automated their operations with management information systems that enable them to become effective and efficient (Andreoni, 2017; URT, 2016)). These differences create some doubt on the capabilities of the manufacturing industry investing in enterprise systems. Surprisingly, Tanzania attained its essential milestone in July 2020, when it formally graduated from a low-income country to lower-middle-income country status (Akeel, et al., 2021). The move resulted from an increasing gross national income per capita from USD 1020 in 2018 to USD 1080 in 2019. This achievement reflects sustained macroeconomic stability that has supported industrial growth and obviously through a commitment to its industrialization agenda (Akeel, et al., 2021; URT, 2018). With these remarks, Tanzania manufacturing was selected as a focal field survey for this study representing other developing countries.

*Construct Measurement*

The latent variables in this paper were modeled by adopting reflective measure items from previous studies (MacKenzie, Podsakoff, & Jarvis, 2005). The adapted measurement items were adapted to fit the context of the paper. The items were evaluated by experts from academia and manufacturing organizations in Tanzania. The key constructs of the study model were measured using multiple items. The measures of customer-vendor power relations were adapted from Brill (1992), Turner et al. (2020), Avelino and Rotmans (2011), and Liang (2013). This paper also adapted and rephrased the measurement items for ERP fit from (Claybaugh, et al. (2021), Hong and Kim (2002), Al-Sabri, et al. (2018), and Fischer, et al. (2017) to fit the manufacturing organization context. Similarly, ERP implementation success items were adapted from Hong et al. (2002) and Zhou et al. (2008). The measurement items were selected to reflect the influence of a strong relationship among parties implementing ERP systems and the extent to which power relations between ERP customer-vendor are manifested. The study used a 7-point Likert scale where the number 7 represented strongly agree, whereas the number 1 represented strongly disagree (Rwehumbiza, 2017).

*Sampling and Data Collection*

The study adopted the quantitative cross-sectional survey, collecting data in late 2020 and early 2021 in Tanzania manufacturing organizations. Because of the size and economic diversity in the country, five regions were selected to represent various stages of economic development (Andreoni, 2017). The regions involved in the survey were Dar es Salaam, Tanga, Arusha, Morogoro, and Mbeya, which attained a steadily advanced stage of economic development. A stratified sampling technique was used to randomly select a sample of 483 manufactures from a sampling frame of 672 manufacturing firms whose operations are entirely and semi-automated identified from the National Bureau of Statistics (NBS) (URT, 2018), and through cooperation with the Confederation of Tanzanian Industries (CTI). The study considered survey samples from Tanzania manufacturers for several reasons. First, Tanzania has advanced in establishing economic zones where most manufacturers are foreign direct investors with much experience in enterprise systems (Andreoni, 2017; Sutton & Olomi, 2012). Second, the manufacturing industry in Tanzania is facing a significant challenge to revamp its operations from being cost-oriented to being innovation-oriented (Akeel, et al., 2021). The Tanzania government has been promoting business processes (Wangwe, et al., 2014), which provides a fertile ground to investigate ERP issues in Tanzania.

The study, therefore, identified names of manufacturing companies and email addresses, and telephone numbers of contact persons. All the companies had at least four years of experience with ERP system solutions. Then emails were sent to IT managers informing the research objectives, including an official request letter of participation. The IT manager was the appropriate respondent, being well versed with all issues related to ERP systems and organizational information technology. The approach is consistent with Huber and Power's (Huber & Power, 1985) recommendation that, in the case where one respondent per unit is solicited, it should be the most informed respondent. The return emails were evaluated and a total of 483 electronic survey questionnaires were effectively mailed to available respondents. Through the contact persons, respondents were encouraged to respond to each part of the questionnaire. The approach is consistent with previous approaches used in the IT literature (Ghobakhloo, 2018). Follow-ups were made in two rounds through sending emails and phone call reminders. Finally, 217 valid questionnaires were used for further analysis, yielding a response rate of 44.0%. This low response rate is a true reflection of the challenges when requesting information related to IT and information system performance from managers in the manufacturing industry (Bhatt & Grover, 2005). The profiles of respondents and informants are as shown in table 1.

**Table 1. Organization and respondents' profiles**

| | % Respondents | | % Respondents |
|---|---|---|---|
| *Gender* | | *Age* | |
| Male | 123 | < 30 years | 11.1 |
| Female | 94 | 31 - 35 years | 44.2 |
| | | 36 - 40 years | 15.7 |
| *Education* | | Above 40 years | 29 |
| High school or below | 9.7 | | |
| College | 48.4 | *Position* | |
| University | 38.7 | Non-Managerial | 12.9 |
| Certified professional or above | 3.2 | Junior Manager | 67.7 |
| | | Middle Manager | 12.9 |
| *Experience in organization* | | Senior Manager | 6.5 |
| Less than five years | 12.9 | | |
| 5 - 10 years | 25.8 | *Experience in Current job* | |
| 10 - 15 years | 25.8 | < 5 years | 32.3 |
| 15 - 20 years | 12.9 | 5 - 10 years | 58.1 |
| Above 20 years | 22.6 | 10 - 15 years | 6.5 |
| | | Above 20 years | 3.2 |
| *Number of Employees* | | | |
| 50 - 250 | 9.7 | *ERP package in use* | |
| 251 - 1000 | 54.8 | SAP | 58.1 |
| Above 1000 | 35.5 | ORACLE | 6.5 |
| | | EPICOL | 19.4 |
| *ERP modules go live* | | SAGE | 16.1 |
| Inventory Management | 55.7 | | |
| Procurement Management | 36.4 | | |
| Others | 7.8 | | |

## DATA ANALYSIS AND RESULTS

The model was estimated using SmartPLS3.0 (Hair, Risher, Sarstedt, & Ringle, 2019). The partial least square structural equation modeling (PLS-SEM) was opted due to its iterative approach designed at maximizing the strength of the relationship between independent and dependent variables (Evermann & Tate, 2016). PLS-SEM efficiently combines varying constructs and handles all types of measurements (reflective and formative) compared to some geometric models. Furthermore, in the context of this study, PLS-SEM helped account for measurement errors in observed variables, incorporated observable variables measured indirectly by indicator variables, and more critically enabled to statistically test the previous models and measurement assumptions against empirical data (Hair et al., 2019).

*Reliability and Validity Assessment*

The study performed a series of analyses to test for the reliability and validity of the construct. The study tested the reliability and validity of the construct following Hair, Sarstedt, and Kuppelwieser (2014). This study used composite reliability to check for internal consistency as it is the most preferred under PLS-SEM. Generally, when assessing reliability, a value greater or equal to 0.7 indicates internal consistency; however, a value more than 0.95 is not desired (Hair, Hollingsworth, Randolph, & Chonng, 2017). For this study, as shown in Table 2, all values for the composite reliability were more significant than 0.7, thus indicating internal consistency in the underlying constructs. Also, convergent validity was examined by observing the resulted value of the average variance extracted (AVE). The average variance extracted has been defined as the average value of the squared loadings of the indicators associated with the construct (Hair et al., 2017). In the study, all values of AVE were above the threshold of 0.5.

