Bot use Dimensions for Business Performance: use Perspectives and Acceptance

Carolina Y. V. Watanabe[1] and Carlos A. T. Carvalho Jr.[2]

[1]São Paulo School of Business Administration, EAESP-FGV, Federal University of Rondônia, UNIR, Brazil
[2]Electrical Engineering Department, Federal University of Rondônia, UNIR, Brazil

Abstract— The aim of the present study is to analyze the use of the artificial intelligence Bot and its relation to business benefits, with emphasis on understanding acceptance and use factors based on clients' perspectives. In order to do so, a case study was carried out in a benchmark company of the private pension sector in Brazil. The Simplified Model of Dimensions of Information Technology Use for Business Benefit and the Unified Theory of Acceptance and Use of Technology (UTAUT2 – for consumers) were adopted as analysis method. Results pointed out that using Bot as business strategy brings benefits to quality, product and service flexibility, and to innovation, as well as that factors linked to social network use, experience and to the widespread of internet infrastructure in smartphones are responsible for low effort expectations, high performance expectations and for facilitating conditions favorable for Bot use.

Keywords— Bot, Artificial Intelligence, Private Pension, Technology Use and Acceptance, Business Innovation.

I. INTRODUCTION

The technological innovation known as Internet of Things (IoT) has been gaining more room; according to [4], it is featured by processes involving devices connected to networks that communicate to each other and produce and/or process real time information in an autonomous way. Data digitalization allows information to be democratized and cheap; therefore, it opens room for a new web system, for a new way of thinking and setting new relationships.

Accordingly, companies have become more digital given the use of emerging exponential technologies of continuous learning [6, 7]. This transformation demanded changes in business models applied to this new ecosystem. Exponential changes in business models happen when technology meets business innovation. Information Technology (IT) and Operational Technology (OT) convergence in the IoT ecosystem enables data integration.

Artificial Intelligence has been gaining room among current technologies as a business strategy, since its use brings benefits for business performance. In order to reach the expected benefits, it is necessary managing IT and making quite high investments in it, besides identifying the real contributions this technology gives to companies; although companies end up depending on it.

In [3] suggest the application of five IT use dimensions:

(i) IT use;
(ii) Benefits from it;
(iii) Its contribution to business performance;
(iv) Governance and IT management;
(v) The role played by managers and the relation between the 5 dimensions.

The study on IT use dimensions is an important subsidy for company plans and actions focused on institutional targets.

Factors encouraging individuals to accept and use new technologies are relevant aspects to be understood. If one takes into account the business environment, organizations must know whether innovation - applied as business strategy - is accepted and used by consumers. Thus, the aim of the present study was to analyze the artificial intelligence use dimension through Bot adoption and its relation to business benefits, with emphasis on understanding acceptance and use factors based on clients' perspectives. In order to do so, a case study was carried out with a benchmark company of the private pension sector in Brazil.

Internal documents and reports of the company were analyzed, and interviews were conducted with a product specialist and with the leader of the Bot development project. The Simplified Model of Dimensions of Information Technology Use for Business Benefits by [2] and the Unified Theory of Acceptance and Use of Technology (UTAUT – 2) for consumers by [10] were adopted as analysis method. Results pointed out that Bot use as business strategy brings benefits related to quality, product and service flexibility, and to innovation, as well as that factors linked to social network use, experience, and to widespread internet infrastructure in smartphones are responsible for low effort expectations, for high performance expectations and for facilitating conditions favorable for Bot use.

The present article is divided as follows: Section 2 – presents concepts related to the herein addressed subject and describes the Simplified Model of Dimensions of Information Technology Use for Business Benefits and the UTAUT – 2 Theory; Section 3 presents the methodologies; Sections 4 and 5 address the results; finally, Section 6 presents the conclusions about the analyses.

II. THEORETICAL BASIS

This section introduces the concepts of instrument chosen for the analyses applied to artificial intelligence use through Bot to achieve business benefits and to assess factors influencing the use and acceptance of new technologies by consumers.

2.1 IT use Dimensions

At [2] propose the "Simplified Model of Dimensions of Information Technology Use for Business Benefits" (Fig. 1, described below) as the way to diagnose IT use dimensions in companies.

