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Article

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Model SAAS on International Payment Organizations

Kastriot Dermaku[1], Burim Kabashi[2], Arsim Dragaj[3]

Abstract: Today's use of information technology is vast and involves almost every sphere of life. For this reason, the digitization of many common services is inevitable, including an important part such as card payment services, digitized banking industry. The first step in this regard is the process of data evaluation using analytical and logical reasoning to examine each component of the data provided. This form of analysis is only one of the many steps to be completed when conducting a research analysis. Gathering data from different sources, revised, and then analyzed to form a finding or a conclusion. There are a variety of data analysis methods, some of which include data mining, textual analysis, business intelligence, and visualization of data. Data Analysis is a process of inspection, purification, transformation, and data modeling with the purpose of discovering useful information, suggesting conclusions, and supporting decision-making. Data analysis has multiple aspects and approaches, including various techniques under a variety of names, in various businesses, science, and the field of social sciences.

This paper deals with:

1. Analyzing and investigating data with the main purpose of recognizing the environment where card transactions are processed, leading players from history to innovations in this industry. This research paper provides a brief summary of a bank card payment technology industry that has historically been always closed to the public with a view to maintaining control, global market domination and data retention of confusing.The document addresses separately the SaaS model of services, innovations in financial technology and the concept of Digital Banking.

2. Another main goal of this research is the introduction of payment systems in Kosovo, and research that through which technological investments can increase card payments in Kosovo.

Keywords: Software as a Service; Card Payment Systems; Innovations; Digital Banking; Processor Center; EMV; PCI-DSS; Visa; MasterCard

JEL Classification: E51

SAAS Model - Software as a Service

The SaaS model is the software delivery model from a centralized client base. The model of this service does not require the client to install any software or client part of the software based on the previous Server-Client architecture. In the SaaS Model, the entire Software lies in the Services of the Company providing the service and for the most part the client only needs Internet access over the Internet and he will have full access to the software that he has configured and receives professional services from the software. Instead of installing and maintaining software, the client can simply use it over the Internet, freeing up from complicated software and device management and related infrastructure. The service provider manages access to the application, including security, availability,

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and performance. The SaaS model facilitates the distribution of the application, making this the main advantage of SaaS services. SaaS model users have no hardware or software to purchase, install, maintain, or update. Access to applications is easy - you only need an Internet connection. A good way to understand the SAAS model is by thinking about a bank that protects each client's privacy by offering a reliable and secure service - on a massive scale. Bank customers use the same financial and technology systems without worrying about their personal information. A "bank" concept of functionality meets the main features of the model's operation description SaaS. SaaS is characterized by multi-functional architecture, in which all users and applications share a single, centrally-maintained core infrastructure. (www.quora.com, n.d.) Because SaaS service providers are all on the same basis of infrastructure and code, service providers can update faster and save the valuable development time previously spent on keeping multiple versions of code outdated. There are multiple benefits from using this architecture, including cost savings, customer-less improvement (and faster and better upgrade for service providers), flexibility, scalability, high performance, and low operational cost. We provide three types of modeling software through the software: IaaS - Infrastructure as a Service, PaaS - Platform as a Service and SaaS - Software as a Service; There are also some narrowly profiled sub-models that will not be considered in this document. The other two main PaaS and IaaS models include these services and features: PaaS - Platform as a service, is mostly a development / programming environment that consist of a programming language execution environment, an operating system, a Web server and a database data. It provides an environment where users can build, compile, and manage their program without worrying about infrastructure. The user manages the data sources (code) and the application. All other resources are managed by the service provider. This model represents a field for programmers. (www.quora.com, n.d.) IaaS - Infrastructure as a Service provides architecture and infrastructure. It provides all sources of information technology - hardware, but all in a virtual environment where many users can access. Resources include data storage, virtualization, servers, and networking. Most vendors are responsible for their management. If you use this service, you are responsible for handling other resources including applications, data, execution time, and Interfaces. This model is mainly for System Administrator. If we try to describe the three main delivery service models in a pyramid graphic form, the following figure gives us a graphical representation of the role of each model according to the importance and number of respective clients for each model and who are the users of each model.