**Table 2: Reliability Test**

| Construct | Item | Loading[a] | CR[b] | AVE[c] |
|---|---|---|---|---|
| Enterprise Resource Planning Fit (ERPFIT) | ERPFIT1 | 0.77 | 0.949 | 0.631 |
| | ERPFIT2 | 0.817 | | |
| | ERPFIT3 | 0.79 | | |
| | ERPFIT4 | 0.772 | | |
| | ERPFIT5 | 0.813 | | |
| | ERPFIT6 | 0.825 | | |
| | ERPFIT7 | 0.807 | | |
| | ERPFIT8 | 0.772 | | |
| | ERPFIT9 | 0.781 | | |
| | ERPFIT10 | 0.773 | | |
| | ERPFIT11 | 0.814 | | |
| ERP Customer-vendor Power Relations (ECVPR) | ECVPR1 | 0.858 | 0.952 | 0.690 |
| | ECVPR2 | 0.819 | | |
| | ECVPR3 | 0.814 | | |
| | ECVPR4 | 0.847 | | |
| | ECVPR5 | 0.86 | | |
| | ECVPR6 | 0.779 | | |
| | ECVPR7 | 0.851 | | |
| | ECVPR8 | 0.783 | | |

| | | | | |
|---|---|---|---|---|
| | ECVPR9 | 0.857 | | |
| ERP Implementation success (EIS) | EIS1 | 0.815 | 0.901 | 0.645 |
| | EIS2 | 0.776 | | |
| | EIS3 | 0.79 | | |
| | EIS4 | 0.783 | | |
| | EIS5 | 0.85 | | |

a: All items loading above 0.5 indicates indicator reliability (Hair et al., 2017)
b: all composite reliability (CR) > 0.7 indicates internal consistency
c: All average variance extracted (AVE) >.5 indicates convergent reliability

Again, the discriminant validity as the differentiating indicator of the model constructs was assessed. According to Sarstedt, Ringle, Smith, Reams, and Hair (2014), discriminant validity is present where the value of its cross-loading in the latent variable is higher than in any other construct. Because of its most likelihood of detecting discriminant validity, the Heterotrait-Monotrait ratio (HTMT) of correlations (Sarstedt, et al., 2014) was used in this study. Findings revealed discriminant validity since all indicators had HTMT values below 0.85, as evidenced in Table 3.

**Table 3: Discriminant Validity with HTMT Ratios**

| | ERPFIT | ECVPR | EIS |
|---|---|---|---|
| ERPFIT | | | |
| ECVPR | 0.675 | | |
| EIS | 0.566 | 0.31 | |

*Common Method Bias*

Common method bias (CMB) can result in systematic errors by either deflating or inflating the observed relationships between latent variables. There are various sources of common method biases as described by scholars. CMB may result from the use of one respondent to attempt all critical variables in a model, the appearance of the items, the context to which the questionnaire is placed, and some contextual influences such as media of data collection, the timing of data collection, and location of the respondents (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). This paper used both ex-ante and post-hoc approaches to ensure common method bias is not an issue. The pilot study was conducted to ensure the scale items were clearly worded, concise, and accurate. There was explicit instruction on maintaining anonymity and confidentiality of the information provided. Further, the paper ensured the respondents to have at least minimum experience in ERP system. The post-hoc approach used the variance inflation factor generated through a full collinearity test (Kock, 2015). Following the procedure of setting each variable as a dependent variable in the smartPls3.0 resulted in administering three models, and their VIFs were checked and recorded, as table 4 indicates. In all cases VIF test was less than 3.3, meaning there were no issues with common method bias (Kock, 2015).

**Table 4. Full Collinearity VIFs**

| Relationship | Model A | Model B | Model C |
|---|---|---|---|
| ERPFIT -> EIS | 1.972 | | |
| ECVPR -> EIS | 2.286 | | |
| ECVPR -> ERPFIT | | 2.151 | |
| EIS -> ERPFIT | | 1.278 | |

| | |
|---|---|
| ERPFIT -> ECVPR | 2.093 |
| EIS -> ECVPR | 1.391 |

*Structural Model Analysis*
*Multicollinearity Test*
Since the path coefficients estimation in the structural equation model is based on each endogenous latent variable's ordinary least square regression on a given corresponding predecessor construct, then assessing the collinearity issues was important (Hair et al., 2017). The presence of multicollinearity could lead to the path coefficient being biased as in regular multiple regressions. Variance inflation factor (VIF) typically measures the extent of the regression coefficients' variance inflated by multicollinearity problems. From the rule of thumb, VIF value should be close to 3 and lower to avoid collinearity problems (Hair et al., 2019). Findings as in table 5 indicate that the maximum number of VIF values is 1.933, far below the threshold value of 3. Thus, the study model is free of collinearity problems.

**Table 5. Multicollinearity Test Results**

| Relationships | VIF | Decision |
|---|---|---|
| ERPFIT -> EIS | 1.933 | Not a problem |
| ECVPR -> ERPFIT | 1.000 | Not a problem |
| ECVP -> EIS | 1.689 | Not a problem |

*Coefficient of Determination*
The value of $R^2$ measures variance explained in the given endogenous construct for a particular model (Hair et al., 2019). It ranges from 0-1, whereby the value of 0.1 is considered satisfactory (Hair et al., 2019). The number of predictors constructs ultimately influences the value of $R^2$. The study model had two endogenous constructs. As shown in Table 6, EIS as an endogenous construct, the value of $R^2$ was 0.285, an indication that ERPFIT explains more than 28% of the variance in EIS. Moreover, for the ERPFIT as an endogenous latent variable, the value of $R^2$ was 0.409, indicating that the construct ECVPR explains 40.9% of the variance in ERPFIT.

*Predictive Relevance of the Model*
The $Q^2$ is an indicator of the models out of sample predictive relevance or predictive power. In structural equation modelling, the value of $Q^2 > 0$ demonstrates the predictive relevance for a particular endogenous construct.

