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Gaining Competitive Advantage through Artificial Intelligence

Adoption

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Abstract

Companies are adopting Artificial Intelligence (AI) to be innovative, improve their strategies, and differentiate themselves from competitors. This research's objective is to examine the extent of the introduction of Artificial Intelligence in companies located in Portugal, with focus on marketing activities. It explores the reasons and challenges companies face to introduce it, their perception of AI, and whether they feel pressure to adopt this technology. This research uses a qualitative approach, the content analysis of twenty-one interviews with professionals familiar with the theme. This study concludes that the main challenges faced are the cost of the investment and the loss of "the human" connection with the customer. In contrast, the principal benefit is the degree of personalization Artificial Intelligence can achieve due to its ability to provide strategic information. Concerning the interviewees' perception of this technology, 95% considers it as a competitive advantage.

Keywords: Artificial Intelligence adoption, Strategic information, Customer Relationship, Marketing, Strategic management, Portugal

1. Introduction

Evolution is disruptive and, usually, incompatible with what precedes it. Due to this fact, Paiva & Prevedello (2017) state that we can feel its impacts in all aspects of our lives. Concerning the technological evolution, Rivera Estrada & Sánchez Salazar (2016) argue that it reconfigures the concept of human beings and makes us question our humanity. According to Costa et al. (2019), Paiva & Prevedello (2017), Peyravi et al. (2020) and Rivera Estrada & Sánchez Salazar (2016), technology improves the life quality. However, it also changes the business environment, the way markets develop and makes it harder to satisfy customers.

Companies are increasingly adopting Artificial Intelligence as a solution. Artificial Intelligence is a part of a technological movement known as the Fourth Industrial Revolution, Industry 4.0, or Digital Transformation (Grandinetti, 2020; Hollebeek et al., 2021). Research characterises this movement by its several complementary components evolutions (Grandinetti, 2020), the fusion of different technologies, and by blurring the lines between the physical, digital, and biological spheres (Hollebeek et al., 2021).

Regarding this technology's popularity, Grandinetti (2020) and Hollebeek et al. (2021) argue that even though the concept of Artificial Intelligence is not recent, its popularity is. When studying this theme, Grandinetti (2020) initially set the hypothesis that it could be the result of an excess of optimism about its abilities, however, when considering all the successful AI applications the author reached a different conclusion. Research concludes that this technology can automate the data collection, processing and analysis, while providing important information (Costa et al., 2019; Overgoor et al., 2020). Many highlight its ability to increase the levels of personalization, which consequently increases the level of customer satisfaction and customer loyalty.

Thus, the theoretical objective of this study is to analyse the extent of AI introduction and its impacts in the business context, with the focus on marketing operations and its impacts on organisations. Empirically, it intends to further research this theme through the different perspectives present in the literature review. Also, it aims to see if organisations operating in Portugal are having the same behaviour and mindset regarding the adaptation of AI to their marketing activities. It will focus on how they perceived this technology

and if they see it as a source of competitive advantage, considering its main benefits and challenges, or if other factor had influence in the decision to adopt Artificial Intelligence.

Below, will be presented the literature review, including the concept of IA and its applicability within the scope of the explanatory presentation of new business, processes and models that can be applied by managers in their management routines and activities. Then, the methodological contents is presented, which illustrates the categorization and codification of the variables that resulted from the interview corpus, as well as the model used in this research with the link between literature review, research questions and the research objectives. The results related to the two research questions addressed in this study will then be presented and discussed, trying to understand, on the one hand, the reasons that led companies in Portugal to adopt IA, and, on the other, whether these same companies feel pressure to introduce IA in the their internal organizational contexts. At the end, will be presented important final considerations, including the contribution of the study to the state-of-the-art.

2. Literature Review

2.1 Artificial Intelligence definition and implications

According to Xu et al. (2020), the introduction of Artificial Intelligence in business is unquestionable, for them the only question that remains is how far companies will take it, since the number of researchers looking at this technology as an end-to-end solution is increasing. Costa et al. (2019) and Peyravi et al. (2020) argue that companies already use Artificial Intelligence in their daily operations. According to Costa et al. (2019), this technology is, usually, present through data mining and represents an essential part of the decision-making process, providing strategic important information.

Peyravi et al. (2020) point out how the use of AI is widely spread, to illustrate this argument, they list the following applications enabled by this technology: Siri and Alexa (virtual assistants), Spotify and Pandora (music streaming), Nest (home solutions), Haystack (facial recognition), Uber and Bolt (service delivery), Olivia (financial advising) and Mezi (travel). Grandinetti (2020) and Kiruthika & Khaddaj (2017) believe

that the trend to keep applying Artificial Intelligence in products will continue, since they make the company's offer more compelling.