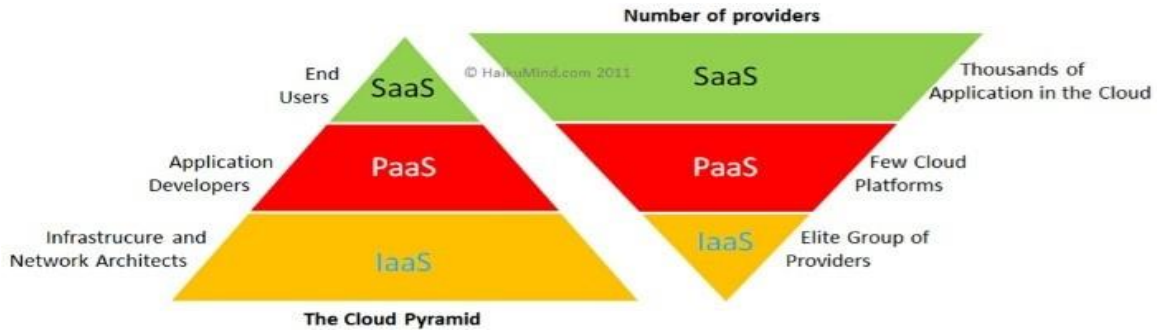

Figure 1. Pyramid form shows the importance / hierarchy of each model and the amount of users using specific patterns

Graphically, the amount of services covered by each of the three major models can be presented in comparison to the coverage of technology services in a traditional, installed / managed way on the client side.

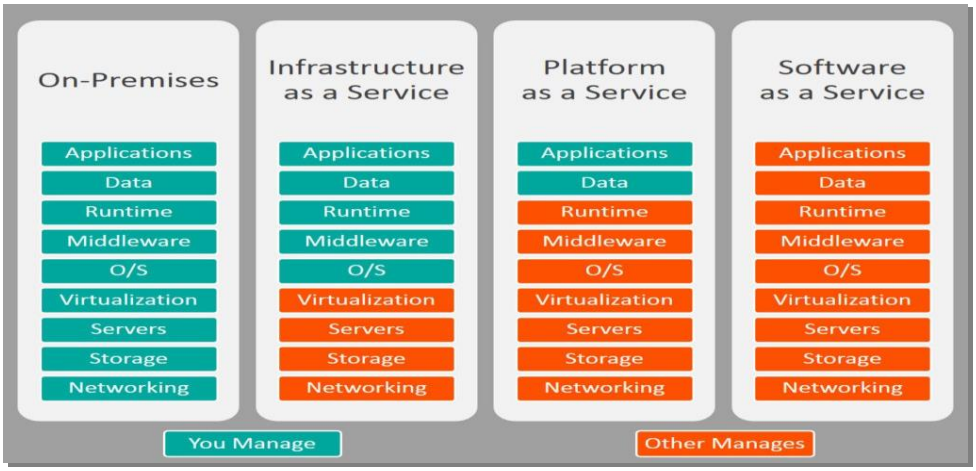

Figure 1.1. The amount of business model services that are performed on each service model: All on the customer side - On Premise, IaaS, PaaS and SaaS.

The SaaS model removes the need for organizations to install and run applications on their computers or in their data centers. This eliminates the costs of purchasing, securing, and maintaining hardware, as well as licensing, installing, and supporting the software. Other benefits of the SaaS model include:

Flexible Payments: Unlike traditional software, which traditionally is sold as a cost-perpetual license with an optional fee for ongoing support, SaaS providers generally offer it using a subscription fee, most often a monthly payment or an annual fee. Consequently, the initial cost of installing for SaaS is usually smaller. SaaS vendors usually offer their applications based on some usage parameters, such as the number of users using the app or there is a possibility to bill for transaction, event, or other value unit, such as the number of required processors. Users can also complete SaaS offerings and payments at any time to avoid costs if the exploitation has ended. Accessibility and Mobility: Since SaaS applications are offered over the Internet, users can access them from any device and client location. So the client is no longer connected to systems in his business or individuals from programs on their PC, with SaaS they can be used by their programs from any location via laptop or through mobile phones. (www.quora.com, n.d.)Quick parameterization reduces the cost of installation or maintenance. Easy access to comprehensive security, back-up and support services. SaaS has become a common distribution model for many business applications, including accounting software, messaging software, payroll software, client relationship management software - CRM, information management systems - MIS, scheduling enterprise resources - ERP, billing, human resource management - HRM, online learning management systems, payment systems, etc. The major providers of software services under SaaS are: Salesforce, Oracle, SAP, Intuit, Microsoft, PayPal, Linked-In, Visa, MasterCard, and Amex. The SaaS model, though labeled as the technology information service offered since 2008, has been used earlier in the architecture and the way of providing services to companies through advanced software by international payment organizations. Payment systems are built very early and they have a history of development since the 1970s, when it was discovered by the IBM magnetic card engineer, which enables the storage of basic customer financial data on the card and then the use of during reading at payment terminals. At the beginning of the creation of card payment systems, the terminals worked without direct connection to the bank - offline, then they were without a PIN code, and all transaction records were stored at the terminals were approved only with signature from the client. At the end of the day, the notes were sent to the Bank by POS terminals and the transactions were settled