**Table 6. Model Prediction**

| Endogenous Latent Variable | $R^2$ Value | $R^2$ Adjusted | $Q^2$ Value |
|---|---|---|---|
| EIS | 0.285 | 0.278 | 0.177 |
| ERPFIT | 0.409 | 0.406 | 0.253 |

The blindfolding was performed with seven as a pre-specified distance to obtain the values of predictive relevance ($Q^2$) (Hair et al., 2017). The $Q^2$ for EIS was 0.177 and ERPFIT was 0.253. All values of $Q^2$ were above zero, demonstrating evidence of the presence of path model predictive relevance for each given endogenous latent variable (Table 6). The contribution of each exogenous latent variable ($q^2$) was also analysed. Results in table 7 indicate that ECVPR has the minimum predictive relevance for ERPFIT, and ERPFIT also has a minimum predictive relevance for EIS. Furthermore, ECVPR has minimal predictive relevance for EIS.

*Effective Size*

Effective size ($f^2$) measures the impact of the specific predictor construct on an endogenous construct whereby the value of 0.02 and above indicates small effective size, 0.15 and above indicates medium effective size, 0.35 and above indicates the large effective size (Cohen, Hart, & Amant, 1994; Hair et al., 2019). The study results show that the minimum value of $f^2$ is 0.030, far above the small threshold value of $f^2$ (table 7). Thus, study models are not only significant but also relevant.

**Table 7. Direct Relationship for Hypothesis Testing**

| Hypothesis | Relationship | Standardized Beta | Standard Error | t Value | $f^2$ | $q^2$ | 95% Confident Interval |
|---|---|---|---|---|---|---|---|
| H1 | ECVPR -> ERPFIT | 0.641 | 0.052 | 12.336* | 0.693 | 0.103 | [0.546; 0.716] |
| H2 | ECVPR -> EIS | 0.067 | 0.090 | 2.016** | 0.021 | 0.001 | [0.011; 0.231] |
| H3 | ERPFIT -> EIS | 0.576 | 0.096 | 6.292* | 0.100 | 0.022 | [0.419; 0.593] |

*p < 0.01, **P< 0.05

As shown in Table 7, all estimations in the model relationships were significant, thus supporting direct hypotheses H1, H3, and H3. ECVPR indicated the most substantial relationship with ERPFIT (0.641), explaining more than 40% of ERPFIT ($R^2$= 0.409).

*Mediation Analysis*

The study followed the updated mediation analysis procedures described by Hair et al. (2014). The direct and indirect effects in the model were checked for significance (Nitzl, Rolda'n, & Carrio'n, 2016; Hair et al., 2017). The significance of indirect effect was checked by running the bootstrapping using 5000 bootstrap samples and at 0.05 significance level. As indicated in Table 8, the indirect effect was significant because the confidence interval did not include a zero-value supporting the H4 as the partial complimentary mediation. The t value of indirect effect (0.247) for the ECVPR to EIS via ERPFIT was 4.618 with a p-value of 0.000.

**Table. 8 Indirect Relationships for Hypothesis Testing**

| Hypothesis | Relationship | Standardized Beta | Standard Error | t Value | 95% Confident Interval |
|---|---|---|---|---|---|
| H4 | ECVPR-> ERPFIT-> EIS | 0.247 | 0.053 | 4.618** | [0.140; 0.387] |

**p < 0.01

After that, the study focused on the significance of the direct effect from ECVPR to EIS, the direct path from ECVPR to EIS is weak (0.067) (table 7) but statistically significant (p<0.05). Therefore, ERPFIT partially mediates the ECVPR to EIS. To check whether the partial mediation was complimentary or competing, the computation of the product of the direct and indirect effect was done. Since all the direct and indirect effects for all mediation paths were positive, the sign of their product was also positive. Thus, it was concluded that ERPFIT represents partial complementary mediation of the relationship from ECVPR to EIS. The variance accounted for (VAF) for the partial mediator was computed to show its importance in the model. The results are shown in the following table 9, indicating the total effect of 33.8% goes through the mediator.

**Table. 9 Variance accounted for (VAF) for Complementary Mediator**

| Hypothesis | Relationship | Direct Effect | Indirect Effect | Total Effect | VAF |
|---|---|---|---|---|---|
| H4 | ECVPR -> ERPFIT -> EIS | 0.067* | 0.247** | 0.730 | 33.8% |

$^{**}p < 0.01$ $^{*}p < 0.05$

*Robustness Checks*

The paper examined the unobserved heterogeneity (Sarstedt, et al., 2019). The finite mixture partial least square (FIMIX-PLS) was used to check if unobserved heterogeneity does not affect the result; the study's data could be analyzed in aggregate rather than in segments. The used one to three segments solution and the fit indices results as shown in table 8 below. This was due to the complexity of the study model and the unlikely to get equal distribution in each segment, where segment 4 attributed to less than a sample size of 30 (Hair et al., 2017).

**Table 8. Fit indices for the One to Three Segments Solutions**

| | Number of Segments | | |
|---|---|---|---|
| Retention Criteria | 1 | 2 | 3 |
| AIC (Akaike's Information Criterion) | 1800.498 | 1783.058 | **1772.825** |
| AIC3 (Modified AIC with Factor 3) | 1808.498 | 1800.058 | **1798.825** |
| AIC4 (Modified AIC with Factor 4) | 1816.498 | **1817.058** | 1824.825 |
| BIC (Bayesian Information Criteria) | **1827.538** | 1840.516 | 1860.702 |
| CAIC (Consistent AIC) | **1835.538** | 1857.516 | 1886.702 |
| HQ (Hannan Quinn Criterion) | 1811.421 | **1806.268** | 1808.324 |
| MDL5 (Minimum Description Length with Factor 5) | **1999.694** | 2206.349 | 2420.212 |
| LnL (LogLikelihood) | -892.249 | -874.529 | -860.412 |
| EN (Entropy Statistic (Normed)) | *na* | 0.532 | 0.737 |
| NFI (Non-Fuzzy Index) | *na* | 0.581 | 0.729 |
| NEC (Normalized Entropy Criterion) | *na* | 101.635 | 57.021 |

