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# MEIOS DE PAGAMENTO DIGITAL: A REALIDADE BRASILEIRA. UM ESTUDO DE SEGMENTAÇÃO AMBIENTAL.

DIGITAL PAYMENT MEANS: THE BRAZILIAN REALITY.
AN "ENVIRONMENTAL SEGMENTATION" STUDY.

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## Resumo

Nas últimas décadas, ocorreu uma migração da utilização do dinheiro em espécie para o dinheiro eletrônico e digital. Várias são as fases a construir e superar até que o dinheiro digital, atinja níveis de utilização semelhante ao dinheiro em espécie. Esse trabalho, através do modelo de segmentação ambiental de Almeida (2001), visa apresentar os principais fatores necessários à viabilização do uso e da expansão dos meios de pagamento digital no Brasil. Foi realizada pesquisa exploratória do tipo qualitativa. O método utilizado é o estudo de caso, mais especificamente, estudo do setor de meios de pagamento eletrônico e digital. Inicialmente foram coletados dados secundários mediante o levantamento de informações de

relatórios de mercado e de artigos disponíveis em bases de dados. Em seguida, com um roteiro de entrevista semiestruturada, dados primários foram coletados. Duas entrevistas foram realizadas junto a especialistas do segmento. Os benefícios do uso do dinheiro digital serão muitos. As entrevistas ressaltaram que o dinheiro digital irá gerar novas receitas com "produtos" intangíveis; possibilitará o surgimento de novos mercados; poderá reduzir custos de manutenção do dinheiro em espécie; promoverá a inclusão digital e financeira, cidadania e auto-estima. No entanto, obstáculos precisam ser vencidos: garantir a autenticidade da transação; leis e regulamentação próprias; atingir massa crítica; redução de custos de telecomunicações; etc. Esse estudo beneficia a academia de administração explorando a técnica de segmentação ambiental. Aborda um tema pouco explorado e descrito na literatura, o dinheiro digital. É de extrema importância, às organizações empresariais e sociedade, a análise do ambiente para a entrada do dinheiro digital, uma vez que essas podem se beneficiar do novo produto. Espera-se também que esse trabalho incentive o estudo em outros campos como, o do comportamento do consumidor e das teorias organizacionais.

**Palavras Chave**: pagamento digital, dinheiro digital, estratégia, gestão, meios de pagamento.

**Abstract**

In the last decades, there has been a shift from the use of cash to use of electronic and digital money. There are several phases to build and overcome until the digital money reaches similar levels of cash usage. This work, through the environmental segmentation model of Almeida (2001), aims to present the main factors necessary for the viability of the use and expansion of digital payment means in Brazil. An exploratory research of the qualitative type was carried out. The method used is the case study, more specifically, a study of the sector of electronic and digital payment means. Secondary data were initially collected by collecting information from market reports and articles available in databases. Then, with a semi-structured interview script, primary data were collected. Two interviews were conducted with specialists in the segment. The benefits of using digital money will be many. The interviews highlighted that digital money would generate new revenues with intangible "products"; will allow the emergence of new markets; it may reduce maintenance costs of cash; promote digital and financial inclusion, citizenship and self-esteem. However, obstacles must be overcome: ensuring the authenticity of the transaction; laws and regulations; achieve critical mass; reduction of telecommunication costs; etc. This study benefits the management

academy by exploring the technique of environmental segmentation. It addressed a theme little investigated and described in the literature, digital money. It is of utmost importance to business organizations and society to analyze the environment for the entry of digital money, as these can benefit from the new product. It is also hoped that this work will encourage study in other fields such as consumer behavior and organizational theories.

**Key-words**: digital payment mode, digital money, strategy, management, payment methods.

## 1. Introduction

Throughout its history, money as a means of payment has taken on a variety of formats and its evolution has become increasingly abstract, the economy is becoming more and more virtual, and society is becoming less and less user of paper and money in kind. In the last decades, the migration from of cash to the use of money in electronic and digital format (Miller, Michalski, & Stevens, 2002) has occurred. According to reports from the World Organization for Economic Development, "the fate of money is to become digital" (OECD, 2002).

Studies by BACEN (2007) present international data indicating that a full migration of the use of paper instruments to electronic and digital payment means has the potential to generate an economy of around 1% of a country's GDP / year. In this way, the digital payment medium is seen as crucial from the point of view of a "cost opportunity." However, part of the infrastructure required for the global knowledge-intensive economy - where e-commerce and digital money (in all its forms) are likely to be a key part of the economic performance - is still in stride and projects are still underdeveloped (OECD, 2002).