against the accounts of the clients.The 1970s and 1980s were the years when the first electronic credit card authorization systems were created. After the 1980s, with the creation of more advanced communication networks, the most powerful PCs and servers, the larger POS terminal terminals and ATM cash terminals for cash disbursement that received direct approval from the online system, to imagine payment systems that will be able to provide services globally. Systems at that time were still the Mainframe and Server-Client model, but very quickly in the late 1990s and early 2000s international payment systems were being transformed first and foremost in the SaaS service delivery system, where it would be used Current Service Delivery Logic: All processing services would be enabled on the Company's Server Services, while the client would be enabled to configure and operate via the Web and through the standardization of interfaces that enable the interconnection of banking institutions and processing centers in the systems international card authorization schemes. The main reason that international payment organizations were the first to implement the SaaS model was that they were at the same time the first in the history of information technology to be deployed globally with services and had to take care of many key factors : Provision of Services from Centralized Servers, Software that Operates Completely on the Servers side, and no need to install any additional client applications: the bank and processing center as well as future changes or enhancements in the versions would only apply to Centralized Server Software and no selective updates will be required on each client. Centralization of services meant even easier standardization of data protocols, security and parameterizations of ATM and POS terminals.

The History Payment Development Background and Key Acconts

This section will explore how software systems for card transaction execution, hierarchy of organizations involved in transaction execution, their role in the scheme, and technological requirements to be implemented to have a functioning electronic payment system with cards. We will begin to describe the history of the organizations and the establishment of the first credit card at short notice. By presenting the history of the first card we will learn how to become globalization of services and the growth of companies that provide services in the Software model as a SaaS Service. Technology development is a struggle between engineers, scientists and organizations that all see technology with another purpose and another evolution. The payment card technology also shows a story where technology is perceived with different purposes and a struggle between systems to simplify payments for consumers and traders. The story begins in the United States that used the concept of a credit card with custom “Charge-It” tiles during 1946 on a local scale in Brooklyn. Every time a customer bought a product to a trader, the financial debt load was sent to the Biggins Bank, which credited the trader and debited the customer. This simple transaction could only be done if the client had a bank account at “Biggins Bank”. This system worked so well that in 1949 Diners Club was founded as the first company to issue credit cards. This company acted as a broker between the client, giving them credit and merchant, attracting customers for card payments. In this case, when a customer bought products to a Diners Club member merchant, he would present the card and complete the purchase, and then the dealer would then send the signed bill including the customer name to the Diners Club. At the end of the month, Diners Club collected unpaid debt, interest, and carried it to the dealer. Charges for the customer's lending service and for the system invoice processing charge were reimbursed to the customer as well as to the trader. This system represents the basis of card payments as a universal product and was marketed at the time as the 'travel and entertainment card' used to make general purchases on a geographic scale bigger than just local dealers. The success of Diners Club attracted many interested players in the market. In 1958, American Express and Carte Blanche entered the market and tried not to cover a neighborhood or small town but to cover the national scope with

their cards. During the same year, the Bank of America came with the product BankAmerica, which in 1976 became VISA because it was easier to pronounce in other languages. Because other banks saw that the market expanded and could not remain in response to the Bankamedard, banks such as United Bank of California, Wells Fargo, Crocker National Central Bank and the Bank of California formed the Interbank Card Association Card Association - ICA) in 1966. ICA would become Master Charge in 1969 and would be transformed into MasterCard in 1979 due to the ambition for international expansion. Because other banks saw that the market expanded and could not remain in response to the Bankamedard, banks such as United Bank of California, Wells Fargo, Crocker National Central Bank and the Bank of California formed the Interbank Card Association Card Association - ICA) in 1966. ICA would become Master Charge in 1969 and would be transformed into MasterCard in 1979 due to the ambition for international expansion. At this time to minimize physical file duplication scams, the cards began to be personalized with embossed and client-name-name clients, and a card number which, when presented for purchase, was used to make the purchase through a manual machine called Zip-Zap or Imprinter, where the card was placed first in the car, placed over the bill and passed by a slider rule that transferred the letter and the number upgraded to the credit card receipt, which was then signed and the purchase was completed.