Information Technology use in the aforementioned model is directly related to context, which is defined by organizational responses and IT use drivers. Drivers include market, organizational and individual pressures and responses, besides pressures and responses from technology itself. The value added by IT to the organization is associated with the quality of the study and with the analysis of these drivers. The market driver tends to be associated with informational and strategical use; the organizational driver concerns infrastructural and organizational use; individual driver use is linked to consumer and to strategical; and the IT driver is related to infrastructure and strategical. It is likely to have other associations besides the aforementioned ones.
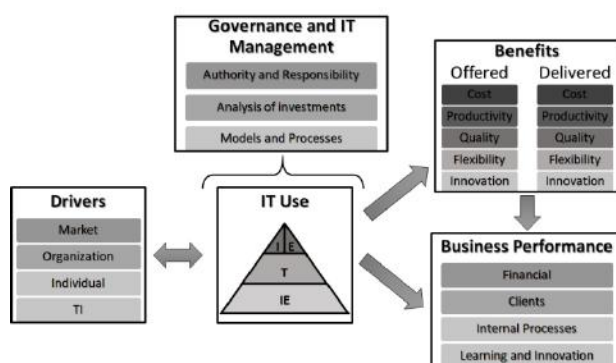

Fig. 1: Simplified Model of Dimensions of Information Technology Use for Business Benefits. Legend: IE-infrastructure; T-Transactional; I-Informational; E-strategical. Source: [3].

Information Technology use is determined by value and by how the company sees it; therefore, one must take into consideration the multiple IT applications available to organizations at infrastructure, transactional, informational and strategical levels [2]. At [3] cite Weill and Broadlent in this model, because they analyze investments in IT as a portfolio of investments, in which each application means a certain return and corresponding risk. Similar to an investment portfolio, organizations must distribute their investments based on the expected return and risks, for instance: at infrastructure level (IE) investments are related to integration, flexibility and to IT costs; at transactional level (T) they are associated with costs and productivity; at informational level (I) they are linked to control, integration, quality and to cycle; at strategical level (E) investments include risks and returns concerning sales, competition, market, innovation and added value.

With regard to the acquired benefits, infrastructure use tends to be associated with benefits such as cost reductions, productivity and flexibility; transactional use, with costs, productivity and quality; informational use, with quality and innovation; and the strategical use is associated with quality and innovation; however, there must be some other associations. Regarding the impact of IT use on business performance, the use of infrastructure tends to influence internal processes and financial perspectives; transactional use influences internal processes and financial perspectives; informational use influences the innovation and clients' perspectives; and the strategical use influences the innovation perspectives; among others.

Finally, understanding governance and IT management can be a way to also understand other dimensions. Lack of proper procedures to analyze investments, or even failure in the existing ones, contributes to incoherence between IT use dimensions; the same happens with participants in decision-making processes about expenses, investments and IT use.

2.2 Unified Theory of Acceptance and Use of Technology - UTAUT2

Understanding the individual acceptance and use of Information Technologies is one of the most mature fields in information system research [5]. There are many theoretical models initially developed from psychological and sociological theories, which are applied to explain IT use acceptance. A literature review and synthesis involving right IT use theories/models resulted in the so-called "Unified Theory of Acceptance and Use of Technology – UTAUT", by [9]. This theory has been presenting critical factors and contingences associated with the prediction of behavioral intention to use IT, mainly and first of all, in organizational contexts.

At [10] extended UTAUT to studies on technology use acceptance within consumers' context.

The UTAUT has four constructs that together influence the behavioral intention to use a certain technology, namely: performance expectation, effort expectation, social influence and facilitating conditions. These constructs were adapted to the consumers' context in UTAUT-2; three more constructs were incorporated to it: hedonic motivation, price and habit. Besides constructs, the models count on moderators (age, sex and experience), which influence either the behavioral intention or the IT use behavior constructs. The definition of each one of these constructs and of moderators' influence are shown in Chart 1. Fig. 2 depicts relations between constructs and moderators, which lead to the intention behavior and to the IT use behavior.