Due to the digital convergence of the telecommunication industry and mobile devices, and to new technologies, a wide variety of products and services emerged in the market (Miller, Michalski, & Stevens, 2002) some of them, new payment methods such as digital money. The term Digital Money encompasses the category of digital and electronic payment means and has been associated with different formats and denominations, electronic money, digital money, e-money, e-cash (Chida, Mambo, & Shizuya, 2001), point-of-sale transactions, prepaid cards, digital wallets, and "stored card" or "gift cards" (Misra, Javalgi, & Scherer,

2004) In this context, it is important to note that digital money is a substitute for cash (Chida, Mambo, & Shizuya, 2001; Misra et al., 2004) and may have implications in the business environment as well as in the personal life of consumers (Braga, Isabella, & Mazzon, 2013).

In the business environment, digital money can become a strategic piece to attract new customers and seek to increase profitability. However, for this to occur it is essential that there is a strategic plan for its implementation. Strategic planning is the technique in which an organization's environment is analyzed, seeking to identify opportunities, threats, weaknesses, and strengths when it refers to the company's mission (Almeida & Fischmann, 1991). One of the steps of company planning is to understand the environment and the time when the company fits. In regard to the new money, there are several phases to be built and/or overcome until the digital money, as a means of payment, reaches the level of use similar to cash. From the lack of critical mass, interoperability, ease of operation, to changing attitudes and culture to this new means of payment, are necessary for the expansion and mass operation of this instrument. In this context, this paper intends to answer the following question: What is the Brazilian reality of the segment of digital payment means and digital money?

To answer this question, this paper aims to present, through an environmental segmentation, based on the Almeida (2001) model, the main factors necessary for the viability of the use and expansion of digital payment means in Brazil. For this purpose, this article identifies the main factors to the success of the application and expansion of the new means of payment of the Digital Era, such as digital money, mobile payment or mobile banking.

This study benefits the management academy, exploring the administrative technique of environmental analysis. It addresses a little-explored topic in money management. Although articles explore much the issue of discount, installment or price of a product, little is described in the literature on money, even less on digital money.

Not only does academia benefit from this study but analyzing the environment for digital money entry is of the utmost importance to business organizations as well as to society that can benefit from the new product. They benefit from the possibility of a new means of payment that translates convenience and security emerges. This means of payment can be adopted for payments made between the industry and the retail; it brings benefits such as reducing the amount of money that circulates in a transport (truck of Coca-Cola, for example)

when its deliveries of goods in small retail. "Not transporting cash" in a truck - from retail to small retail - can lead to the reduction of burglaries that they constantly face, increasing their safety. Another benefit is the increase in the speed of accountability that consequently reduces overtime in the back office of accounting and logistics staff.

The society also benefits from the potential reduction of assaults aimed at stealing cash in kind from individuals, thereby increasing their safety. The study could guide the main players in the segment to establish their action plans aiming at the widespread use of digital payment means. Finally, it can base government institutions in their actions of inclusion and financial education, development of communication and education campaigns promoting the use of digital money, among other possibilities.

Thus, in addition to this introduction, the construction of this work encompasses the bibliographic review that will consist of the presentation of concepts of money and digital money, and of environmental segmentation. Next, the research methodology, the results, conclusions, notes for future research, and finally, bibliographic references are presented.

## 2.Literature Background

### 2.1 Cash and Digital Money

At present, consumers have a wide variety of means of payment (Pulina, 2011; Soman, 2001, 2003; Srivastava & Raghubir, 2008) that facilitate commercial transactions because they are more convenient, accessible and widely acceptable (Soman, 2001). The means of payment is an important component in the context of any purchase transaction (Srivastava & Raghubir, 2008) and according to Hancock and Humphrey (1998), the structure and payment systems of a Country consists of payments in cash and not -money. The main monetary instruments are cash, checks, debit or credit cards, electronic transfer of funds and, more recently, digital money (Braga, Isabella, & Mazzon, 2013).

For the purposes of this article, the denominations shall be used interchangeably: payment mechanism, payment method, paymentinstrument, mode of payment; will be considered as digital money and electronic money as synonyms (Chida, Mambo, & Shizuya, 2001).