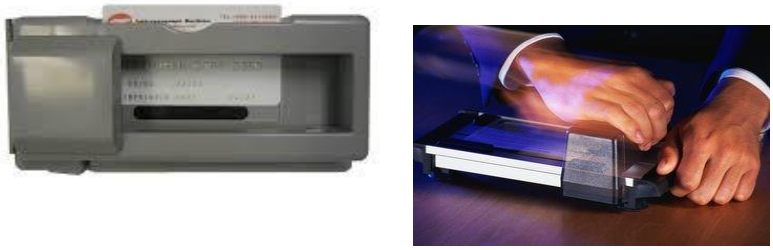

Figure 2. Views from the Imprinter machine and the way operator operated in a manual way to transfer credit card entries to the bill. In Europe, the history of development is different. Credit cards did not find much support in Europe during the 1960s. Instead of a credit card, the first cashless payment method in Europe was introduced during the 1960s with Eurocheque, a form of check-paper

European banks were considering the American system that reached the status of the model, because cashless payments and banking habits were a very common phenomenon in this part of the world. Banks began investing in computers and their systems because they realized that cash payments could only be useful if they were done electronically instead of manual work and paper processing. The high manual labor costs were dealt with in 1972 when European banks linked to the Eurocheque system agreed to establish a standardized guarantee card which was proof that the client fulfilled the terms of the loan. The technology of smart card ICs and IC chip in 1974, created by Frenchman Roland Moreno, made it possible to increase the security of the card with a magnetic tape and act as a Eurocard debit card during the 70's and 80's . Eurocard, Eurocheque and guarantee card were common payment methods in Europe during the '70s and' 80s. The use of ATMs also gained more territory in everyday life. Eurocard, which had an ICA alliance since 1968, and Eurocheque joined Europe in 1992 and became a debit card that could be used across Europe. After the introduction of the euro in 2002, euro pay joined MasterCard International and continued to function as a debit card for the European market. Automated electronic payment cards started to develop only in the 1980s when technological advances of computers / servers and faster telephone line communications were introduced. The first ATMs for automatic ATM cash disbursements were discovered and functionalized by Barclays Bank in London in 1967 but at that time they did not work with credit

cards, but with a carbon paper bill that was read by ATMs and did not they turned back. ATMs who would work with cards would be patented only after 1973 after the launch of magnetic tape cards that allowed reading of ATM information. The first electronic terminals (EFT-POSs) that realized card transactions through the passage of the magnetic tape were discovered in the early 1980s. During the 1980's and 1990's, when automated electronic systems began to be used, massive use of debit and credit cards for payments was also possible.

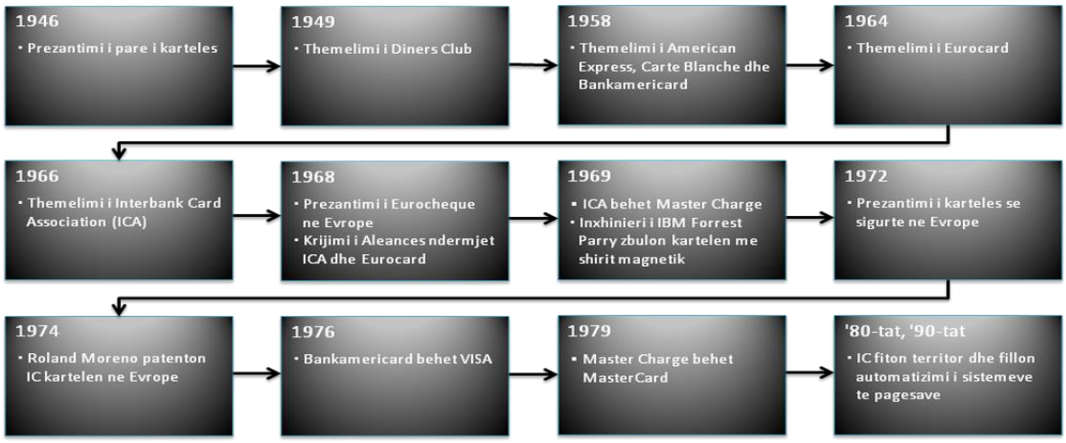

Figure 2.1. Graphic presentation of historical events in the development of card payment systems