Chart 1. Definition of UTAUT-2 constructs – consumers' context

| Construct	Description	Moderators
Performance expectation	To which extent the use of a certain technology will benefit consumers' in the performance of some activities	Age and Sex
Effort expectation	Degree of ease associated with technology use by consumers	Age, Sex and Experience
Social Influence	To which extend consumers' realize the importance some people have to them (for example, family members and friends); they believe these people must use a specific technology	Age, Sex and Experience
Facilitating Conditions	Refer to consumers' perception about the resources and support available for the adoption of a certain behavior	It affects the use behavior, it is moderated by age and experience
Hedonic motivation	Defined as leisure or pleasure resulting from the use of a certain technology	Age, Sex and Experience
Price	It is the cognitive commitment of consumers with benefits understood as resulting from the use new technologies	Age and sex
	and with the financial cost to use them. Price is positive when the benefits from using a technology are perceived to be greater than the financial cost; such price has positive impact on intention	
Experience and Habit	Experience reflects the opportunity to use a technology; it is typically operated as a time passage based on the initial use of a technology by an individual. Habit has been operated in two distinct forms: (i) habit is seen as a previous behavior; (ii) it is measured based on how an individual believes that a behavior is automatic. Accordingly, habit is the perceiving construct that reflects the outcomes of previous experiences.	To influence the behavioral intention and the use behavior: Age, Sex and Experience

Source: Elaborated from [10].
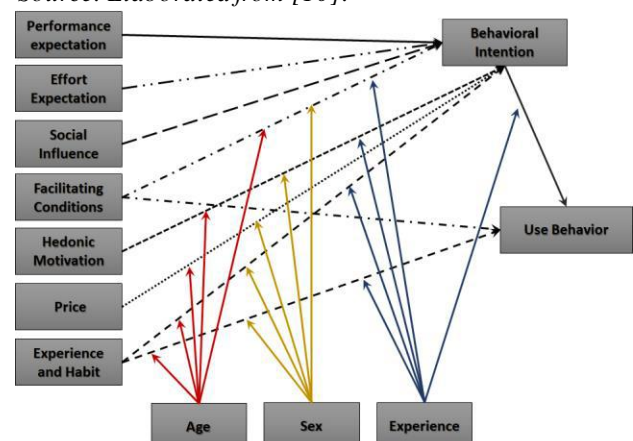
Fig. 2: UTAUT-2 Model. Source: Adapted from [10].

III. METHODOLOGY

The strategy adopted in the current research lied on the study of a single case. The research problem can be summarized by two questions: (i) "What are the Bot use

dimensions (Artificial Intelligence) and how must the relation between them be so that Bot use can be successful? And (ii) "What are the factors influencing Bot acceptance and use behavior in consumers?".

This is an exploratory research that demands contextualization and in-depth assessments [11]. Furthermore, there are only few studies published in this field and its research question can be of the "what" and "how" types [12].

The use of all components of a case study project [13] is enough for the project to take into account the generalization limitations and the potential biases highlighted by [14].

3.1 Summarized Case Description

The company chosen as case belongs to the financial services sector, it is a benchmark in its segment, mainly in private pensions - its revenue was close to R$1.09 billion in 2016. The name of the company will be kept in secrecy due to request from its stakeholders; this company will be called "company" hereafter.

The company offers private pension products whose sales are nowadays mainly made by bank agencies, with high capillarity, which are spread throughout more than 99% of Brazilian counties. Besides purchasing these products in bank agencies, consumers can also buy them from associated brokers.

The present study was carried out between March and April 2018. The first stage of it consisted in analyzing the IT use dimensions (Bot and associated technologies) and their association with business benefits. The study focused on understanding the current situation in the company by assessing internal documents and annual reports from 2016, by interviewing the product specialist responsible for structuring the New Digital Technological Platform, and by interviewing the leader of the Bot development project. The "Simplified Model of Dimensions of Information Technology Use of Business Benefit" was used in this analysis. The second stage counted on more specific analyses about the Bot use and acceptance issue. In order to do so, information collected during the interview with the leader of the Bot development project was analyzed; results were analyzed based on the UTAUT – 2 Theory.