***na***: not available; numbers in bold indicate the best outcome per segment retention criterion.

**Table 9. Relative segment Sizes (n = 217)**

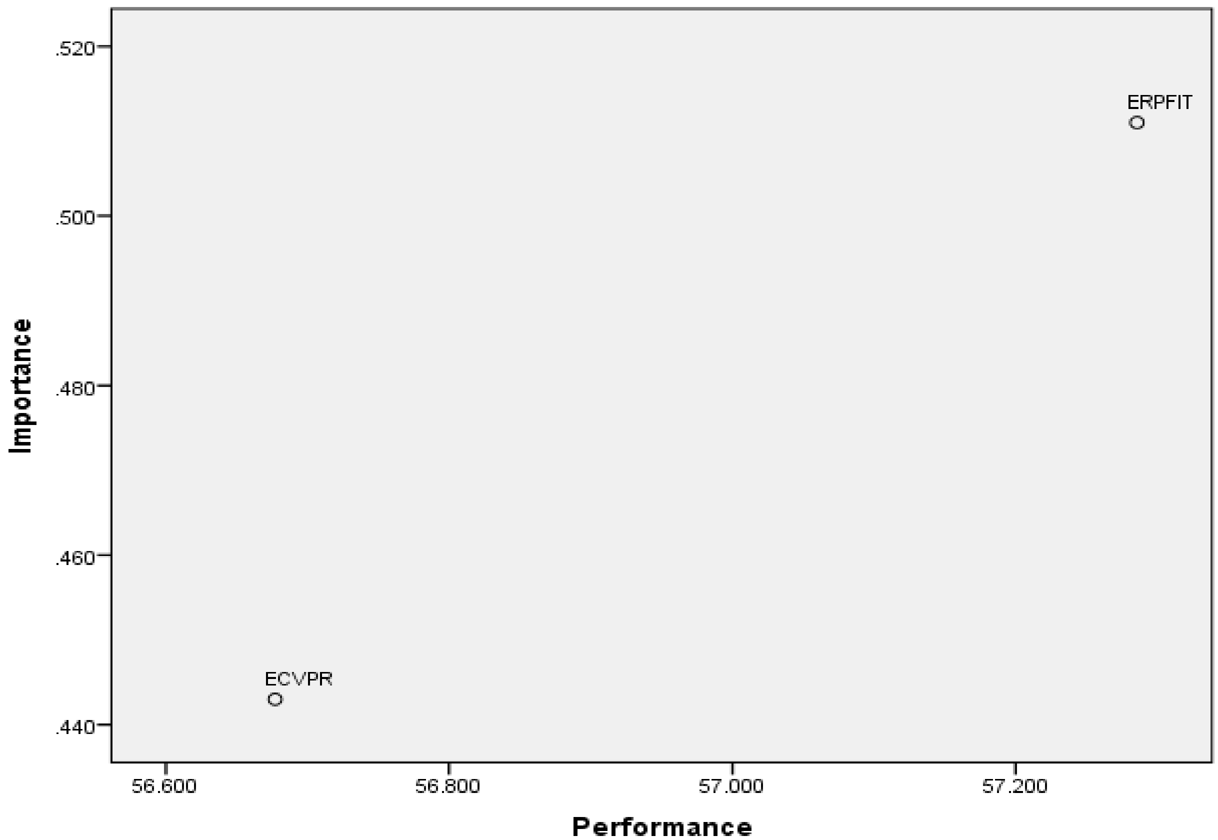
| Number of Segments | Segment 1 | Segment 2 | Segment 3 |
|---|---|---|---|
| 1 | 1.000 | | |
| 2 | 0.741 | 0.259 | |
| 3 | 0.682 | 0.206 | 0.112 |

The results for MDL5 the metric points to one segment, underestimate the number of segments. AIC pointing to three segments overestimates the number of segments. Results for AIC3 and CAIC indicate a different number of 3 and 1 segments, respectively. Likewise, results for AIC4 and BIC indicate a different number of segments 2 and 1, respectively, while normed entropy statistics (EN) value is above 0.5 for segments 2 and 3. Since these results produce divergent results, it concluded that unobserved heterogeneity does not significantly affect the data set (Svensson, et al., 2018; Sarstedt et al., 2019). Thus, the robustness of the data set was confirmed.

*Importance-performance Map Analysis*

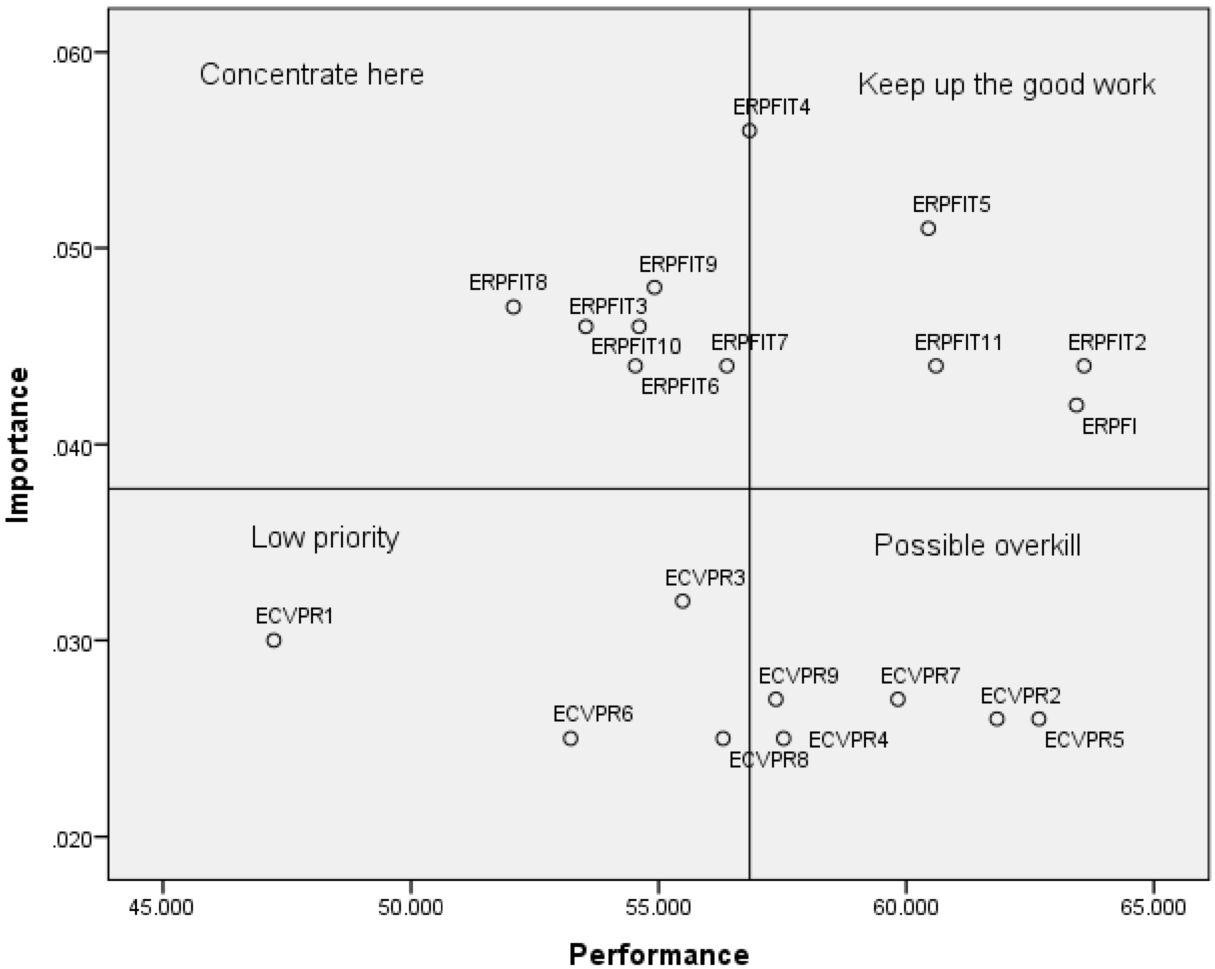
The importance of the path coefficients was further analysed using the importance-performance map in SmartPLS3.0 and was modified with the help of BPNN and DEMATEL model (Hu, Lee, Yen, & Tsai, 2009). Figure 2 indicates that an increase in one point performance of ERPFIT would increase the performance of EIS by 0.51 points. Thus, when managers aim at increasing the performance of the target construct EIS, their first priority should be to improve the performance of aspects captured by ERPFIT, as this construct has the highest (above average) importance. Aspects related to constructs ECVPR follow as a second priority.