The history of the development of international card payment organizations is closing with the cooperation that finally reached all the companies where the technology developed by VISA and MasterCard which contributed to the development of payment system standardization technology will be used to create the EMV standard and the EMVCo organization, which is a collaboration between American Express (USA), Discover (USA), JCB (Japan), MasterCard (USA & Europe), Union pay (China) and VISA (USA & Europe). The EMV standard, which stands for the euro pay standard, MasterCard VISA, the founders of this technology, is used to provide the card payment industry and has the ambition to create a secure payment system worldwide. International card payment organizations do not issue cards directly to consumers / citizens, the relationship of cooperation is not Business-Client (B2C) but they cooperate and join only banks and payment processing centers and other companies that are part of the system payments, so the relation is Business-Business (B2B). (www.bankassockos.com, n.d.)This form of business makes it easy to control systems. In the international payment world we recognize different payments, different systems, rules and different operators such as: national and international transfers, SWIFT code transfers, money transfers through IBAN and various, which are not included in this document. In our topic will only be discussed about card payment systems, i.e. only those systems where transactions are initiated through the card. In these systems, we know different actors that play an active role in conducting worldwide transactions.

The main actors are:

- International payment card organizations: Visa, MasterCard, Diners Club,
- American Express, Euro Pay, Discover, etc.;
- Process Centers, Payment Facilitators, Gateways, Switches, Technology Companies.
- Central Banks, National Settlement Services (National Settlement Services)
- Banks, Financial Institutions, Card Issuers, Card Acquirers

- Card Holders - Bank Customers, Traders

Below we present a hierarchy of organizations that are part of international payment systems.

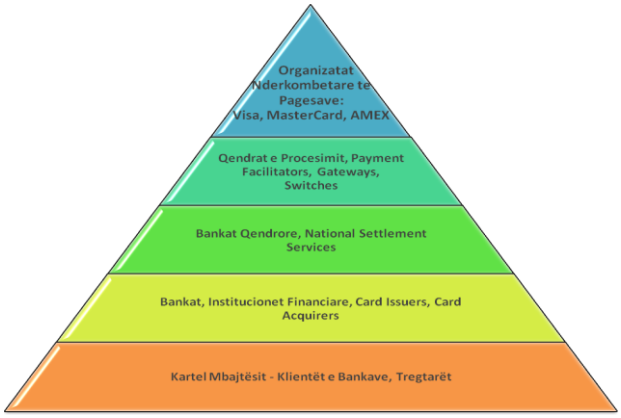

Figure 2.2. In Pyramid form, the importance / hierarchy of each member who participates actively in the daily processing of transactions through payment systems is displayed.

Key Accessories, Software Systems, Standards, Regulators and Linking Systems

Automated payment card systems in the last years are so complex and multidimensional that it is impossible to reach within a document to include all the technical details related to their work.

Based on extensive research on official documentation of international card payment organizations we will summarize the key points that are needed to successfully respond to research questions and give a full picture of the operating scheme.

International Payment Card Companies: Visa, MasterCard, American Express

The development of international cartel-to-card organizations was seen in the previous chapter, where history shows that they started using the card as a fully-paid payment tool, where the card had only the role of membership in the specific bank and it was enough to possess and display it physical and paid. Due to the fact that many facilities are available, this means of payment every year is being received more and more by the world's population. It is almost impossible to imagine today bank acting in a state of the world and not to release a card form to its customers, whether it is for membership, local use, magnetic tape or latest smart chip technology and pin. But due to changing the way of life, improving the economic situation and the ability of the population to travel more, now every bank customer wants the best - a Visa, MasterCard or American Express card. (bqkkos.org, n.d.)That is, these pervert cards are used by clients within their own country, they can be used on any terminal that has these logos around the world, and what's already important is also available online purchases in stores that sell through Web shops. But for a Bank to come up with the possibility of product delivery and then its release in the use of a card with the logo of international card payment organizations needs a lot of work, it has to pass several phases in order to qualify become a member of these organizations. The following are details of the three major organizations that are spread all over the world: Visa, MasterCard, American Express and other organizations we will not cite in this section.

Who is Visa International?