Despite its popularity, research did not reach an agreement on the meaning of this concept (Xu et al., 2020), meaning, Artificial Intelligence lacks a concrete definition (Peyravi et al., 2020) and remains a fuzzy concept (Bruyn et al., 2020). With this in mind, this article defines Artificial Intelligence as computational agents that replicate characteristics of Human Intelligence (Ameen et al., 2021; Davenport et al., 2020; Huang & Rust, 202b) in problem-solving, planning, and learning, while autonomously creating knowledge (Bruyn et al., 2020; Pinheiro et al., 2020).

2.2 Artificial Intelligence introduction in business

According to Mogaji et al. (2020), the introduction of Artificial Intelligence in business is both a capability and a technology disruption. Artificial Intelligence makes the domain fixed predictions' lack of accuracy and relevance in the business environment increasingly noticeable (Schrettenbrunnner, 2020). However, this technology also provides companies the tools to create new business processes and models (Peyravi et al., 2020), enables creativity and innovation in problem-solving (Eriksson et al., 2020), and creates important strategy information (Costa et al., 2019; Dias, Santos & Pereira, 2020).

Research states that a company should assess whether the introduction of Artificial Intelligence is beneficial before making this decision. The main factors to consider are: data related, type of service and demand, the type of customers, tasks and leadership, the service nature and the different processes. Artificial Intelligence might not be the best solution for companies that do not produce enough data and does not engage with the customer with enough frequency, since these factors affect the degree of service personalization. Huang & Rust (2021b) argue that the service type influences the customer's willingness to use this technology. The same authors advise the automation of routine tasks to transform the service in self-service or mass production. According to Davenport et al. (2020), if the task involves intuition or affection and/or if it might have consequences, customers will be less comfortable with the use of Artificial Intelligence. They also defend that customers have higher expectations and standards for this technology.

Huang & Rust (2021b) argue that the demand is also a key factor for AI introduction. According to these authors if the service has homogeneous demand and low potential in the customer lifetime value, the company should automate it. In their paper, they suggest that companies should start by the automation of tasks that require lower levels of intelligence (routine with lack of variance), Human Intelligence (HI) employees should use AI as a tool to perform “thinking” tasks, such as the use of business analytics to support the manager’s decision, and in more intuitive tasks in nature Artificial Intelligence is not able to perform it without human intervention.

Regarding the service nature, according Huang & Rust (2021b), it varies in the transactional-relational and the utilitarian-hedonic continuum. A transactional service does not affect the relationship with the customer, so the company would benefit if they automated it, while when the service is relational, it affects the customer-brand relationship, following the same logic, the company should not automate it. A service closer to the utilitarian end provides functional, non-sensorial and instrumental benefits to the customer (like IBM Watson’s financial advice and Amazon’s cloud data service), and a service that leans towards the hedonic end, provides sensory benefits to the customer (like fun, pleasure, etc.). The same authors show how different types of leadership should use this technology. Artificial Intelligence is suitable for Cost Leadership, since its objective is to automate the maximum possible to reduce costs. The degree of personalization AI can achieve makes it extremely useful for the Quality and Relationship Leadership styles. The first style’s objective is to offer a premium quality customer experience, while the latter focuses on intimacy to achieve customer satisfaction. Concerning the service processes (how companies create and deliver value for the customers) Huang & Rust (2021b) divide it into three stages: Creation, Delivery and Interaction. It is important to note that the stages do not follow a sequence and could happen simultaneously (for example haircutting). At the Service Delivery stage, the company should focus on delivering the service efficiently. The same authors suggest the automation of repetitive tasks such as Shipping, Delivery and Payment, to increase its efficiency and convenience. In Service Creation the main issue is to create value for the customer, here companies could use predictive analytics to find the customer preferences, computing analytics to service development, pattern recognition technologies (like data mining) to find likeminded customers and create a personalized service, and could use Deep Learning to do the segmentation and provide different campaigns to different

customers. In Service Interaction the company's focus is on the communication with the customer, at this point AI introduction requires the technology to recognize, understand and respond accordingly to human emotion. For this reason, this part of the service is usually performed with less Artificial Intelligence involvement. They divide it into two types: Marketing communication and post-purchase services.