IV. OVERVIEW – DIAGNOSTIC OF IT USE DIMENSIONS

Information technology use in companies can be assessed through the diagnostic of its dimensions based on the Simplified Model of Dimensions of Information Technology Use of Business Benefit. This process allows understanding the IT use situation in the market. Fig. 3 presents a synthesis of the diagnostic set for IT use dimensions applied to Bot development and use in the

company. Next, the text brings the analysis of each one of the five dimensions.
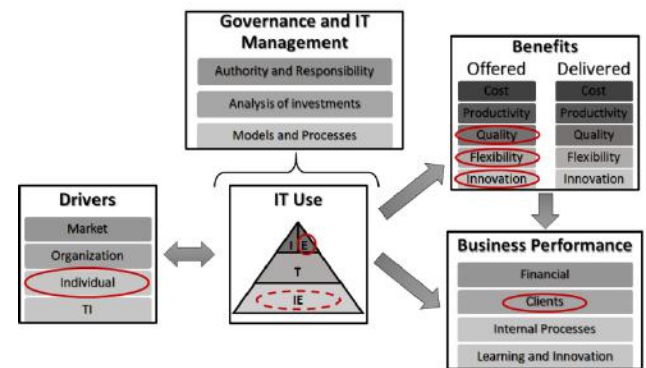

Fig. 3: Diagnostic of Information Technology use dimensions – Bot.

4.1 Drivers

Based on the diagnostic, a perspective focused on Client as the outcome of business performance made the company invest in Bot development. There are two main problems involving this process: clients' satisfaction with after sales services and elimination of bank agency dependence for product sales.

Client satisfaction is related to drivers "individual" (pressure from clients) and "Organization" (business model in the digital era). Many clients declared themselves unhappy with after sales services in a previous survey; one of the surveyed clients is a good example of it, she was about to retire and got very disappointed, because the amount she received did not correspond to her expectations. Such disappointment resulted from lack of communication, she did not know that if she had invested a little bit more, she would reach the expected pension.

With regard to business model, assumingly, the company follows the Aggregation model by [8], according to description by [1]. Based on this model, bank agencies sell products to clients and intermediate the relationship between clients and the company. This process makes the company 100% dependent on this partnership; therefore, the company needed to enhance the business configuration based on Information Technology. Once products are digital (intangible), it is possible using IT to set a whole value chain for business processes in electronic environment, which is the goal of the business.

4.2 IT use

When it comes to IT use for Bot development, the company had to initially make a great investment in IT infrastructure, but, nowadays, the company is restructuring its technological platform. However, it still does not have a structure good enough to support the large number of process requirements given the exponential growth in the number of clients in the last

few years. The company invested in cloud computing, in relational database (Postgress), in non-relational database (Dinamo BB) and in queue cutter (SQS and RDSI) to solve this issue. The queue cutter aims at shortening the waiting time; the whole system is supported by Amazon Web Service Infrastructure, which is described in Chart 2.

Chart 2. Description of infrastructure technologies developed for Bot implementation.

Infrastructure – AWS – Amazon Web Service		
Infrastructure		Free or paid
Relational database	Postgress	Free
Non-relation database	DinamoDB	Amazon – paid
Queue cutter / micro-services	SQS	Amazon – paid
Queue cutter	RDSI	Free; a fee is paid to Amazon for RAM memory use
API	Programming language: Python	Free
Server	Amazon	Paid
Artificial Intelligence – only for natural language processing	Watson	Paid
Artificial Intelligence – other techniques, including machine learning	Developed by the company itself	Free

Not all data are stored in the Amazon server; part of them is in the company files. The Bot is located at Amazon. Security tests against invasion are often performed.

In respect of the Transactional part, wich constitutes the algorithm created for Bot development. The informational part comes from databases in the company, these data are hosted either in the company's infrastructure or at Amazoa qualn. Specific knowledge about private pension is inserted in the Bot; this knowledge is used as "intelligence" in the Strategical driver, which is responsible for transforming data for the client. This is one of the critical factors for good Bot performance. Many meetings were necessary to define and learn the specific terms used for pension systems, and terms used in the financial sector, in order to acquire good information.

A developed Bot does not learn by itself, but the right Bot was chosen to perform the transactions. Thus, the learning process must be inserted in it in order to avoid inappropriate language use by the Bot, for example. Part of information insertion was firstly performed by software and IT developers, but the interface was adapted so any specialist in private pension products, or in business, could record new information ("intelligence").

