

CHATBOTS' IMPACT IN THE RELATIONSHIP BETWEEN
YOUNG ADULT CONSUMERS AND THE PORTUGUESE
BANKING SECTOR

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ABSTRACT

The Portuguese banking sector are taking a stand in the digital world through the implementation of chatbots – a virtual assistant that helps customers solve their financial problems, without the need of human interaction. Research has shown that chatbots can facilitate consumers' lives, making them happier and more satisfied with the banking institutions. This study aims to determine the chatbots' impact on the current relationship between young adults – a growing digital market segment – and the banking entities. The research pretends to determine whether the adoption of digital features, in particular chatbots, by the young adults' main banking service provider is an opportunity to attract and retain more customers in the beginning of their financial life; and whether or not its adoption causes a significant impact in the level of satisfaction with the banks.

Based on the literature review, an online questionnaire was distributed to young adults between 17 and 35 years old that benefit from the service of at least one operating banking entity in Portugal. Random selection was applied in the choice of the 179 participants in the study.

Analysis of the responses demonstrate that a chatbot implementation, at this moment, would not change the relationship between the two parties – consumers and banks. The results indicate that chatbots in banking lack of personalization, range of responses and effectiveness due to being in an embryonic phase, making customers slightly happier and more satisfied, but not more loyal. On this basis, it is recommended that there be a focus on the software development and improvement and especially in its propagation by the banking entities. Further research is needed to enhance the conclusions obtained from the present study, using a larger sample.

Keywords:

Chatbots, banking sector, young adults, relationship

RESUMO

O sector bancário Português está a assumir a sua posição no mundo digital através da implementação de chatbots – um assistente virtual que ajuda os clientes a resolver os seus problemas financeiros sem a necessidade de interação humana. Pesquisas demonstraram que os chatbots podem facilitar a vida dos consumidores, tornando-os mais felizes e satisfeitos com as instituições bancárias. Este estudo tem como objetivo determinar o impacto dos chatbots na relação atual entre jovens adultos – um crescente segmento de mercado digital – e as entidades bancárias. A pesquisa tem como finalidade determinar se a adoção de recursos digitais, em particular os chatbots, pelo principal fornecedor de serviços bancários dos jovens trata-se de uma oportunidade para atrair e reter mais clientes no início da sua vida financeira; e se a sua adoção causa ou não um impacto significativo no nível de satisfação com os bancos.

Com base na revisão de literatura, um questionário online foi distribuído a jovens entre os 17 e os 35 anos que beneficiam de pelo menos um serviço de uma entidade bancária presente em Portugal. A escolha dos 179 participantes do estudo foi aleatória.

A análise das respostas demonstra que a implementação de um chatbot, neste momento, não mudaria o relacionamento entre as duas partes – consumidores e bancos. Os resultados indicam que os chatbots no setor bancário estão desprovidos de personalização, gama de respostas e eficácia devido a estarem numa fase embrionária, tornando os clientes ligeiramente mais felizes e satisfeitos, mas não mais leais. Com isto, recomenda-se que o foco seja o desenvolvimento e melhoramento do software e, principalmente, a sua divulgação por parte das entidades bancárias. Mais pesquisas são necessárias para aprimorar os resultados do presente estudo, através da aplicação de uma amostra maior.

Palavras-chave:

Chatbots, sector bancário, jovens adultos, relacionamento

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Chapter 1 - Introduction

1. Problem framing

The emerging of new technological breakthroughs in the market are affecting the services, specially the banking sector, causing a requirement of transformation to fulfill customers' personality and needs. Communication and relationship between two parties – consumers and organizations – have being altered and adapted to the evolution of the industry, in order to reach the ultimate purpose of organizations, meaning customer loyalty.

Ramos (2018) stated, in an interview made by Filipe Fernandes – a *Jornal de Negócios* reporter –, that “Portugal is internationally recognized for its innovation capacity”.

Technological advances are happening in the market, however without a proper divulgation, education and use of the new technologies, organizations are unable to take advantage of the associated capital gains (Henriques, 2016).

In order to improve banks' profitability, banking organizations are adopting the Information and Communication Technologies, however, with a different approach to its customers in comparison with the traditional banking, the Portuguese banking sector has suffered substantial changes.

Individuals under 35 years tend to relate better with banking through the technological features that banks have to offer. Website and apps dictate, nowadays, the interaction, experience and relation between parties (Gyori, 2018).

In the Portuguese banking, an innovative technological software is starting to appear – chatbots –, to go along with the website and app that can improve the connection between an individual and its financial institution.

For the reasons explained above, it is important to identify and comprehend the consumers' mind towards the new technological advances in the banking industry, in particular the chatbots; if they are being well applied in the sector and whether the adjustments happening in the industry, caused by the technological evolution, are reflecting in a positive change in the relationship between consumers and the organizations.

2. Problem and investigation objectives

The problem formulation is crucial to initiate an investigation, as the central problem under analysis will dictate the course of the study in order to provide answers to the research questions.

The selected problem was decided taking into consideration the researcher's interest, one of the internal factors assessed when formulating the problem. The curiosity and interest that the researcher has regarding a specific topic generate diligence, being essential when evaluating suitable problems that could be investigated deeply (Shoket, 2014). As the researcher's academical background is a Bachelor's Degree in Finance and Accounting, the banking sector is a motivating industry to explore. Furthermore, the enthusiasm for technological breakthroughs has been the basis for the problem choice.

The problem under analysis in the dissertation is the relationship between the young adult consumer and the banking sector, together with the impact that chatbots may have on this relation. The results of the investigation will provide answers to the following questions:

- How do young adults perceive the Portuguese banking sector?
- How strong is the relationship between young adults and the banking sector and how can it be improved?
- What is the level of importance of the implementation of digital features by banking organizations for young adults?
- What is the impact of chatbots – a new technological software – in the current relation between customer and organization?

The present research paper intends to provide answer to the questions stated above, along with the comprehension of possible recommendations to banks in order to improve their relationship with its current and future customers, by taking fully advantage of the properties of the new technological software in development in Portugal, the chatbots.

3. Methodological procedures

Succeeding the definition of the problem, as well as the research questions of the investigation, comes the setting of the most suitable methods to answer the requests.

In this context, the procedures and instruments to be used for the information collection needed to be established, taking into account the problem, the research questions and the nature of the study.

In the research the author intends to undertake, in which it aims to perceive the phenomena that lead to the relation of young adults with the banking sector, the investigator opted for a quantitative and interpretative paradigm – in terms of the open questions present in the questionnaire. To this end, a questionnaire was carried out for young consumers to understand the views of the respondents regarding the services provided to them. The structure of the questionnaire, likewise other aspects related to the methodological procedures are explained in more detail in chapter III – Materials and Methods.

This study presents some limitations, explained in the correspondent chapter, but do not compromise the validity of the data.

4. Dissertation structure and organization

The entire work corresponds to one volume that includes the main study as well as the references, the annexes and appendices, being a supplement to the study and topic developed in the research.

The main part of the present dissertation is divided in six chapters – **Empirical Component** (Chapter I), **Theoretical framing** (Chapter II), **Materials and Methods** (Chapter III), **Results analysis and discussion** (Chapter IV), **Conclusions and final considerations** (Chapter V), **Contributions to management and limitations of the research** (Chapter VI).

The Chapter I includes the framing of the problem, the delineation of the problem/investigation objectives and sub-objectives, the reason for choosing the topic under analysis along with the introduction of the methodology used.

Chapter II covers the literature review divided in five topics – the services, the Financial sector, the Portuguese banking consumer, the young adult consumer segment and the engagement creation between both parties (customers and organizations).

Chapter III involves the context of the study, the materials and methods used in the investigation, the different levels of the collection and analysis of data procedure and the presentation of the participants incorporated in the study.

In Chapter IV, the results of the investigation will be presented and analyzed based on the content of the questionnaire, relating the results with the theoretical framing.

Chapter V comprises the main aspects to retain from the analysis of the empirical study combined with the important elements of the theoretical framing, and answering the research objectives and sub-objectives previously exposed

Chapter VI corresponds to the last chapter of the main portion of the dissertation involving the contributions to management and limitations of the research along with possible future works related with the topic of the relation between young adults and the growing technological sector, banking.

Chapter 2 – Theoretical framing

1. Services, different from products

1.1. The concept

The concept of service is not linear, since different authors have their own definition of service, bringing new intel to the literature with perspective that complement the known notion of a service.

A service consists in an action, performance or act fundamentally impalpable and its creation may or may not be linked to a substantial product (Kotler, Hayes, & Bloom, 2002). As stated by Kotler (1986), services are activities, benefits including the catering sector, hospitality and professional services.

According to Lovelock and Wright (2006), a service is an economical activity creator of value that brings benefits to the customers, rather than a plain intangible act. In order to complete the literature, Grönroos (2007) states that services are a set of processes, in which the production and consumption happen simultaneous and the customer actively participate in the production.

In conclusion, services are more than the exchange of a good, “services are processes, not things” (Grönroos, 2001), it corresponds to an aggregation of activities that includes people, technology, systems and tangible resources, creating dissimilar service experiences for the customer in every transaction.

1.2. Services’ distinctive characteristics

Services have characteristics that make the marketing approach different from the traditional applied in products, being immaterial, inseparable since it is produced and consumed concurrently, with heterogeneous quality, and it assumes a direct relation between the client and the workforce, creating a relationship of trust (Saías, 2007).

Services have an intangible character, not having a physical component that allows a pre-observation done by the consumer, since it cannot be touched or viewed (Fisk, Grove, & John, 2007). It is required the use of the service to evaluate their quality and understand if it corresponds to the consumers’ expectation and requirements previously established (Ferrell & Pride, 2001). In the bank sector, the employees must promote the sale of credit cards by highlighting the convenience and advantages of owning a credit card (Hoffman & Bateson, 2011).

Nevertheless, in services is harder to evaluate the quality since it involves people and every employee is unlike each other. The differences in performance can be lessen

through training, standardize setting or quality assurance (Hoffman & Bateson, 2011). However, different customers mean different ways to deliver the service, and staff has different levels of competence, exigency or experience that affects the perceived experience of the service (Almeida & Pereira, 2014).

As reported by Lovelock and Gummesson (2004), the four main characteristics are questionable as exclusive elements towards the distinction of services. The customers' mind retains, regarding a service, not only the delivery of the service but also the good presentation of the employees, the equipment and the establishment where the service offer occur, being fundamental the tangible together with the intangible element.

1.3. Service Marketing

In accordance with the attributes of the services, Service Marketing has a distinct approach compared to the Marketing targeted to the products (Hoffman & Bateson, 2011). But only in the 70s the Service Marketing began to arise as a detached area of Marketing having their own concept and specific models that fit to its distinctive characteristics (Grönroos, 1994).

The level of importance of the service and their employees increased over the decades and gained position when the services started to have their own exact Marketing approach. The service Marketing consists in a management model, market targeted, wherein their primary mission is to well serve the customer (Martins, 2006).

Regarding the services sector, the Relationship Marketing is the most suitable literature topic to approach, as it symbolizes the interactions between the service providers and the customers using the service (Grönroos, 2001).

1.4. Relationship Marketing

The Relationship Marketing only began to rise in the 1980s, building the base for some successful businesses. This marketing strategy consists on the creation and maintenance of customer relationships (Baron & Harris, 2003).

As it is an in-depth topic in the Marketing literature with an agglomerate of authors' opinions giving their points of view, it is difficult to create a single definition of the concept. Grönroos (1994) states that Relationship Marketing is "to establish, maintain, and enhance relationships with customers and other partners, at a profit so that the objectives of the parties involved are met". This definition gives emphasis to the development of long-term relationship with not only the customers but also the suppliers and other entities involved in the service.

Hunt *et al.* (2006) stated that Relationship Marketing helps to understand, clarify and manage continuously business relationships between suppliers and clients.

Relationship Marketing is about creating a nearer and integrated alignment between the marketing, customer service and quality within the organization (Christopher *et al.*, 2013). In this Marketing strategy the development of trust between both parties (Crosby & Stephens, 1987) are key factors in order to generate commitment and therefore a positive long-term relationship between organizations and customers (Alrubaiee & Al-Nazer, 2010).

Pressey and Mathews (2000) conclude, after an elaboration of a study research, that Relationship Marketing in services comprise 7 significant different dimensions, such as: (1) a high level of trust between the parties involved in the service, in accordance with literature review from Crosby & Stephens (1987); (2) a high level of commitment; (3) a high length of relationship between parties; (4) open communications stations to exchange information; (5) customers' wants and needs are the priority; (6) a vow of quality; (7) the effort to maintain and retain the customer interested in the service.

Therefore, in the Relationship Marketing, the customers are the organizations' central asset, being imperative the creation of solid marketing strategies to provide a successful relationship between the firm and the clients.

1.4.1. Relationship Marketing applied in the Banking Industry

In the banking industry, the customers perform a long-term purchase, being of tremendously importance a creation of a positive relationship between both parties, since it happens even before the transaction, but it prospers and deepens to the after point. Different organizations, especially in the banking sector, are realizing the importance of customer loyalty and adopting strategies of RM is a way to respond to the market evolution (Martins, 2006).

According to Martins (2006), trust, mutual loyalty and dialog are fundamental aspects to enrich the relationship customer-bank. The increase of the number of good relationships have a direct impact in the bank profit, as it generates business volume, decreasing the cost per customer.

With the notable increase of competition in the banking sector, Relationship Marketing tactics is a priority to banks to intensify their competitive strength in the market (Amin & Isa, 2008). Banks need to have Relationship Marketing approaches to provide their customers a positive brand experience, preventing them from switching to competitors (Ndubisi, 2007).

The current “hunt” for new customers is notable among financial institutions. However, banks should take into account not only the capacity to attract new customers, but also the ability to hold and nurture the existing ones (Proença & Castro, 2005).

2. Financial Sector

2.1. Evolution of the financial sector in Portugal

In the 50s and 60s, the bank sector was stable, since the activity was about receiving deposits from individuals and granting loans to mostly firms (Martins, 2006).

However, the financial sector in Portugal has been through some changes over the past two decades, called “revolutions” (Proença, 1998). The first financial revolution happened in 1974. Until that date almost every bank operating in Portugal were private, when the nationalization of the major banking institutions in Portugal occurred.

In the early 80s, the major portion of the banking system was owned by the Government having limiting regulations, no competition and low levels of innovation and productivity. The low number of competitors in the market hastily changed with the opening of the market to the private investment, caused by the nationalization of the Portuguese banking system, as it brought a greater management capability and initiative, capital to invest and upgraded informatic tools vital to deal with the competitive market (Lagoa *et al.*, 2013).

The number of foreign banks operating in Portugal had increased from 1985, being imperative to the modernization of the Portuguese financial industry as they brought innovation and efficiency, lacking in the 1980s, new products, services and technology (Honohan, 1999).

According to the Associação Portuguesa de Bancos (2019) the Portuguese banking sector currently has 149 credit institutions, more accurate 59 banks, 86 mutual agricultural credit banks and 4 Savings Bank.

According to a study conducted by Marktest (2019), between January and June 2018 7.685 million individuals possessed a bank account generating a rate of 85,5% taking into account individuals with age of 15 or above.

-ç. Regarding the ATM number of the multibanco network in Portugal, the quantities increased up to 2010 reaching its peak of 14.318 ATM’s, however after 2010 it has decreased. In 2015 there was 12.437 ATM’s, in 2016 12.164 and in 2017, the most recent data collected, was of only 11.823 (PORDATA, 2018). The reducing of ATM’s in Portugal was caused by the implementation of a multibanco network competitor called the Euronet Worldwide grid, that in January 2017 already installed 300 boxes in Portugal

(Rocha, 2017). Besides the decreasing amount of ATM's, the volume of cash withdrawals and payments made in the ATM in 2017 rose to the highest numbers ever observed of 26.771.206€ and 8.022.320€, respectively, in comparison with the previous year with quantities of 26.249.907€ and 6.510.660€ (PORDATA, 2018).

2.2. Marketing in the Portuguese financial sector – financial marketing

In the 1970s, banks were not alert to the market, not being able to respond and adapt to the constant changes (Rau, 1988). The amount of investment made by banks in order to create or develop a marketing department was null (Capaldini, 1970).

The arising of the marketing implemented in the banking services, born in the 80s (Nelson, 1999), originated a growth of the sector, resulting in a greater orientation towards the customers' needs. Banking institutions felt the need to focus in the customer rather than in the product and/or service offered, as the banks started to get conscious about the convenience of identifying lucrative customer segments. The banking industry understood that the traditional approach to the market was not enough and changes needed to be made, as customers don't purchase services as they do with products (Kotler & Armstrong, 2013).

According to Meidan and Lewis (1996), marketing in the financial services have specific characteristics, focusing on a various amount of activities such as:

- The consumers' behavior, attitudes and segmentation, in order to create a product and/or service suitable to customers' prime needs and demands;
- The following analysis of the customers' behavior and their development in the market;
- Promotion of the developed product/service to the potential customers of the banking services;
- Distribution of banking services;
- Communication and promotion;
- The set-up of the price of the developed services or products (pricing);
- The creation of the marketing strategies and consequent control of the marketing plan.

The increase of competitiveness, amount of offer and different options to choose from made the understanding of the banking consumer behavior as well as the specificity of each customer crucial in today's banking industry.

2.3. Banks and its digitalization

The constant development of the financial industry along with the technological evolution, generated an increase of competitiveness and a need of creation of new channels to reach the customers, beyond the traditional branches (Easingwood & Coelho, 2003). The financial sector had to respond to the demand, meaning the intensification of level of Internet usage, since the customers expected novelty in the banks' offers. Therefore, financial institutions, in order to maintain current customers and appeal new ones, tried to develop alternative and innovative channels with the support of the technology advances (Thornton & White, 2001).

Self-service technologies as the ATM (Automated Teller Machine) began to appear as a replacement to face-to-face interactions between banks and its customers (Eriksson & Nilsson, 2006), offering ease to the banking consumers as well as reducing banks' costs, but despite cost reductions, the results were not yet what banks intended (Colonia-Willner, 2004).

As the results were not the desired, banks decided to use the accurate potential of the Internet, presenting a different channel, the Internet Banking.

2.3.1. Internet/home banking

The services of Internet banking allow customers to conduct their banking transactions electronically using a computer to access the bank's website (Tan & Teo, 2000). Internet banking is one of the many self-service channels, such as ATM, that banks have in order to ease their customers transactions needing only Internet access (Zheng, 2010)

In the early 1980s Internet banking appeared and started to spread in the mid-1990s, changing how banks conduct their business (Peterson, 2006). The evolution of this electronic banking system is remarkable as it is possible to pay accounts, apply for loans, pay tax, manage funds, without physically needing to visit a branch (Nel & Boshoff, 2014).

The main benefit that attract banking consumer to this electronic banking system is the convenience associated, together with cost savings (Zheng, 2010). With the implementation of Internet banking and consequently, the Home banking, banks commenced to reduce the costs and retain customers (Mols, 2000).

The penetration of Internet Banking has been exponentially increasing in Portugal, reaching the highest penetration rate in 2018. The inclusion rate of Internet Banking in 2017 corresponded to 31.8% and only up to October 2019 the rate already was at 38.8%.

The young consumer segment up to 34 years have a percentage of Internet Banking usage of 66,6% (Marktest, 2019).

2.3.2. Challenger banks

Challenger banks are small retail banks with no historical legacy, created in United Kingdom, originally created to compete with the well-established leading banking institutions (Caplain, 2018). These new lenders built a simple business model, with low costs, clear-cut non-conventional branches. By failing to fulfill banking consumers' needs, challenger banks got an opportunity to well-serve the unhappy customers using their specialist financial products and services, originating success and growth in the market (Lu, 2017).

The new entrants have spotless reputations, launching a new type of digital-aided challenger banks aimed to the customers ignored by the traditional bank branch or customers damaged by their old lenders. The online business model has a direct impact in the organization's costs which are less (Goff, 2014).

The digital challenger banks have distinguishing distributional methods from leading banks, by using top edge technology, reducing their costs, leaning on online platforms to spread the new lenders' message (Lu, 2017).

2.4. The PSD2 Initiative

The PSD2 (Revised European Payment Services Directive) consists of a multilayered regulation applied for banks, financial institutions, technology companies and end consumers (Hellström, 2018).

According to Jackson (2018), the prime objectives of the PSD2 initiative is:

- Homogenize the rules and regulations for payments services happening across EU;
- Create a better customer protection;
- Minor the costs to the end consumer;
- Bigger opening and transparency in the Payment Service Providers;
- Encourage competition and modernization in payments and financial services;
- Establishment of two new payment services:
 - AISPs (Account Information Service Providers) giving providers admittance to customer account information with a secure manner;
 - PISPs (Payment Initiation Service Providers) that allows TPPs (Third Party Providers) to make a payment from their customers bank account.

The PSD2 is conceivable to disturb traditional banks, but also form opportunities for new business models. Banks are worried about this new regulation as the entities, with the authorization of the holder, will easily access a payment account or a demand deposit and no intermediation by banks is required.

An increase in competition is notable in the industry since banks will compete with other banks, but also everyone offering financial services. PSD2 for some authors is considered “an accelerator for technology-driven disruption by non-bank fintech providers” (Cortet, Rijks, & Nijland, 2016).

In the future, banks will not be able to charge the payment initiation services, reducing some banks’ revenue. In addition, banking customers will perform most of the financial operations using an intermediary, making it difficult for banks to establish a strong relationship with their customers. The PSD2 will benefit the consumer in terms of the increase of competition in the industry, by receiving more innovative and specialized services (Costa, 2018).

3. The Portuguese banking consumer: behavior and trends

3.1. Definition of the banking consumer

Before defining the banking consumer is important to understand what make us consumers in the first place. The selection of a good/service, the purchase and the consequent consumption happen in our daily basis. At that point, people become the entity, individually or collective, acquiring a product/service whom market call consumer (Campbell, 2005).

Consumer behavior includes, not only the purchase of the good, but also the experiences and ideas of the consumer. In accordance with Hoyer & Macinnis (2008), the study of the consumer behavior should consider the entire decision process made by consumer about the consumption of a certain good/service.

A consumer, when subscribe a product or service offered by a banking entity became a banking consumer. The evaluation and choice of the suitable banking entity depends on the consumer’s analysis capability considering the information provided (Cornelia & Bebeselea, 2009).

3.2. The buying process of financial services

Customers, when acquiring a financial service, may not have been provided with the entire information necessary to make the right decision (Estelami, 2012).

Furthermore, and in accordance with the previously mentioned author, the level of financial illiteracy in Portugal is extremely high as well as the complexity of the

financial products/services, being incompatible these two variables. The most recent report of the results of the *Survey on the Financial Literacy of the Portuguese Population* (2015) stated that Portugal is in 10th place in terms of the global indicator of financial literacy. 58,4% of the inquiries understand the notion of simple interest and only 39,5% can perform the calculus of compound interest. The low level of Financial Literacy have a direct impact in the buying process behavior of consumers, making it heavier for a regular citizen to process the information given.

The process of decision-making is consensual between different authors. Estelami (2012) declared that consumer goes through six stages:

1. Recognition of a problem or a lack of something;
2. Search for information, solutions to solve the spotted problem and price in the service suppliers;
3. Evaluation of the alternatives (diverse organizations offer different prices and services);
4. Selection of the financial organization;
5. Purchase of the product/service provided by the organization;
6. Evaluation of the product/service acquired.