Mogaji et al. (2020) argues that research on the topic of Artificial Intelligence introduction focus on the benefits of its introduction. Following the trend, this research would not be complete without listing the benefits and challenges of its adoption in business. The main benefit is its ability to provide important strategic information (Schrettenbrunnner, 2020). It provides more information about the customer, their preferences and purchase patter. The company uses it to offer a personalized service, resulting on increase customer satisfaction and loyalty (Ameen et al.,2021; Capatina et al.,2020; Costa et al., 2019; Davenport et al.,2020; Grandinetti,2020; Huang & Rust, 2021; Kiruthika & Khaddaj, 2017; Mogaji et al., 2020; Peyravi et al., 2020). It also helps the company to understand problems and opportunities (Capatina et al.,2020; Costa et al., 2019 Peyravi et al., 2020). Other benefit of this technology's introduction is the ability to reduce costs (Ameen et al.,2021; Costa et al.,2019; Grandinetti,2020; Kiruthika & Khaddaj, 2017; Overgoor et al, 2020; Peyravi et al., 2020): since it can improve accuracy (Overgoor et al, 2020; Peyravi et al., 2020), process data faster (Ameen et al., 2021), improve accuracy (Overgoor et al, 2020; Peyravi et al., 2020), while being scalable (Ping et al.,2019; Peyravi et al., 2020).

Artificial Intelligence allows companies to develop new capabilities: increases the agility (Kiruthika & Khaddaj, 2017; Schrettenbrunnner, 2020) and the flexibility (Ameen et al., 2021). Its forecasting ability allows companies to train business (Bruyn et al.,2020; Kiruthika & Khaddaj, 2017; Schrettenbrunnner, 2020). In service, increases the convenience: according to Ameen et al. (2021), it is due to the increase of service availability, its ability to provide real-time information to support customer journey, to proactively engage with customers, and to reach more than one customer simultaneously. This technology reduces wait times (Ping et al., 2019) and reduces HI efforts and helps them in their daily tasks (Costa et al., 2019), while reliving them to handle more complex issues (Ping et al., 2019). On the other hand, the main challenges are related with data, especially data collection that, according to Ameen et al. (2021), could make customers

uncomfortable. Insight (2020) believes that it is a shared process: customers allow companies to collect, storage and manage their data, but in exchange expect companies to use it well. According to this article data, is an asset and should be treated as so. To produce insightful and meaningful information, data needs to be carefully chosen and managed (Insight, 2020; Mogaji et al., 2020).

With the amounts of data collected we need to consider ethical aspects (Mesquita, 2017; Lobo, 2017)- its use to personalize the offer and target the customer can be a form of manipulation (Kiruthika & Khaddaj, 2017; Mogaji et al., 2020). It is important for customers to be aware that companies are using their data (Kiruthika & Khaddaj, 2017), and should consent to data collection and reassure that their information is anonymous and will not be sold (Kiruthika & Khaddaj, 2017; Mogaji et al., 2020).

Research also highlights the importance to have qualified personnel (Kiruthika & Khaddaj, 2017; Schrettenbrunner, 2020): companies must hire AI specialists and their employees need to understand how the system works. Kiruthika & Khaddaj (2017) advise companies to hire knowledgeable people to put the system in place, and companies should inform shareholders due to the risks in Artificial Intelligence implementation, especially the overhead costs increase. Mogaji et al. (2021) believes that the cost of investment is the main reason small companies might not be able to introduce it. Regarding this, Kiruthika & Khaddaj (2017) remind us that the cost of the investment is not only the cost of this technology, but also all the necessary components necessary for this technology to work, like Hardware, Software, etc..

The lack of “human” interaction, when companies use this technology to engage directly with the customer, might make them uncomfortable, resulting in a negative customer experience (Ameen et al., 2021). Customers have unreasonably high standards and expectations for this technology. According to Davenport et al. (2020), people need to manage their expectations about Artificial Intelligence. Managers cannot expect to see the effect of the introduction immediately (Insight, 2020). Despite Kiruthika & Khaddaj (2017) consider AI introduction as a source of competitive advantage, advise companies to find a way to avoid reaching the saturation point. Some researchers believe that the introduction of this technology could result in human replacement (Safarti, 2016). Eriksson et al. (2020) argues that HI better at activities that involve creativity, imagination and intuition. According to Grandinetti et al. (2020), in the “corporate reality” companies

use HI to fill the gaps in AI abilities, for example, considering that this technology cannot relate with the customers at an emotional level, companies use employees in Customer Service. Similarly, Davenport et al. (2020) believe that companies will not fully replace humans but will use Artificial Intelligence to augment HI abilities. For Hollebeek et al. (2021) the replacement depends on the tasks performed, while, in Peyravi et al. (2020)'s perspective, just AI can perform a task does not mean that it will.