**Figure 2. Importance-Performance Map of the target constructs EIS**




Further, a specific analysis of the indicator's performance was carried out. As indicated in figure 3. the importance-performance map of EIS as target construct with indicators from ERPFIT and ECVPR was divided into four quadrant matrices. Analysis indicates the dominance of ERPFIT indicators on the concentrate and keeps up the good work quadrants. According to Hu, et al. (2009) and Hair et al. (2016), practitioners should pay more attention to indicators under concentrate to achieve ERP implementation success.

**Figure 3. Importance performance map of ECVR and ERPFIT indicators on EIS as a target construct**




## DISCUSSIONS AND IMPLICATIONS

The paper has attempted to provide insight into the drivers of ERP implementation success in manufacturing organizations. Specifically, a research model consisting of customer-vendor power relations, ERP fit, and implementation success was tested. Four hypotheses were tested, and the results supported three direct hypotheses H1, H2, H3, and the indirect hypothesis H4. The paper integrated the organization factors with the factors related to power relations to understand the levels of ERP fit that influence ERP implementation success. The results demonstrated that the higher customer-vendor power relations positively influence ERP fit and ERP implementation success. Further, the ERP fit positively influences the implementation success. It was also found that ERP fit partially mediates the relationship between the customer-vendor power relations and the ERP implementation success. Findings are consistent with the power transition framework that emphasizes the manifestation of power relations to achieve a common best practice (Avelino & Rotmans, 2011). Wherever the actors confront conflict of interest arising from competing benefits, for example, in the current paper ERP customer-vendor engagement to realise ERP fit, the degree to which power relations are exercised results in achieving a common goal. Furthermore, the results imply that ERP fit is influenced by the capabilities of the customer-vendor mobilization of resources to exercise power relations to challenge the current traditional images. The existing traditional images imply that manufacturing organizations implement ERP systems with generic functionalities just as provided by the ERP vendor despite being unable to meet their specific business requirement (Claybaugh, et al., 2021). This concurs with the results reported by Rossi et al. (2019), who, among other things, concluded that the extent actors' mobilising resources to exercise power relations influence the staging of conflict of interest and changing the role perceptions to attain a common organizational goal.

Hermans, Roep, and Klerkx (2016) had a different argument that making power relations visible may be insufficient to stimulate more transformative change in the information system platforms and lead to what has been referred to as an ERP fit. However, power relations were considered a force that affects the desired outcome (Hardy, 1996) and not forces to change. The more exercising of power relations among the actors should be aimed at staging the existing role perceptions into an outcome desired by all actors involved. With this respect, ERP customer-vendor power relations are positively related to ERP fit, and implementation success provides evidence of a common goal reached between both parties. Furthermore, findings demonstrate that ERP system fit results from the more significant influence of the implementing organization in resolving conflict of interest among the parties involved. The ERP vendor’s interest is just providing best practices features of the packaged software experienced from the most powerful organization in the market, where less powerful firms embed their processes based on best practices provided (Claybaugh, et al., 2021). However, as these less powerful firms develop strong power relations with ERP vendors, there are higher chances of resolving the conflict of interest and attaining their desired success. This is consistent with Turner, et al. (2020) conclusion that, when dominant actors come together in the platform, there is a higher possibility of power relation and staging power toward change in the role perceptions to realize desired common goals.

Understanding the ERP fit is a crucial factor that affects the successful ERP system implementation in the manufacturing industry. This result is consistent with the argument that strategic ERP alignment is valuable for successfully implementing ERP (Grabis, 2019; Mamoghli, et al., 2017). Given the recent increase in the ERP system packaged software for manufacturing and the growing importance of information system management, this study demonstrates a great need to ensure the ERP systems accommodate systematically the ever-increasing data/information in the business today. The paper contributes to the extension of SAM model utility in ERP systems implementation. In particular, Sam has proved significant in studying CDFs of ERP implementation in collaborative networks where success is derived from actors’ collaborations to attain a common desired goal (Goepp & Avila, 2015; Alaeddini & Salekfard, 2013). Thus, the paper is among the first to use a combination of power relations and strategic alignment models to empirically investigate CDFs of ERP implementation success. The findings contribute insight to an on-going debate on ERP implementation success, looking at capabilities of the manufacturing organization and ERP vendors’ manifestations of power relations that change the traditional inbuilt images. It is an extension to Claybaugh et al. (2021) study on the value of maintaining vendor-customer communication to influence ERP success.

## LIMITATIONS

As discussed above, this study attempted to extend the scope of ERP system implementation and understand the role of power dynamics in the manufacturing industry. This study, however, is not perfect. Its limitations that need to be addressed in future studies include using a single respondent from each manufacturer. A single respondent attempted all information related to manufacturing profile, ERP system fit and success, and organization power influences. This is because the perception and opinion of an individual in the IT department may not represent those of the entire manufacturing organization. More respondents have to be included in future studies to capture a wide range of ERP system users and policy makers. Also, some of the manufacturing organizations in the sample had less experience than 5 years in ERP system use and thus might not have experienced the full impact of ERP. For example, manufacturers at an earlier stage of ERP implementation are still adding more modules to use the system entirely. A cross-sectional data was another limitation to measure the extent of the ERP system's impact due to rapidly changing ERP technologies over time. The study based the survey to include only customers in the customer-vendor relations, taking into account that the customer has more knowledge about the Vendor and their strength is determined at the customer level who is always pained by the system failures. However, the study recommends future studies to look at both for effective generalizing of the findings. Last but not least, the survey data are based on the Tanzania manufacturing industry sample where the information technology awareness is now getting its way, unlike the developed economies. Thus, the generalization of the study results to other countries is not warranted.