Visa Inc is an American multinational financial services organization based in Foster City, California, United States. It enables electronic money transfers all over the world, most often through credit cards with Visa and debit cards. Visa does not issue cards, issues loans or imposes fees and charges to

customers; On the contrary, Visa offers financial institutions services through embedded products with Visa logo, which are then used to provide services through credit card products, debit card, prepaid cards. Visa has operations across the continents around the world with the exception of Antarctica. (https://www.visa.com, n.d.) There are two data centers that have been heavily provided against natural disasters, crime and terrorism; can act independently of each other and from external services if necessary; and can handle up to 30,000 concurrent transactions and up to 100 billion every second. Each transaction is checked by passing 500 variables and including 100 fraud detection parameters, such as the location and habits of client spending and the merchant's location before the transaction is approved. In Visa Net today is processed, More than 150 million transactions each day have been authorized in 175 different currencies, 1.8 billion account holders who can file card transactions, 30 million trades, 2 million ATMs and 15,000 financial institutions.

Who is MasterCard incorporated?

MasterCard Incorporated is a US multinational financial services corporation headquartered in MasterCard Headquarters in Purchase, New York, United States. The Global Operations Center is located in O'Fallon, Missouri, and United States. All over the world, its core business is to process payments between commercial banks and banks issuing cards used as debit credit or prepaid for the MasterCard to make a purchase. MasterCard Worldwide has been a publicly traded company since 2006. (https://www.mastercard.com, n.d.) Prior to changing its public status, MasterCard Worldwide was an organization owned by more than 25,000 financial institutions issuing its MasterCard branded cards. Through MasterCard Global, processing 56 billion transactions per year, transactions take place in less than one second, multiple layers of protection are provided, and more than 150 million transactions are processed each day and authorized in 150 different currencies in 210 countries.

Who is American express?

American Express, also known as Amex, is an American multinational financial services organization based in Three World Financial Center in New York City. In 2016, the credit cards used on the American Express network are. 22.9% of the total volume of dollar-denominated credit transactions in the US. By December 31, 2017, the company had 112.8 million cards in force, including 50 million cards in use in the United States. (https://www.americanexpress.com, n.d.)American Express differs from the mode of operation in addition to Visa and MasterCard, as it issues credit cards and manages the application process even directly without being linked through the bank. Credit cards issued by American Express are cards that have a high status in the company and are issued to individuals and businesses that have high annual and monthly turnover. Credit cards issued for specific cases for a particular individual may be large - in millions of dollars, or in some specific cases without restrictions, so that customer can spend without any limitation on the amount and can make purchases in what do you want. (secure.cmax.americanexpress.com, n.d.)

Process Payment Centers (Payment Facilitators, Gateways, Switches, Technology Companies)

Processing Centers are among the most important members of the card payment scheme. Information Technology Systems where all the elements that take part in the realization of the life-taking transactions are these systems. Process Centers are software designed to function cards, ATMs, POSs, but not only are these software programs performed with a number of operational features that enable complete card transaction cycle to be completed. (https://www.firstdata.com, n.d.) Process Centers are in the world's second hierarchy among international card payment organizations and banks, card

dealers. Process Centers are those that connect all stakeholders together and enable card payment schemes to be functional both within and within the specific network at Visa, MasterCard, AMEX and Diners. (Ashton, 2002)The history of the first processing centers with the need to automate card payment systems among the first companies that have been providing processing services through technology implementations is First Data in the US that was founded in Omaha, Nebraska in 1971. It is the center the world's first processor that enabled processing of Visa, MasterCard and American Express transactions. After the establishment of First Data, the need to create more processing centers around the world was added. All work of the processing centers is based on the capabilities of the services provided through the Software Systems developed for multi-unit and terminal communication. The services provided by the Processing Centers are entirely based on communication through networks or internet communication. In the year 1975, one of the world's most powerful software companies for the production and development of software used to create a processing center, ACI Worldwide, was established in Naples, Florida, USA. (https://www.aciworldwide.com, n.d.)The main task of this company was to develop a broad line of products and software solutions focused mainly on facilitating real-time electronic card payments.

The processing centers have essentially the following services:

Front Office: Host System- Online Server 24/7 processing services o ATM online management o POS online management o HSM - Host Security Module - Management of encryption keys o VISA, MasterCard, AMEX, interlink connection management o Managing all online cards, transactions, authorization schemes, pin and security schemes.