Costa et al. (2019) highlights Artificial Intelligence's limitations when it comes to understanding human emotions, adding that it makes it less likely to fully replace humans in tasks involving a social skill, however, AI can replace humans in repetitive tasks (still requiring supervision). Similarly, according to Rivera Estrada & Sánchez Salazar (2016), when considering the possibility of human replacement, the first question to ask is what is necessary to perform it, then considering the answer make the decision. Concerning this, Huang & Rust (2021b) highlights the social implications, arguing that the standardization achieved by AI will result in the displacement of "unskilled" employees. According to these authors, if/when AI evolves to be truly emotional, this technology will become truly dominant in all levels of intelligence.

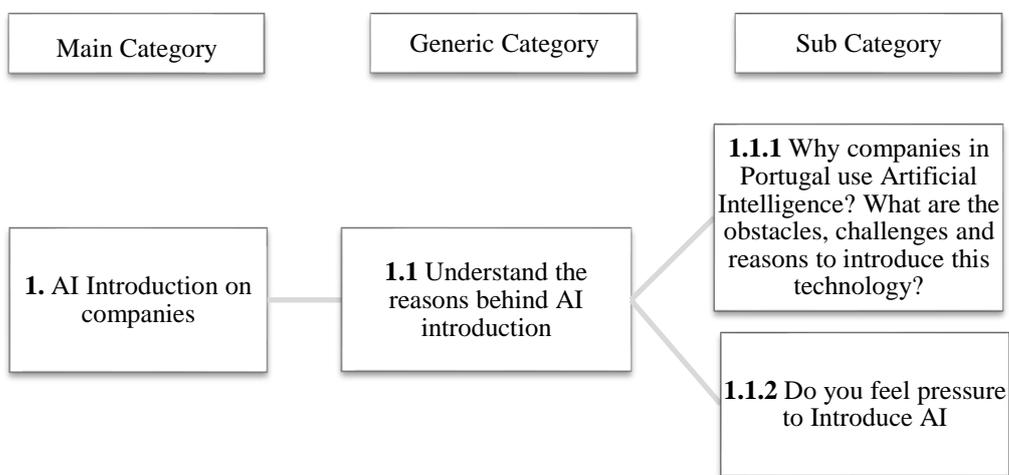
In short, although several international authors are, at this stage, conducting academic research seeking to understand the impacts of artificial intelligence on business, in Portugal, this theme has been mainly based on academic books and texts written by authors such as Tiago Ribeiro, José Reis, Eugénio Oliveira, Francisco Pereira, Amílcar Cardoso, Ernesto Costa, Luís Correia, Luís Reis or José Cascalho. Little scientific research in reference journals has been carried out in recent times, standing out the works of Pereira *et al.*, (forthcoming) or Lopes da Costa *et al.* (2019), although there is still a need to effectively understand the reasons behind AI introduction, such as, Why companies in Portugal use Artificial Intelligence? What are the obstacles, challenges and reasons to introduce this technology? Feel these companies some kind of pressure for the insertion of this same technology within their organizational boundaries?

These types of questions are important to understand in a context such as Portugal, because like in Portugal more than 90% of the European companies are SME's, and can be introduced here a gate for much more research in this area of study and type of companies, that allow, these same companies, to dilute the difficulty of coming to work with these new emerging technologies.

3. Methodology

To measure the extent of the introduction of Artificial Intelligence in companies located in Portugal, this article uses a qualitative approach – the content analysis of twenty-one interviews with professionals familiar with the theme. The following figure shows the categorization and codification of the corpus of the interviews used for qualitative analysis.

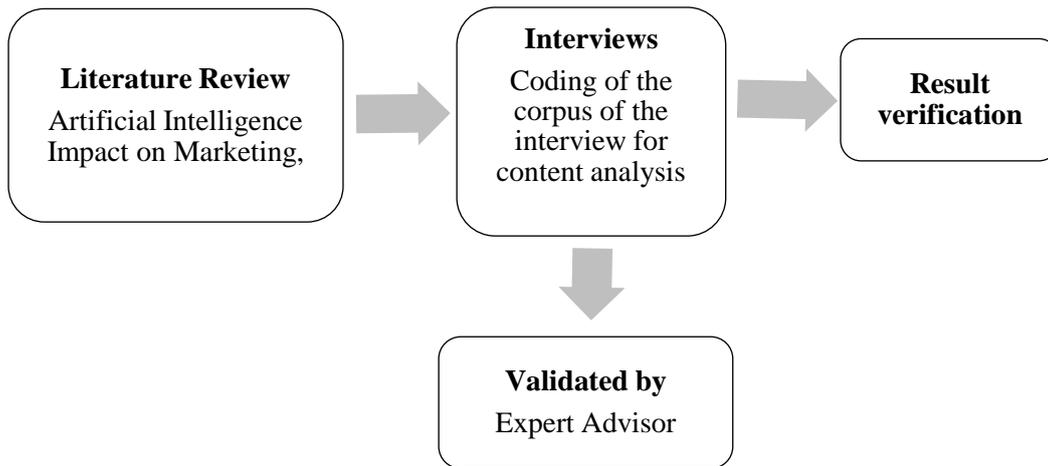
Figure 1- Categorization and codification of the interview's corpus



Source: Author's Elaboration

This research had four stages: 1- Literature Review and the processing of the information; 2- Information transference of the theoretical constructs to the field of observation, this stage is necessary to provide the highest level of confidence level of the results; 3- Data Collection; 4- Data Analysis of the information collected during the interviews, as illustrated in the figure bellow.