## CONCLUSION

This paper's results contribute to both research and practice. There have been few research studies combining power relations and ERP investment to influence manufacturing performance. The focus on power relations in manufacturing adds to the body of ERP performance research (Hong & Kim, 2002; Fryling, 2015; Volkoff, Strong, & Elmes, 2017; Claybaugh, et al., 2021). For researchers, these findings provide the base for future studies on power relations and fit notions. The study provides managers with the ERP system investment decision, paying attention to what important indicators are likely to ensure fit in their packaged software investment to realize desired success. Much emphasis should be on mobilizing their power resources before implementing or engaging actors in the ERP customer-vendor relationship (Akeel, et al., 2021).

## REFERENCES

Abdolvand, N., & Sepehri, M. (2016). Antecedents of strategic information systems alignment in Iran. *Journal of Global Information Technology Management, 19*(2), 80–103.

Ahriz, S., Benmoussa, N., El Yamami, A., Mansouri, K., & Qbadou, M. (2018). An Elaboration of a Strategic Alignment Model of University Information Systems based on SAM Model. *Engineering, Technology & Applied Science Research, 18*(1), 2471-2476.

Akeel, R., Barkanova, M., Mungunasi, E., Okou, C., Saldarriaga, N., Swinkels, R., & Teri, G. (2021). *Tanzania Economic Update: Raising the Bar - Achieving Tanzania's Development Vision.* Washington, D.C.: World Bank Group. Retrieved from http://documents.worldbank.org/curated/en/803171614697018449/Tanzania-Economic-Update

Alaeddini, M., & Salekfard, S. (2013). Investigating the role of an enterprise architecture project in the business-IT alignment in Iran. *Information Systems Frontiers,, 15*(1), 67–88.

Ali, M., & Miller, L. (2017). ERP system implementation in large enterprises-a systematic literature review. *Journal of Enterprise Information Management, 30*(4), 666-692. doi:10.1108/JEIM-07-2014-0071

Alkraiji, A., Jayawickrama, U., Olan, F., Asaduzzaman, M., Subasinghage, M., & Gallage, S. (2020). The perspective of national ERP vendors in achieving ERP project success in government organizations: a case of saudi Arabia. *Enterprise Information systems*. doi:https://doi.org/10.1080/17517575.2020.1845811

Al-Sabri, H., Al-Mashari, M., & Chikh, A. (2018). A comparative study and evaluation of ERP reference models in the context of ERP IT-driven implementation: SAP ERP as a case study. *Business Process Management Journal*, *24*(4), 943-964.

Althonayan, M., & Althonayan, A. (2017). E-governemt system evaluation, Transforming governement. *People, Process and policy, 11*(3), 306-342.

Andreoni, A. (2017). *Maping industrial production in Tanzania a Disaggrated analysis based on the 2013 mainland census.* Vienna: UNIDO.

Avelino, F., & Rotmans, J. (2011). A dynamic conceptualization of power for sustainable research. *Journal of Cleaner Production, 19*, 796-804.

Avelino, F., & Wittmayer, J. (2016). Shifting power relations in sustainability transitions: A multi-actor perspective. *Journal of Invironmental pollution and Planning, 18*, 628-649.

Avison, D., Jones, J., Powell, P., & Wilson, D. (2004). Using and validating the strategic alignment model. *Journal of Strategic Information Systems, 13*, 223-246.

Bansal, V., & Agarwal, A. (2015). Enterprise Resource Planning: Identifying Relationships among Critical Success Factors. *Business Process Management Journal, 21*(6), 1337–1352.

Baykasoğlu, A., & Gölcük, İ. (2017). Development of a Two-phase Structural Model for Evaluating ERP Critical Success Factors along with a Case Study. *Computers & Industrial Engineering, 106*, 256–274.

Bhatt, G., & Grover, V. (2005). Types of information technology capabilities and their role in competitive advantage: An empirical study. *Journal of management information Systems, 22*(2), 253-277.

Brill, J. (1992). Scales to measure social power in a consumer context. *Advances in Consumer Research, 19*, 835-842.

Campbell, B., Kay, R., & Avison, D. (2005). Strategic alignment: a practitioner's perspective. *Journal of Enterprise Information Management, 18*(6), 653-664.

Chang, J., Wang, E., Jiang, J., & Klein, G. (2013). Cotrolling ERP consultants: client and provider practices. *Journal of Systems and Software, 86*(5), 1453-1461.

Cheng, Y. (2020). Understanding cloud ERP continuance intention and individual performance: a TTF-driven perspective. *Benchmarking: An international Journal, 27*(4), 1591-1614. doi:10.1108/BIJ-05-2019-0208

Choksy, U. (2015). Upgrading and power relations in Global value chains: Case study of an offshoring service provider in the software industry. *The Future of global Organizing, 11*(3/4), 437-465.

Claybaugh, C., Haried, P., Chen, Y., & Chen, L. (2021). ERP vendor satisfaction: from communication and IT capability perspectives. *Journal of Computer Information Systems, 61*(1), 64-75. doi: https://doi.org/10.1080/08874417.2019.1566801

Cohen, P., Hart, D., & Amant, R. (1994). *Path Analysis Models of an Autonomous Agent in a Complex environment.* NY: Springer.

Cording, M., Christmann, P., & King, D. (2008). Reducing causal ambiguity in acquisition integration: intermediate goals as mediators of integration decisions and acquisition performance. *Academy of Management Journal, 51*(4), 744-767.

Cullen, B., Tucker, J., Snyder, K., Lema, Z., & Duncan, A. (2014). An analysis of power dynamics within IPs for natural resource management. *Innovation and Development, 4*, 259–275.

Davenport, T. (1998). Putting the enterprise into the Enterprise system. *Harvard Business Review, 76*(4), 121-131.

Dezdar, S., & Sulaiman, A. (2009). Successful Enterprise Resource Planning Implementation: Taxonomy of Critical Factors. *Industrial Management & Data Systems, 109*(8), 1037–1052.

Eidt, C., Pant, L., & Hickey, G. (2020). Platform, participation, and power: How dominant and minority stakeholders shape agricultural innovation. *Sustainability, 12*(2), 1-21.

Esparcia, J., Escribano, J., & Serrano, J. (2015). From development to power relations and territorial governance: increasing the leadrship role of LEADER local action groups in Spain. *Journal of Rural Studies, 42*, 29-42.

Evermann, J., & Tate, M. (2016). Assessing the predictive performance of structural equestion models estimators. *Journal of Business Research, 69*(10), 4565-4582.

Finney, S., & Corbett, M. (2007). ERP Implementation: A Compilation and Analysis of Critical Success Factors. *Business Process Management Journal*, *13*(3), 329-347.