Even though the various levels in the buying process of financial services are unanimous, Zollinger & Lamarque (2008) believe that a 7th stage is the culmination of the process, the “Recommendation”. After the purchase, the consumer must decide whether they are satisfied with their acquisition or not (6th stage), and only if they are satisfied the customer will become loyal and devoted to the brand and will recommend the product/service or even the organization to peers, attracting more customers.

3.3. Factors affecting the consumer behavior – cultural, social, personal and psychological

Marketers intend to understand how the consumers’ mind function. The reason of buying a specific product or acquiring a certain service is only known by the consumer itself, however marketers try to study consumers’ purchasing patterns in order to perceive the factors leading to the final choice (Kardes *et al.*, 2011).

According to Kotler & Armstrong (2013), there are four factors affecting the consumer buying behavior: cultural, social, personal and psychological.

Firstly, the Cultural Factor includes the culture, subculture and social class. The cultural factor can be defined as the set of norms, values and attitudes that shape our behavior. Colors, languages are two important factors intrinsic to culture that institutions

need to consider when trying to advertise the product. Social classes reflect the income, career, education and/or residential area. Some brands focus on a specific social class, since the income have an impact in the consumer purchasing behavior, for example, luxurious brands like Maserati and Dolce & Gabbana that are made for a precise social class, individuals with high income (Kotler & Armstrong, 2013).

Within the Social Factors it can be divided into reference group, family and role/status. A reference group can be considered a group of people with attitudes and values followed by the people within the group (Bednárík & Kováts, 2010). Family is the most important reference group as its members assume different roles in the decision-making process. The close relationship between family members generates a great influence in the consumer behavior (Thomson, Laing, & McKee, 2007). Finally, the professional role of an individual and their status have a direct impact in the buying decision, since a business woman/man would probably buy clothes suitable to their role in the company, choosing a more classic outfit, rather than a casual one (Kotler & Armstrong, 2013).

The Personal Factors include the consumers' age, occupation, lifestyle, personality, financial conditions. These factors influence the consumers' decisions since the products bought, shops visited, and brands followed are a direct consequence of the factors mentioned above combined. So, the personal characteristics of a person build their behavior as a consumer, helping marketers segmenting and targeting the consumers (Kotler & Armstrong, 2013).

Lastly, the Psychological Factors, such as, motivation, perception, learning, beliefs and attitudes impact the consumers' actions to pursue satisfaction. The motivation can be explained using the Maslow's Hierarchy triangle of Needs comprising the physiological needs (sleep, food, water, etc.), safety, love/belongingness (friendship, family, etc.), esteem needs (confidence, achievements, gaining of status, etc.) and self-actualization needs. A motive is a need driving a person to pursue satisfaction. Maslow explains that humans first fulfill the basic needs, it stops being a motivator and then go up in the triangle. The perception a consumer has of a certain product or brand is a result of the selection, organization and evaluation of the collected information. Some consumers purchase products like Apple since they perceive it as a first-class brand. Then, the learning process comes with changes in the consumer behavior. Humans can learn with their own personal experience or only by observing others, and they deal with different situations every day meaning that a change in their knowledge happens

regularly, affecting the behavior. By learning and gaining experience, consumers acquire the final feature impacting consumer behavior, attitudes and beliefs. Each individual has their own beliefs and attitudes regarding religion, music, food and so on, and those beliefs and attitudes will trigger a response to the products in the market. Marketers try to analyze customers' attitudes and beliefs and alter them to be suitable to the products and services provided by brands, yet those are hard to change as they are intrinsic to each person (Kotler & Armstrong, 2013).

To conclude, it is fundamental to retain that the consumer buying behavior of a product and/or service may depend on different factors directly related to the consumer and not.

3.4. Customer segmentation in the financial sector

Ernst & Young *Global Consumer Banking Portuguese Survey* with data regarding 2013 give insights about the eight types of banking consumer segments: the self-sufficient, the balanced, the unsatisfied, the elites, the traditional, the innovators, the ascendants and the conservatives. Table 1 represents the eight segments and the percentages regarding the size of the customer segment, the percentage of individuals with a superior education level and the holding assets under management, highlighting the three highest percentages in each variable.

Firstly, the self-sufficient, the balanced and the unsatisfied and the elites correspond to the older part of the population. Each one of the four segments englobe higher ages, however the features diverse between the customer segments. The **self-sufficient**, corresponds to 14% of the population, are less financial literate and not open-minded that possesses a low level of trust and engagement with financial institutions. However, convenience is the most important feature for the segment as they intend to do their own research rather than obtain information through an assessor. The **balanced** ones prefer and appreciate the engagement and transparency between banks and customers, can easily open or close bank accounts and have a more limited heritage. The **unsatisfied** disapprove the financial industry as they do not value problem solving techniques performed by banks as well as the lack of transparency causing low levels of trust and engagement. The **elites** besides being older, value and appreciates the online service being an important portion of the banks' customers as their heritage is vast, having 21% of holding assets under their management.

The **traditional** does not fit in a specific age range, however is the second largest customer segment corresponding to 15%. The segment aggregates the customers with low

financial literacy level, high engagement and loyalty level, regardless of the limited capital possessed.

The younger portion of the population, the segment under analysis in the dissertation, can be divided into three different customer segments in accordance with their features. The **innovators**, since it is composed with younger minds, the fear of change does not exist, if a competitor suggests a better offer in comparison with their current situation the innovators will easily close the current account in order to pursue the greater offer in the market. A higher level of financial literacy – 75% of this segment has a superior education level – comparing to other segments along with the high technology usage make them open to different financial alternatives and willing to invest more capital to obtain more benefits. The **ascendants** correspond to young people, are the smallest customer segment englobing only 6% of the population, with high financial literacy level, amount of capital, number of products and/or services subscribed and frequency of opening and closing accounts. The ascendants are the customer that relies in the financial institutions and the advices received from the professionals of the branches. Besides their minor number the ascendants have the highest percentage of superior education level (80%) and holding assets (25%). Finally, the **conservatives** are the biggest segment (22%) with individuals of a younger age that have lower financial literacy and are customer advocates besides limited savings. The attachment to the technology is not as important as for the innovators, as the conservatives segment values human interaction only attainable in a branch (Ernst & Young, 2014).

Table 2: Percentage of the population, graduation level and holding assets of the different customer segment

<i>Segments</i> / <i>Variables</i>	% of the population	% of superior educational level	% of holding assets
Self-Sufficient	14	51	6
Balanced	10	59	7
Unsatisfied	10	47	5
Elites	11	70	21
Traditional	15	53	7
Innovators	12	75	18
Ascendants	6	80	25
Conservatives	22	53	11

Source: Ernst & Young “Ganhando por meio da experiência oferecida ao cliente”

3.5. Evolution of the consumption of the Portuguese banked

3.5.1. Bank account holders

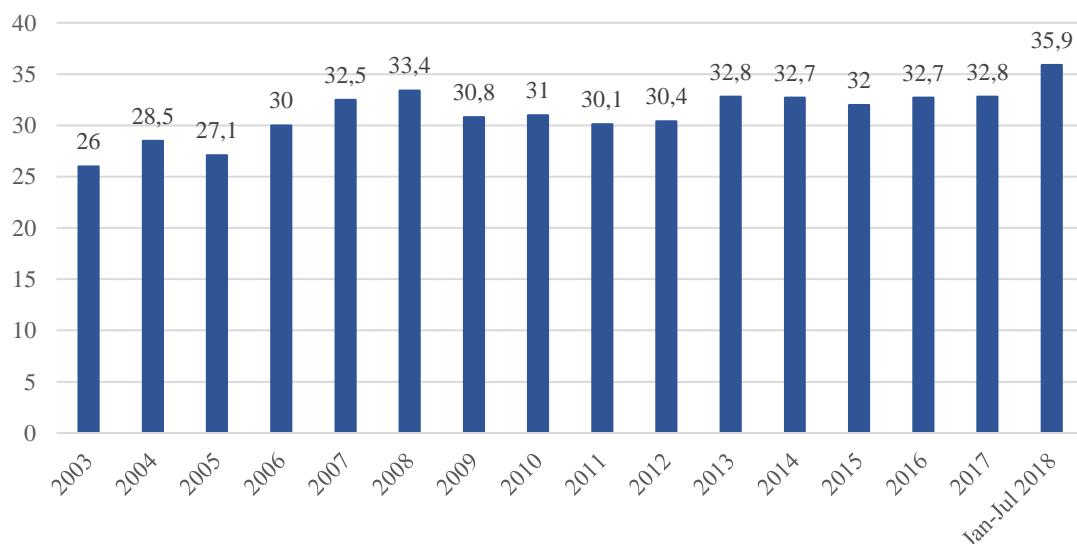
The study *The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution* published in 2018 by The World Bank states that the financial inclusion – the intent to make financial service accessible to individuals regardless of their financial constraints - is rising. The Global Findex database of 2017 demonstrates that 1.2 billion adults have acquired an account since 2011, 515 million individuals since 2014. From 2014 to 2017, the percentage of adults that possess an account with a financial institution grow from 62 to 69 percent, primarily caused by the rose of digital technology.

In Portugal, regarding the numbers obtained in 2017, 92% of adults (age 15 or above) have an account in a financial institution or through a mobile money service and the existing gap between men and women are not significant (Demirgüç-Kunt *et al.*, 2018).

3.5.2. Evolution of the credit card holders

In addition, the number of credit cards are growing at a fast pace. Basef Banca from Markest collected data from January to July 2018 about the credit card owners creating a comparison with data from 2003.

Graph 2: Credit card owners who identify the bank where the account is open, between January 2003 and July 2018 (in percentage)



Source: Marktest, Basef Banca

Through the observation of Graph 1, it is possible to conclude that, in 2003, the percentage of Portuguese residents owning a credit card was 26%, but by July of 2018 the number of credit card owners reached a peak, having the highest number in the last

fifteen years, a total of 2,751 million credit card users, corresponding to 35,9% of the total Portugal's citizens with 15 years or higher possessing a bank account.

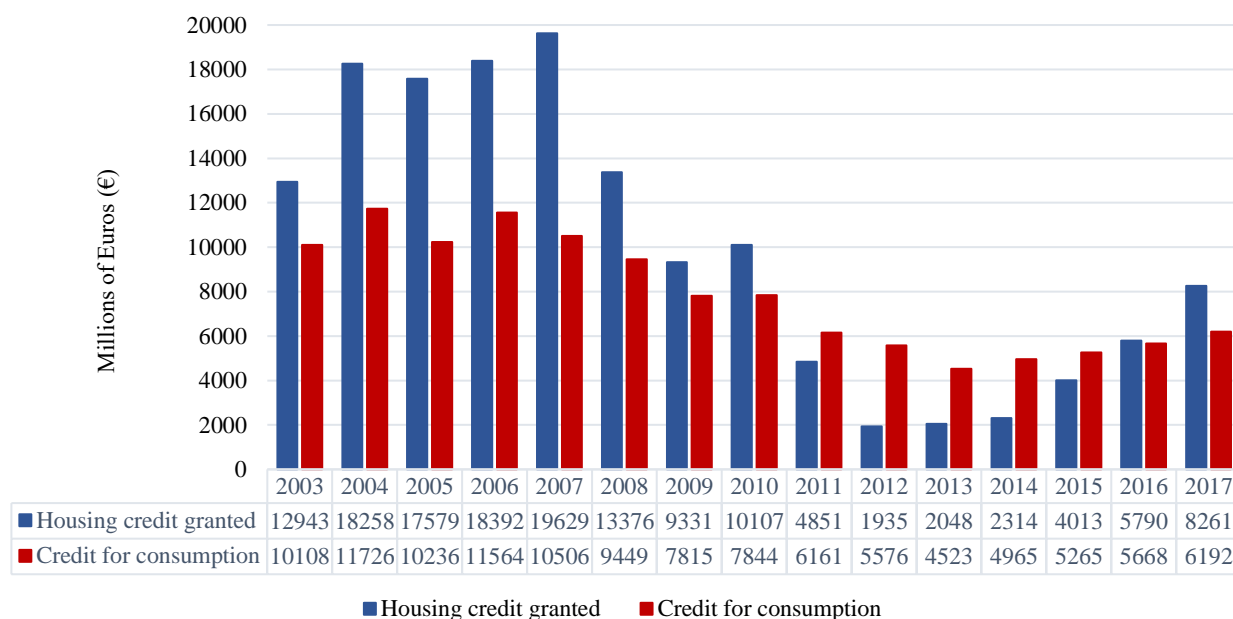
3.5.3. Loans granted to individuals

In Graph 2 two variables are under analysis, the housing credit granted and the amount of credit for consumption from 2003 to 2017. In terms of the housing credit, the amount of capital granted by financial institutions got a peak in 2007 with 19.629 million of euros, yet the numbers continued to decrease reaching its low in 2011 – the year of the “Troika” arrival – with 4.851 million euros, with a growth rate of -0.90% from 2007 to 2011. The most recent statistics reveal that, in 2017, the housing credit was 8.261 million euros, having a growth rate of 2,57% from 2014 and 2017 (PORDATA, 2018).

According to Bairrada (2018), in Portugal is more economical to apply and obtain a housing credit than renting a house and for that reason the amount of capital predicted that financial institutions will provide to individuals in 2019 for the purpose of acquiring a house will remain high or increase. The attractiveness of the banks' spread is one of the most crucial variables that customers take into account when considering applying to a housing credit. So, as the level of competitiveness between rivals is increasing, low spreads along with a good relationship with the customers is crucial to maintain current clients and attract the young ones to contract the housing credit in their organizations.

The second variable corresponding to the credit for consumption hasn't oscillated as much as the housing credit with numbers ranging from 11.726 (in 2004) to 4.523 (in 2013) million euros in a 14-year interval. Data collected from 2017 indicates that 6.192 million of euros were approved to individuals for consumption, with a slight but constant increase of amount since 2013. The value of credit for consumption increased 0,37% from 2014 – the lowest amount of capital – to 2017. To conclude, the largest percentage of capital provided by financial institutions is intended for housing, not for consumption (PORDATA, 2018).

Graph 2: Housing credit granted by Financial Institutions in millions of euros between 2003 and 2017



Source: BP, PORDATA

Through the analysis of Table 2, the comparison between the evolution of the loans granted and the banking deposits made from December 2016 to November 2018 and between Portugal and the Euro Zone is possible. Observing the numbers in Portugal, in November 2018 the non-financial company loans decreased 0,3% compared to the previous year. In terms of the loans to individuals, the housing loans declined 0,8%, however those for the purpose of consumption increased considerably in the order of 10.8%. In slight disagreement with the loans in general, the deposits augmented exponentially. Non-financial company deposits grow 8.9% comparing to the same period in the year before, and demand deposits along with the agreed maturity deposits boost 13,6% and 2,5%, respectively.

Data from the Euro Zone provided by Banco de Portugal (2019) helps to observe if the Portuguese banking consumer consumption goes along with the consumers of the Euro Zone average. In the Euro Zone, the percentage of different loans increased in general, except the loans to individuals not destined for housing of consumption, contracting 0.7%. Regarding the deposits, the growth in November 2018 compared to previous years is notorious, but overall not as pronounced as in Portugal, only decreasing 4.7% in the deposits with agreed maturity.

Table 3: Variation of the Loans and Deposits in Portugal and Euro Zone between December 2016 and November 2018

	Portugal			Euro Zone		
	Dec 2016	Nov 2017	Nov 2018	Dec 2016	Nov 2017	Nov 2018
<u>Loans</u>						
Non-financial company loans	-2.0	-2.5	-0.3	1.9	1.8	2.9
Loans to individuals:	-2.0	-0.8	0.4	2.3	3.1	3.2
→ Housing	-2.9	-1.8	-0.8	2.7	3.1	3.3
→ Consumption	8.0	9.1	10.8	4.0	7.4	6.7
→ Other purposes	-3.9	-3.0	-1.3	-1.2	-0.8	-0.7
<u>Deposits</u>						
Non-financial company deposits	8.3	11.6	8.9	6.2	7.7	3.8
Deposits of individuals:	1.0	0.8	2.6	4.1	3.6	4.2
→ Overnight Deposits	17.6	13.0	13.6	11.2	9.4	8.8
→ Deposits with agreed maturity	0.9	0.7	2.5	-5.2	-7.2	-4.7

Source: Banco de Portugal and European Central Bank

3.5.4. Indebtedness of Portuguese families

Data provided for Banco de Portugal about the indebtedness of Portuguese families state that the high level of housing and consumption loans, caused by the decrease of interest rates (Banco de Portugal, 2019), favors an increase in the debt of the Portuguese households. In December 2017, the families' debt was 74.4% of PIB (Mouta, 2018), though in July 2018 the debt levels had a slight decrease, corresponding to 71% of the PIB, meaning 104% of the available income. In comparison with the Euro Zone, the numbers of 2018 although being minor, are still above average (Ataíde, 2018).

3.6. Attributes valued by bank consumers in the relationship client-bank

A study performed by Ernst & Young in 2013 analyzing the consumers of banking services give insights about the characteristics that banks should possess in order to retain clients by investing in customer experience creating a positive relationship between the parties involved.

According to Ernst & Young (2014), customers demand easier, understandable and cleared banking transactions by having transparency in the financial institutions' offers and their corresponded fares, as well as evolution and upgrade of different digital

channels to provide customer ongoing effortless access to banking operations. Reputation and security of their personal and financial information are factors with a high level of importance for customers as we are living in a digital world surrounded by online banking services, where security is a concern.

Financial decisions should be weighted, so personalized assistance, based on the customer's profile, provided by financial institutions to help customers develop their financial plans and objectives are crucial for strengthen the relationship client-bank. Although "digital world" is growing and developing at a fast pace, consumers continue to seek human support and advice in their financial quests. Nowadays, going online is the first step 80% of banking consumers make while searching for a new product or service, in the financial sector still 60% of them prefer to visit a branch in order to obtain personalized assistance that is possible in a human interaction (Ernst & Young, 2016).

Furthermore, problem solving are a key skill that financial institutions must have in order to grow the relationship between both parties. The appearance of a problem caused by the client, the institution or a third-party causes disorder in the relationship and the way the problem is handled has an impact in customers' mind. Having follow-up throughout the process will lead to clients' satisfaction of the entire experience.

The relationship between the client of the institution and the institution itself can be fractured if the attributes mentioned above valued by customers are not followed by banks.

4. Young adult consumer segment

4.1. Young adults, internet and the levels of mobile devices usage

Data collected by Statista gives information regarding the evolution of the Internet penetration worldwide, as well as the preferred devices used by consumers to gain access to it. First, the number of existing and active internet users worldwide up to January 2019 is 4.4 billion, a growing number caused by the penetration of mobile devices and its usage convenience. Through the usage of mobile devices consumers can personalize content to obtain customize experiences, along with the convenience and portability of these new digital devices, they are penetrating at a fast pace worldwide in order to access online information (Park & Burford, 2013). Mobile devices are competing with the not portable technological devices, as they can provide the same experience as a computer but now with a smaller size making it more convenient and easier to transport (Newzoo, 2018). 4 billion out of these total 4.4 billion users only use mobile devices to access Internet and

of the 3.484 billion active social media users, just 228 million do not access their social media profiles uniquely through their mobile devices (Statista, 2019).

In terms of percentage of website traffic descendant of mobile devices, the numbers grew hastily from 2009 to 2018. In 2018 the percentage of website traffic worldwide produced through mobile phones corresponded to 52,2%, 1,9% more than in the previous year and 8,6% higher than in 2016, where the portion corresponded to 43,6% (Statista, 2019).

Organizations should address customers through different Internet platforms as the levels/frequency of Internet usage are increasing. The most recent data collected by Statista (2019) provides insights of the Portuguese individuals frequency of Internet usage in 2018, where 71% of them access the Internet in a daily basis and only a small portion of 3% uses Internet less than once a week. In Portugal, in 2018, 79% of the households had Internet access, compared to 2008 where the percentage was around 46%. Although Internet penetration in 2017 corresponded to 68,8%, Portuguese young consumers aged 15 to 34 along with the individuals with high incomes and/or students had a penetration rate of 99%, while the rate of older consumers and individuals with low incomes do not exceed 31% (Marktest, 2017).

4.2. Sources of financial information: family, peers, financial advisors, online and social media and mass media/magazines

Young adults are in an early stage in the life-cycle and the financial decision made at that point generates consequences in their future finances. Decisions such as the creation of a family along with the purchase of a house, to obtain independence from their families, is possible through a requirement for a housing loan and repaying education debt are some financial choices that young adults must face for the first time (Webley *et al.*, 2002; Hall & Willoughby, 2014).

The transition from the adolescence to adulthood where people become financial independent differ between individuals. However, financial independent or not, consumers start making financial decisions whether using their own financial knowledge, that is normally acquired with experience, or reaching for an advisor (Goldfarb, 2014).

Individuals seek for information advices to form more accurate choices and in terms of financial data, the accurate choices correspond to profitable and economical decisions, increasing financial knowledge (Finke *et al.*, 2011; Collins, 2012). Young adults when seeking for financial information count on different sources, both online and offline: family, peers, financial advisors, online and social media.

Firstly, family is considered the most influencing source of financial information for young adults as it is a reliable and trustworthy font to ensure that prudent financial decisions are made. The knowledge of young adults is minor because of their lack of financial experience, so the family, as the group that surrounded the individual in the beginning of its life-cycle, can help increase financial knowledge and therefore behavior (Mimura *et al.*, 2015).

Secondly, the peers are other source of financial information as young consumers pursue social acceptance and their consumption patterns are shaped through the influence of friends and colleagues. According to Mimura *et. al* (2015) study “*the more the respondents reported they gained information from their friends, the lower they scored on the financial knowledge item*”, since the information is not as accurate as the one obtained from family.

Financial counselors are gaining less importance in terms of source of financial information by young adult consumers. Individuals prefer to gather information through friends and family, however financial advisory is considered the most effective alternative to create profitable and wise financial decisions (Elliehausen *et. al*, 2007).

Online and Social Media, using different electronic platforms as Facebook, Instagram and Twitter, are growing as a device to facilitate social communication between individuals and to obtain information. In a digital era, teens and young adults rely on social media to obtain peer advices and reviews to guide individuals’ financial decisions (Michikyan & Orozco, 2016).

4.3. Importance for the financial industry

The young adult consumer segment consists in a large and important segment for financial organizations, primarily because of their progress in quantity and rising incomes. The younger target intends to apply the savings and invest in a new home and family and creating a solid relationship in these early stages in the financial world generates a strong, durable and most certain profitable relationship for the future (Martensen, 2007).

As it was possible to observe in the topic regarding the different customer segmentation groups, the young market is not homogeneous, it consists in diverse customers with specific insights and needs, as the level of financial literacy, income and needs differ from each other, so banks need to understand the young consumer segment and its specificities to deliver offers suitable to their needs (Xu, 2008).

Besides the problems related to this segment meaning, the low frequency of deposits and amount of capital along with the easiness of opening and closing accounts, and the growth of the segment generates interest on the behalf of the banks (Paaskesen, 2014).