According to Miller, Michalski, & Stevens (2002, p.12) money is "a credit, in the form of currency normally issued by a financial authority, with the highest degree of credibility

regarding the expectation of future repayment." It seems simple, but it is complicated (Goldfinger, 2002) since money has many functions (International Monetary Fund [FMI], 2000 *apud* FSA, 2001; Miller, Michalski, & Stevens, 2002) and a variety of forms, not to mention the multiplicity of payment mechanisms (Soman, 2001). For types and formats of money physical appearance is considered (Srivastava & Raghubir, 2008). Three are the primary functions of money: (1) unit of account which is the standard applied for the definition of prices of services, goods, financial and non-financial assets (IMF, 2000); (2) value reserve, used for maintenance or retention of wealth; (3) means of payment / exchange, that is, used for purchases of services, products, goods, etc. (IMF, 2000, Miller, Michalski, & Stevens, 2002).

With the evolution of the money format and the emergence of new payment methods, the era of digital money is born, which includes everything related to mobile payment (payments made through the use of mobile devices). Panurach (1996) describes digital money as the equivalent of paper money, being in electronic form. The Financial Service Authority defines it as "any monetary value represented by a credit to the issuer, which is stored in an electronic device and accepted as a means of payment by other not the issuer. " Finally, the European Central Bank (2008) similarly defines digital money as "any amount of monetary value represented by a credit issued on a prepaid basis, stored in an electronic medium (eg a card or computer) and accepted as a means of payment by others other than the issuer "(Athanassiou & Guix, 2008, p.6). Also, according to Huet (2011), the term digital money encompasses everything that has reference to mobile payments (payments made with the use of mobile devices).

In the world, there are examples of the use of digital money and digital means of payment. There are today digital portfolios like Google and PayPal, the latter present in 190 countries and has a portfolio of more than 90 million customers according to PayPal (2013). Several cities in the United States have automatic street vending machines used to pay for parking using their mobile devices, or the EZ Pass used to pay tolls (Wharton, 2010), analogous to the Free Pass used to pay tolls on roads in the Brazilian Southeast. In Hong Kong a very successful example of digital money is the Octopus, created in 1994 by public transport companies, this was the first application of the Octopus that later expanded its use to other applications, in 2006 about 3,800 establishments in various commercial segments they accepted it as a means of payment. Public telephones, parking lots, and networks like

Mcdonalds and Starbucks accept Octopus, in 2008 there were 17 million cards in circulation, and 95% of Hong Kong residents aged 15-65 used it (Breternitz, Almeida, Galhardi, & Maccari, 2008),

In Brazil, there are also several examples, one of which in Rio de Janeiro is the "Favela Card," where the practice widely diffused in the Brazilian culture of the "spiral note book" has been gradually replaced by instruments such as this card. The "Favela Card" was conceived through an agreement between a company, the Red Web, and merchants of the communities. It allows the use of a kind of virtual credit card, which works by cellphone, the Popular Card. Upon completion of a sale, the merchant sends the text message to the Red Web with the amount of the expense and the customer's code. The buyer, previously registered, then receives a torpedo on his cell phone and confirms the purchase by typing his password. The idea of the virtual card was suggested to the company by a taxi driver. Now, the shopping system will be taken to other favelas, the next one being the Favela da Rocinha (Molica, 2012).

Athanassiou and Guix (2008) describe two main areas of digital money operations. First, online (virtual) payment transactions that include transferring resources stored in an online account whose access is usually done through the Internet browser and sometimes via mobile phone. This modality does not include traditional bank deposits. The second area is payment transactions made throughout the retail environment, and it uses money stored on cards or servers. It is in the online (virtual) and mobility environment that the present study was directed.

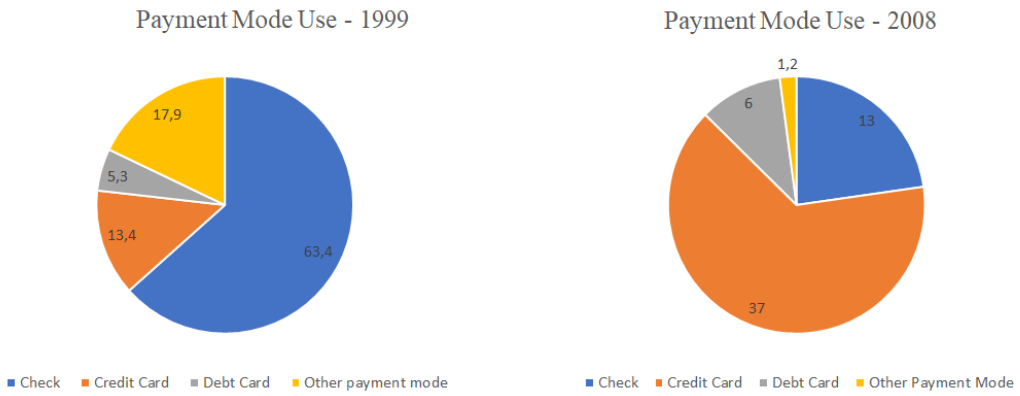
Based on the above concepts, Digital Money is defined as a Digital Payment Medium defined as any monetary value, represented by a credit on the issuer, stored in an electronic format or in a digital environment, such as a mobile device or the Internet, not only in prepaid form, accepted as a means of payment by others other than the issuer, or supported by bank accounts or by means of payments such as credit card.