Fischer, M., Heim, D., Janiesch, C., & Winkelmann, A. (2017). Assessing process fit in ERP implementation projects: A methodological approach. *Designing the Digital Transformation*, 3-20. doi:10.1007/978-3-319-59144-5_1

Fryling, M. (2015). Investigating the effect of customization on rework in a higher education enterprise resource planing (ERP) post-implementation environment: A system dynamics approach. *Journal of Information Technology Case and Application Research, 7*(1), 8-80. doi:10.1080/15228053.2015.1014750

Garg, P., & Garg, A. (2013). An empirical study on critical failure factors for enterprise resource planning implementation in Indian retail sector. *Business Process Management Journal, 19*(3), 496-514.

Ghobakhloo, M. (2018). The future of manufacturing industry: a strategic roadmap toward Industry 4.0. *Journal of Manufacturing Technology Management, 29*(6), 910-936. doi:10.1108/JMTM-02-2018-0057

Ghobakhloo, M., Azar, A., & Tang, S. (2019). Business value of enterprise resource planning spending and scope. *Kybernetes, 48*(5), 967-989.

Goepp, V., & Avila, O. (2015). An extended-strategic alignment model for technical information system alignment. *International Journal of Computer Integrated Manufacturing, 28*(12), 1275-1290. doi:10.1080/0951192X.2014.964774

Goepp, V., & Avila, O. (2015). An Extended-Strategic Alignment Model for technical information system alignment. *International Journal of Computer Integrated Manufacturing, 28*(12), 1275-1290.



Goepp, V., & Avila, O. (2015). An Extended-Strategic Alignment Model for technical information system alignment. *International Journal of Computer Integrated Manufacturing, 28*(12), 1275-1290.



Goepp, V., & Millet, P. (2011). Enterprise Engineering and Alignment. *International Journal of Computer Integrated Manufacturing, 24*(11), 971–973.

Grabis, J. (2019). Optimization of gaps resolution strategy in implementation of ERP systems. *The 21st International Conference on Enterprise Information Systems (ICEIS 2019)* (pp. 84-92). SCITEPRESS. doi: 10.5220/0007710000840092

Hair, J., Hollingsworth, C., Randolph, A., & Chonng, A. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management & Data Systems, 117*(3), 442-458.

Hair, J., Risher, J., Sarstedt, M., & Ringle, C. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2-24. doi:10.1108/EBR-11-2018-0203

Hair, J., Sarstedt, M., & Kuppelwieser, V. (2014). Partial least squares structural equestion modeling (PLS_SEM): an emerging tool in business research. *European Business Review, 26*(2), 106-121.

Hardy, C. (1996). Understanding power: Bringing about strategic change. *British Journal of Managenet, 7*(Special issue), 3-16.

Henderson, J., & Venkatraman, N. (1989). *Strategic alignment: a framework for strategic information technology management.* Massachusetts: Massachusetts Institute of Techonolgy.

Hong, K., & Kim, Y. (2002). The critical success factors for ERP implementation: and organizational fit perspective. *Information & Management, 40*(1), 25-40.

Hong, S., Siau, K., & Kim, J. (2016). The impact of ISP, BPR, and customization on ERP performance in manufacturing SMEs of KoreaA. *Asia Pacific Journal of Innovation and Entrepreneurship, 10*(1), 39-54.

Hu, H., Lee, Y., Yen, T., & Tsai, C. (2009). Using BPNN and DEMATEL to modify importance performance analysis model; a study of computer industry. *Expert Systems with applications, 36*, 9969-9979.

Huber, G., & Power, D. (1985). Retrospective reports of strategic-level managers: Guidelines for increasing their accuracy. *Strategic Management Journal, 6*(2), 171-180. doi:10.1002/smj.4250060206

Kang, S., Park, J., & Yang, H. (2008). ERP alignment for positive business performance: Evidence from Korea's ERP market. *Journal of Computer Information Systems, 48*(4), 25-38.

Kholeif, A., Abdel-Kader, M., & Sherer, M. (2007). ERP customization failure: institutionalized accounting practices, power relations and market forces. *Journal of Accounting and Organizational Change, 3*(3), 250-269.

Kock, N. (2015). Common method bias in PLS-SEM: a full collinearity assessment approach. *Internatinal Journal of E-collaboration, 11*(4), 1-10.

Lee, J., & Gereffi, G. (2015). Global value chains, rising power firms and economic and social upgrading. *Critical Perspectives on International Business, 11*(3/4), 319-339. doi:: https://doi.org/10.1108/cpoib-03-2014-0018

Liang, Y. (2013). Children's Influence on Purchasing Tourism Products via the Internet: Parental power Versus children's Power—the Social Power Perspective. *Journal of Travel & Tourism Marketing, 30*(7), 639-661.

Lopata, A., Ambraziunas, M., & Gudas, S. (2011). Knowledge-Based Approach to Business and It Alignment Modelling. *Transformations in Business and Economics, 10*(2), 60–73.

Luftman, J. (1996). Applying the Strategic Alignment Model. In J. Luftman, *Competing in the Information Age: Strategic Alignment in* (pp. 43-72). New York: Oxford University Press.

Luftman, J. N., Lewis, P., & Oldach, S. (1993). Transforming the Enterprise: The Alignment of Business and Information Technology Strategies. *IBM Systems Journal, 32*(1), 198–221.

MacKenzie, S., Podsakoff, P., & Jarvis, C. (2005). The problem of measurement model misspecification in behavioral and organizational research and some recommended solutions. *Journal of Applied Psychology, 90*(4), 710-730.

Mahmood, F., Khan, A., & Bokhari, R. (2020). ERP issues and challenges: a research sysnthesis. *Kybernetes, 49*(3), 629-659. doi:10.1108/K-12-2018-0699

Mahraz, M., Benabbou, L., & Berrado, A. (2020). A Compilation and Analysis of Critical Success Factors for the ERP Implementation. *International Journal of Enterprise Information Systems (IJEIS), 16*(2), 107–133.

Mamoghli, S., Goepp, V., & Botta-Genoulaz, V. (2017). Aligning ERP systems with companies' real needs: an 'Operational Model Based' method. *Enterprise Information Systems, 11*(2), 185-222.

Millet, P., Schmitt, .., & Botta-Genoulaz, V. (2009). The SCOR Model for the Alignment of Business Processes and Information Systems. *Enterprise Information Systems, 3*(4), 393–407.

Neubert, G., Dominguez, C., & Ageron, B. (2011). Inter-Organisational Alignment to Enhance Information Technology (IT) Driven Services Innovation in a Supply Chain: The Case of Radio Frequency Identification (RFID). *International Journal of Computer Integrated Manufacturing, 24*(11), 1058–1073.