4.4. Relationship with the banking services

Building customer engagement is the priority of the banking sector and to reach customer satisfaction and trust, banks should go along with the market changes (PwC, 2011).

In the financial area, a portion of the service sector, human resources are a fundamental piece in the business as they are responsible for creating a bridge, a relationship, between the organization and its clients in order to fulfill the needs of both parties (Zollinger & Lamarque, 2008).

According to a study performed by Computer Services, Inc. (2018) in a digital age new strategies need to be implemented to improve the customer experience and consequently the customer-bank relationships. Financial institutions in 2019 pretend to improve the customer experience variable by:

- Expanding their digital capabilities, attracting a younger consumer segment;
- Betting in artificial intelligence and machine learning, fundamental to analyze complex data and deliver fast and accurate results;
- Creating an automated customer onboarding since the customer acquisition is as crucial as having the proper follow-up to the purchase;
- API integration providing easiness, security and access control of data.

Although the high level of importance of an engagement improvement between banks and its customers, the young target, according to Bernthal (2016), “*represent one of the least trusting generations in recent history and they are the most detached from traditional institutions*”, causing difficulties in building a long-term relationship between both parties. Nevertheless, since the younger individuals are gaining preference for digital channels, its quality can dictate and influence the level of engagement and the relationship the young customer has with his/her banking institution (PwC, 2011).

5. Engagement creation between the customer and the organization

5.1. Customers’ acquisition and retention

According to Tripathi (2014), a relationship between an organization and its customers became easier with the appearance of the Internet. More important than generating simply a successful transaction between the two parties is to create an emotional relationship that is stronger and more profitable to the business, financial or not.

Due to the increase competitiveness and growth in number of organizations in the financial industry, customer acquisition is the most fundamental aspect that banks should contemplate. An annual study performed by Computer Services, Inc. in the last quarter of 2018 stated that, in 2019, financial institutions expected to focus not only on customer acquisition but also in cross-selling and the development of innovative products/services to generate competitive advantage and differentiation in the sector (CSI, 2018).

To reach the revenue goals established in the previous year, 71% of the financial institutions under analysis considered the acquisition of new customers a priority and intend to attract new customers by focusing particularly on loans, mobile apps, cybersecurity and self-service strategies with the decreasing need for branches (Marous, 2019).

Organizations in the banking sector, with the increase of complexity of products and services, seek for relationship strategies that can attract new customers and retain the current ones. A growing concept in the banking and financial industry to is the Customer Relationship Management. According to Sharma *et. al* (2014), the CRM as the focus on converting “current and new customers into regularly purchasing clients”, by establishing and enhance relationships between the organization and its customers.

Relationship Marketing practices are fundamental for organizations’ survival nowadays. With the exponential growth of social media, consumers rely on online feedback of consumers’ previous experiences with a specific brand/product/service, using it as the basis for their decision-making process regarding the product/service they pretend to acquire. Relationship Marketing techniques focus on the customer service, resulting on a positive experience and consequently customer satisfaction and retention (Rasul, 2018).

The switching cost – transaction, search, learning and emotional costs – for a customer is diminishing, caused by the rise number of products/services with similar features available in the banking/financial market, so organizations need to focus on consumer attraction and retention strategies to turn the switching cost into a non-fundamental variable (Egarius & Weill, 2016). The switching cost is decreasing

particularly for young adults born in the 80s and 90s as one in three young consumers are open to switch banks with 90 days (Hyder, 2015).

Different industries intend to implement customer retention strategies to provide a profitable business with long-term loyal customers. Nowadays, it is possible to observe in diverse areas of activity strategies as loyalty schemes, affinity schemes and content Marketing, generating customer satisfaction and, consequently, customer retention (Parawansa, 2018). The implementation of tracking processes to evaluate the performance throughout the entire customer lifestyle creates a competitive advantage for the organization, as a customer in order to be satisfied and loyal to a service/brand should be fulfilled with the service offered whenever the transaction occurs (Tripathi, 2014).

5.2. Ideal channels to interact with the banking entities

A retail banking study performed by Gallup in 2013 identified the channels – human mixed and digital – customers prefer to use to communicate with their banks in order to fulfill the different financial transactions.

When customers intend to open and/or close an account, apply for a loan or seek financial advice, human channels are the preferred ones, mainly face-to-face contact at a branch, as customers perceive the human interaction as a trustworthy and reliable transaction. Banks aim to reduce costs with the customers' visit to branches and that would be possible if banks can attract branch customers to alternative channels, especially digital channels (Agarwal & Mehrotra, 2017).

In a digital era, most customers prefer to learn about the products and services provided by the organization online, meaning information on the website along with feedback of the current customers' past experiences. With small financial needs such as the request of the account balance or transactions history and payment of bills, the digital channels are the selected platform to interact with the organization. Besides the technological impact in the banking industry and the correspondent channels' evolution, customers prefer to use the digital channels only to manage simpler banking needs.

Customers in terms of the statements' and alerts' reception have a preference to receive it via mixed channels, predominantly via mail. In addition, the ATM - a mixed channel – only conquers the preference of customers to withdraw money (Yu & Fleming, 2013).

5.3. Innovative communication methods - Bots

Human interaction has a great importance in the relationship between an organization and its customers, caused by the personalized conversation. However, the

need of human support is getting smaller with the evolution of the technology as those personalized conversation can be imitated in a more effective way using chatbots, a portion of Artificial Intelligence (Pwc, 2017).

Chatbots are virtual supporters made to provide assistant to customers, helping banks to give personalized experiences for their clients. The chatbot are becoming desirable for companies of different industries because it is a competitive advantage (Lui & Lamb, 2018).

5.3.1. Artificial Intelligence adoption in banking

The adoption of bots in banking are increasing, as organizations intend to reduce the human tasks by replacing it for online conversations performed by robots. Chatbots are being used in banking to reduce costs and improve the relationship between banking and its customers. In 2020 it is predictable that “*chatbots will be handling no less than 85% of all customer service interactions*” (Marous, 2018).

Besides the effectiveness and easiness of the Artificial Intelligence tools, specially preferred by a younger segment, humans are still considered fundamental and preferred for heavier and complex financial decisions or products (Hosea, 2016).

5.3.2. Advantages of the bots’ usage in banking

Chat bot are assembled to recognize main information through voice recognition or texts and provide quick answers to financial questions that customers have (Y Media Labs, 2016), saving time to customers due to the straightforward and fast responses and to the employees of the organization that are able to reduce the amount of tasks and complete it in a more profitable way (Harper, 2015).

Chatbot are available for dialogue with customers 24/7, a feature that is not possible in most companies using humans. With this advanced technology, when customers log into their online accounts, a chatbot can receive the customers’ historical purchasing transactions and deliver proposals suitable to their preferences. The chatbot can deliver better customer insights, increasing the level of engagement and satisfaction as the customers feel more attached to the banking institution, improving the relationship and therefore the loyalty of the customer (Pwc, 2017).

Unlike humans that at the peak time are not able to satisfy customers doubts and problems accurately, bots can consistently respond to customers both in “dead hours” and peak time, and this consistency in the service provided has also an impact on the user experience becoming enjoyable regardless of the time to which customers benefit of the service (Y Media Labs, 2016).

The maintenance costs are low as the bots deal with automatic and regular updates, reducing the costs related to train and development of employees, job errors and interviewing. Chatbots minimize the number of human tasks, taking better advantage of their time with responsibilities that require actual human involvement (BotCore, 2019).

Bots can be also used to endorse organizations' financial products and gather feedback, being an advantage for customers that deal with less frequent advertising and is also beneficial for the organization as the banks are able to maintain and reinforce the relationship between both parties by reminding consumers of the financial benefits of using a certain organization's product/service (Y Media Labs, 2016).

5.3.3. Disadvantages and limitations of chatbots

Firstly, when dealing with chatbots is important to take into account that is a computer in an embryonic phase having limitations. Chatbots have set up answers to the most shared questions customers could have, however, since it is established previously, some questions may not be responded properly, needing the human intervention, causing frustration to customers (Y Media Labs, 2016).

Some individuals have difficulties in trusting Artificial Intelligence, since the bots' process is based on an algorithm that analysis customers historical online activities and for that reason, for users that do not understand how the algorithm proceeds interpret the chatbots as a violation of privacy (Anderson, 2017).

Besides being a trend not every consumers' segments accept the technological evolutions in the market, as the individuals of Generation X – born between the 60s and 80s – only started to deal with technologies in a more advanced stage in life, causing a difficulty to accept and use bots. Nevertheless, Millennials and Generation Z were born in a digital era, so the adaptation to bots, as a communication marketing practice, were smoother and easier (Anderson, 2017).

5.3.4. International adoption of bots in the banking sector

The usage of bots in the banking sector is happening worldwide. Different banks are implementing this artificial intelligence's tool into their strategies intending to improve the customer loyalty to the organization (Forbes, 2017).

The most dominant banks in the United States of America have already add this new technological feature into their services. Bank of America released on 24th October 2016 information about their intelligent bot Erica. The virtual assistant started to be use by Bank of America's customers in 2017 and is available in the organization's mobile app. Erica gives financial advices regarding money saving through the analysis of

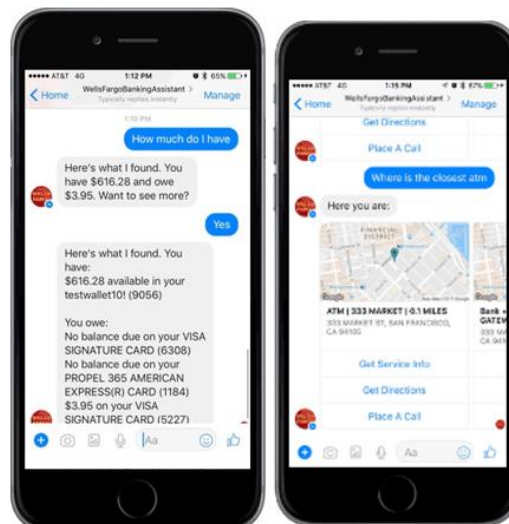
customers' financial data, provides information concerning their account balance, payments and loans (Taylor, 2016).

Figure 7: Erica, Bank of America's bot



Wells Fargo, also an American multinational financial services organization, created a bot that interacts with customers on Messenger by providing information regarding the amount of money spent in a particular month, number of transactions, account balance and even the location of the nearest ATM, along with a pleasant language that engages and facilitates the customers' needs (Burnett, 2017).

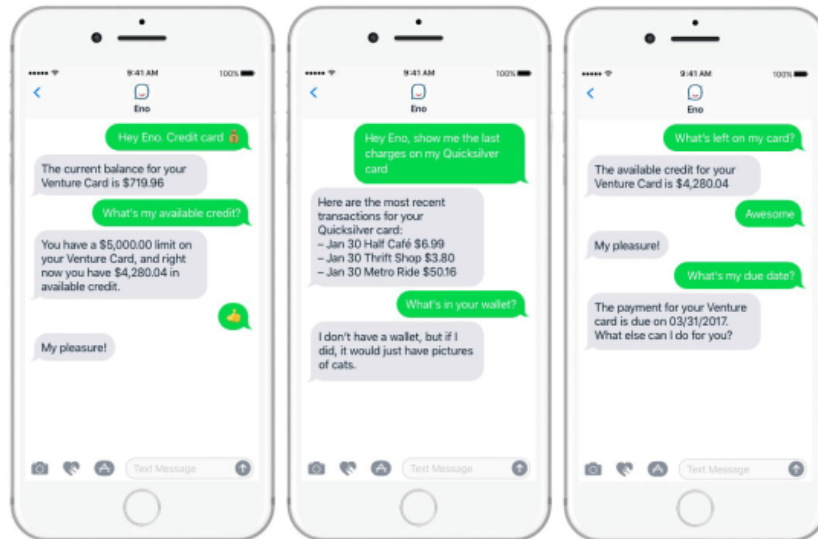
Figure 8: Wells Fargo's bot



Capital One, one of the largest banks in the United States of America, has putted into action Eno, a bot to help customers check their balance, pay bills and remind of historical credit card transactions and future payments via text messages (Johnson K. , 2017). Eno even after being implemented has had minor upgrades in terms of language

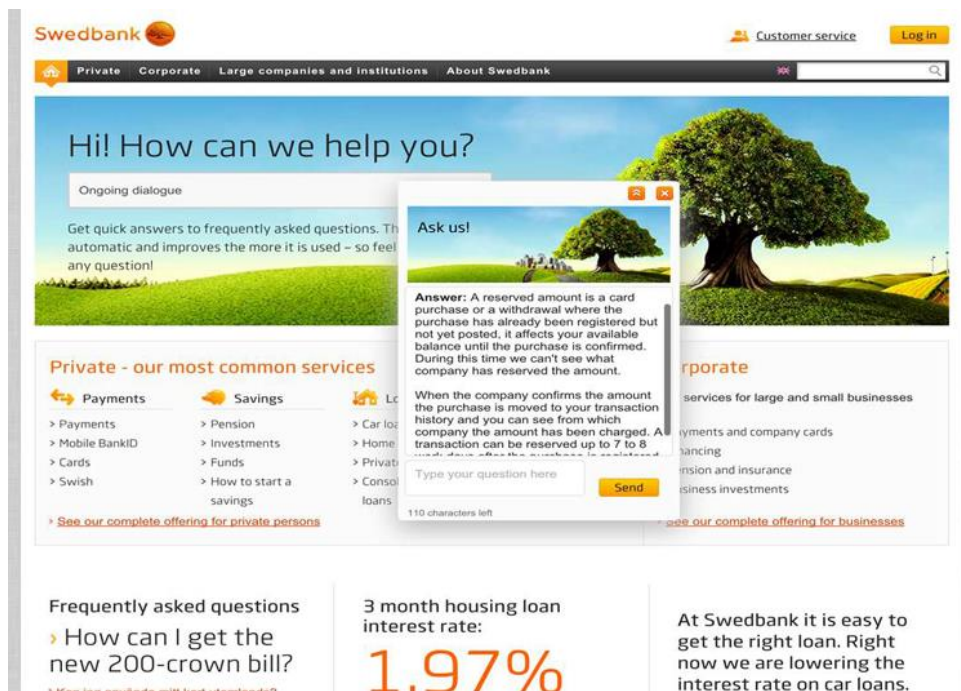
and understandability. The bot is able to recognize 2.000 different ways that customers utilize to ask for their balance and the casual and friendly language used creates empathy between customers and the bot, building a solid relationship between Eno and the customers, but also between customers and the organization (Dolenin, 2017).

Figure 9: Eno, Capital One's bot



Swedbank introduced a virtual assistant named Nina, used in the company's website, to deal with the complaints and to help customers clarify their doubts regarding financial matters through understandable, simple and quick answers, leaving more time for employees to handle added-value tasks (Kedbäck, 2016).

Figure 10: Nina, Swedbank's virtual assistant



Cognitive banking consists on the adoption of tools made to improve the customer experience by making it more personalized and suitable to the features of each individual (FinTech Futures, 2016), increasing the overall engagement between the banking entity and the customer (Harper, 2015).

5.3.5. Artificial Intelligence adoption in the Portuguese banking sector

In Portugal, the implementation of Artificial Intelligence is happening but at a slower pace. Some organizations in the insurance industry, in particularly Ageas, possess chatbots to interact with the customers giving personalized advices (Tomé, 2019).

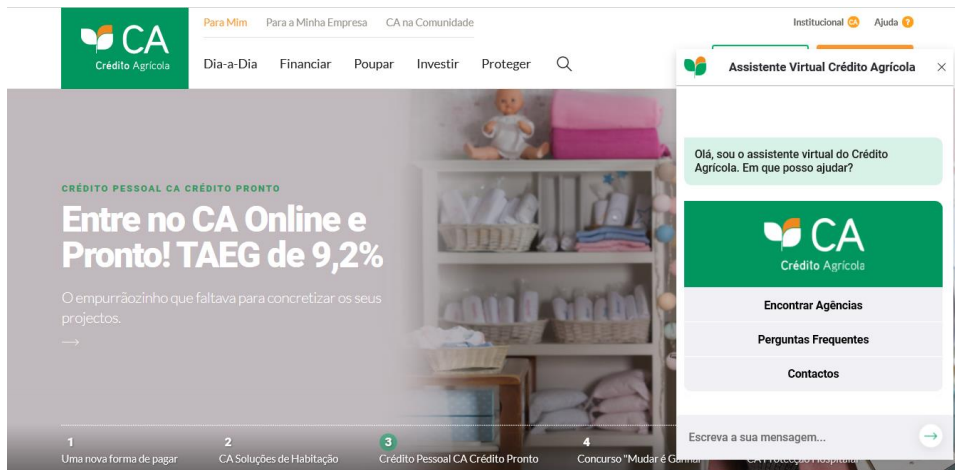
However, in the banking industry is already possible to interact with the financial institutions through a virtual assistant. Banco Best, a Portuguese bank founded in 2001 with shares hold by the Grupo Banco Espírito Santo, has included in their services a chatbot named BEA, meaning Best Electronic Assistant. BEA answers questions customers may have regarding Banco Best's products and services, using language suitable to each individual's needs and personality. This technological tool is available in the bank's website and social media, portraying the advance positioning of the bank in the market (Alves, 2018).

Figure 11: BEA, Banco Best's virtual assistant



Crédito Agrícola, a financial Portuguese group born in 1911, has also a virtual assistant created to provide information and assistance to its customers. The chatbot is available in Crédito Agrícola's website and can answer to questions related to products/services provided by the bank and locate agencies, however is current in an embryonic phase with space for improvement (Crédito Agrícola, 2019).

Figure 12: Crédito Agrícola's virtual assistant



According to Scriptutex (2019), in 2020 85% of consumers' interactions with an organization will be conducted through digital processes differentiating companies competing in the same sector.

Chapter 3 – Materials and Methods

1. Information collection instrument

Different methods of data collection can be applied to explore diverse matters. A researcher may opt to use questionnaires, interviews, focus groups, tests, observation and secondary data, being pure qualitative, pure quantitative or even mixed (Johnson & Turner, 2003; Iacono, Brown & Holthman, 2009; Robinson, 2014).

As the options for the methodology are vast, the author investigated the main statistically pertinent pros and cons of the different data collection instruments in order to select the most appropriate for the previously established research objectives (Table 3).

Table 3: Strengths and weaknesses of the data collection instruments

Data collection instruments	Strengths	Weaknesses
Questionnaires	<ul style="list-style-type: none"> • Easiness to have anonymity of the respondents, generating more truthful responses; • Good for measuring participants' attitudes and behaviors; • Easy data analysis for the closed format items; • Fast to gather information; • High validity. 	<ul style="list-style-type: none"> • Should be short to avoid dropouts; • Open format items could have ambiguous responses; • Open format items could have spelling errors making it difficult and time consuming to interpret.
Interviews	<ul style="list-style-type: none"> • Empathy and personal interaction; • Good response rate; • Collection of more information than intended. 	<ul style="list-style-type: none"> • Higher costs for a larger sample; • Researcher's bias can affect responses; • Time consuming.
Focus Groups	<ul style="list-style-type: none"> • Taped content; • Interpretative validity; • Good to find in-depth information and exploring thoughts. 	<ul style="list-style-type: none"> • Low measurement validity; • Difficult and time-consuming data analysis; • Difficult to generalize due to small samples;
Tests	<ul style="list-style-type: none"> • Easy data analysis; • Good measurement of the participants' features; • Availability of extensive range of tests. 	<ul style="list-style-type: none"> • Not appropriate for local population; • Lack of psychometric data; • Biased, sometimes.

Observation	<ul style="list-style-type: none"> • Better description of the participants' attitudes and behavior; • Observation of actual situations. 	<ul style="list-style-type: none"> • High researcher bias; • Difficult data analysis as it is based in the researcher's interpretation; • May not reflect the accurate demographic sample.
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The secondary data, corresponding to information previously collected by other investigators (Johnson & Turner, 2003), was used in the present paper in the *chapter II – Literature Review* to corroborate the research conducted by the author of the study. Concerning the research methods, the author excluded immediately the tests since the purpose of the study is not evaluate a certain subject. After a deep analysis of the strengths and weaknesses of the remaining research methods, interviews, focus groups and observation were not considered the most adequate because of the critical perspective of the results, as the investigator won't possess statistically less time-consuming data.

Bulmer (2004) states that a questionnaire is a measurement tool, with the objective of acquiring information about a specific individual concerning its social characteristics, principles, behavior and action towards a chosen topic, with the possibility of having open and/or close format items. The questionnaire is the data collection method most commonly used in descriptive researches as it applies a gather of scientific procedures with the purpose to collect data describing the target features, meaning behavior, attitudes and preferences (Hair, Bush, & Ortinau, 2003).

In terms of this research method, the anonymity of the responses that generates honest answers likewise the fast gathering of information and high measurement validity are the strengths taken most into consideration.

As the dimensions under analysis in the present research document are the banking sector in Portugal and the new technological features appearing in this industry, along with the perception that young adults have of the two issues, the author chose to develop a **questionnaire**, released online, corresponding to a **quantitative research of descriptive nature**, with the purpose of evaluating the sample's judgment regarding the stated topics.

2. Creation process of the questionnaire

To reach the final version of the questionnaire, a sequence of steps needed to be contemplated before starting its elaboration process. According to (Aaker, Kumar, & Day, 2001), a proper questionnaire should fulfill the research's objectives and although

not being linear, as different objectives require distinct type of questionnaires, following a sequence of stages is required. Planning is crucial so, in the first step, the researcher plan what will be measured and then develop questions to obtain the necessary data. Subsequently, the queries need to be assembled into the accurate order, ready for the final analysis of ambiguity and errors in order to correct the problems. After being revised and perfected, the questionnaire can be utilized in the investigation.

Applying the stages for a solid questionnaire, firstly, taking into consideration the objectives of the investigation, the author started to establish the themes that needed to be approached in the quantitative study, and consequently, the principal subjects were divided into specific topics. Secondly, as the core issues under investigation were set up, its organization was fundamental to the questionnaire, in order to have a proper flow going from general to specific. Finally, the questions were settled based on the fixed topics, originating the final questionnaire.

3. Questionnaire's structure

After the elaboration process, the final version of the questionnaire (Appendix I) was released having an organized 6 sections.

The first section corresponded to the introduction which englobes the presentation of the author and the academic institution; indication of the purpose of the research; caption of the participant attention by the divulgation of an offer to one of the participants; the filling instructions; time of questionnaire completion, approximately; mention of data confidentiality; researcher's contact information; and a gratitude expression for time spent completing the questionnaire.

The second part corresponds to an identification of the respondents' age, as if the inquiry is under 17 or over 35, the respond does not need to proceed in the filling of the questionnaire, as the ages do not fall within the intended age range of the study, not being valid answers for the data analysis.

The third portion evaluates the consumers' relation with the banking sector, using a Likert scale and Satisfaction scale to analyze individuals' opinion of the Portuguese banking industry in general.

In the fourth group the analysis goes deeper as the main purpose is to comprehend the relationship that a certain consumer has with its main and preferred bank. With the use of different questions types – multiple choice, scale and open questions –, the author intended to understand the banks that are more younger consumer oriented; the level of knowledge of the banking products/services; level of satisfaction with the main bank;

pros and cons of the main bank; and the prime banking tools used to communicate with the banking entities.