## 2.2 History of the Evolution of the Use of Means of Payment in Brazil

In Brazil, studies developed by BACEN (2005 and 2008) show the growth in the use of electronic means of payment. The results show, according to Figure 1, that in 1999 the check

was the most used instrument and represented 63.4% of all non-cash payments, increasing to 13% in 2008, while electronic media, in this study specifically represented by debit and credit cards, rose from 18.7% in 1999 to 43%. (BACEN, 2005).

**Figure 1: Evolution of the Use of Payment Means in Brazil**




Source: BACEN (2008)

Also, a survey conducted by DataFolha (2011) on Retail Payment Methods shows the evolution of the dematerialization (abstraction) of the means of payment when, in 2008, 48% of retail sales were represented by non-electronic transactions, such as money, carnet, check, and ticket. This share fell to 45% in 2011, while the percentage of electronic payment means increased from 52% (2008) to 54% (2011).

## 2.3 Strategic Planning and Environmental Analysis

Almeida and Fischmann (1991) argue that Strategic Planning (SP) is an administration technique that, through the analysis of an organization's environment, develops knowledge of the opportunities, threats, strengths, and weaknesses that are responsible for the success of the organization. Based on the understanding of these aspects it is possible to define a mission and establish the purpose of the organization taking advantage of the opportunities and reducing the exposure to risks. Almeida (2001) developed a five-phase Strategic Planning Model.

The phases of this model are Guidance, Diagnosis, Direction, Viability and Operational. The Orientation phase contemplates the definition of mission and vocation of the company, and mission is defined as the role that the organization plays, and vocation is what the

organization is "good to do." The second phase consists in understanding the internal aspects of the company - the aspects that the organization has power and influence in its changes -, the accomplishment of an environmental analysis, the understanding of the field of action of the organization and of which is the current strategy. Based on the information collected and analyzed, the third stage is followed by the definition of the new strategy and objectives of the organization. The fourth phase consists of the analysis of the feasibility of planning and for this are using tools such as the Income Statement (IS) and the company balance sheet. Finally, in the Operational phase, the actions and the schedule (Almeida, 2001) are defined and implemented to achieve the results defined for the SP. The model is shown in figure 2.