Management of liaisons with Banks and other financial institutions

Card Interconnection Management Systems o Management of TMS / Merger Interconnection Management with Traders o Reporting / Online Tools and Monitoring. (C.W.Lin, 2015) Back Office: Card Management Systems o Registering brands and card schemes, limits, variables o Creating card parameters: debit, credit, prepaid, gift, bonus, revolving, etc. Management of bank and commercial transit account interconnections, creation of interfaces with Bank for exchange of files.

- Opening new files;
- Import / export of transactions, balances, different states;
- Diners Reporting to the Bank, Visa, MasterCard, AMEX, Diners;
- Changing the statuses, status and parameters of the card;
- Preparing the cards for sending to the personalization stage.

Personalization Card Factory Preparatory Systems o Parametrize personalization schemes of: EMV smart chip, magnetic tape, pin o Calculates security keys and encrypts encrypted chip data o Prepare data in P3 file format ready for personalization by machines personalization: printing on the front of the data card, printing at the back of the CVV2 / CVC2 online security code, data encryption on Track1 & 2 magnetic tape, EMV chip programming and contactless chip.

- Personalization is done in the center of personalization and then the files delivered via post to the Bank or
- Personalization can occur in the machines installed in the Bank, which enable the quick release of the cards called “Instant issuance solution”.

 PIN code in the past has been handed over to the printed letter, now the most common methods of handing over to the PIN are through the SMS code on the mobile phone or by generating at ATMs or POS at the bank offices.

Fraud protection Systems or Systems closely linked to the Front Office Online Processor, which actively enable you to control transactions along with:

 Pre-defined algorithms;

 Predefined Condoms;

 Certain alarms o Systems enable to actively identify suspicious cases of cardholder transactions and provide the message and thus prevent the misuse of cards by fraudsters.

These systems in many cases work automatically but in some cases require the intervention of the authorized person to make the decision. Clients in many cases do not notice these alerts during transactions, but there are cases when the client attempts to execute a transaction on a specific risk criterion previously determined by algorithms or condition of the transaction control fails-is not accomplished.

Card Case Management - Dispute Management System

One of the biggest successes that follow the card payment system is that financial institutions are enabled to automate customer complaints management when transactions fail. Each of the international card payment organizations has established its own system of managing complaints or suspicious cases related to transactions executed through cartels. (Schüffel, 2016)Systems for managing complaints or fraud cases are managed through Process Center systems that allow access to their banks to use these services. Systems manage cases by dividing types of transactions into two groups: 1) Managing transactions that have complaints, failures, failure to execute orders, and 2) Transaction management identified as Card Fraud transactions. Case Management Systems - There are various functions that allow processing of cases under the rules, among them are:

- Defining Parameters of Complaints and Messages;
- Simplified process for tracking complaints records;
- Easy link to original transactions arising from complaints;
- Memo Management;
- Document Management and Forms of Clients.

This process in English is also known as the Charge Back Process - a process that helps customers turn back the means for transactions that have failed by technical nature, failing to be completed as purchase orders or even transactions that were not initiated by the client. (Schüffel, 2016) Each of the organizations has a Charge Back Rules Book when it is allowed to process the request for the return of the tools and through those rules the process is precisely managed.

The process of returning funds has the following steps:

- First presentment;
- Second presentment
- Good faith;

- Arbitration.

For card holders around the world, this system enables them to feel safe and have a degree of protection for their tools if something has gone wrong during the realization of the transaction in what the environment. The only negative thing in this process is that all steps need to be passed through the banking officer from the application to the process until its completion, and that this process up to the final stage can take up to 75 days.

Payment Facilitators, Gateways, Switches, Techonolgy Companies

Processing center systems, depending on the interconnection and contracts that deal with banks or financial institutions that want transaction processing services, may fully operate the capacity of the offered or partial services. In cases where Banks within their banking systems have online transaction processing systems and only need to link with Visa, MasterCard, Amex or Diners, this connection can be made through the Process Center which in this case plays the Processing Center Switch role . In cases where online trading that sell through Web shops requires online processing services and connection with Visa, MasterCard, Amex, Diners can then be directly linked to the processing center which in this case plays the role of the Processing Center Payment Gateway. In cases where the processing center is contracted by Trading to perform transaction processing services then its role will be called the Payment Facilitator. (Sanicola, 2017)About the creation of the environment for the realization of transactions requires the support of many IT companies related to financial products. Companies that help with their technologies are both the nature of software development as the nature of hardware development. Among the most important software technology companies for the spectrum are:

Software companies developing systems of processing centers:

- Software companies that develop operating systems and software for ATM and POS terminals management;
- Software companies that enable different integrations between different parties through software interfaces and integrators based on protocols and established standards;

Among the most important hardware companies in the spectrum are:

- Companies that develop and produce ATM terminals;
- Companies that develop and produce POS terminals;
- Companies that develop and produce smart card, smart chip, contactless;
- Companies that develop and produce card personalization machines, chips, and any other modules like NFC, RFID tags etc. that enable transaction execution. Etc. (Schueffel, 2017).