The penultimate section portrays the consumer's relation with new emerging technologies, applied in the banking industry. It contains questions regarding the level of interest and adoption of new emerging technologies by consumers; profile of the participant as an innovation adopter; awareness of chatbots; pros and cons of chatbots; and opinion of chatbots in banking along with the impact on the relationship with the banking entities.

Finally, in the final section we sought to obtain the demographic information of the respondent, namely gender; nationality; occupation; marital status; and education level.

4. Categories of questions

Different objectives of research require distinct questionnaires, meaning contrasting types of questions that need to be applied to obtain responses to the problematic under analysis. According to Mathers, Fox & Hunn (2007), the questions can be considered: open format or closed format.

a) Open format questions – the participants can elaborate the answers using their own words, not having a set of options already established. The providing of comments and elucidations to support the interpretation and analysis of the close questions becomes one of the positive aspects. On the other hand, for a larger sample its interpretation is slower and can be less objective as the participant may wander.

b) Close format questions – the participant has a limited and stipulated number of alternatives. The time-efficiency along with being straightforward to interpret are a plus for the investigator, however, individuals are obligated to select only the answers provided by the researcher not reflecting, sometimes, the authentic judgement (Abel, 2017).

The questionnaire adopted in the paper have both open and closed format questions in order to collect different levels of material, corresponding to an intramethod mixing as it possesses qualitative and quantitative components within a single method (Johnson & Turner, 2003).

Within the closed ones, the author used: multiple choice questions; dichotomous questions; and scale questions.

b1) Multiple choice questions – the participant chooses one or various alternatives. The reduced time needed in the multiple choice is the prime advantage, however the set of options may influence the respondent.

b2) Dichotomic questions – the participant has two options of response, of opposition, i.e. yes/no; agree/disagree. Besides being objective and straightforward to interpret, an error in the question's formulation may lead to measurement mistakes as a subject may necessitate more than two alternatives of response.

b3) Scale questions – the participant must position itself in a scale about its opinion in a certain matter. Two examples used in the questionnaire is the Likert scale – the inquiries face several statements and it is expected to score each affirmation on a multi-point scale, normally 5- or 7-point, according to its level of agreement – and the ranking scale – the inquiries receive a list of elements and need to place them in order conforming to their levels of preference or importance towards the items (Mathers, Fox, & Hunn, 2007).

5. Questionnaire's divulgation

A minimum number of intended answers was stipulated to be considered a good-sized sample for analysis, as well as a maximum period for the online questionnaire to be active.

The final questionnaire was elaborated in the *Microsoft Forms* tool with a starting point on June 2019 and ending point at July 2019. The analysis of the collected data was made with SPSS – a professional program commercialized by IBM and provided free of charge by the university, ISCTE-IUL. The inquiry is directed at young consumers up to 35 years old, so it was issued to:

- a) Facebook groups of different universities, such as: **(1)** Instituto Superior de Ciências do Trabalho e da Empresa – Instituto Universitário de Lisboa (ISCTE-IUL); **(2)** Faculdade de Ciências da Universidade de Lisboa (FCUL); **(3)** Universidade Católica Portuguesa; **(4)** Universidade Lusófona de Lisboa; **(5)** Universidade do Porto;
- b) Online groups of academic associations integrated by the author;
- c) Facebook pages of publicity directed to young adults with individuals ranging from 18 to 35 years.

The author of the investigation took a caution in order to not obtain responses of individuals involved in a banking entity, Portuguese or not, to avoid data bias, as those individuals in particular can have access to different information and knowledge about

the subject under analysis along with a relation with the banking entities different from a regular consumer.

6. Study universe characterization

In the present investigation, the universe and the sample were established based on inclusion and exclusion criteria that match the research objectives. The study universe comprises all the individuals – male and female – with ages between 17 and 35 years old, who benefit from the service of one or more banks in Portugal, regardless of the nationality.

The existent filters in the research determine the universe under analysis. The search inclusion criteria defined are: **(1)** have consent of the individual to enroll in the investigation, after explaining the research theme and objectives; **(2)** being over 17 and under 35 years old; **(3)** have a service from at least one operating banking entity in Portugal.

The search exclusion criteria are: **(1)** being under 17 and over 35 years old; **(2)** not possessing a banking product and/or service in a banking entity operating in Portugal.

7. Sampling

A sample corresponds to a subgroup of individuals or items belonging to a previous defined target population. A sample should be representative of the population, meaning the sample has to contain the characteristics of the population and the collected information has to be reliable (Hair, Bush, & Ortinau, 2003, p. 43).

Regarding the two different sampling designs, there are probability and non-probability sampling. Probability sampling is a method in which the components of the sample have the same chance and known likelihood of getting selected, being always higher than zero.

Non-probability sampling is used where the probability of selection of each component of the sample is indefinite, meaning that each component of the population has an unknown chance of being selected and may not even be chosen. In the non-probability sampling, the sample size is determined through the intuition of the researcher based on the industry under investigation, past studies or researcher's available resources. Time requirement along with the cost per sample member are low (Daniel, 2012).

The type of data analysis, similar reports, time and budget are factors to take into concern when deciding the sample size, and for those reasons “there is no single answer for the sample size decision”. For the present dissertation, the author intended that the sample dimension should fall between 150 and 200 responses, being considered

statistically representative (McLafferty, 2016). The used method was non-probability sampling and during the one-month active period of the online questionnaire 179 participants answered the survey, being all valid answers as it corresponds to individuals with age up to 33 years. Random selection was applied in the choice of the 179 members of the sample, with the purpose of obtaining a sample as heterogeneous as possible regarding age and gender, specially.

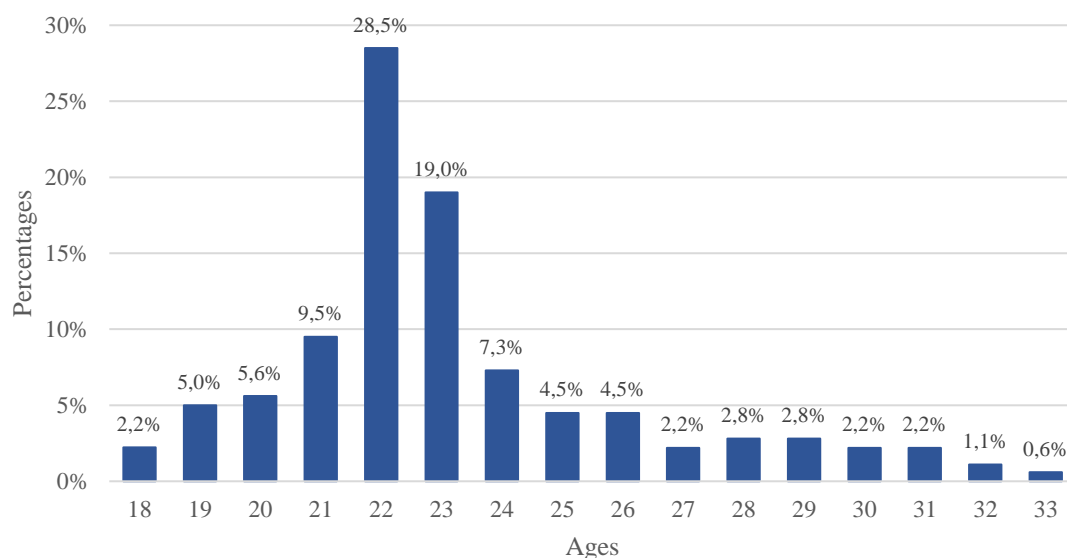
Chapter 4 – Results analysis and discussion

The starting point of the results analysis is the sample characterization concerning the age, gender, occupation, marital status and education level, in order to contextualize the demographical features of the inquiries. Afterwards, this chapter describes the main results, taking into analysis the questionnaire responses, evaluating young consumers' behavior, attitudes and opinion towards the banking sector. To proceed into the results analysis, the chapter is divided into 7 main thematic – the first one being the sample members analysis and the remaining topics correspond to the subjects under investigation in the online questionnaire. Each thematic due to its length are divided into subtopics and the final issue corresponds to the main insights, as a summary.

1. Sample description and characterization

The sample is composed with 179 individuals with a minimum age of 18 years and a maximum age of 33, following the second selection criteria of inclusion in the sample – individuals over 17 but under 35 years (Graph 3). The major number of responses to the online questionnaire are individuals with 22 years corresponding to 28,5% of the sample (Annex 2). The standard deviation, with a value of 3,039 can be a representative measure that the data are not very homogeneous (Annex 3).

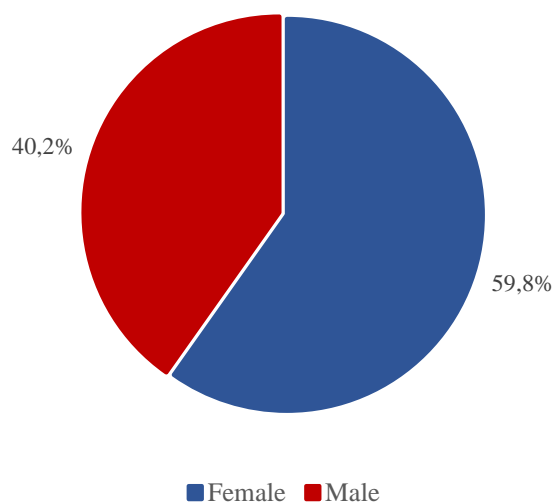
Graph 3: Bar chart of the variable "Age"



Source: Author's elaboration

The participants involved in the investigation are mostly female individuals – 59,8% of the sample – and the remaining 40,2% correspond to males (Graph 4).

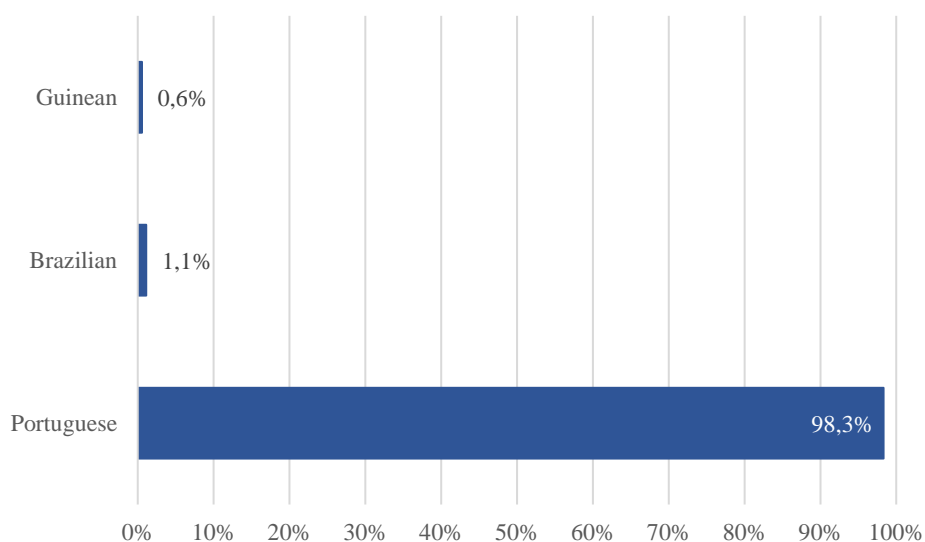
Graph 4: Pie chart of the variable "Gender"



Source: Author's elaboration

98,3% of the inquiries have Portuguese nationality, 0,6% corresponding to one inquiry has Guinean nationality and the remaining two (1,1%) are Brazilian. The three individuals that are not Portuguese are also included in the sample since the inquiries just need to have a relation with a bank that belongs to the Portuguese banking sector, despite their nationalities (Graph 5).

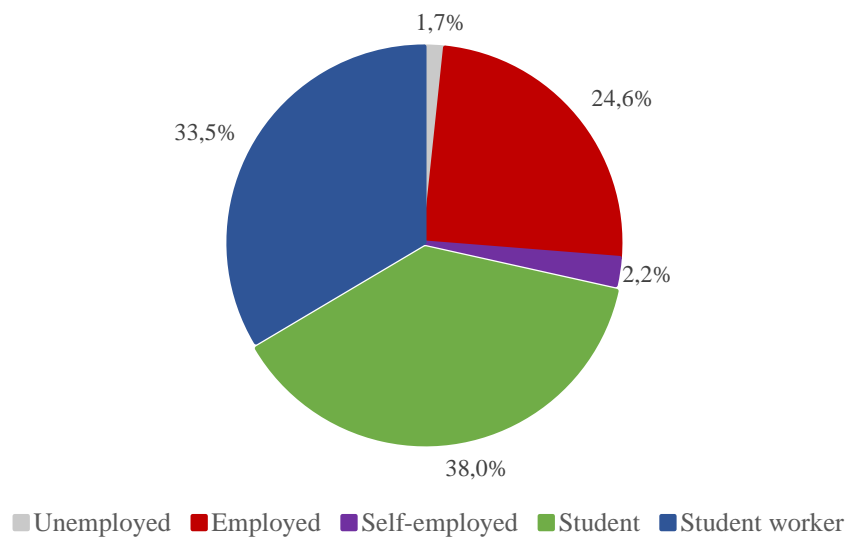
Graph 5: Bar chart of the variable "Nationality"



Source: Author's elaboration

Regarding the variable "Occupation", the largest portion of the inquiries are students (38%) and student workers (33,5%). The least representative set of data are unemployed and self-employed corresponding to 1,7% and 2,2%, respectively (Graph 6).

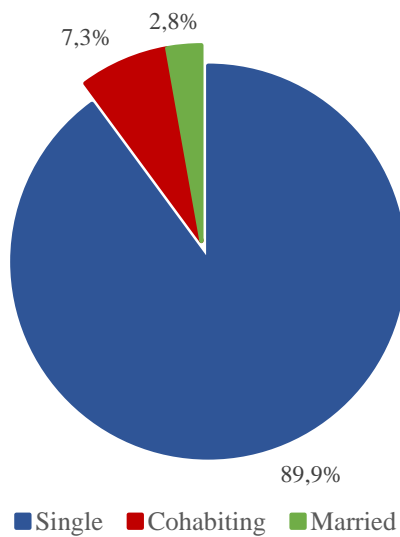
Graph 6: Pie chart of the variable "Occupation"



Source: Author's elaboration

From the 179 inquiries, 161 are single (89,9%) generating a significant and majority portion of the sample (Graph 7).

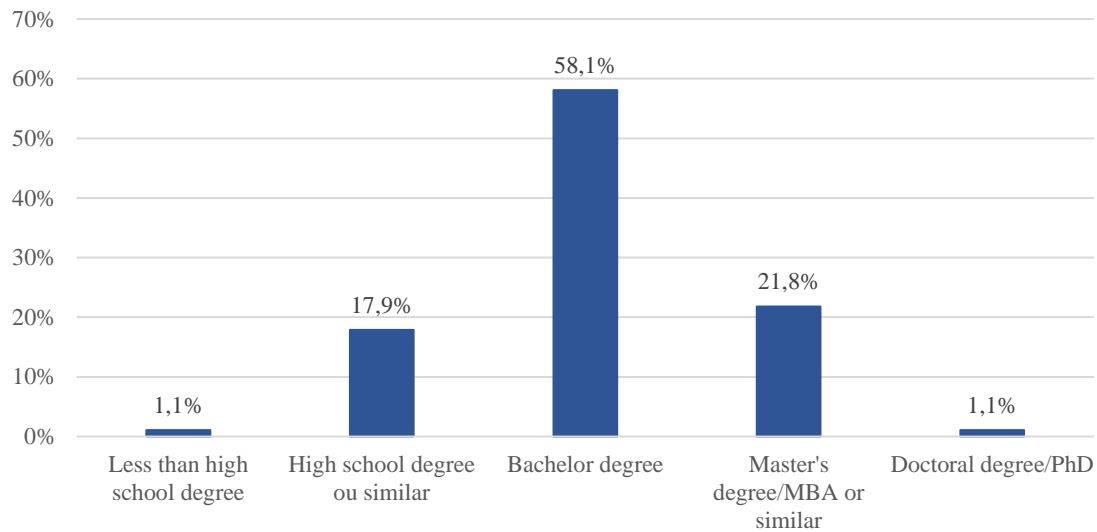
Graph 7: Pie chart of the variable "Marital Status"



Source: Author's elaboration

In terms of the variable "Education Level", 58,1% of the participants have a bachelor's degree and the least significant data sets are those with a Doctoral degree and the ones with less than a high school degree, each corresponding to 1,1% of the sample (Graph 8).

Graph 8: Bar chart of the variable "Education level"



Source: Author's elaboration

2. Financial consumers and the Portuguese banking industry

2.1. Characterization of the financial consumers

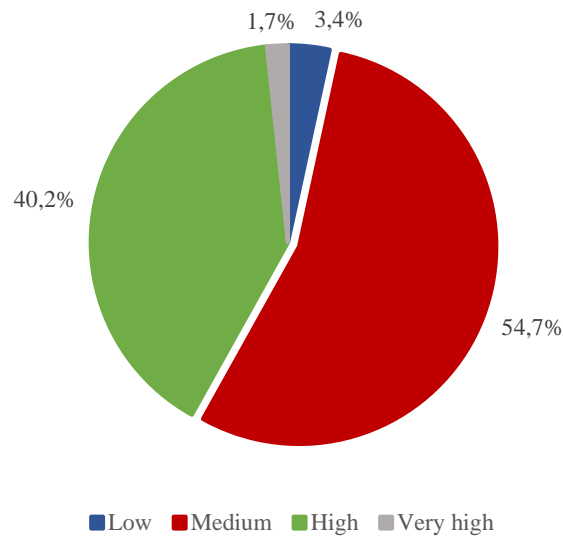
Firstly, before analyzing the topics under research it is important to characterize the respondents' profile in terms of financial knowledge and behavior. The mean of each variable is low, as they are under 3. The respondents with ages comprehended between 18 and 33 classify themselves with low levels of *financial knowledge* ($\bar{x}=2,92$), *level of trust* and *engagement with the banking institutions* ($\bar{x}=2,97$; $\bar{x}=2,65$); *capital possessed* ($\bar{x}=2,36$) and *concern with its savings* ($\bar{x}=2,59$). The *loyalty level*, highlighted, has the highest mean ($\bar{x}=3,27$) and the majority of inquiries have a high loyalty level towards the banking institutions. As none of the respondents answered "Very high" in the capital possessed variable the range is lower than the other five variables (Annex 4).

To characterize the participants as financial consumers the six variables previously mentioned were analyzed, meaning *financial literacy*, *level of trust in banking institutions*, *level of engagement with banking institutions*, *loyalty level*, *capital possessed* and *saving level*. However, in this research the author intends to have a single score measure that combines the individuals' answers regarding the six variables, and that is possible through the computation of the variables presented in the questionnaire to originate only one variable score, instead of six.

Through the combining of the answers of the 179 respondents, a new variable was generated (Graph 9). More than half of the respondents are classified into the medium category as financial consumers (54,7%) – corresponding to a score of three in a 5-scale, going into accordance with the data of appendix 8, as the mode of four out of six different

variables that characterize a financial consumer are three, meaning that majority of the sample as a medium financial literacy, level of trust in banks, level of engagement with banks and saving level. 40,2% of the sample classify themselves as high financial consumers assuming high scores in the combination of the six former variables.

Graph 9: Pie chart of the new variable (combined variables)



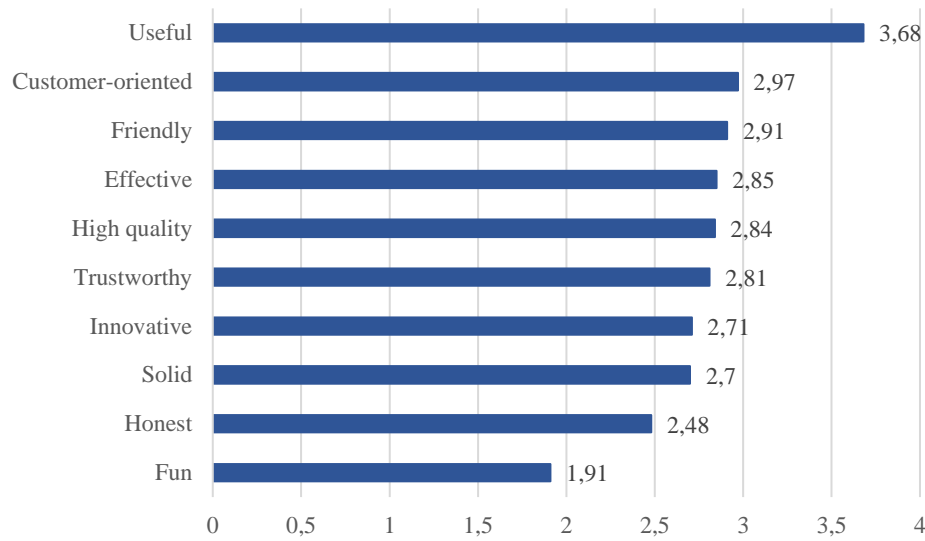
Source: SPSS – Author’s elaboration

2.2. Characterization of the Portuguese banking sector

The respondents acknowledge that the Portuguese banking sector is not fun, as the mean corresponds to 1,91, in a five-point scale – the variable with the smallest mean, meaning a low association to the Portuguese banking industry. However, the inquiries find it more or less useful as the mean is 3,68 with a majority of answers being higher than the mean and classified the Portuguese banking sector as quite useful.

The Portuguese banking sector, for the inquiries are not considered very innovative, as the mean corresponds to 2,71, not even reaching the middle score in the five-point scale (Graph 10). Yet, the innovation visible by the customers is happening in the industry through firstly the ATM (Eriksson & Nilsson, 2006), then the Internet banking (Zheng, 2010) and more recently, the introduction of bots to interact with customers (Alves, 2018). Although Portugal are not being able to keep up with the industry’s developments as rapidly as other countries, **the banking sector has been introducing innovation through FinTech** (Autoridade da Concorrência, 2018), **however respondents do not recognize these innovations, not associating innovation with this industry, probably due to the lack of divulgation and communication by the banking entities.**

Graph 10: Bar chart of the means of the elements of the variable “Opinion of the Portuguese banking sector”
(1=Not at all; 2=A little; 3=More or less; 4=Quite; 5=Extremely)



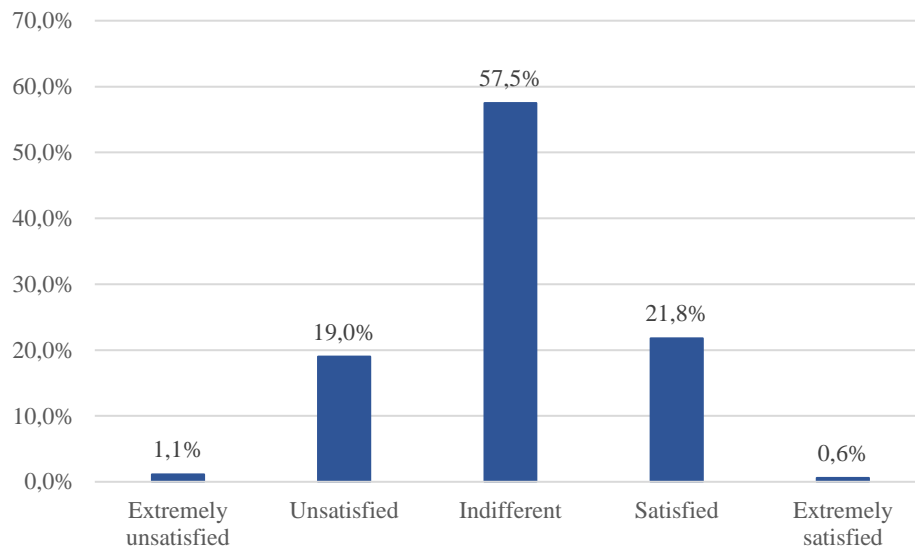
Source: Author's elaboration

In terms of relationship between the variables, through the correlation matrix, is possible to observe that correlations are bigger than 0 since the respondents were only provided with positive adjectives, so a growth in one variable causes an increase in a different variable. The variables that are strongly related are *solid* and *effective* as its correlation is the highest (0,609) meaning that **a more solid banking sector demonstrates a corresponding increase in the effectiveness of the industry, in the respondents' opinion.**

Lower correlations – closer to 0 – symbolizes few relationship, such as *friendly* and *innovative*, as its correlation is the lowest of the matrix, there is almost no relationship at all between being a friendly sector and an innovative sector (Annex 5).