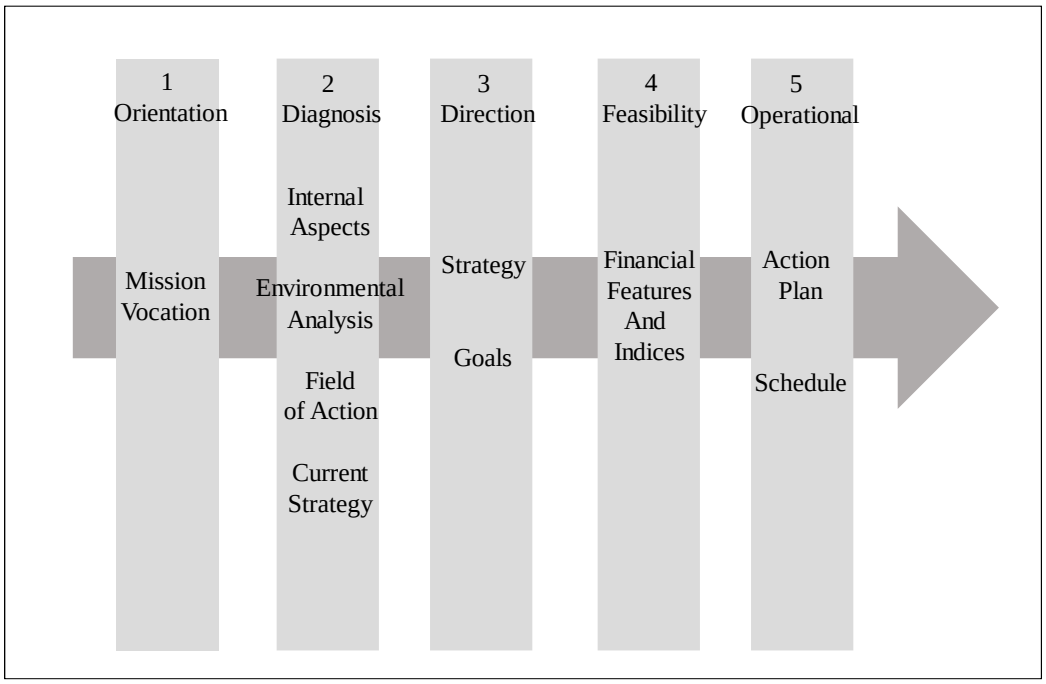



**Figure 2: Strategic Planning Model**

Source: Adapted from Almeida (2001)

In the present article, the focus will be given in the phase of the environmental analysis that consists in the study of the organizational environment defined as "everything" that influences the business of an organization and that it has no condition to change it. That is, little or nothing the organization can do to improve and therefore the strategy must adapt to that environment to then fulfill the planning. This analysis is done concerning the future; it has a long-term perspective, it visualizes the opportunities and threats.

With the expansion of the importance of Strategic Planning, the analysis of the organizational environment has become a fundamental part in the quality of this process, becoming a mandatory demand for ISO 9000 certification, for example (Almeida & Almeida, 2003).

The Zaccareli, Fischmann & Leme (1980) concept of company ecology was established based on the similarity between biology and business; its objective was to facilitate the understanding of the organizational environment using the paraphrase with the ecological environment. For example, the concept of the food chain in biology has been paraphrased into the organizational environment to refer to the supply chain. This idea followed the model of environmental segmentation proposed by Almeida (2001). The environmental segmentation of Almeida (2001) aims to suggest techniques for predicting variables of the segments in this way helping to function as a foundation in the environmental analysis and support to the Strategic Planning of a company.

Other models such as Porter's Five Forces (Porter, 1979) and the SWOT analysis - a study of the Strengths, Weaknesses, Threats, and Opportunities of an Organization - presented by Humphrey in the 1960s - could also be used in this segmentation, however, the model of Almeida (2001) was chosen because it is an author of the Brazilian reality, and still presents a more recent model, compared to Porter or Humphrey models. The environmental segmentation is divided into four elements: Macroenvironment Climate, Macroenvironment Soil, Operating Environment and Internal Environment, as defined in Table 1.

**Table 1**: **Environmental Segmentation**

| Environmental Segment | Environmental Variable | Characteristics | Analysis Method |
|---|---|---|---|
| Macro Environment Climate | The variables arising from political power are: inflation, GDP growth, legislation. | It's hard to predict in the short term, but we can project a long-term trend. | One must listen to experts and bet on a long-term political trend. Political facts such as elections and passage of laws should be considered. |
| Macro Environment Soil | They are the variables of the future of the population and its characteristics: growth by region, by income range, by sex. | The forecasts are accurate and available from organizations such as IBGE. | Statistical studies should be used, which are usually available |
| Operational Environment | The variables arising from the operations are: competitors, suppliers, direct customers. | The forecasts are intended to identify how operational relations will be in the future, | The method of analysis is the study of scenarios, which uses current trends to identify |

| | | | |
|---|---|---|---|
| | | considering the technological evolution. | the future operational relationship. |
| Internal Environment | These are the values and aspirations of the relevant people. In the case of companies, you can segment them, between owners and employees. | People's values and aspirations are difficult to change. Companies or their areas usually group personnel with similar values. | In order to identify the values of companies or their areas, the organizational culture analysis system is used. |

Source: Adapted from Almeida (2001)

Based on this model, a case study of the digital payment media sector was developed, and Environmental Segmentation developed, describing the main factors that enable the use and expansion of digital money or means of payment in Brazil. In the present study, the Internal Environment dimension will not be applied because the research addresses the formation of an industry and in this stage, the primary concern is related to environmental aspects.