Figure 2 – Research Model



Source: Author's Elaboration

The table below exemplifies the relationship between the Literature Review, Research Questions and the Research Objectives.

Table 1- Literature Review, Research Questions and the Research Objectives Relationship

| Research Objectives | Research Questions | Research Technique | Literature Review |
|--|---|--|--|
| OBJ.1 Understand if companies in Portugal currently use AI | Why companies in Portugal use Artificial Intelligence? What are the obstacles, challenges, reasons to introduce, and the perception of this technology? | Content analysis from MaxQDA system (for qualitative analysis of interviews) | (Ameen et al., 2021), (Costa et al., 2019), (Grandinetti, 2020), (Mogaji et al., 2020), (Xu et al., 2020) |
| | Is there Pressure to Introduce this technology? | | (Ameen et al., 2021), (Mogaji et al., 2020), (Peyravi et al., 2020), (Xu et al., 2020), (Schrettenbrunner, 2020) |

Source: Author's Elaboration

To define the sample with define to main rules: 1 – work in an organisation that is located in Portugal; 2 – it is somehow engaged in marketing operations. We did not impose a certain seniority level, but we look for persons with more than 3 years of experience. The

interviews were mostly made online using a digital online platform because of timing and geographic limitations, but when never possible they were done face-to-face.

Of the twenty-one interviewees, nine were female (42,9%), and twelve were male (51,1%). When analysing the type of company, they work for, one worked for NGO (4,77%), three Multinational based in Portugal (14,29%), four National (19,04%), and thirteen Foreign-based multinationals (61,90%). Concerning their activity sector: one works at NGO (5%), one Market Studies agency (5%), one Insurance Company (5%), one Credit Union (5%), one Retailer (5%), three in Creative agencies (15%), four in the Pharmaceutical Industry (20%), four in Fast Moving Consumer Goods (20%), and four on Real Estate (20%).

4. Result Presentation and Discussion

4.1- Understand the reason for AI introduction in companies located in Portugal

Logically, when trying to understand the reasons behind AI introduction, the first question asked in the interview was: “Does the company you work for uses Artificial Intelligence?” Most interviewees (76,2%) answered affirmatively while the rest (23,8%) assert that the company (they work for) did not introduce this technology, as you can see in the table below.

Table 2- The Use of Artificial Intelligence

| Text | Generic Category | Sub-category | Number of times | Interviewees |
|------|------------------|--------------|-----------------|---|
| Yes | 1.1 | 1.1.1 | 16 | 3,5,6,7,8,9,10,11,12,14,16,17,18,19,20,21 |
| No | 1.1 | 1.1.1 | 5 | 1,2,4,13,15 |

Source: Author’s Elaboration

Interviewee 3 states that the use of Artificial Intelligence is recent; 7, 11 and 14 argue that its adoption is not transversal across the company, and its use depends on the project (meaning that is not continuous), being in accordance with Paiva & Prevedello (2017) advice to implement Artificial Intelligence gradually. Interviewees 2 and 11 believe that the introduction of AI in Portugal might be slower than in other markets, while 15 did not know if the company had introduced this technology in other markets.

According to Overgoor et al. (2019), there are three ways companies can introduce AI: to, from the square one, write the code on R or Python, use the scripts form programming

languages to help develop the software, or use Plug and Pay software’s tools to install it. However, the author did not contemplate the hypothesis of companies using it through platforms with AI-powered built-in tools, this is the way 3 and 10 use this technology. Interviewee 3 says that the company uses Microsoft Power BI. While, 10, considering this reason describes the use of Artificial Intelligence as “tamed”. They believe that most marketers are not aware of the use of this technology, adding that only by using social media, marketers are already in contact with AI.

The next objective is to understand why some companies did not adopt Artificial Intelligence and the challenges the rest faced when introducing this technology, meaning, although the objective is the same, this question was phrased differently: the interviewees that did not introduce this technology had to describe the obstacles, while the ones that did listed the major challenges of AI introduction. Because their answers were similar in content, the analysis and comparison with the Literature Review will follow the two tables.