In terms of the general opinion regarding the Portuguese banking industry 57,5% of the inquiries evaluate it as indifferent, not being completely satisfied or unsatisfied with the service (Graph 11).

Graph 11: Bar chart of the variable "General opinion of young adults towards the Portuguese banking sector"

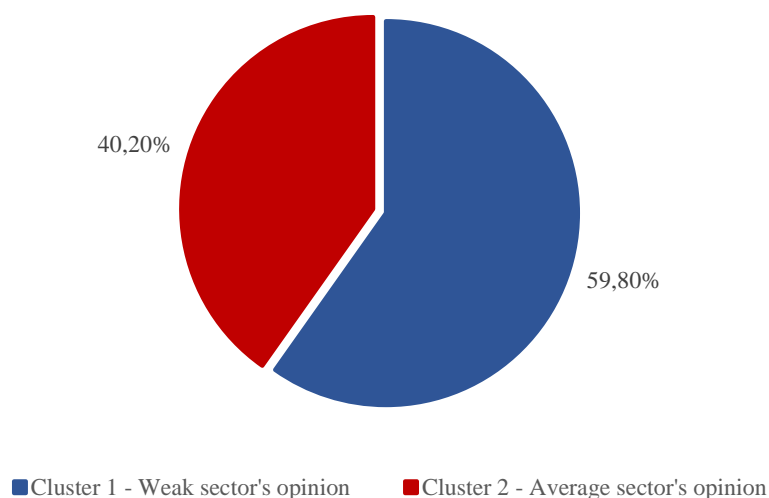


Source: SPSS – Author’s elaboration

2.2.1. Two clusters of consumers regarding the consumers’ opinion of the Portuguese banking sector

As the sample is composed by 179 individuals, the author decided to conduct a two-step cluster analysis in order to identify homogeneous groups of cases within the data regarding the inquiries’ opinion towards the Portuguese banking sector. The overall strength of the model is considered fair as it is close to 0,5 and two clusters were generated. Cluster 1 called the “Average sector’s opinion” group of consumers comprehends 59,8% of the sample (107 inquiries), corresponding to the biggest cluster and cluster 2 “Weak sector’s opinion” englobes the remaining 40,2% (Graph 12).

Graph 12: Pie chart of the 2 clusters of consumers regarding its opinion towards the Portuguese banking sector



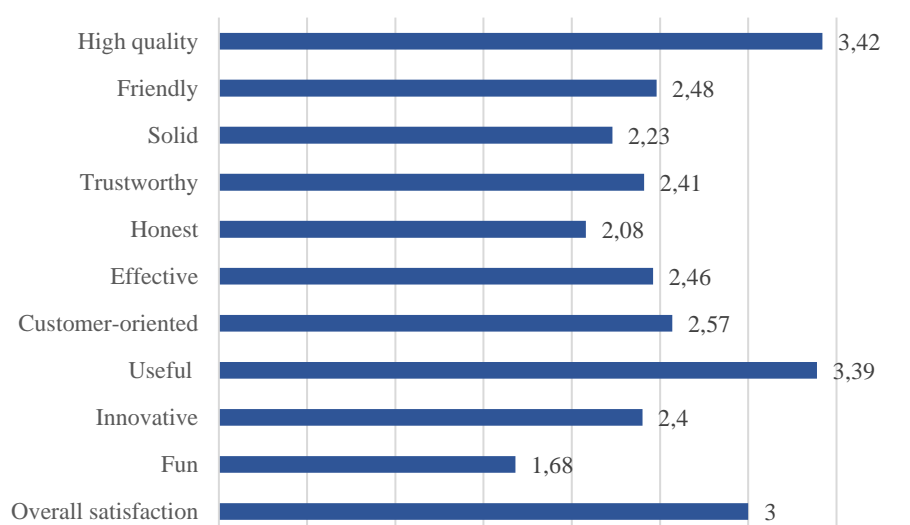
Source: Author's elaboration

The field *high quality* was considered the most important variable taken into consideration in the two-step cluster analysis and *fun* is the least important. Cluster 1 englobes the 107 inquiries who have given poor classifications in the items presented in the previous observations, meaning *high quality, friendly, strong/solid, trustworthy, honest, effective, customer-oriented, useful, innovative* and *fun*, ranked by level of importance for the model. The highest mean of the inquiries is 3,39 – on a 5-scale – in the variable *useful* and the lowest score corresponds to the *fun* variable with an average score of only 1,68. The satisfaction with the Portuguese banking sector of Cluster 1 englobes 66,4% of “indifferent” responses and the remaining responses are individuals that are “extremely unsatisfied” and “unsatisfied” with the industry (Graph 13).

Cluster 2 comprise 72 individuals having a more positive opinion of the Portuguese banking industry. The highest and lowest means of responses correspond to the same variables, useful and fun with, 4,11 and 2,25, respectively. In terms of general satisfaction, 54,2% of the inquiries of cluster 2 considered themselves “satisfied” with the industry (Graph 14).

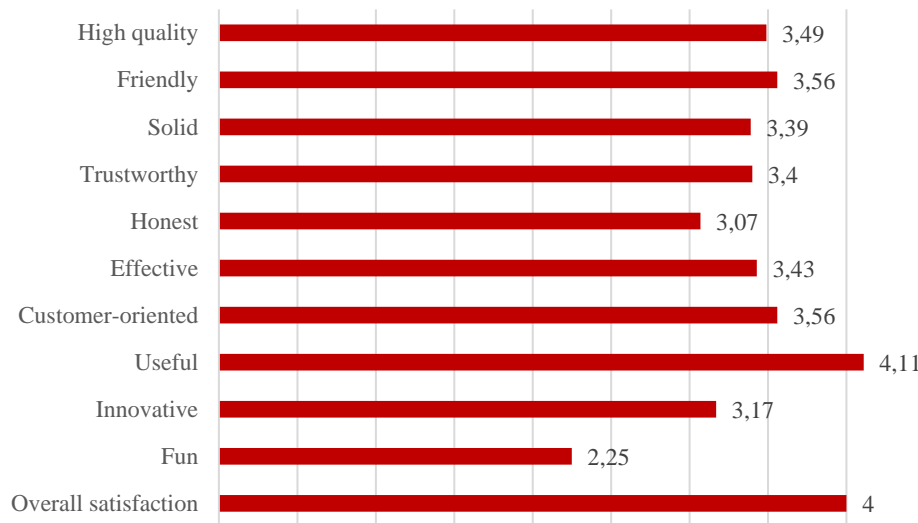
With the use of this model it was possible to identify **two homogeneous groups of consumers**, the biggest cluster – **59,8% - corresponding to the consumers with a weak opinion of the sector** and the smallest cluster – **40,2% - that are more or less satisfied. The Portuguese banking sector should execute strategies to improve customers’ opinion of the industry as 59,8% of the sample are not satisfied with the services provided by the Portuguese banking entities.**

Graph 13: Bar chart of the consumers’ opinion in Cluster 1 (mean score in a 5-point scale)



Source: Author's elaboration

Graph 14: Bar chart of the consumers' opinion in Cluster 2 (mean score in a 5-point scale)



Source: Author's elaboration

2.3. Main insights

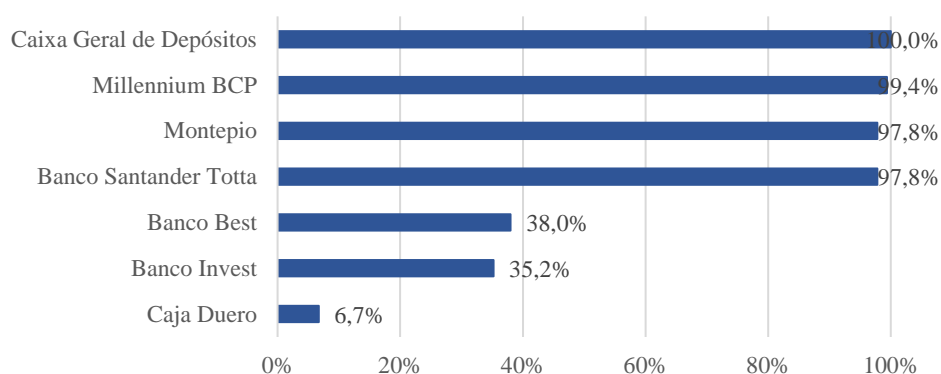
1. 54,7% of the sample classify themselves as medium financial consumers, meaning average level of financial literacy, level of trust in banks, level of engagement with the banking institutions and savings level;
2. Inquiries feel that the Portuguese banking sector is useful, but not innovative enough;
3. A solid banking system is directly related to an effective industry;
4. 59,8% of the sample have a poor opinion of the Portuguese banking sector and the remaining 40,2% are more or less satisfied, leaving room for several improvements.

3. Young adults known banks and of which they are clients

3.1. Banking institutions known by the participants

The inquiries answered an average of 12,503 banks from the 16 evidenced in the study question, meaning that the **young adults surveyed are familiar with the different options of banking institutions** (Annex 6). Banco Best, Banco Invest and Caja Duero are the least known banks with a percentage of answers of 38%, 35,2% and 6,7%, respectively. Caixa Geral de Depósitos is the only bank known by the entire sample, corresponding to 100% of the respondents (Graph 15).

Graph 15: Bar chart of the most and least known banking institutions

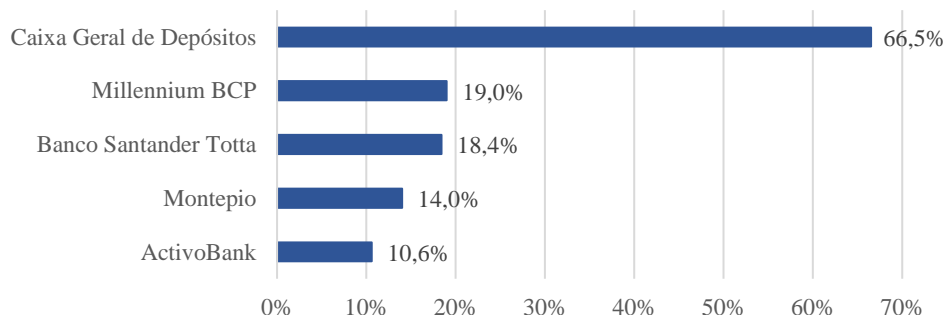


Source: SPSS – Author’s elaboration

3.2. Young adults and the banks they are clients of

Each individual in average, are a client of 1,615 banks (Annex 7). Caixa Geral de Depósitos has the leading quantity of young adults’ consumers, corresponding to 66,5% of the sample. 19% of the sample are clients of Millennium BCP and 18,4% of the respondents benefit from Banco Santander Totta’s services. None of the respondents are customers of Caja Duero and Banco Invest, therefore the two banking institutions were excluded (Graph 16).

Graph 16: Bar chart of the five banking institutions with the highest number of inquiries as clients



Source: Author’s elaboration

3.3. Main insights

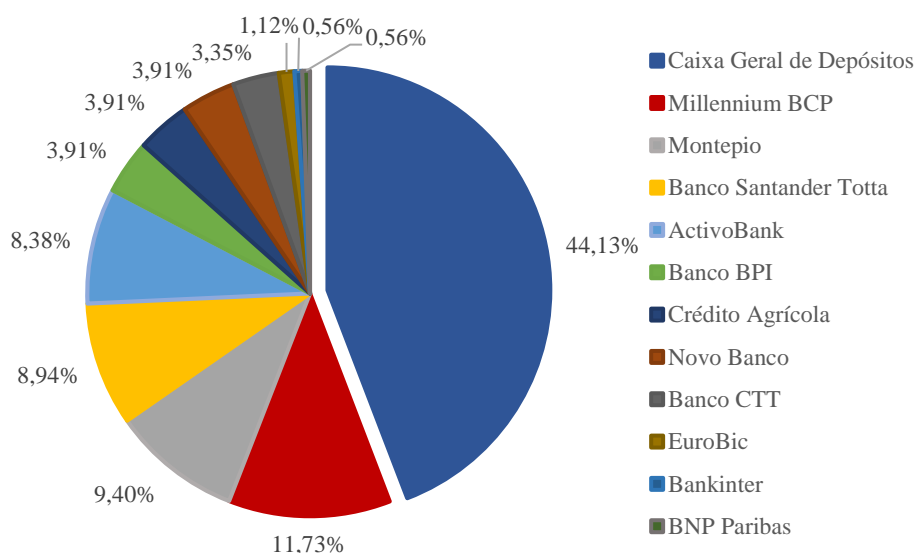
1. Caixa Geral de Depósito is the only banking institution known by the entire sample and provide a service for 66,5% of the participants;
2. Banco Invest and Caja Duero are the least known banking entities only acknowledge by 35,2% and 6,7%, and none of the respondents are clients of these banks.

4. Preferred and more youth-oriented banking institutions

4.1. Participants’ main banking institution

Regarding the variable “Preferred/main banking institution” 44,13% of the sample selected Caixa Geral Depósitos. Millennium BCP is the main financial institution for 11,73% of the individuals. Montepio and Banco Santander Totta and Montepio are third and fourth most favorite bank of 9,40% and 8,94% young adults surveyed. Banco Best and BBVA are not considered the main service provider for any of the respondents (Graph 17).

Graph 17: Pie chart of the variable “Preferred banking institution”



Source: Author's elaboration

Besides having 2 individuals that are clients of Banco Best and BBVA, these inquiries do not consider those banking institutions as their preferred service provider.

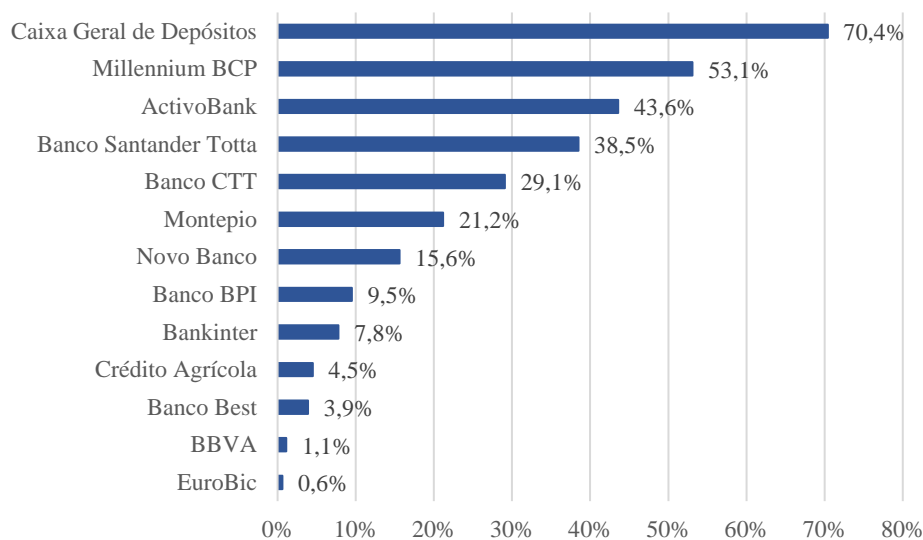
Caixa Geral de Depósitos is considered the most popular bank as 66,5% of the sample are customer of this banking institution and 44,13% states that CGD is their preferred bank.

4.2. Banking institutions youth-oriented

After understanding which respondents' preferred banks are, it is fundamental to analyze the banking institutions that are considered more targeted to the younger segment of consumers. The participants in the research, in average, identified 2,989 banks that they consider more youth-oriented. 70,4% of the inquiries recognizes Caixa Geral de Depósitos, followed by Millennium BCP with 53,1% of responses. ActivoBank and Banco Santander Totta obtained 43,6% and 38,5%, respectively. Banco Best, BBVA and

EuroBic are classified as the least young consumer-oriented banks only obtaining 3,9%, 1,1% and 0,6% of the votes of inquiries, respectively (Graph 18).

Graph 18: Bar chart of the variable “Banks more youth-oriented”



Source: Author's elaboration

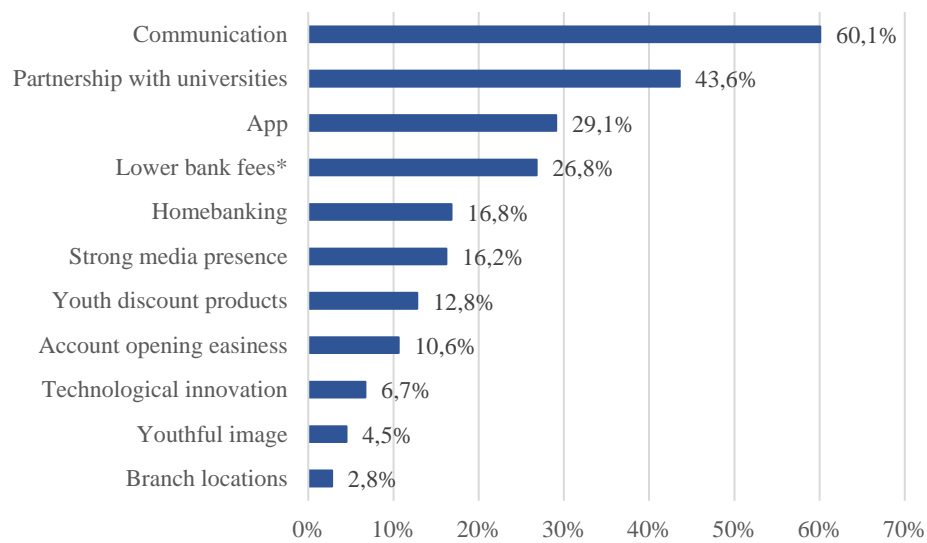
4.2.1. Reasons to identify banks as youth-oriented

In order to understand the reasons that lead consumers to select the banking institutions more targeted to the younger segment of the market, the inquiries faced an open question with the objective to collect a diversity of responses.

The four more acknowledged features are communication, partnership with universities, app and lower bank fees. A *communication* targeted to the younger segment is considered by 60,1% of the sample a reason to identify the banks as youth-oriented. *Partnership with universities* were answered by 43,6% and a complete *app* along with *lower banking fees* regarding its products/services represent 29,1% and 26,8%, respectively.

The least mentioned factor is the *location of the branches*, being identified by 2,8% of the sample. The inquiries consider the strategic location near universities a plus to attract younger consumers (Graph 19).

Graph 19: Bar chart of the variable “Reasons for choosing the banking institutions as youth-oriented”



*first house credit, student loans, business loans, savings account, account maintenance, etc.

Source: Author's elaboration

The three banking institutions considered by the inquiries as the most youth-oriented are Caixa Geral de Depósitos, Millennium BCP and ActivoBank. **Caixa Geral de Depósitos stands out by its partnership with universities, creating an enormous advantage by gathering clients at the beginning of their financial activity**, and by the youth discounts granted due to the student credit and debit cards. Caixa Geral de Depósitos is the bank with the largest amount of responses in terms of favoritism of the consumers and youth targeting.

Millennium BCP is considered the second most youth target bank especially due to its advertising and marketing strategies and by its packages such as Millennium Go! – mentioned by a large portion of the inquiries – that provides banking products and services along with partners' discounts for individuals between 18 and 30 years. The responses regarding the preferred bank follow the answers of the most youth-oriented banks as Millennium BCP is the second most selected in both categories.

ActivoBank distincts itself by a quite intuitive and easy to use app and homebanking with an almost exclusive online presence attracting the younger segment of consumers. In spite of being the third most acknowledge Portuguese banking institution concerning youth targeting, it is only the fifth in terms of favoritism by the inquiries, following Montepio and Banco Santander Totta.

It is possible to infer that the **banking institutions using strategical decisions in terms of communication and focus on the young consumer segment are considered by the young adults as youth-oriented. Consequently, those banks are increasing its**

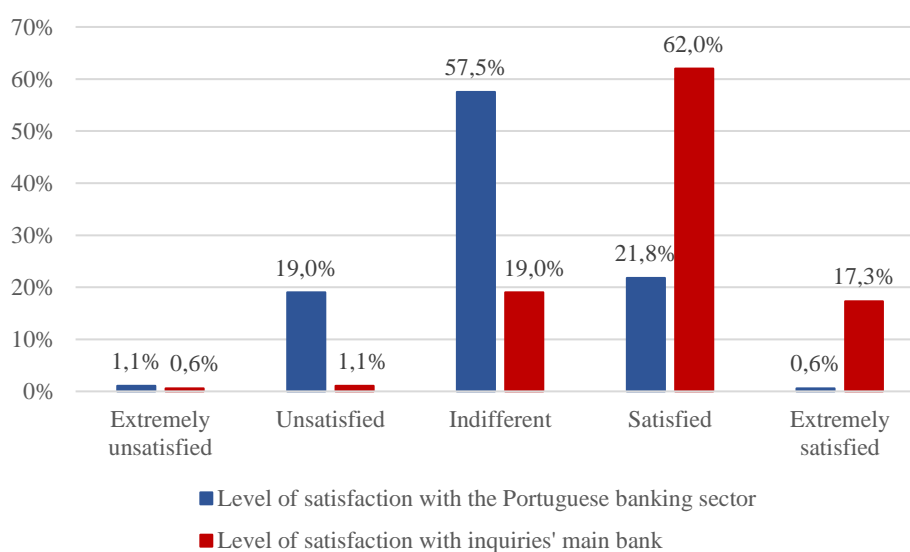
number of young customers, an important segment of the market as they are yet in an early stage of their financial life.

4.3. Level of satisfaction with the main bank

After the evaluation of the main/preferred banking institutions by the inquiries as well as the banks considered as the most youth-oriented, the author proceeds to an analysis of the level of satisfaction of the sample concerning the main bank.

The respondents are considerably more satisfied with their main bank than with the Portuguese banking industry in general. The individuals satisfied and extremely satisfied with their preferred bank englobes 79,3% of the sample, against the 22,4% that comprises the ones with a positive opinion of the sector (Graph 20). With regard to the left portion of the scale respecting the negative opinion, Caixa Geral de Depósitos have two customers that are extremely unsatisfied and unsatisfied with the service provided by the entity and Millennium BCP has one customer that are unsatisfied, not being significant as those institutions have the highest number of responses in terms of bank preference (Annex 8).