## 3. Methodology

To answer the question of this study, "is the mass use of digital payment means a reality or a utopia in Brazil?" An exploratory qualitative research was employed. According to Malhotra (2001, p.106), it is "a type of research whose main objective is to provide criteria for the problem situation and its comprehension." Exploratory research has the following purposes: formulate a problem or define it more accurately; identify alternative courses of action; develop hypotheses; isolate variables and critical relationships for further examination; obtain criteria for developing a problem approach; establish priorities for new research. Qualitative research is usually based on a survey where the sample is small and provides insights and understanding of the context of the problem (Malhotra, 2001).

The method used is the case study, more specifically, a study of the sector of electronic and digital payment means. Yin (2005) defines case study as "an empirical investigation that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not defined" (p. 32).

Primary data are data collected by the researcher with the specific objective of answering the problem in question; the secondary data are data collected for purposes other than the research problem being performed (Malhotra, 2001). In the case of this research, secondary data were

initially collected by gathering information from market reports and articles available in databases such as ProQuest and EBSCOhost, presented in the theoretical framework of this study. These data helped to broaden and structure the environmental context of the problem, as well as the elaboration of a research script presented in Appendix A. Then, with a semi-structured interview script, primary data were collected. Two interviews were carried out with specialists. According to Triviños (1987), the decision of the interviewer in the choice of interviewees should consider factors such as the access and availability of interviewees' time, as well as the importance of these people to clarify the subject of the research. Thus, the selection of the social subjects of the research was performed at the authors' convenience.

Considering the above, in the present study we opted for an exploratory, qualitative, case study, with bibliographic research, secondary data survey, and literature background that supported the questions used in the field research in depth). Two company executives from the segments directly and indirectly related to the case study were interviewed. A partner and executive of an innovative media prepaid recharge coupon media company that has more than 16 years of experience in multinational telecommunication technology and business intelligence business segments, including Nokia, Microsoft, and America. He is a director of technology and services companies with more than 25 years of information technology experience in the education, banking, wholesale, retail, telecommunications and recently in the card segment. He went through companies like Grixco and CTBC.

The interviews were made in person. These were recorded and transcribed for further analysis. The average duration of each interview was 45 minutes. The obtained data were consolidated and analyzed qualitatively according to the steps described by Bauer and Gaskell (2007): transcription, classification, and analysis.

## 4. Outputs

**4.1** Results of the Survey: Main Factors that Enable the Use and Expansion of Digital Money

Miller, Michalski, & Stevens (2002) point out three important factors to be developed in the near future that seems to be interdependent to the emergence of new forms of money and means of payments.

Technological possibilities: Product innovations based on digital technologies can be expected with greater emphasis at the consumer or individual level, where cash, checks and credit cards still predominate. According to Tumin (2002), these products seem to have a bright future, however, it will be necessary to overcome obstacles such as interoperability, ease of operation, lack of critical mass of participants - economies of scale of networks, security, change of attitudes and culture, and legislation itself so that digital money can reach the level of cash (Miller, Michalski, & Stevens, 2002).

Transition to a worldwide knowledge economy: the transitions of the 21st century show the extent to which the economy will be dominated by the value of ideas and intangibles. Two distinct aspects help create the conditions for digital money to become accessible and as easy to use as money in kind. The market: one of the markets already impacted by the new formats of money is the music market, now distributed digitally, and that demands digital means of payment. Business Enterprises: the second area where digital money and new means of payment will be required since the broader the reach of digital money, the greater the scope of scope that companies can experience as new ways of pricing, collaborating with suppliers, define markets, increase efficiency and generate new revenues with intangibles (Miller, Michalski, & Stevens, 2002).

Greater equality of access in a society where diversity is a trend: at the consumer level, the introduction of digital money can mean the inclusion of many people in the new virtual market. Otherwise, it may have a dramatic effect of fragmenting or are "inserted." In this context, another relevant aspect is consumer protection (Tumin, 2002; Breternitz, 2009). According to Breternitz (2009), the vulnerability of consumers, especially those with low levels of schooling, and of poorly understood operations, for example, that are carried out using mobile devices, is very worrying, many of the cases of digital money use will count on the use of the device mobile. Therefore, legislation pertaining new means of payment such as digital wallets and digital money is another important success factor (Aglieta, 2002).

Other possible impacts of the digital money diffusion are the reduction of transaction costs, the main being the costs of issuing, handling and back-office (Miller, Michalski, & Stevens, 2002; BACEN, 2007).