Table 3- Reasons presented by interviewees to explain why companies have not introduce this technology

| Text | Generic Category | Sub-category | Number of times | Interviewees |
|--|------------------|--------------|-----------------|--------------|
| The company highly values the relationship with the customers | 1.1 | 1.1.1 | 5 | 1,2,4,13,15 |
| Did not feel the need to introduce it yet | 1.1 | 1.1.1 | 3 | 4,13,15 |
| Data collection issues | 1.1 | 1.1.1 | 3 | 1,2,4 |
| The investment cost | 1.1 | 1.1.1 | 3 | 1,2,15 |
| Company’s structure makes the approval of this technology an hard and long process- company’s structure is not ready for AI | 1.1 | 1.1.1 | 3 | 1,2,15 |
| Industry Related issues- highly regulated legal framework, must follow a highly limiting code of conduct. Marketing has a slower evolution in this industry, especially when it comes to communication techniques. This environment limits innovation. | 1.1 | 1.1.1 | 3 | 1,2,4 |

Source: Author’s Elaboration

All the ones that did not introduce (1, 2, 4, 13, and 15) indicate the relationship with the customer as the main factor, and state that the company is afraid that AI could damage it. This was the reason that led 4, 13 and 15 to say that “they did not feel the need to do (introduce) it”. Regarding this, 15 considers the tools the company uses (CforC and

Salesforce) are “powerful” enough to perform tasks, and their CRM is “very manual” (does not uses platforms like Microsoft dynamics). Despite not being in the company’s short or medium-term projects, 15 believes that “we are walking towards it (AI introduction)”, considering AI introduction as “essential” in the long-term.

Interviewees 1, 2, and 15 talked about the cost of investment and the company’s structure that makes harder to introduce this technology, since it would take time to obtain the required approvals and the its “structure is not AI ready”. Interviewee 1, 2 and 4 all state that their Industry Sector follows a limiting code of conduct, and is highly regulated. They added that, due legal constrains, that makes data collection increasingly hard. Interviewee 4 also mentioned that this environment restricts Innovation.

Table 4 - Main Challenges Faced in AI Introduction

| Text | Generic Category | Sub-category | Number of times | Interviewees |
|--|------------------|--------------|-----------------|-----------------------------|
| The cost of the investment | 1.1 | 1.1.1 | 10 | 3,5,7,8,9,11,12,16,18 20 |
| Loss of “human” connection with the customers | 1.1 | 1.1.1 | 4 | 3,8,10,19 |
| Lack of understanding surrounding this technology | 1.1 | 1.1.1 | 4 | 5,9,19,21 |
| Job Transformation | 1.1 | 1.1.1 | 3 | 3,10,16 |
| Data related issues- collection, privacy, security, amount and frequency | 1.1 | 1.1.1 | 3 | 5,10,16 |
| Technical difficulties- lack of personnel able to develop this type of mechanism | 1.1 | 1.1.1 | 3 | 6,16,17 |
| Senior management and other administrative bodies visions might not align with the adoption of this technology- managers might not understand the benefits | 1.1 | 1.1.1 | 3 | 5,7,9 |
| The company’s structure makes it less flexible- companies must change to introduce this technology | 1.1 | 1.1.1 | 3 | 11,17,20 |
| High expectations for this technology | 1.1 | 1.1.1 | 2 | 9,11 |
| Technology limitations- Artificial Intelligence has difficulties in understanding human emotion (humour, sarcasm, etc.) | 1.1 | 1.1.1 | 2 | 3,14 |
| Lack of variety in offers of AI tools (suppliers) | 1.1 | 1.1.1 | 1 | 5 |

Source: Author’s Elaboration

Looking at the answers of the interviewees that work with this technology, we can see that the majority of them (ten out of sixteen) talk about the cost of investment; in interviewee 3's opinion the cost is the main reason small companies are not introducing it yet. Kiruthika & Khaddaj (2017) argued the same, and highlighted that the cost of the investment is more than the cost of this technology, is the cost of hardware, software, storage solutions, etc.- elements that make AI efficient. Interviewees 2, 5, 11 and 18 say that companies find it difficult to prioritize the investment because the returns are not always immediate.

Interviewees 9 and 11 argue that companies perceive Artificial Intelligence as miraculous and with instantaneous results, adding that that is the result of their high expectations regarding this technology. About this matter, Davenport et al. (2020) states that people should manage their expectations and Insight (2020) and Overgoor et al. (2019) declare that the introduction of Artificial Intelligence might not produce immediate effects.