Graph 20: Customers' level of satisfaction regarding the Portuguese banking sector and the inquiries' main bank



Source: Author's elaboration

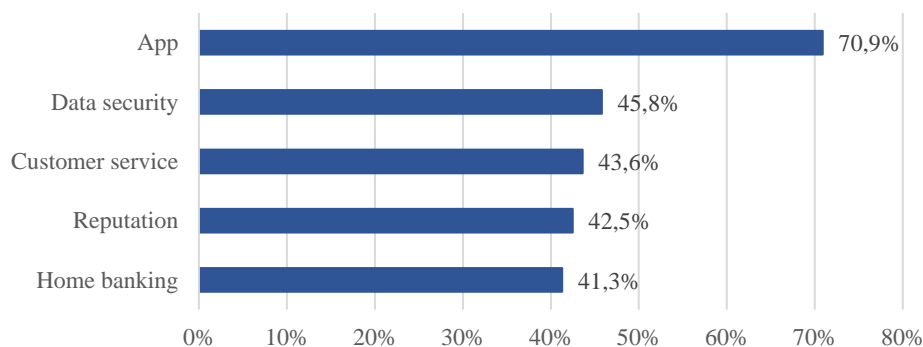
4.4. Positive aspects of consumers' main bank

With the intention of understanding the motives that led to the choice of level of satisfaction towards the inquiries' main bank, positives and negatives of the banking institutions were analyzed.

Regarding the positive features, 70,9% of the sample mentioned the *app*, following *data security*, *customer service*, *reputation* and *home banking* with 45,8%,

43,6%, 42,5% and 41,3% of the answers, respectively (Graph 21). The *solvency index*, despite being one of the answer options, it received no responses and was not included in the analysis (Annex 9).

Graph 21: Bar chart of the five most answered positive aspects of the consumers' main bank



Source: Author's elaboration

4.5. Negative aspects of the consumers' main bank

Regarding the negative aspects of the inquiries' main bank, 17,3% don't explicit any feature that needs alteration, corresponding to the portion of individuals that are extremely satisfied with its main bank.

For the remaining individuals, the responses are focused on the three main matters: interest rates/fees, lack of explanation of the financial products/services and branches (quantity, closing hours and waiting lines).

The interest rates as well as the banking fees stipulated by the banks are considered a negative point for the inquiries as the costs related to the account maintenance and transfers commission on MB Way, for example, could be reduced or even become nonexistent. Although banks have begun to charge fees for each transfer made using MB Way, the number of transfers between bank accounts and payments in stores continues to increase (Caetano, 2019).

The financial knowledge of some individuals in the beginning of their financial lives are low, and the young adults feel that the banks don't provide the counselling as well as tips regarding accounting management, loans, etc. The banking entities along with the workforce involved in the branches sometimes don't present the total amount of information and explanation regarding a certain product or service. The banks, in order to attract new younger clients should be consumer-oriented, focusing of each specific consumers' needs.

Finally, **the young adults that participated in this study believe that since banks are not completely digital, the number of branches should increase, and their lack are a negative feature.** As some financial activities, such as bank deposits, must be done at the branches, either at the machines or personally with an employee of the organization, **the early closing hours of the facilities along with the lingering waiting lines are a major barrier for the younger segment.**

Although some younger consumers still prefer the traditional method of banking, meaning the direct contact with the banking institutions through the branches, **the majority of this market segment, that deals with new technologies in a daily basis, would rather cope with their financial needs entirely online.** A solid implementation of the FinTech could provide innovation to create a more digital industry, improving the communication between both parties, and consequently reducing or eliminating the need of attendance to the branches for those who intended to manage their finances online.

4.6. Preferred communication channels

With regard to the channels used by the individuals to communicate with the main banks, the author chose a 7-point scale, due to the 7 items, where 1 corresponds to the most preferred communication instrument and 7 to the least ideal to use. Through the analysis it is possible to identify clearly that **the App is the favorite method of communication** – corresponding to the lowest mean –, followed by the branches, website, email, contact centers, chatbots and finally, social media. **Social media is considered by the inquiries the least preferred platform to communicate with their main banks.** Chatbots are the second to last in the rank of the preferred communication channels, and the reasons for the weak classification are explained further in the analysis (Annex 10).

4.6.1. Level of interaction with the communication channels

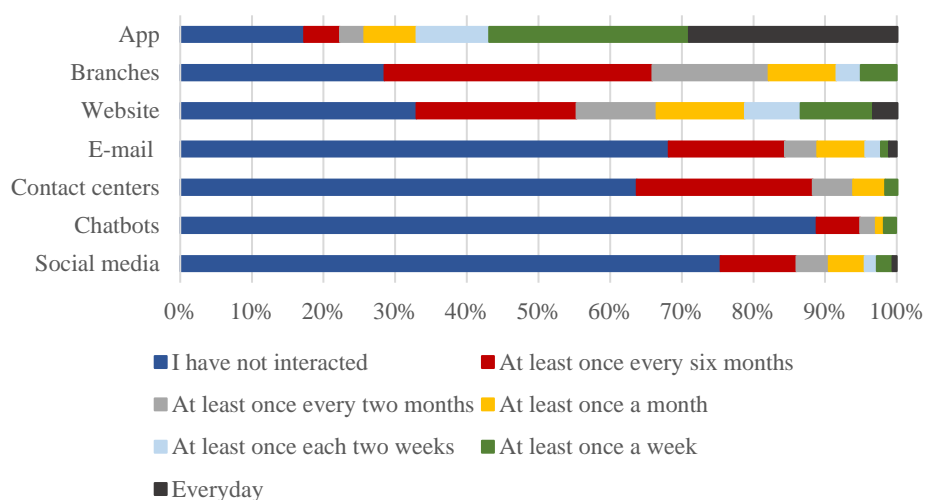
In the previous six months, the *app* – as the most preferred channel by the inquiries – had the largest amount of usage comparing to the other six methods, with 29,1% of the respondents using it on a daily basis and 27,9% at least once a week (Annex 11).

The *branches*, in spite of being considered the second most preferred channel to communicate with the banking institutions don't possess the same amount of usage fluency as the app, since the branches involve dislocation, unlike the app that is more convenient to deal with the consumers' financial issues. 37,4% of the sample communicates through the branches at least once every six months, for major financial matters.

Chatbots – an emerging technology – are the channel with the least amount of interaction from the customers, due the lack of presence in the Portuguese banking sector as only Banco Best and Crédito Agrícola possess operating chatbots, both in their websites. 88,8% of inquiries have not interacted with a chatbot and 6,1% indicates that communicates through it at least once every six months.

Social media, besides being the least favorite communication channel, the levels of interaction are higher than with the chatbots. Although 75,4% of the sample have not interacted with their main banks through social media, 0,6% use it daily, 2,2% at least once a week and 1,7% once every two weeks (Graph 22).

Graph 22: Staked bar chart of the level of consumer’s interaction with their main banks in the last 6 months



Source: Author's elaboration

4.7. Main insights

1. 79,4% consider Caixa Geral de Depósitos as youth-oriented due to the partnerships with universities, 53,1% indicate Millennium BCP because of its youthful advertising and 43,6% chose ActivoBank as it acts almost exclusively online;
2. Young adults are more satisfied with their main bank than with the Portuguese banking system;
3. The positive aspects of young adults’ main bank are: app, data security, customer service, reputation and homebanking;
4. The negative aspects of young adults’ main bank are: interest rates/banking fees, lack of financial counselling, branches – low quantity, long waiting lines and early closing hours;

5. The app is the most favorite platform to communicate with banks and social media is the least preferred.

5. Young adults and the banking products and/or services

Succeeding the analysis of the inquiries' knowledge regarding the Portuguese banking entities, the author proceeded to a minor investigation of the banking products and services known and used by the sample. As the respondents classify themselves as consumers with low financial knowledge – with an average of 2,92 in a 5-point scale – the financial products and services that require more understanding won't probably be used by these young adults.

5.1. Banking products and services known by the participants

Savings account, *debit card* and *credit card* are the three most well-known banking products obtaining 99,4%, 98,9% and 98,3% of responses, respectively. Although living in a digital era and 83,8% of the sample are aware of the *online and mobile banking*, only 12,3% recognize the *eStatements*, corresponding to the electronic banking statements (Annex 12)

5.2. Banking products and services owned by the participants

From the total banking products and/or services provided to customers, *debit card*, *checking account* and *savings account* are the most possessed by the inquiries, respectively 91,6%, 81,0% and 68,7% of the sample. Besides the immense number of respondents with banking accounts, only 57,0% of the sample use *online and mobile banking*. Only one individual has a *business loan* (0,6%) and two individuals have *wealth management* corresponding to the least used banking services by the young adults inquired. Each singular person holds an average of 3,78 banking products and/or services (Annex 13).

5.3. Banking products and services owned by the participants in their main bank

Regarding the banking products/services owned in their main banking institution, individuals possess in average 3,134 products and/or services. The banking product most commonly owned by young adult consumers in their main bank is the *debit card* (81,6%), going along with the total banking products/services, as it corresponds also to the banking product with the largest percentage of responses (Annex 14).

Debit card is the most recognized and consumed banking product, with 98,9% of the sample knowing the offer and 91,6% are the owner of at least one. According to Deco Proteste (2017), the banking institutions have been promoting child-oriented products, for underage individuals that have not even entered university or the labor

market yet. A substantial portion of the debit cards were imposed on the young consumers by the university or when underage by the parents, either for emergencies, allowances, etc., hence the most utilized product of the young Portuguese adults.

Wealth management and business loans are considered the least usufruct banking offers. Besides wealth management is known by 18,4% of the sample, only 1,1% possess the service.

5.4. Main insights

1. The most well-known banking products are savings account, debit and credit card;
2. Debit card, checking and savings account are the products/services most possessed by the participants;
3. Young adults own, in average, a total of 3,78 banking products and/or services and in its main bank 3,134.
4. Debit card is the most recognized and consumed banking product;
5. More complex services, such as wealth management and business loans, are the least known by the inquiries.

6. Young adults and the new emerging technologies

Technology is starting to be considered the main factor to separate the generations. The Y Generation – meaning the Millennials – are the digital natives, as englobes individuals between 18 and 34 years that assisted the internet emergence in the beginning of their lives. The internet is a requirement for Millennials and the big amount of time spent online are a proof. For that reason, the market is adapting to the new consumers' needs in terms of products and specially, services (CH Business Consulting and Multidados, 2017).

6.1. Online activities

30,2% of the sample states that spend more than 5 hours per day online (Annex 15). In terms of the activities that respondents do online, the author ranked them according to the time spent online, going from the longest to the least important where less time is spent.

1st *Messaging via app* (WhatsApp, etc.);

2nd *Social media* (Facebook, Instagram, etc.);

3rd *Browse the web*;

4th *E-mail*;

5th *Everyday tasks* (scheduling appointments, payment of bills, etc.);

6th *Online shopping*;

7th *Games*.

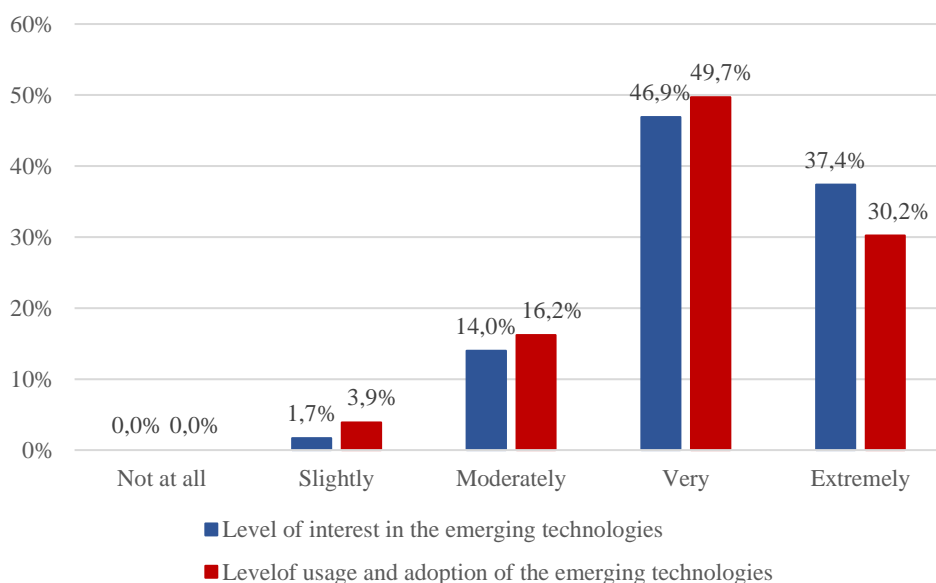
Through the comparison of the means of the different variables it was possible to verify the agreement between the individuals. The sample identify clearly the *messaging via app* as the activity that occupies the biggest portion of the time spent online, followed by *social media*, *browsing the web* and *e-mail check*. *Everyday tasks*, *online shopping* and *games* received the highest means, corresponding to the activities that consumers do for less time while online (Annex 16).

6.2. Young adults' level of interest and adoption of the new tech

Since the time spent online by young adults are high, and they are considered a growing digital market segment (PwC, 2011), the banking industry are trying to implement new automated advances, thus the consumers' level of interest and acceptance in the appearance of these emerging technologies is important to evaluate.

The inquiries were asked to rate both their level of interest in the new emerging technologies and themselves in terms of adoption and usage of these innovations in a 5-point scale. 46,9% of the sample are very interest in the arising technologies and 37,4% extremely interest. None of the respondents classified themselves as not interested at all. Regarding the level of adoption and acceptance the percentages are similar. The major percentages of answers also correspond to the individuals that are very and extremely involved with the innovations, 49,7% and 30,2%, respectively (Graph 23).

Graph 23: Bar chart of the relative frequencies of variables "Level of interest in the emerging technologies" and "Level of usage and adoption of the emerging technologies"



Source: Author's elaboration

6.3. Types of innovation adopters

The acceptance and adoption of an innovation is not linear and transversal to all individuals. Different generations, personality attributes and lifestyles influence the approach each consumer takes towards a technological novelty. There are five types of technology adopters: *innovators*, *early adopters*, *early majority*, *late majority* and *laggards* (Rogers, 1982).

Firstly, the *innovators* – 2,8% of the sample – are normally younger consumers, risk-taking with financial stability, enabling them to cope with the many failures of their various adopter innovations.

The *early adopters* – 17,9% of the sample – are the second portion of consumers that adopt an innovation. These individuals test and lately begun to use these technological advances and their opinion regarding the innovation will help the remaining consumer categories decide whether they will or will not adopt it. Despite being a trivial fraction of the population, innovators and early adopters the two groups of consumers that acquired the novelty in the earliest stage, being in command of the diffusion to the remaining segments (Dedehayir *et al.*, 2017).

Early majority corresponds to the highest consumers' group englobing 73,2% of the inquiries. Those are pondered in their decision and pursuit reviews from the innovators and the early adopters before spending its financial resources on the novelty. The early majority have an average social status, however their opinion regarding the innovation are still considered by the lasting categories: late majority and laggards (Kippenberger, 2000).

Late majority tend to be slower in the adoption process, as they only adopt the innovation after most of the society. These individuals are skeptical towards the technological novelty, prefer products less complex (Jahanmir & Lages, 2016) and represents 6,1% of the sample.

The last group to adopt an innovation is the *Laggards*. These consumers value the “traditional”, not dealing well with technological inventions. Normally this category englobes older individuals, with low contact with the upper groups (Rogers, 1982). None of the inquiries position themselves in the Laggards as it is not suitable for the target segment under analysis in the investigation.

Although consumers in general are open and extremely interested in the new emerging technologies, the majority believes that its adoption should be pondered, given their financial resources and considering the feedback from other adopters.

The research sample includes individuals spread between four out of five types of innovation adopters: the innovators, early adopters, early majority and late majority.

6.4. Main insights

1. 30,2% of the sample spend more than 5 hours per day online;
2. Most time spent online are in apps with the purpose of messaging;
3. The majority of the sample are interested in the emerging technologies and embraces its adoption;
4. Besides the high level of curiosity in innovations by most of the participants, the usage of these new tech is pondered.

7. Chatbots in the banking sector

7.1. Level of knowledge and interaction with chatbots

Although chatbots have already entered several industries in the Portuguese market, 31,8% of the sample still do not know what a chatbot is and never interacted with one. From the remaining 68,2% that have knowledge regarding chatbots, only 50,9% have already used this technological novelty, meaning almost half of the inquiries have not chatted with a virtual assistant yet (Table 4), whether for lack of knowledge of its existence or opportunity/necessity.

Table 4: Table of relative frequencies of the variables "Do you know what a chatbot is?" and "Have you ever interacted with a chatbot?"

		Have you ever interacted with a chatbot?	
		No	Yes
Do you know what a chatbot is?	No	31,8%	0,0%
	Yes	17,3%	50,9%

Source: Author's elaboration

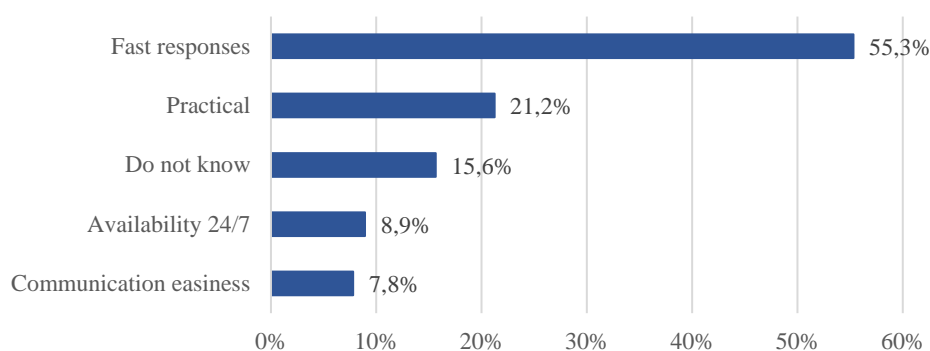
7.2. Chatbots' positives

Besides 31,8% of the inquiries do not have knowledge or have interacted with a chatbot, only 15,6% could not list positive features. The aspects with the largest amount of enumerations is *fast responses* being stated by 55,3% of the sample. The *practicality* obtained 21,2% of the answers, as those **individuals believe that chatbots' implementation constitute a practical way to obtain responses to simple financial questions and doubts without having to go to a branch or contacting a contact center.** The *availability* along with the *communication easiness* are listed by 8,9% and 7,8% of the respondents (Graph 24). 5,6% prize the fact that this technological advance may reduce or eliminate the need of human interaction and 3,4% do not think that chatbots have positive features (Annex 17).

The inquiries with knowledge of chatbots state that the four most answered aspects are interconnected. **The fact that chatbots can be accessed any time of the day or the week – availability 24/7 – become a positive feature, as different solving problem options such as branches and contact center have opening and closing hours.**

Since the messaging apps, such as WhatsApp, are deeply penetrated in the consumers' lives, the use of a chatbot to solve financial matters are a practical solution with easy communication between the parties – consumers and the banks.

Graph 24: Bar chart of the five most answered positive aspects of the chatbots



Source: Author's elaboration

7.3. Chatbots' negatives

Regarding the cons of the chatbots, the inquiries enumerated 10 different features. The most responded aspect is the lack of human sensitivity (*impersonal*) with 25,7%, followed by the *difficulty to solve complex financial problems* with 22,9% of answers. 20,1% do not know any cons of the chatbots.

Data security obtained 15,6% of the answers, as **inquiries do not feel secure enough to expose its financial information with a robot which is considered easily hacked.**

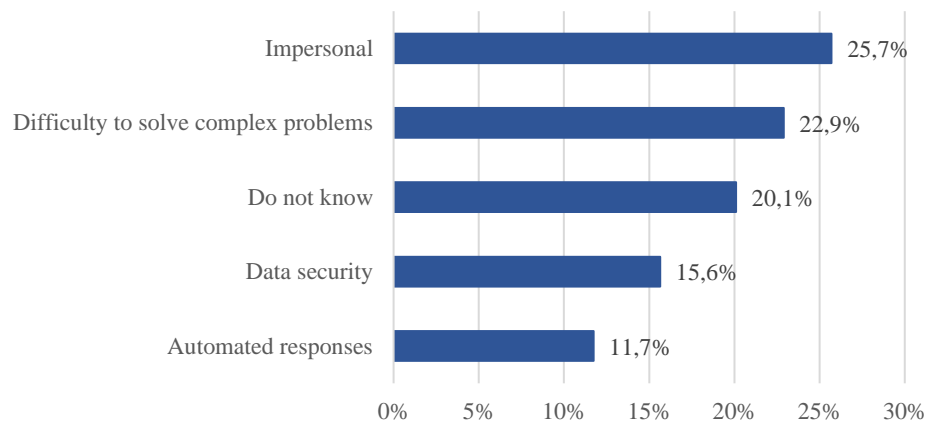
Automated responses were responded by 11,7% of the sample, since the respondents believe that chatbots possess restrains having only a set of responses for a certain amount of questions, struggling to give solutions to deeper matters (Graph 25).

Software errors and the fact that chatbots are still in an *embryonic stage* are considered a negative feature for 3,4% and 2,2% of the sample (Annex 18). According to Austin (2019), chatbots still have limitations and are in an early phase of development, so the consumers do not believe that the time spent dealing with financial matters using this novelty is worthwhile.

1,1% of inquiries mentioned *job reduction* as a negative aspect (Appendix 17). Although this factor does not directly affect the consumers, it is a reality. Although no studies on this subject have been conducted in Portugal, in the United States of America a study performed by Wells Fargo & Co and quoted by Bloomberg (2019) predicts that in the next decade 200,000 jobs will be lost in the branches, contact centers, back office and corporate due to the new tech.

In the consumers’ mind, the low amount of solutions provided by the chatbots make them ineffective. Some issues are not solved while using chatbots, so the customers still have to resort to different resources already available, such as branches or contact centers, after the interaction with a chatbot.

Graph 25: Bar chart of the five most answered negative aspects of the chatbots



7.4. Chatbots usage in banking – Likert scale

With the objective to analyze consumers’ opinion of the adoption of chatbots in banking, the author provided the inquiries several statements in a 5-scale point format, giving information concerning the three major levels of agreement with the affirmations – disagree, neutral or agree.

7.4.1. Customers’ opinion regarding the usage of chatbots in banking

Regarding the topic, for a better understanding of the results of the questionnaire, the author generated graph 26 for visual effects and annex 18 with the proper percentages of responses.

In general, consumers find chatbots *useful* and *easy to use* as the level of agreement with the statements are elevated, with a total of agreement of 59,2% and 74,9%, respectively. *Chatbots are easy to use* are the affirmation will the largest amount of concordance by the respondents.

Inquiries agree that *chatbots are faster to solve financial problems* or doubts, as this new tech provide fast responses for a set of questions.