Results in Fig. 4 point out a distribution based on higher percentages of aspects related to flexibility, standardization and to IT infrastructure integration. This distribution reaches 60% of the total time and investment needed to develop the Bot and to make it fully operational. This outcome is in compliance with the fact that the company does not have a robust technological platform composed of unified databases and integrated systems. However, it is worth highlighting the internal projects focused on defining the development and implementation stages, besides the Bot project.
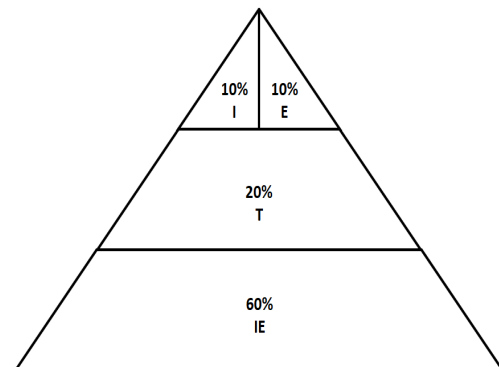

Fig. 4: IT use. Time invested in Bot development.
Legend – IE:Infrastructure; T:Transactional; I:Informational; E:Strategical

This is an IT use estimate for initial Bot delivery; the informational and strategical levels will be subjected to continuous development after Bot delivery. In informational terms, Bot rules/information about the private pension subject was incorporated during this first delivery by an IT professional; however, the developed interface allows any authorized individual (login and password) to insert "intelligence" (more information) in the Bot. Thus, when the Bot is implemented for client use, in case there are any question the Bot cannot answer, the system is notified, and the human specialist can record a new information. The next time the Bot is questioned about this same issue, it will be able to give an answer.

One can observe that all investments aimed at influencing aspects such as market, sales, competition, innovation, added value and client - the last aspect (client) was the Strategical driver. Therefore, it is necessary investing in IT flexibility, standardization and infrastructure integration, in cost reduction, in operation efficiency and

productivity and in business transactions, as well as in information control, integration, cycle and quality.

4.3 Business benefits

By taking into account the benefits from Bot use in business, Innovation is among the ones related to protection, to competition advantage and to client satisfaction. Competition advantages brought by Bot use are benefits concerning differentiation, market participation simulations, value adding and the search for cost reduction. Client satisfaction can be achieved through products that meet their needs and that have more added value to users, without the need of additional training to employees; consequently, it leads to better revenues to stakeholders. These benefits can be measured through sales coefficients due to Bot adoption (innovation) and through returns due to innovation. This feature stands out because Bot use is not limited to its application to generate new services, but also to how the company acts in a market constantly changing the way to do business. This information is in compliance with statements by BolWijn and Kumpe (1990), cited by [3].

With respect to benefits from Flexibility, one can mention volume flexibility, which is the ability to change aggregate output levels when e-commerce sales performed by the Bot are taken into consideration; and delivery flexibility, since product contracting will be made through the Bot, right at the end of the negotiation. A bill is sent to the client at the end of the negotiation process, as long as the bill is paid, the buyer becomes a client and has access to after sale services provided by the Bot itself. This process is possible because the Bot will have previous information about the client and will be able to provide a customized environment to each client. These flexibilities, besides reducing costs and enhancing product quality, will reduce the waiting time for client assistance. Thus, product customization will be possible not only to special and influent clients, but to all clients, since it will not be necessary to have any kind of human intervention in risk analysis and in better funds, because it will be calculated by the Bot.

Bot use innovation also enables improving Quality benefits, with emphasis on the quality of services when it comes to tangibility, reliability, safety, empathy and readiness. Each client will have a customized assistance either at sales or in after sales services. The Bot will be able to assess the best investment funds for each client based on the investor's profile; thus, it will be able to make high quality analysis for all clients, 24/7, without vacations or holydays, fact that is not possible for humans. This process is the guarantee that the best options will be made available to the client, so he/she can make the best decision to change funds of investment or to increase values invested in applications, for example.

All these innovations are only possible because the company is focused on the client and on works based on a system that collects, stores and assesses clients' information through artificial intelligence techniques. It is done in order to assist clients the best way possible and to accomplish better revenues to the company in the market in comparison to its competitors.

Increased sales productivity is another benefit brought by Bot use, since sales of the company's pension services will no longer be limited to clients of the bank it is bonded to. Improvements in the sales process and in after sales services aim at increasing sales productivity and at reaching clients' satisfaction. Finally, this innovation will reduce costs and also improve the quality of products and services. This outcome will be possible due to the need of hiring less employees to assist clients. Thus, these are the benefits brought by Bot use to the company.