Tumin (2002) argues that new payment instruments are notoriously difficult to introduce and adopt. From the organizational point of view, barriers to entry, acceptance, and ubiquity are high. Therefore, new payment systems need to have low margin and high volume to create critical mass (Tunin, 2002; Miller, Michalski, & Stevens, 2002) to be profitable. In this way, it demands a distinct brand to gain the confidence of consumers and be differentiated from the credit card to be preferred to the latter. From the technological point of view Tumin (2002) argues that due to the nature of the service/product it is essential that it has: integrity, non - repudiation, authentication, authorization, and confidentiality. From the angle of functionality, you must still establish privacy, trust (relative to system failure) and allow customization.

A last but not least, the point is to identify the main players of digital money and define the role of each. According to Breternitz and Almeida (2006), the stakeholders are many, but there are conflicts of interest (technological, political, social, etc.) that are also barriers to overcome. The main players identified today are financial institutions and banks, credit card management companies and cellular operators. The EDC survey (2006 *apud* Breternitz & Almeida, 2006) concluded that these players would be the biggest beneficiaries of the growth of this type of means of payment. Another critical factor is the leadership of an entity that assumes coordination of the process (Breternitz et al., 2008), especially since several players are required to materialize.

**4.2** Output of the Interviews

To describe the results obtained in the interviews, the following text is presented with an overview of the information obtained in the interviews, then summarized the main factors commented by the interviewees divided into the components of the Environmental Segmentation: Macro Environment Climate, Macro Environment Solo, and Internal environment.

There is a consensus on the part of respondents that digital money or digital payment medium can be adopted using various technologies. For example, Near Field Communication (NFC) technology enables wireless (non-contact) information exchange between compatible devices that are close to each other. Among the devices, we have mobile phones, tablets, badges, electronic ticket cards and any other device that has an NFC chip. One of the interviewees points out: "In one of the multinational companies that I worked for, it has been at least 7

years that NFC technology is ready to use in payment means and certainly other companies as well, but NFC is not cheap." high investment by credit card operators in Brazil, which recently exchanged the transaction processing system for chip card technology, leads us to conclude that this technology will not be used to a large extent, at least not at first . Another technology that can be used is Unstructured Supplemental Service Data (USSD) is a GSM protocol available for all devices with GSM technology that supports message content longer than traditional SMS and is agiler than this. It is a powerful communication channel. Nevertheless, its commercial use has been avoided due to programming and maintenance difficulties. According to one of the interviewees, concerning the technology used "everything indicates that what already exists," i.e., the synergy of Internet use on mobile devices will be the technology that will help in the expansion of digital payment means.

Regarding the time in which digital money will be adopted, the respondents presented divergent opinions, one of them believes in the probability of the mass adoption in the five-year period, the other interviewee sees this issue with a more extended view considers that mass adoption will take place in more than a decade. According to this interviewee, "the problem is how the financial institution will have the guarantee that the guy who is making the payment is himself?". According to him, the 'key to success' for the use and expansion of this means of payment is in the authentication of the operation ensuring that the individual who is using this means of payment is himself. So, it goes through the fact that the technology used needs to provide the financial institution that the individual who is using the methods of payment, is himself.

Many other factors influence the use and broad expansion of digital money, such as the cost of hardware (mobile device, for example), and telecommunications, which can make digital money unviable and therefore demand a price reduction. It will also be necessary to build a critical mass, specific legislation, provide security in the transactions, convenience / convenience to its users. Besides, it demands the overcoming of telecommunications infrastructure bottlenecks, and it is estimated that 5% of credit card transactions, for example, fall due to a lack (intermittent) of the operator's signal. A new means of payment demands credibility, in this case, it is believed that the participation of the great brands of credit cards, MasterCard and Visa, which is already taking place, will give the necessary credibility to the new means of payment. Therefore, another very important factor for the success of digital

money is the aligned partnership between the main players, in particular, mobile producers, developers (of various applications), telecom operators and financial institutions,

Still, according to the interviewees, a positive aspect of the user population is that the new generations are mass users of "virtual," "digital" and mobile technologies. Ratifying the findings of the secondary data survey, the interviewees highlighted as another positive aspect the possibility of sales of other services, among other advantages linked to the use and expansion of digital money, namely: digital and financial inclusion, potential access to credit, citizenship, and self-esteem. Table 2 summarizes the main factors for the use and expansion of digital payment means in Brazil, based on the Segmentation of Almeida's (2001) model.