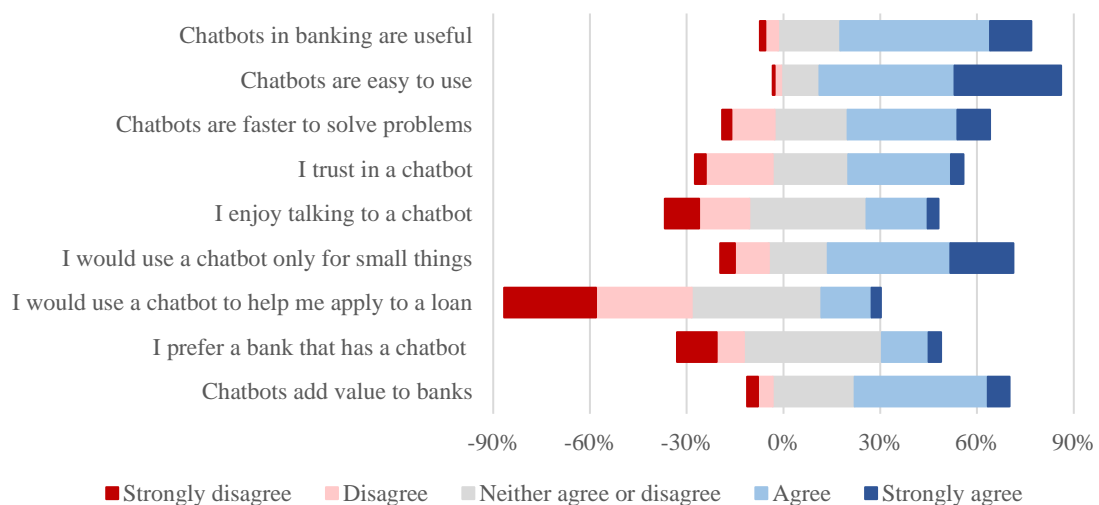
The level of trust and enjoyment of talking to a chatbot obtained more divided answers. For the statement *I trust in a chatbot* most respondents neither agree or disagree (40,2%), and the level of agreement (35,7%) – slightly agree plus strongly agree – are higher than the level of disagreement (24,1%). The sentence *I enjoy talking to a chatbot* has more heterogeneous responses with more than half of the inquiries nor agreeing nor disagreeing (51,4%), however the level of agreement (22,4%) are deadlocked with the consumers that disagree (26,2%).

I would use a chatbot only for small things and *I would use a chatbot to help me apply to a loan* have opposite answers regarding the level of concordance. Most of the participants (57.6%) agree that the use of a chatbot would be only for small financial information, such as, balance checking or a change of address. 58,1% of the sample would not use a chatbot to help apply to a loan, personal nor business.

I prefer a bank with a chatbot has mostly responses of indifference (60,9%), meaning that **consumers do not find this technological banking novelty a determinant factor when choosing a banking institution.**

Despite the results obtained through the analysis of the previous statements, the consumers conclude that *chatbots add some value to banks*. 44,1% position themselves as indifference, neither agreeing or disagreeing and 41,3% moderately agree that chatbot boost the value of a banking institution, locating the largest portion of consumers in the positive side of the scale (Annex 19).

Graph 26: Diverging stacked bar chart of the consumers' level of agreement with statements regarding the use of chatbots in banking (in percentage)



Source: Author's elaboration

Consumers are willing to adopt chatbots and consider that constitutes an increase of value for the organization, however the level of trust is still low. Through the sample responses, chatbots are treated as useful and practical, nevertheless the possible lack of divulgation of its advantages and ways to use it makes the consumers suspicious regarding this innovation. As the level of trust is low, customers express that the chatbot would merely be used to complete simple tasks, and never for complex financial decisions, such as applying for a loan.

7.4.2. Customers' opinion regarding the communication with a bank through chatbots

The succeeding four statements regarding the importance of the chatbots as tool to communicate with the banking institution do not follow the opinion of the majority of the sample, as responses are predominantly positioned in the negative portion of the scale (Graph 25).

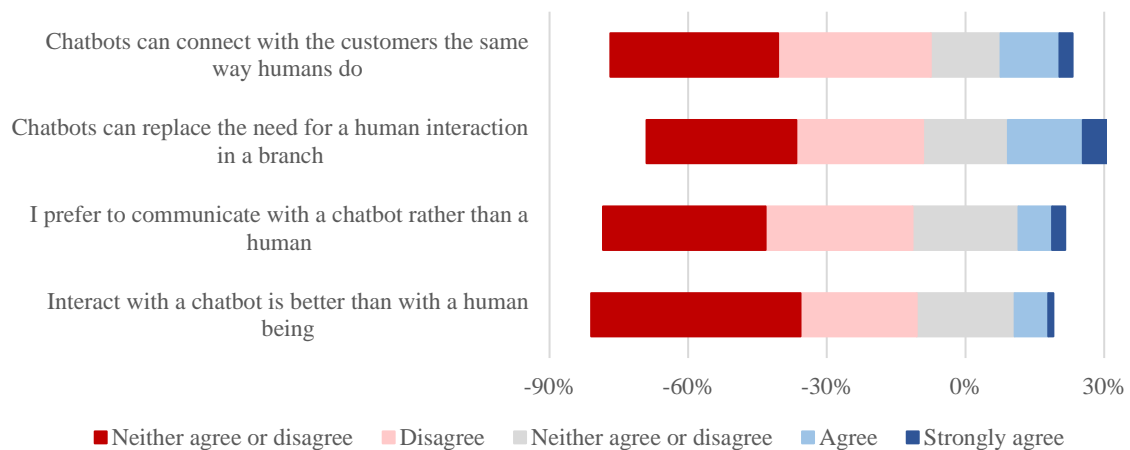
Chatbots can connect with the customers the same way humans do are the first statement that inquiries do not agree with – 36,3% strongly disagree and 33% moderately disagree, corresponding to a total of 69,3% of the sample. 15,1% neither agree or disagree, and only 15,6% agrees with the affirmation, a small share comparing to the 69,3% that thinks human beings, rather than chatbots, can connect deeper with customers.

Chatbots can replace the need for a human interaction in a branch, do not follow the consumers' opinion as 32,4% strongly disagree and 27,4% moderately disagree with the statement. **Consumers feel that a human interaction is irreplaceable since, in accordance with the negative points stated by the sample in the previous topic, in most cases after the interaction with a chatbot, it is still necessary human intervention, whether in a branches or through a contact center, to obtain a concrete solution.**

I prefer to communicate with a chatbot rather than a human is not agreed by the inquiries as a total of 67% disagrees with the sentence.

Interact with a chatbot is better than with a human being is not again agreed by the majority of the sample. The level of disagreement is the highest of the four statements corresponding to a total of 70,4% (Annex 20). **Chatbots make the interaction impersonal, as the level of personalization is still low due to being in an embryonic phase.** Customers want to create a connection and feel empathy, and, in the meantime, that only happens through human beings.

Graph 27: Diverging stacked bar chart of the consumers' level of agreement with statements regarding the chatbot communication (in percentage)



Source: Author's elaboration

Besides being useful and convenient, chatbots are not a substitute of the human interaction. In the Portuguese banking sector, the chatbots created for consumers do not give solution to 100% of the problems due to their lack of development making them impersonal, with low personalization and range of responses. Therefore, young adults still prefer to communicate with a person, as the relationship along with the type of solution provided is better and more effective, respectively.

7.4.3. Customers' opinion regarding the impact of a chatbot in their main banks

For the last question of the survey, the author used a 5-point scale to analyze the differences that chatbots would make in each financial consumer, and the customers' level of indifference is surprisingly high (Graph 28).

In each statement regarding the level of interaction, connection and recommendation of the main bank, the majority of responses are comprised in the middle portion of the scale, meaning neither agree or disagree, a state of indifference, towards the adoption of chatbots.

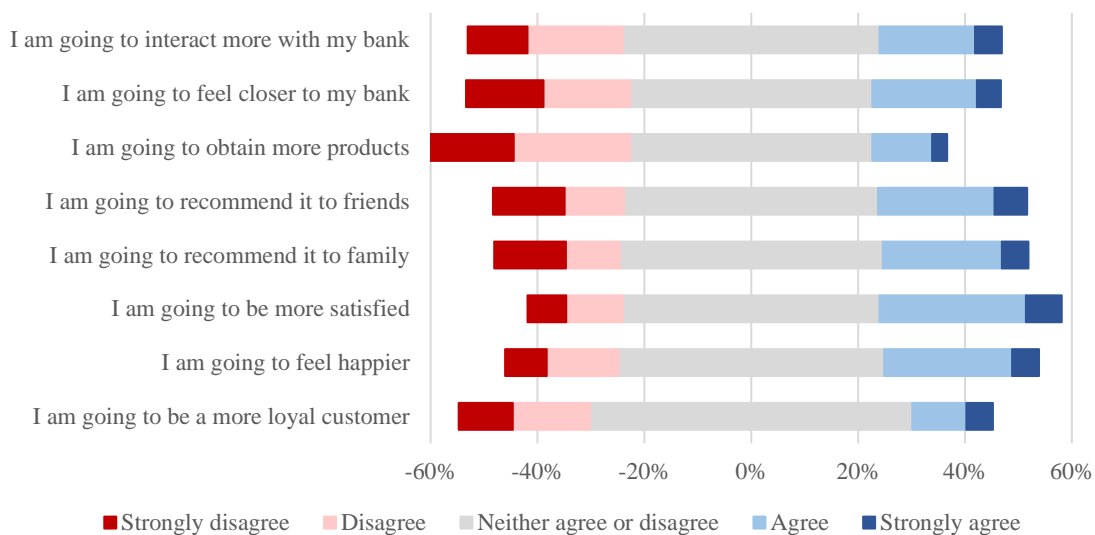
I am going to obtain more products from my current bank is the statement with the largest amount of disagreement, where 21,8% moderately disagree and 19% strongly disagree, against the 11,2% that moderately agree and 2,8% that strongly agree.

Despite the lack of increasing in the number of products and services due to chatbots, 27,7% and 27,3% confirm that its implementation will make them *recommend the banking institution to friends and family*, respectively.

I am going to be more satisfied and *I am going to feel happier* with my bank are the statements with the highest frequency of positive responses with a total of agreement of 34,1% and 29%.

I am going to be a more loyal customer corresponds to the overall impact of the chatbot usage in banking, as the main objective of each banking institution is to attract and retain customers, especially in the beginning of their financial activity. 10,1% of the sample strongly disagree, 14,5% moderately disagree, 60,3% neither agree or disagree, 10,1% moderately agree and 5% strongly agree. Only 15,1% of the inquiries states that a chatbot implementation increases its customer loyalty, against the 24,6% that disagrees (Annex 21).

Graph 28: Diverging stacked bar chart of the consumers' level of agreement with statements regarding the impact of a chatbot in their banks (in percentage)



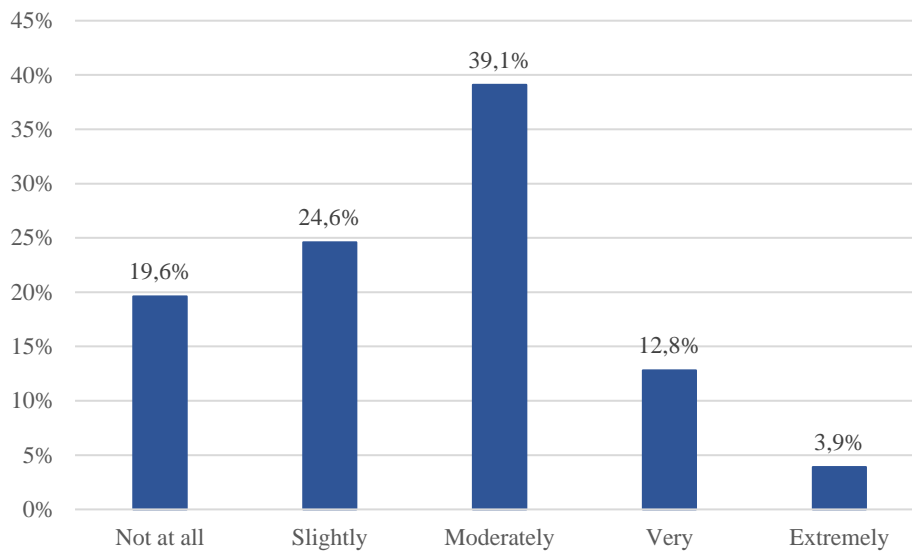
Source: Author's elaboration

7.4.4. Overall impact of a chatbot implementation

After the analysis of each participants' opinion concerning the chatbot's communication and the evaluation of the pros and cons, the author conclude the survey with the interrogation "Will the use of a chatbot improve your relationship with your main bank?".

The results are not surprising due to the answers obtained previously from the sample. 19,6% states that the usage of a chatbot by their preferred banking institution would not improve at all its customer-bank relationship. 24,6% of the inquiries believes that it would slightly improve and 39,1% think that would more or less enhance the relation. Only 16,7% of the sample affirm that a chatbot implementation would cause a positive impact in the relation between the customer and the banking entity (Graph 29).

Graph 29: Bar chart of the variable “Will the use of a chatbot improve your relationship with your main bank?”



Source: Author's elaboration

Consumers, in general, believe that chatbots are just a technological breakthrough without major results. After interacting with a chatbot, in some cases it is still necessary to visit a branch or communicate with a contact center to obtain a concrete resolution to the problem, thus making the conversation with the chatbot ineffective.

At this moment, with the current development of chatbots, its usage won't have the positive impact expected. An implementation of a chatbot in the consumers' main bank, although making the consumers happier and more satisfied, won't make them young adults more loyal, which is the main purpose of the banking institutions.

7.5. Main insights

1. Only 50,9% of the sample know and have interacted with a chatbot, at least once;
2. Young adults consider that chatbots increase the value of a bank, however the level of trust in the innovation is low;
3. The participants consider chatbots only good for solving small financial matters, such as balance check or a change of an address;
4. The human interaction is irreplaceable, and the majority of inquiries prefers to communicate with a human being rather than with a robot, to solve its problems;
5. Young adults, at this moment, do not understand the proper advantages of a chatbot implementation in the banking system.

Chapter 5 – Conclusion and contributions to management

This research aimed to the matter of the relationship between young adults and the banking sector along with the impact of the chatbots in this bond. Based on the analysis conducted, the author obtained the answers to the research questions previously established.

Regarding the younger's segment perception of the Portuguese banking industry it can be concluded that young adults understand the sector as useful, however the level of satisfaction with this industry is not good, as the consumers do not feel it is customer-oriented or effective. The consumers agree that the sector is made to obtain profit, not taking into consideration the customers' needs and for that reason the level of trust in it is low. Although the Portuguese industry is trying to innovative, through the introduction of chatbots, the younger consumers consider it orthodox as in Portugal those innovations are appearing and being developed at a slower pace.

Young adults' relationship with the banking sector are weak. The consumers are not completely satisfied nor unsatisfied with the service provided by the industry, leaving room for improvement in terms of the approaches to the younger segment. Besides this market segment are considered one of the least trusting generations, a proper focus on the digital channels and an evaluation of the customers' needs as beginners in the financial world can truly improve the level of engagement between the consumers and the banking entities.

The implementation of digital features by banking organizations is considered fundamental to attract this growing segment. As the time spent online by the younger consumers is exponentially growing, the search for online platforms to perform their financial activities are also increasing. Banking institutions with intuitive apps and homebanking are a plus in terms of attracting and retain the younger market segment, as the majority of this particular segment prefers to deal with its financial needs online.

Besides the app and homebanking, the banking industry are implementing a new technology – the chatbots. The technological breakthrough, in general, are not having the expected positive impact in the consumers' mind and relationship. A chatbot applied in banking are still under development and for those reasons its effectiveness is compromised. Although the current relation between the two parties needs improvement, younger consumers do not agree, at this moment, that a chatbot is the solution.

A more refined chatbot, with a higher level of personalization and range of solutions could improve the relationship between the younger segment and the banking institutions, as the usefulness of this tool will increase. Young adults prefer to solve financial doubts and manage its accounts and products entirely online, removing the necessity of a branch dislocation, and a completely functional chatbot could fulfill those needs.

Although market is facing a “fever” when it comes to chatbots, as its adoption is happening at a fast pace in several industries in Portugal, in terms of in the banking sector the results are not the expected, since the satisfaction with the banking entities remains the same with or without the chatbots’ usage.

The methodology used in the research provided main findings regarding the implementation of this new emerging technology. The Portuguese banking institutions are clearly becoming more digital, pioneer and youth-oriented, however the digital features being adopted, such as chatbots, are not yet considered by the young segment, a competitive advantage for banks in terms of customers’ attraction.

A positive impact in the relation between consumers and banks is possible through a more developed chatbot, as consumers spend several time online, especially in messaging apps, thus a tool that are able to solve financial problems, open accounts, apply to loans and provide financial counselling with a simple conversation through a phone are a plus. Besides the proper software development, banks have to propagate this new functionality that they present across different platforms through explanatory videos, in order to show consumers the advantages, practicality and especially that we are dealing with a reliable platform to communicate with a bank, consequently increase the interaction between consumers and banks and customer loyalty.

Chapter 6 – Research limitations and future work

1. Research limitations

The author intended to characterize the opinion of the 179 participants regarding the Portuguese banking sector along with the increasing use of chatbots in the industry. The sample, although being statistically representative and conclusive, corresponds to a small portion of the universe, that corresponds to every individual between 17 and 35 years old, owning a service from at least one Portuguese banking institution. For that reason, the present study cannot be generalized.

2. Future research work

After conducting the investigation, the author finds it pertinent to develop a similar analysis but for a broader study scope without time restraints.

Based on these conclusions, specialists could consider perform an application of a similar study to the banking entities to evaluate the customers' opinion before and after the adoption of this innovation to provide conclusive insights regarding software improvements, as well as the customers' current level of satisfaction with their banks.

An investigation within each banking institution, after the implementation of chatbots, could verify the impact of this technological novelty in the banks' relationship with its young consumers and, consequently, customers' attraction and retention, allowing a greater generalization of the research, and enriching the conclusions presented on the dissertation.

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Annexes

Annex 1: Questionnaire spread to the participants in the research

Dear participant,

My name is Filipa Fialho and I am a Management Master Student in ISCTE-IUL. The topic under research in my dissertation is the relationship between young adults and the banking sector.

To advance in the investigation I would appreciate your help by filling the following questionnaire. It will take approximately 15 minutes. There are no right or wrong answers and confidentiality as well as the anonymity of all collected data are guaranteed, data that will be only used in the present academic work. The participant should respond sincerely to all questions.

If the participant encounters any doubts during the filling of the questionnaire or intends to obtain the results of the investigation, he/she can contact the researcher through the following e-mail: falfo@iscte-iul.pt.

Thank you for your collaboration!

Group I

1. Please indicate your age.

Group II

2. How do you characterize yourself as a financial consumer?

	1 Very Low	2 Low	3 Medium	4 High	5 Very high
Financial literacy					
Level of trust in banking institutions					
Level of engagement with banking institutions					
Loyalty level					
Capital possessed					
Saving level					

3. Please position yourself in terms of opinion towards the Portuguese banking sector. (Where 1=Nothing; 5=A lot)

	1	2	3	4	5
Trustworthy					
Friendly					
Honest					
High Quality					
Fun					
Innovative					
Customer-oriented					
Solid					
Effective					
Useful					

4. My opinion, in general, towards the Portuguese banking sector can be described as...

1	2	3	4	5
Extremely Unsatisfied	Unsatisfied	Indifferent	Satisfied	Extremely Satisfied

Group III

5. Which of the following banks are you familiar with?

- ActivoBank
- Banco Best
- Banco BPI
- Banco CTT
- Banco Invest
- Banco Santander Totta
- Bankinter
- BBVA
- BNP Paribas
- Caixa Geral de Depósitos

- Caja Duero
- Crédito Agrícola
- EuroBic
- Millennium BCP
- Montepio
- Novo Banco
- Other

6. Which of the following banks are you a client of?

- ActivoBank
- Banco Best
- Banco BPI
- Banco CTT
- Banco Invest
- Banco Santander Totta
- Bankinter
- BBVA
- BNP Paribas
- Caixa Geral de Depósitos
- Caja Duero
- Crédito Agrícola
- EuroBic
- Millennium BCP
- Montepio
- Novo Banco
- Other

7. What is your main bank?

- ActivoBank
- Banco Best
- Banco BPI
- Banco CTT
- Banco Invest
- Banco Santander Totta

- Bankinter
- BBVA
- BNP Paribas
- Caixa Geral de Depósitos
- Caja Duero
- Crédito Agrícola
- EuroBic
- Millennium BCP
- Montepio
- Novo Banco
- Other

8. Please select 3 banks that, in your opinion, are more youth-oriented.

- ActivoBank
- Banco Best
- Banco BPI
- Banco Cetelem
- Banco CTT
- Banco Invest
- Banco Santander Totta
- BBVA
- Bankinter
- Caixa Geral de Depósitos
- Caja Duero
- Crédito Agrícola
- EuroBic
- Millennium BCP
- Montepio
- Novo Banco
- Other

9. Why do you feel that the 3 banks chosen above are the most targeted for younger consumers? (Open question)

10. What banking products and/or services are you familiar with?

- Checking account
- Savings account
- Credit card
- Debit card
- Wealth management
- Treasury services (payroll services, deposit services, etc.)
- Personal loans
- Business loans
- Online and mobile banking
- Text alerts
- eStatements

11. What banking products and/or services do you possess in total?

- Checking account
- Savings account
- Credit card
- Debit card
- Wealth management
- Treasury services (payroll services, deposit services, etc.)
- Personal loans
- Business loans
- Online and mobile banking
- Text alerts
- eStatements

12. What banking products and/or services do you use in your main bank?

- Checking account
- Savings account
- Credit card
- Debit card
- Wealth management
- Treasury services (payroll services, deposit services, etc.)
- Personal loans
- Business loans

- Online and mobile banking
- Text alerts
- eStatements

13. How satisfied are you with your main bank?

1	2	3	4	5
Extremely Unsatisfied	Unsatisfied	Indifferent	Satisfied	Extremely Satisfied

14. In your opinion, what are the aspects you prefer and find it positive in your main bank?

- Website
- App
- Data security
- Homebanking
- Customer service
- Number of branches
- Branches' location
- Banking fees
- Interest rates
- Solvency index
- Products' variety
- Products' quality
- Instalations and equipments
- Brand image
- Reputation
- Communication
- Distribution channels
- Organizational structure
- Work force

15. Please indicate three aspects you dislike in your main bank and would like to change. (The participant can consider the items mentioned in the previous question)

16. How often did you interact and/or communicate with your main bank via each of the following channels in the last 6 months?

	Everyday	At least once a week	At least once each two weeks	At least once a month	At least once every two months	At least once every six months	I have not interacted
App							
Branches							
Chatbots							
Contact centers							
E-mail							
Social Media							
Website							

17. Please rank the following channel tools according to level of usage preference.

- App
- Branches
- Chatbots
- Contact centers
- E-mail
- Social Media
- Website

Group IV

18. How much time do you spend online in a daily basis? (approximately)

- Less than 1 hour
- Between 1 and 2 hours
- Between 2 and 3 hours
- Between 3 and 4 hours

- Between 4 and 5 hours
- More than 5 hours

19. Please rank the following activities according to the time spent online.

- Browse the web
- Messaging via app (WhatsApp, etc.)
- Social media
- E-mail
- Online shopping
- Games
- Everyday tasks (scheduling appointments, payment of bills, etc.)