4.4 Business performance

Client satisfaction is the main business performance factor expected by the company after Bot implementation. The aspects of such factor are related to clients' perception about performance and services and their quality, to cost relation and to the prompt delivery of products and services. However, as it is herein highlighted, other performances will also be achieved.

Financial performance is the most relevant one, since it is related to business profitability and growth, to business value and to return from investments.

The last two performances would be the Internal Processes, and Learning and Innovation ones, which concern aspects focused on organizational processes that exert greater impact on client satisfaction, on the generation of new products/services and on processes and competences applied to achieve performance excellence.

4.5 Governance and Management of Information Technology

Direction Board support was essential for the development of the Bot project; directors were committed with critical management-success factors. It is worth highlighting that Direction Board, CEO, CIO and managers were the ones discussing with a company expert in IT solutions about issues such as client dissatisfaction, sales dependence on bank agencies, among others. Many companies worked together for a week in order to propose some solutions for these issues, and they counted on the participation of the company's Direction Board. Finally, the solution presented by one of the companies involved in the process was chosen; hereafter called X3.

X3 is a digital product studio that develops projects for different companies. They were hired by the company as outsourcing to develop the Bot. It works with a fast methodology and all problem solutions suggested for the

products, including the Bot, were discussed with the Direction Board and with the financial and products managers; all of them participated in the decision-making process. This methodology allowed the company to align business and IT strategies, in other words, to achieve integration between business and IT strategies, as well as between infrastructure and organizational processes, and infrastructure and IT processes. Furthermore, this methodology encouraged managers to act as sponsors of the Bot development project.

It is important pointing out that business managers and second sphere managers, who need the operational and informational support from this technology and from final users, also participated in the development process since they know and conduct the organizational processes. This participation was so important that during interviews conducted with the leader of the Bot development project the interviewee called the attention to the fact that these managers joined many meetings focused on better understanding aspects such as details about private pension, products (PGBL, VGBL, among others) and financial processes. Understanding these processes, and their main terms, was essential for the creation of an informational intelligence database to the Bot, which had to be accurate and aligned to the company's strategical targets.

V. ANALYSIS APPLIED TO BOT USE AND ACCEPTANCE FACTORS

After analyzing the IT use dimensions for Bot development and their relation to business benefits, the present section addresses the Bot acceptance and use by clients. The herein presented perspectives were collected during the interview conducted with the leader of the Bot development project, who analyzed user clients and company employees' perception about it. Moderator constructs of the UTAUT2 theory were taken into consideration in order to do so.

Chart 3 depicts factors influencing Bot acceptance and use.

Chart 3. Factors influencing Bot use and adoption by company's employees

Constructs	Analysis
Performance expectation	Fast and high-quality assistance is the main benefit from it. Bot use will allow clients to have access to the assistance service at any time, without facing queues, such as in bank agencies. One of the topics addressed in the interview lied on the fact that maybe people want a little less human contact for things that could be made
	faster, for example, matters that could be solved by the Telemarketing sector, since it follows scripts. This method can be programed by a Bot. Purchases can also be made at the end of the call. Customized assistance is another benefit from Bot adoption, since it allows each client to have a separate assistance, fact that can make the client better cared. Financial explanations by the "Bot" are not "hard"; it is developed to facilitate clients' understanding – it does not demand a "Bot" teacher. After sales, assistance is also a customized benefit, the Bot is able to follow investment evolutions 24/7 and to provide high-quality real-time information about market changes to clients
Effort expectations	The intense use of Social Networks and of WhatsApp is an advantage, since it has created a digital culture in people who use text messages. Adaptation to Bot is easy to people who have already developed this digital culture, since they will keep on texting messages to the company through the Bot. It is not necessary installing any application, not even learning a new interface, buttons, etc. The client is already used to this procedure; sending out the text message is the only action to be taken. Thus, the adaptation phase is almost null, i.e., the effort expectation is almost zero.
Social influence	This factor is more closely related to Bot adoption by the company than by clients. Bot use is growing fast, and it forced the company to adopt this technology.
Facilitating conditions	People already have the necessary resources, knowledge and technologies to use a Bot. It is not necessary installing any type of application. People have the internet, smartphones, tablets, notebooks or desktops.
Hedonic motivation	People need to be pleased to use the Bot; therefore, it must be fun, a little funny, pleasant and have a certain degree of entertainment. In order to fulfil all these demands, the Bot uses