Interviewees 3, 8, 10, and 12 named the "loss of human connection" as a challenge. The companies are afraid that the introduction of this technology would negatively affect the customer experience, like Ameen et al. (2021) predicted. 10 highlighted the human necessity to maintain social relationships. 3 and 14 mention this technology's limitations at recognizing emotions. Grandinetti (2020) advises against the use of Artificial Intelligence to engage with customers- it cannot to relate to them. Eriksson et al. (2020) highlight HI's superiority when it comes to activities that involve imagination, creativity, or innovation. Costa et al. (2019) finds it less likely for AI to replace HI in tasks that involve social interactions.

Interviewees 3, 10 and 16 mentioned the Job Transformations. 3 said that AI alters employees' routines, when it automates the tasks they used to perform, they have to evolve. Huang and Rust (2021b) wonders where the "unskilled employees" go when this technology replaces it and about the social implications. According to interviewee 10, "human employees are at the system's mercy", to illustrate their point of view, they explained that there are two types of processes in companies: non-cognitive and cognitive, and this last category subdivides themselves in routine and non-routine. The last one is the harder to automate. They believe that eventually AI will replace human employees. Interviewee 16 believes that the introduction of this technology implies the release human resources (as a trade-off).

According to Eriksson et al. (2020), companies must assess if there is anything this technology cannot do. Huang and Rust (2021b) believe that machines will become dominant in all aspects, if they evolve to truly understand emotions. While Peyravi et al. (2020) remind us that just because AI can perform tasks does not mean that it will replace human employees.

Regarding Data collection issues: interviewee 5 mentioned their difficulty in storing data in platforms, 10 highlights that the use of this technology might not be suitable for companies that do not have enough data and the frequency needed to make Artificial Intelligence efficient – when comparing this statement to the literature review, Insight (2020) and Mogaji et al. (2020) argue that, when that is the case the company does not have what is necessary to differentiate the service -, and 16 talks about data security and ethics. According to Insight (2020), data is an asset and should be treated as so. Data management is an important step to deliver customers insightful and meaningful information (Insight, 2020; Mogaji et al., 2020). Research also highlights the necessity to inform the customer that their data is being collected (Kiruthika & Khaddaj, 2017; Mogaji et al., 2020).

About technological difficulties: 6 highlighted the lack of “skilled people” able to develop AI mechanisms, 16 mentioned the necessity to train people to have the necessary skill set, and 17 stated the reasons above. These statements are in accordance with the Literature Review, since Kiruthika & Khaddaj (2017) also pointed the need to the need to hire specialists, to train employees to know how to work with this technology.

According to interviewees 5, 7, 9, 19, and 21, the main difficulty is the lack of understanding, especially when it comes from the management- Overgoor et al. (2019) and Quan & Sanderson (2018) argue that for AI introduction to be successful managers must understand this technology. Following the observation of the main challenges/obstacles to the adoption of Artificial Intelligence, the interviewees described the main reasons to introduce this technology, as seen in the table below.

Table 5 - Main reasons to introduce Artificial Intelligence

| Text | Generic Category | Sub-category | Number of times | Interviewees |
|------|------------------|--------------|-----------------|--------------|
|------|------------------|--------------|-----------------|--------------|

| | | | | |
|---|-----|-------|----|----------------------------------|
| Ability to personalize the communication with the customer based on their preferences | 1.1 | 1.1.1 | 13 | 1,2,4,5,7,9,10,11,14,16,18,19,21 |
| Provide important strategic information | 1.1 | 1.1.1 | 11 | 1,3,4,5,8,10,14,15,16,20,21 |
| Increase efficiency | 1.1 | 1.1.1 | 9 | 2,3,9,11,13,14,16,17,21 |
| Improve data collection and analysis | 1.1 | 1.1.1 | 7 | 2,3,6,7,12,14,15 |
| Makes the decision process faster | 1.1 | 1.1.1 | 5 | 3,4,11,13,14 |
| Increase flexibility and adaptability | 1.1 | 1.1.1 | 3 | 11,14,21 |
| Increases productivity | 1.1 | 1.1.1 | 3 | 3,16,21 |
| Cost economy | 1.1 | 1.1.1 | 3 | 3,13,20 |
| Ability to connect the departments within the company | 1.1 | 1.1.1 | 2 | 1,3 |
| Increase revenue | 1.1 | 1.1.1 | 1 | 17 |
| Allow companies to develop agility | 1.1 | 1.1.1 | 1 | 20 |

Source: Author's Elaboration

Its Ability to personalize the communication with the customer based on their preferences was the reason to introduce Artificial Intelligence said with more frequency (61,9%). Most of the interviewees said that the system allows companies to understand the customer (1,5,7,11), the information collected by the system helps the company to personalize marketing activities- especially the communication (1,10,11) and by tailoring the offer companies improve the service quality, customer experience and customer service, and increase customer engagement (2,16,18,21). In interviewee 9's opinion, without the use of this technology it would not be possible to personalize the campaigns at an individual level. 11 adds that the personalization ability makes the customer closer to the company.