**Table 2 - Environmental Segmentation Model: Main factors for the use and expansion of digital payment means in Brazil.**

| Environmental Segment | Environmental Variables |
|---|---|
| **Macroenvironment Climate** | Government interest in expanding means of payment and digital money;<br>Demands laws, regulations and own legislation.<br>Another relevant aspect is the protection of consumers, especially those with low schooling. |
| **Macroenvironment Soil** | Greater equality of access, digital and financial inclusion, potential access to credit, citizenship and self-esteem.<br>Demands change in attitudes and culture;<br>User population (new generations): mass users of "virtual", "digital" and mobile technologies;<br>The broader the reach of digital money, the greater the scope of business to define new markets;<br>The emergence of new markets, new services, such as the music market, already impacted by the new formats of money, now distributed digitally, and that demand digital means of payment;<br>Generation of new recipes with intangible "products", for example, digital books, digital music, etc. |
| **Operational Environment** | The use and expansion will occur with technologies that 'already exist', such as the synergy of Internet use on mobile devices;<br>Demand to overcome a problem of identification and authentication: to ensure that the individual who is handling the means of payment / digital money, is himself;<br>Overcoming obstacles such as: interoperability, greater ease of operation, convenience, convenience, critical mass (low margin and high volume), economies of scale of networks, integrity, and confidentiality;<br>Demand cost reduction: hardware (mobile device) and telecommunications;<br>Overcoming bottlenecks in telecommunications infrastructure;<br>The broader the reach of digital money, the greater the breadth of scope that companies will be able to experiment with, new ways of pricing, collaborating with suppliers, increasing efficiency, increasing privacy, confidence, personalization, increased efficiency; reduction of transaction costs;<br>Reduction of cash maintenance costs (issuance and handling);<br>Demand a brand that inspires consumer confidence, credibility, participation of the |

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| | big brands of credit card, MasterCard and Visa, confer credibility;<br>Product innovations at the consumer or individual level, where cash, checks and credit cards still predominate;<br>It demands that the main players of the segment have their defined roles, that overcome the conflicts of interest, and the formation of partnerships between them;<br>Leadership of an entity that assumes coordination of the process;<br>Main players in the segment: financial institutions, credit card management companies, mobile phone operators, mobile device manufacturers, developers (of various applications), among others. |

Source: the authors (2017).

## 5. Conclusions

Are Digital Means of Payment a Reality or a Utopia in Brazil? Based on the Almeida model (2001), and in interviews with professionals in the field, this study presented the main factors necessary to make feasible the use and expansion of digital payment means, in Brazil. The main findings confirm the theory and secondary research.

The benefits of widespread use of digital money or digital means of payments will be many, going through gains like security and increased efficiency. The interviews also emphasized that the use of digital money will generate new revenues with intangible "products"; will allow the emergence of new markets and new services. And what part of the user population belongs to the new generations who are educated in the world of "virtual," "digital" and mobile technologies. There will be a reduction in cash maintenance costs (issuance, handling, and back-office). Besides, the use of digital money and digital payment means will promote greater equality of access, digital and financial inclusion, potential access to credit, citizenship, and self-esteem.

However, apparently, the existing examples in the international scope and in Brazil, with exceptions, have not yet entered a process of standardization and expansion to become mass-used. The interviewees did not agree on the time dimension in which the mass solution will be adopted, perhaps because at the moment there are still many challenges, some of them being to guarantee the authenticity of the individual who is using the means of payment, that is, let him be himself; laws, regulation and legislation specific to digital money; achieve a critical mass level in order to financially enable the "product"; the reduction of costs of hardware (mobile device) and telecommunications; the overcoming of bottlenecks in telecommunications infrastructure and conflicts of interest among the main players in the segment.

In this way, this study ends with the presentation of limitations and possible future research. This study has as a limitation the restricted number of interviewees, where the restricted number of interviewees was defined by convenience. The study focused on the analysis of the environmental segment. However, other segments and phases of the planning model can be realized. For example, analyzing what internal business factors should be adapted for the digital money market to evolve. The study was limited to explore Almeida's 2001 model, but other models can be used to broaden the understanding of the reality of digital money in Brazil.

This study aimed to better understand the Brazilian market through the perception of interviews - a case study, and therefore exploratory. In this way, other studies can and should be carried out with a more conclusive objective of the effects of macroenvironment climate, macroenvironment soil, and the operating environment. Finally, it is hoped that this study will contribute not only to the field of general administration but also to encourage research in other areas such as consumer behavior and organizational theories.

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