	information about age and sex, for example, to customize the chat based on appropriate language. For example, it will treat elderly as Mister/Miss, whereas youngsters will be called "you". The Bot has a different answer at different moments, it will use the language the client is used to. Sometimes, even a slang is used to address a youngster, but it will make no sense for an older person.
Price	It is not necessary installing any application. Clients have no cost when they use the Bot and perform the product purchasing process through it.
Experience and habit	Since the use of social media such as Facebook and WhatsApp became popular, people are already experienced in communicating through text messages. It became a habit, i.e., it is automatic in the lives of most Brazilians.
Behavior intention and use	Once the Bot will also take care of after sales issues, it will highlight better funds of investment, i.e., it will perform a follow-up on the clients' private pension. Due to previously described performance expectation, one can believe that clients will keep on using the Bot after purchasing the service. Because Bot's fast and easy use involves financial resources, clients are expected to search the Bot on a daily basis, and it will approximate the relationship between clients and products – although it does not happen nowadays.

Thus, based on the analysis applied to each construct, it is possible observing that all of them are positively influenced by behavioral intention and Bot use. Influence relations of moderators 'age', 'sex' and 'experience' could not be analyzed in the current study; therefore, it is necessary surveying clients who use the Bot, but it remains in installation phase. However, based on data gathered so far, one can see that moderator "habit" was one of the most relevant ones when it comes to motivate behavioral intention and use.

Data in the recent Pesquisa Nacional de Amostra Por Domicílios - Pnad (National Research on Samples per Residence), which was carried out by IBGE in 2016, point out that 92.3% of Brazilians use smartphones to access the internet. Moreover, these individuals have sent out or received text or voice messages, or images through applications, including social networks such as Facebook and message systems like WhatsApp. This Brazilian expertise and habit, the intimacy with the technology supposed to be used as business strategy by the company, allows inferring that Bot acceptance and use will be positive and widely adopted by clients.

VI. CONCLUSION

After detecting the client dissatisfaction with after sales services and with the dependence on bank agencies for product purchasing, the company was forced to develop strategies focused on clients' satisfaction with business performance and with market expansion. The chosen solution lied on installing a Bot in order to acquire quality, flexibility and innovation benefits from services and products. The main factors related to clients made directors choose this solution, which is based on the UTAUT2 theory, which, in turn, addresses technology acceptance use based on consumers' perspective. The habit of using text message tools; the fact that most Brazilians already have the necessary infrastructure such as internet, smartphones, tablets, desktops or notebooks (facilitating conditions); the unnecessary generation of a learning curve for tool use (effort expectation); the null cost with Bot use; and the benefits from a customized assistance 24/7, without the need of facing a queue and of going to a bank agency to hire the service or to gather information about the acquired product were the critical factors for technology use intention.

Organization itself was another benefit; soon the company will stop being 100% dependent on bank agencies for product sales. Moreover, the Bot will provide more appropriate assistance to clients, since it will be specifically developed for private pension products, and its attention will not have to be shared with other subjects of other clients, fact that assures high-quality assistance and final products.

Besides factors mentioned above, two others deserve attention due to the success of the herein addressed project. The first one is 'commitment and Direction Board participation in the IT team', because it assured the strategical alignment between business and IT. The other factor is 'the time spent to learn and popularize the tool inside the company", in order to minimize the gap between the technology available (the developed Bot) and the embodied technology (the effective use of the Bot by employees). At this phase, the development team made sure that the Bot will not be a mere tool lost in the organization. All employees must know how to use it, so that the company can embrace this innovation and truly apply it in order to reach the expected business benefits.

The use of artificial intelligence enabled the company to achieve the expected benefits through investments in innovation. However, further studies must be carried out in order to investigate the influence on age, experience and sex moderators. This investigation will be possible after the Bot is fully operational, since it will be fed with more information and will have intelligence related to these moderators. Such future studies must aim at assuring competition advantages in order to continuously improve the quality of products and services.

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