20. How would you rate your level of interest in new emerging technologies?

1	2	3	4	5
Not at all interested	Slightly interested	Moderately interested	Very interested	Extremely interested

21. How would you rate yourself in terms of new technology adoption and usage?

1	2	3	4	5
Not at all involved	Slightly involved	Moderately involved	Very involved	Extremely involved

22. Please select the sentence that best fits your profile in terms of innovation adopter.

- I am the first to obtain a new product/adopt an innovation and do not care about the risks and/or financial expenses of its adoption.
- I collect some information about the product and have an opinion that is fundamental and leader for other adopters to decide whether they will or will not adopt the innovation.
- I wait for a bigger appearance of the product in the market and for reviews before spending my financial resources on it.
- I am more skeptical about innovation acceptance, so I only use it after being adopted for the majority of society.
- I value traditional methods and do not deal very well with the technological innovations and changes.

23. Do you know what a chatbot is?

- Yes
- No

The following video has a duration of 1 minute and 15 seconds and shows a chatbot (a virtual assistant) of a bank helping a customer. A chatbot can tell what your balance is, your latest transactions by simply asking it. It can transfer money or cancel a card in a second, while having a conversation. For more complex financial operations, a chatbot can also help you apply to loan, choosing the plan that is the most suitable to you, as chatbots can understand your needs as a consumer and your personality.

24. Have you ever interacted with a chatbot?

- Yes
- No

25. Please indicate what you think are the most positive aspects of chatbots. (Open question)

26. Please indicate what you think are the most negative aspects of chatbots. (Open question)

27. Please indicate your level of agreement with the following statements.

	Strongly disagree	Moderately disagree	Neither agree nor disagree	Moderately agree	Strongly agree
Chatbots in banking are useful.					
Chatbots are easy to use.					
Chatbots are faster to solve					

financial problems or doubts.					
I trust in a chatbot.					
I enjoy talking to a chatbot.					
I would use a chatbot only for small financial information (e.g. checking your balance).					
I would use a chatbot to help me apply to a loan.					
I prefer a bank that has the chatbot functionality.					
Chatbots add value to a banking organization.					

28. Indicate your level of agreement with the statements regarding the chatbot communication.

	Strongly disagree	Moderately disagree	Neither agree nor disagree	Moderately agree	Strongly agree
Chatbots can connect with the					

customer the same way humans do.					
Chatbots replace the need for a human interaction in a branch.					
I prefer to communicate with a chatbot rather than a human.					
Interact with a chatbot is better than with a human being.					

29. Imagine that your main bank had implemented a chatbot. Please indicate your level of agreement with the following statements taking into account this new change in your main bank.

	Strongly disagree	Moderately disagree	Neither agree nor disagree	Moderately agree	Strongly agree
I am going to interact more with my bank.					
I am going to feel closer to my bank.					
I am going to obtain more products of my bank.					

I am going to recommend my bank to friends.					
I am going to recommend my bank to family.					
I am going to be more satisfied with my bank.					
I am going to feel happier with my bank.					
I am going to be a more loyal customer to my bank.					

30. Will the use of a chatbot improve your relationship with your main bank?

1	2	3	4	5
Not at all	Slightly	Moderately	Very	Extremely

Group V

31. What's your gender?

- Male
- Female

32. What's your nationality?

- Portuguese
- German
- Italian
- Brazilian
- French
- Other

33. What is your occupation?

- Student
- Student worker
- Unemployed
- Employed
- Self-Employed

34. What is your marital status?

- Single
- Cohabiting
- Married
- Divorced
- Widowed

35. What is the highest education level you have received?

- Less than high school degree
- High school graduate or similar
- Bachelor degree
- Master's degree/MBA or similar
- Doctoral degree/ PhD

Annex 2: Table of frequencies of the variable "Age"

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	4	2,2	2,2	2,2
	19	9	5,0	5,0	7,3
	20	10	5,6	5,6	12,8
	21	17	9,5	9,5	22,3
	22	51	28,5	28,5	50,8
	23	34	19,0	19,0	69,8
	24	13	7,3	7,3	77,1
	25	8	4,5	4,5	81,6
	26	8	4,5	4,5	86,0

27	4	2,2	2,2	88,3
28	5	2,8	2,8	91,1
29	5	2,8	2,8	93,9
30	4	2,2	2,2	96,1
31	4	2,2	2,2	98,3
32	2	1,1	1,1	99,4
33	1	,6	,6	100,0
Total	179	100,0	100,0	

Annex 3: Descriptive statistics of the variable “Age”

N	Valid	179
	Missing	0
Mean		23,23
Median		22,00
Std. Deviation		3,039
Variance		9,234
Skewness		1,107
Std. Error of Skewness		,182
Kurtosis		1,102
Std. Error of Kurtosis		,361
Range		15
Minimum		18
Maximum		33
Percentiles	25	22,00
	50	22,00
	75	24,00

Annex 4: Descriptive statistics of the variables that characterize the inquiries as financial consumers

		Financial Literacy	Level of trust in the banking institutions	Level of engagement with banking institutions	Loyalty level	Capital possessed	Saving level
N	Valid	179	179	179	179	179	179
	Missing	0	0	0	0	0	0
Mean		2,92	2,97	2,65	3,27	2,36	2,59
Median		3,00	3,00	3,00	3,00	2,00	3,00
Mode		3	3	3	4	2	3
Std. Deviation		,902	,775	,902	,903	,732	,916
Range		4	4	4	4	3	4

Annex 5: Correlation matrix of the elements of variable "Opinion of the Portuguese banking sector"

	Trustworthy	Friendly	Honest	High quality	Fun	Innovative	Customer-oriented	Solid	Effective	Useful
Trustworthy	1,000	,492	,551	,467	,216	,176	,389	,407	,443	,314
Friendly		1,000	,472	,588	,375	,305	,460	,437	,410	,384
Honest			1,000	,527	,292	,290	,387	,513	,457	,314
High quality				1,000	,264	,314	,480	,575	,536	,408
Fun					1,000	,290	,181	,214	,208	,177
Innovative						1,000	,501	,376	,315	,277
Customer-oriented							1,000	,539	,559	,456
Solid								1,000	,609	,351
Effective									1,000	,408
Useful										1,000

Annex 6: Table of frequencies of the variable "Bank institutions known by the respondents"

		Responses		Percent of Cases
		N	Percent	
Bank institutions known by the respondents ^a	ActivoBank	158	7,1%	88,3%
	Banco Best	68	3,0%	38,0%
	Banco BPI	172	7,7%	96,1%
	Banco CTT	166	7,4%	92,7%
	Banco Invest	63	2,8%	35,2%
	Banco Santander Totta	175	7,8%	97,8%
	Bankinter	154	6,9%	86,9%
	BBVA	136	6,1%	76,0%
	BNP Paribas	137	6,1%	76,5%
	Caixa Geral de Depósitos	179	8,0%	100,0%
	Caja Duero	12	0,5%	6,7%
	Crédito Agrícola	167	7,5%	93,3%
	EuroBic	117	5,2%	65,4%
	Millennium BCP	178	8,0%	99,4%
	Montepio	175	7,8%	97,8%
	Novo Banco	172	7,7%	96,1%
Other	9	0,4%	5,0%	
Total		2238	100,0%	1250,3%

a. Dichotomy group tabulated at value 1.

Source: SPSS – Author's elaboration

Annex 7: Table of frequencies of the variable “Banks that respondents are clients of”

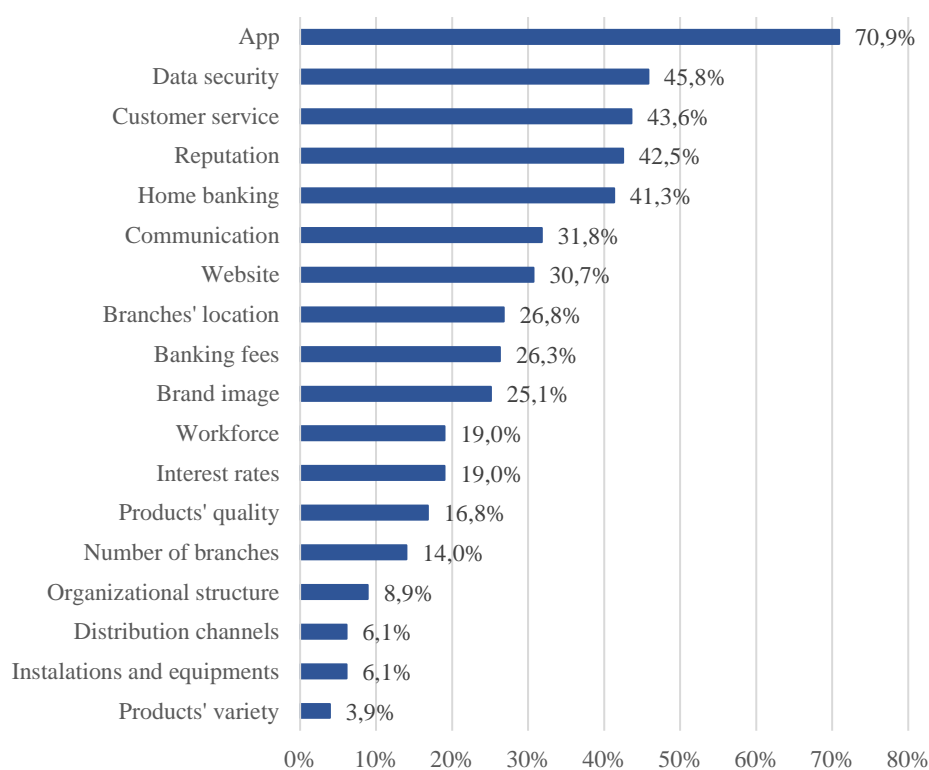
		Responses		Percent of Cases
		N	Percent	
Banks that respondents are clients of ^a	ActivoBank	19	6,6%	10,6%
	Banco Best	1	0,3%	0,6%
	Banco BPI	14	4,8%	7,8%
	Banco CTT	14	4,8%	7,8%
	Banco Santander Totta	33	11,4%	18,4%
	Bankinter	3	1,0%	1,7%
	BBVA	1	0,3%	0,6%
	BNP Paribas	2	0,7%	1,1%
	Caixa Geral de Depósitos	119	41,2%	66,5%
	Crédito Agrícola	8	2,8%	4,5%
	EuroBic	3	1,0%	1,7%
	Millennium BCP	34	11,8%	19,0%
	Montepio	25	8,7%	14,0%
	Novo Banco	13	4,5%	7,3%
Total		289	100,0%	161,5%

a. Dichotomy group tabulated at value 1.

Annex 8: Consumers' level of satisfaction with their main banks

		1		2		3		4		5	
		Count	%	Count	%	Count	%	Count	%	Count	%
Main bank	ActivoBank	0	0,0%	0	0,0%	4	26,7%	6	40,0%	5	33,3%
	Banco BPI	0	0,0%	0	0,0%	1	14,3%	5	71,4%	1	14,3%
	Banco CTT	0	0,0%	0	0,0%	0	0,0%	6	100,0%	0	0,0%
	Banco Santander Totta	0	0,0%	0	0,0%	2	12,5%	12	75,0%	2	12,5%
	Bankinter	0	0,0%	0	0,0%	1	100,0%	0	0,0%	0	0,0%
	BNP Paribas	0	0,0%	0	0,0%	0	0,0%	0	0,0%	1	100,0%
	Caixa Geral de Depósitos	1	1,3%	1	1,3%	18	22,8%	49	62,0%	10	12,7%
	Crédito Agrícola	0	0,0%	0	0,0%	0	0,0%	4	57,1%	3	42,9%
	EuroBic	0	0,0%	0	0,0%	0	0,0%	2	100,0%	0	0,0%
	Millennium BCP	0	0,0%	1	4,8%	3	14,3%	13	61,9%	4	19,0%
	Montepio	0	0,0%	0	0,0%	3	17,6%	10	58,8%	4	23,5%
	Novo Banco	0	0,0%	0	0,0%	2	28,6%	4	57,1%	1	14,3%

Annex 9: Bar chart of the variable "Positive aspects of the inquiries' main bank"



Annex 10: Comparison of means of the communication channels ranked through level of usage preference (where 1=Most preferred; 7= Least preferred)

	App	Branches	Website	Email	Contact centres	Chatbots	Social Media
Mean	1,51	3,27	3,45	4,29	4,54	5,32	5,63
Median	1,00	3,00	3,00	4,00	4,00	6,00	6,00

Annex 11: Frequency of communication with the main bank through the different communication channels

	App	Branches	Website	Email	Contact centres	Chatbots	Social Media
Everyday	29,1%	0,0%	3,4%	1,1%	0,0%	0,0%	0,6%
At least once a week	27,9%	5,0%	10,1%	1,1%	1,7%	1,7%	2,2%
At least once each two weeks	10,1%	3,4%	7,8%	2,2%	0,0%	0,0%	1,7%
At least once a month	7,3%	9,5%	12,3%	6,7%	4,5%	1,1%	5,0%
At least once evert two months	3,4%	16,2%	11,2%	4,5%	5,6%	2,2%	4,5%
At least once every six months	5,0%	37,4%	22,3%	16,2%	24,6%	6,1%	10,6%
Not interacted	17,3%	28,5%	33,0%	68,2%	63,7%	88,8%	75,4%

Annex 12: Table of frequencies of the variable “Banking products and services known by the inquiries”

		Responses		Percent of Cases
		N	Percent	
Banking products and services known by the inquiries ^a	Checking account	163	12,9%	91,1%
	Savings account	178	14,1%	99,4%
	Credit card	176	14,0%	98,3%
	Debit card	177	14,0%	98,9%
	Wealth management	33	2,6%	18,4%
	Treasury services	73	5,8%	40,8%
	Personal loans	130	10,3%	72,6%
	Business loans	88	7,0%	49,2%
	Online and mobile banking	150	11,9%	83,8%
	Text alerts	70	5,6%	39,1%
	eStatements	22	1,7%	12,3%
Total		1260	100,0%	703,9%

a. Dichotomy group tabulated at value 1.

Annex 13: Table of frequencies of the variable "Total banking products/services possessed"

		Responses		Percent of Cases
		N	Percent	
Total banking products/services possessed ^a	Checking account	145	21,4%	81,0%
	Savings account	123	18,2%	68,7%
	Credit card	76	11,2%	42,5%
	Debit card	164	24,3%	91,6%
	Wealth management	2	0,3%	1,1%
	Treasure services	8	1,2%	4,5%
	Personal loans	21	3,1%	11,7%
	Business loans	1	0,1%	0,6%
	Online and mobile banking	102	15,1%	57,0%
	Text alerts	28	4,1%	15,6%
	eStatements	6	0,9%	3,4%
Total		676	100,0%	377,7%

a. Dichotomy group tabulated at value 1.

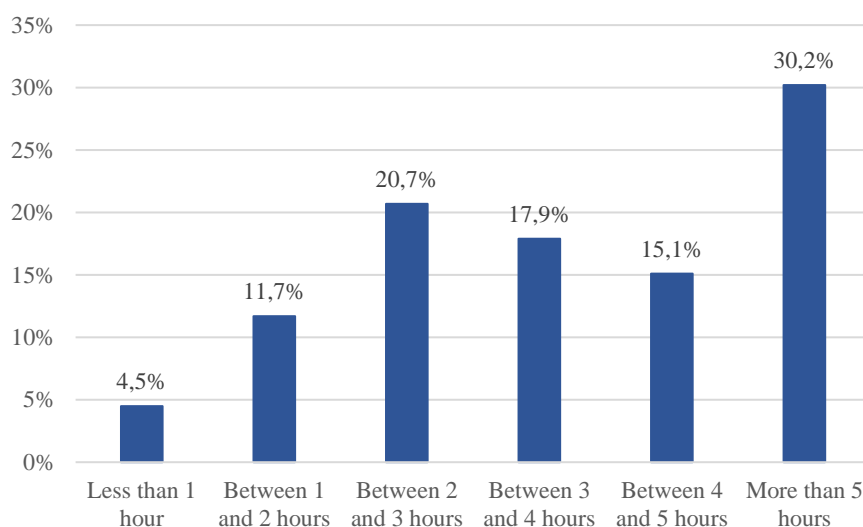
Annex 14: Table of frequencies of the variable “Possessed banking products/services in main bank”

		Responses		Percent of Cases
		N	Percent	
Possessed banking products/services in main bank ^a	Checking account	136	24,2%	76,0%
	Savings account	100	17,8%	55,9%
	Credit card	45	8,0%	25,1%
	Debit card	146	26,0%	81,6%
	Wealth management	2	0,4%	1,1%
	Treasury services	7	1,2%	3,9%
	Personal loans	13	2,3%	7,3%
	Business loans	1	0,1%	0,6%
	Online and mobile banking	94	16,8%	52,5%
	Text alerts	13	2,3%	7,3%
	eStatements	3	0,5%	1,7%
Total		561	100,0%	313,4%

a. Dichotomy group tabulated at value 1.

Source: SPSS – Author’s elaboration

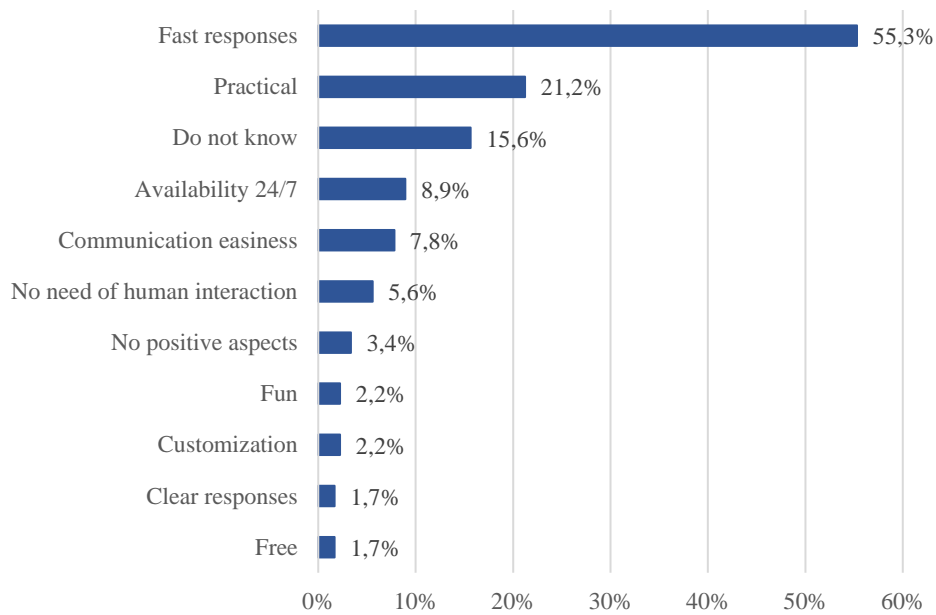
Annex 15: Bar chart of the variable "Time spent online per day"



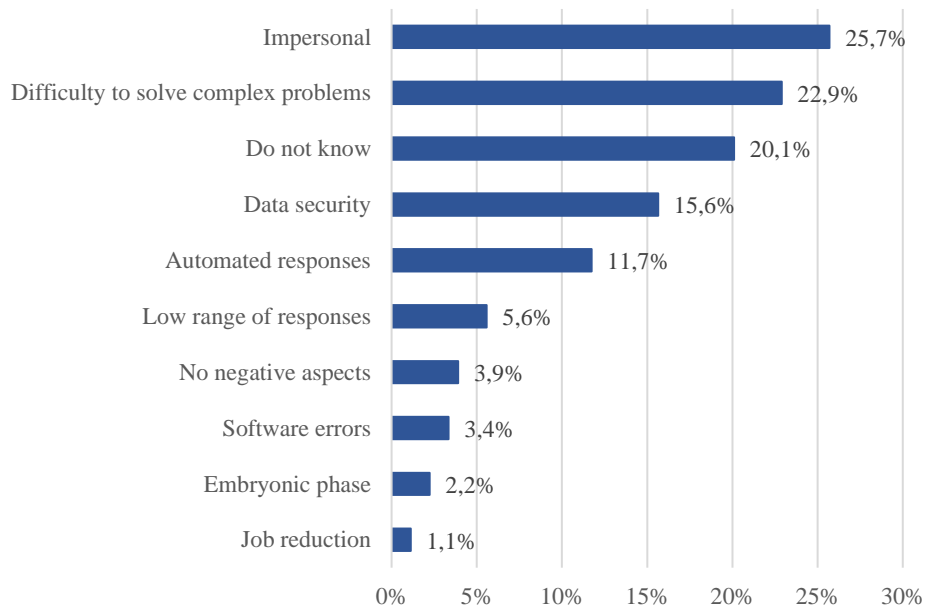
Annex 16: Table of the mean comparison between online consumer activities (where 1=Most time spent online; 7=Least time spent online)

	Messaging	Social Media	Search in web	E-mail	Everyday tasks	Online shopping	Games
Mean	1,85	2,46	2,88	3,45	5,36	5,69	6,28
Median	2,00	2,00	3,00	4,00	5,00	6,00	7,00

Annex 17: Bar chart of the variable "Positive aspects of the chatbots"



Annex 18: Bar chart of the variable "Negative aspects of the chatbots"



Annex 19: Table of the relative frequencies of the consumers' level of agreement with statements regarding the use of chatbots in banking

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
Chatbots in banking are useful	1,7%	3,9%	35,2%	46,4%	12,8%
Chatbots are easy to use	0,6%	2,2%	22,3%	41,9%	33%
Chatbots are faster to solve problems	2,8%	13,4%	39,7%	34,1%	10,1%
I trust in a chatbot	3,4%	20,7%	40,2%	31,8%	3,9%
I enjoy talking to a chatbot	10,6%	15,6%	51,4%	19,0%	3,4%
I would use a chatbot only for small things	4,5%	10,6%	27,4%	38,0%	19,6%

I would use a chatbot to help me apply to a loan	28,5%	29,6%	23,5%	15,6%	2,8%
I prefer a bank that has a chatbot	12,3%	8,4%	60,9%	14,5%	3,9%
Chatbots add value to banks	3,4%	4,5%	44,1%	41,3%	6,7%

Annex 20: Table of the relative frequencies of the consumers' level of agreement with statements regarding the chatbot communication

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
Chatbots can connect with the customers the same way humans do	36,3%	33,0%	15,1%	12,8%	2,8%
Chatbots can replace the need for a human interaction in a branch	32,4%	27,4%	18,4%	16,2%	5,6%
I prefer to communicate with a chatbot rather than a human	35,2%	31,8%	22,9%	7,3%	2,8%
Interact with a chatbot is better than with a human being	45,3%	25,1%	21,2%	7,3%	1,1%

Annex 21: Table of the relative frequencies of the consumers' level of agreement with statements regarding the impact of a chatbot in their banks

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
I am going to interact more with my bank	11,2%	17,9%	48,0%	17,9%	5,0%
I am going to feel closer to my bank	14,5%	16,2%	45,3%	19,6%	4,5%
I am going to obtain more products	19,0%	21,8%	45,3%	11,2%	2,8%
I am going to recommend it to friends	13,4%	11,2%	47,5%	21,8%	6,1%
I am going to recommend it to family	13,4%	10,1%	49,2%	22,3%	5,0%
I am going to be more satisfied	7,3%	10,6%	48,0%	27,4%	6,7%
I am going to feel happier	7,8%	13,4%	49,7%	24,0%	5,0%
I am going to be a more loyal customer	10,1%	14,5%	60,3%	10,1%	5,0%