Nitzl, C., Rolda´n, J., & Carrio´n, C. (2016). Mediation analysis in partial least squares path modeling: helping researchers discuss more sophisticated models. *Industrial Management & Data Systems, 119*, 1849-1864.

Osei-Amponsah, C., Paassen, A., & Klerkx, L. (2018). Diagnosing institutional logics in partnerships and how they evolve through institutional bricolage: Insights from soyabean and cassava value chains in Ghana. *NJAS-Wageningen Journal of Life Sciences, 84*, 13-26.

PCG. (2020). *The 2020 ERP report.* Panorama consulting group.

Podsakoff, P., MacKenzie, S., Lee, J., & Podsakoff, N. (2003). Common methods biases in behaviorial research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*, 879-903.

Presley, A. (2006). ERP investment analysis using the strategic alignment model. *Management Research News, 29*(5), 273-284. doi:10.1108/01409170610674400

Ram, J., Corkindale, D., & Wu, M. (2015). Examining the Role of Organizational Readiness in ERP Project Delivery. *Journal of Computer Information Systems, 55*(2), 29–39.

Ranjan, S., Jha, V., & Pal, P. (2018). Critical Success Factors in ERP Implementation in Indian Manufacturing Enterprises: An Exploratory Analysis. *International Journal of Business Information Systems, 28*(4), 404-424.

Raut, R., Gardas, B., Narkhede, B., & Narwane, V. (2019). To investigate the determinant of cloud computing adoption in the manufacturing micro, small and medium enterprises: a DEMATEL-based approach. *Benchmarking: An International Journal, 26*(3), 990-1019.

Reitsma, E., & Hilletofth, P. (2018). Critical Success Factors for ERP System Implementation: A User Perspective. *European Business Review, 30*(3), 285-310.

Rossi, A. B., & Marsden, T. (2019). Redefining power relations in agrifood systems. *J. Rural Stud, 68*, 147–158.

Rwehumbiza, D. (2017). International exapansion and unobserved heterogeneity in critical success factors Emperical evidence from Tanzania and Kenya. *African Journal of Economic and Management Studies, 8*(2), 235-252. doi:10.1108/AJEMS-04-2016-0048

Sarstedt, M., Ringle, C., Cheah, J., Ting, H., Moisescu, O., & Radomir, L. (2019). Structural model robustness checks in PLS-SEM. *Tourism Economics*, 1-24.

Sarstedt, M., Ringle, C., Smith, D., Reams, R., & Hair, J. (2014). Partial least squares structural equation modelign (PLS-SEM): a useful toll for family business researchers. *Journal of Family Business Strategy, 5*(2), 105-115.

Saygili, E., Ozturkoglu, Y., & Kocakulah, M. (2017). End Users' Perceptions of Critical Success Factors in ERP Applications. *International Journal of Enterprise Information Systems (IJEIS), 13*(4), 58-75.

Shatat, A. (2015). Critical Success Factors in Enterprise Resource Planning (ERP) System. *Implementation: An Exploratory Study in Oman Evaluation, 18*(1), 36-45.

Sørensen, E. (2014). Conflict as driver of pluricentric coordination. *Plaaninng and theory, 13*, 152-169.

Summer, M. (2009). How alignment strategies influence ERP project success. *Enterprise Information Systems, 3*(4), 425-448.

Sutton, J., & Olomi, D. (2012). *An enterprise map of Tanzania.* International Growth Centre.

Svensson, G., Ferro, C., Høgevold, N., Padin, C., Varela, J., & Sarstedt, M. (2018). Framing the triple bottom line approach: direct and mediation effects between economic, social and environmental elements. *Journal of Cleaner Production, 197*, 972-991.

Swan, J., & Scarbrough, H. (2005). The politics of networked innovation. *Human relations, 58*(7), 913-943.

Swan, J., Newell, S., & Robertson, M. (1999). The illusion of best practice in information systems for operational management. *European Journal of Information Systems, 8*, 284-293.

Tafti, F., Abdolvand, N., & Harandi, S. (2019). A strategic alignment model for collaborative open innovation networks. *International Journal of Business Innovation and Research, 19*(1), 1–28.

Turner, J., Horita, A., Fielke, S., Klerkx, L., Blackett, P., Bewsell, B., . . . Boyce, W. (2020). Revealing power dynamics and staging conflicts in Agricultural system transitions: Case studies of innovation platforms in New Zealand. *Journal of Rural Studies, 76*, 152-162.

URT. (2016). *Census of industrial production 2013.* Dar es Salaam: NBS and MITI.

URT. (2018). *Annual survey of industrial production 2016.* NBS and MITI.

Van Wart, M., Roman, A., Wang, X., & Liu, C. (2017). Integrating ICT Adoption Issues into (e-) Leadership Theory. *Telematics and Informatics, 34*(5), 527-537.

Vargas, M., & Comuzzi, M. (2020). A Multi-dimensional Model of Enterprise Resource Planning Critical Success Factors. *Enterprise Information Systems, 14*(1), 38–57.

Venkatraman, N. (1989). The Concept of Fit in Strategy Research: Toward Verbal and Statistical Correspondence. *The Academy of Management Review, 14*(3), 423-444.

Venkatraman, S., & Fahd, K. (2016). Challenges and success factors of ERP systems in Austrarian SMEs. *Systems, 4*(2). doi: https://doi.org/10.3390/systems4020020

Volkoff, O., Strong, D., & Elmes, M. (2014). Technological embeddedness and organization change. *Organization Science, 18*(5), 832-848.

Volkoff, O., Strong, D., & Elmes, M. (2017). Understanding enterprise systems-enabled integration. *European Journal of information Systems, 14*(2), 110-120. doi:10.1057/palgrave.ejis.3000528

Wangwe, S., Mmari, D., Aikaeli, J., Rutatina, N., Mboghoina, T., & Kinyondo, A. (2014). *The performance of manufacturing sector in tanzania.* WIDER.

Weerakkody, V., El-Haddadeh, R., Sivarajah, U., Omar, A., & Molnar, A. (2019). A Case Analysis of E-government Service Delivery through A Service Chain Dimension. *International Journal of Information Management, 47*, 233–238.

Wijaya, S., Prabowo, H., & Kosala, R. (2017). Identification of Key Success Factors and Challenges for ERP Systems - A Systematic Literature Review.”. *International Conference on Applied Computer and Communication Technologies,* (pp. 1-6). Jakarta, Indonesia. doi:10.1109/COMCOM.2017.8167091

Zhou, H., Collier, D., & Wilson, D. (2008). The relationship of strategic business alignment and enterprise information management in achieving better business performance. *Enterprise Information Systems*, *2*(2), 201-220. doi:10.1080/17517570802095226