Central Banks, the National Financial Exchange Service (National Settlement Services)

Central banks in many countries of the world have an active role in the card payment system and in many cases perform processing services as a processing center. (Aldridge, 2017)They dictate rules through laws, regulations, guidelines, mandates and manage credit card risks through banks that monitor and audit. Central banks, depending on the state, take the primary role of exchange of financial assets between banks, and this process is performed on a daily basis and helps banks to carry out this process at a cheaper cost than the same to be carried out separately by each international organization card payments where banks operate.

Banks, Financial Institutions (Card Issuers, Card Acquirers)

From Banks comes the entire demand for automated payments and the bank has started everything as the development history tells. The need for bank customers to use for card payments as an easier, faster and more secure payment has pushed banks to develop in every country of the world, as besides businesses now with every individual in the world, it is almost necessary to be part of a bank to perform various payment services. (Scholten, 2017) Since the 1990s, all the banking software systems - Core Banking System, are also equipped with the integrated software partition that manages the card release throughout its lifespan. Modern banking software systems enable multiple connectivity through standard-based interface and they now allow one or more processing centers to link to one or more terminal management systems. (Bamodu, 2003)Banks according to the type of license they receive from international card payment organizations can only be issued by the Issuing Bank or the Acquiring Bank. If a Bank issues cards but also manages within its services the ATM and POS terminals network, this Bank is also a Issuing & Acquiring Bank.

Conclusions

Is very wide and since in this topic we have set some research questions, we will concentrate on summarizing the data to answer them: How was the international realization of card transactions possible, which systems enabled it to do so? - Based on the research carried out, for the international realization of card transactions have preceded some historical events until the systems that have enabled the execution of transactions have been created. Among the most important systems that have affected the internationalization of transactions is the automated payment system with cards implemented in Visa and MasterCard and then in Amex and Diners, as well as the establishment of processing centers that reached their services offer also overseas. Other positive developments in this internationalization have also been the growth policies of international card payment organizations that have been unobstructed by any state of the world or financial institution (even in dictatorial countries, payment systems have been penetrated and accepted). What standards were created to regulate the way the payment systems function in the unified form in all stakeholders and how are they applied?Many standards have been established that regulate the way in which payment systems operate in a unified form across all stakeholders. Among the first standards with the biggest role was the EMV standard, and then the standard for security of the mandate to be implemented by any institution that processes PCI-DSS Payment Card Industry Standard-Data Security Standard card transactions. There are also other standards that aim to enforce the implementation in various interfaces like the most popular ISO8583 standard, and the interconnection between traders and processors EPAS, ISO20022. But to better manage the management of many devices, cards, terminals, software that manage the terminals, a large number of standards will be listed that are attached at the end of this document. The application of the main standards is done through the Mandate addressed to Banks and Processing Centers. Timely and timely implementation is required. The Processing Centers are obliged to make an annual audit procedure for the implementation of PCI-DSS standard rules by a certified auditor, while banks are required every two years to conduct self-certification of their systems to meet the criteria set out in standards PCI-DSS.Who are the main players in the system that enable the realization of international transactions, their role and the role of evolving networks and internets in securing transactions? The research showed that there is a hierarchy of organizations and institutions that participate in the international realization of card transactions, with the largest role that are the international organizations of Visa, MasterCard, Amex payment cards and followed by

processing centers which with their software services enable the interconnection of all other stakeholders such as Banks, Traders, Cardholders and ATM and POS Terminals worldwide. Certainly, the important role in the successful development of systems that enable card transactions has been their high-capacity Internet connectivity enabled during the '00s. Extending the Internet to any country around the world through physical streaming, using fiber optics to track base connections, advancing network devices like sophisticated Firewall Routers have made transactions volume-fast and secure, comparing with the networking technology provided through the fixed-line telephones used during the 90's.

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