The answers are in conformity with the literature review: According to Insight (2020), customers desire a more personalized service and if companies are not able to provide it, they will look for alternatives in competitors. Mogaji et al. (2020) argues that Artificial Intelligence helps the company to understand their customers and how to effectively target them with personalized content. Similarly, Capatina et al. (2020) and Mogaji et al. (2020) both highlight this technology's ability to personalize communication. According to Ameen et al. (2021), the levels of personalization AI achieves can increase the interest in shopping and increase the customer satisfaction.

AI's ability to provide important strategic information was the second most frequent answer, highlighted by 52,4% of the interviewees (1, 3, 4, 5, 8, 10, 14, 15,16, 20, and 21). Interviewee 1 states that the system would produce “better and more accurate information”, 3 and 10 highlight its strategic importance, 8 and 16 states that it helps to create new business models, and 5 considers it to be a great tool to create new commercial approaches.

Interviewee 21 believes that the information allows the company adapt to the customer needs and helps to predict and prepare themselves for changes in demand. 1, 3, 4, 11, 13, 14 and 16 state that the use of AI helps companies to make “fast” decisions. Interviewee 3 adds that AI can automatically collect, process, and analyze the data, allowing managers to have access to real-time information about performance indicators, providing a way to compare it with last year performance and assess if companies can achieve the goals set, and adapt the strategy if necessary and 1 argues that it allows the company to measure the results faster.

Literature review offers similar arguments: Costa et al. (2019) highlights the fact that in many companies have adopted Artificial Intelligence, and consider it important to the decision making process. According to Peyravi et al. (2020), companies introduce it to have more efficient strategies create breakthroughs (like 3 and 10 said). Davenport et al. (2020) states that AI influences strategies business models, sales processes, and customer service (like 8, 5 and 16 mentioned). Capatina et al. (2020) states that AI allows the company to monitor and alter the strategy to result in competitive advantages (like 1 and 3).

Nine of the interviewees (2, 3, 9, 11, 13, 14, 16, 17, and 21) mentioned the increase in efficiency, and 3 of them (3, 16, and 21) mention the increase in productivity. Interviewee 2 believes that AI efficiency comes from its learning ability and 9 states that AI introduction allows the company to fulfil the value proposition and allows the company to have a coherent message despite the geographic context. 14, 17 and 21 did not elaborate. 11 stated that AI leads to reduce or even eliminate the subjective aspect of decision-making. 13 adds that companies should use technologies to automate and improve the decision-making process.

3, 11, 13 and 16's argument, that its introduction leads to the increase in the efficiency of the strategy, is explained above. Grandinetti (2020) highlights AI's ability to learn and improve efficiency (like 2 said). And Peyravi et al. (2020) believe that the introduction of this technology leads to the increase of productivity (mentioned by 3, 16, and 21).

Seven of the interviewees, 2, 3, 6, 7, 12, 14, and 15, brought up data collection. Interviewees 2, 7, 12, 14 and 15 state that AI introduction improves data analysis and provides quality information, 3 uses it to collect, aggregate, process data, and create automatic reports. 6 argues that because the company manages large amounts of data, the company business model favours the use of technologies that make data management easier and more efficient.

According to Peyravi et al (2020), data collection is extremely important. Huang and Rust (2021) and Mogaji et al. (2021) state AI facilitates data collection through the use of chatbots, e-mail, social media, websites, location-based advertisements and if customers use connected devices, after data collection, Artificial Intelligence helps companies to leverage the information and create value.

Interviewees 3, 13 and 20 declare Cost economy as a reason to introduce, however only 3 explains further. They say that cost reduction happens because of routine tasks automation that reduces human error and "frees" HI employees to perform other tasks. Machines are faster, cheaper, and more efficient than humans (Overgoor et al., 2019). Grandinetti (2020) believes that cost reduction is the main factor for AI introduction and diffusion. Costa et al. (2019) and Kiruthika & Khaddaj (2017) believe that AI introduction results in costs savings due to the knowledge the system produces. But only one person mentioned (17) the increase of revenues.

The increase of flexibility and adaptability (highlighted by 11, 14 and 21) and the agility development (pointed out by 20) are the result of the system ability to learn. Schrettenbrunner (2020) highlights the necessity to introduce self-learning systems since it would increase companies' agility and increase innovation. Interviewees 1 and 3 state that Artificial Intelligence connects the departments within the company through the reports it produces. According Kiruthika & Khaddaj (2017), Artificial Intelligence can interlink the departments giving access to reports with various data dimension, providing competitive advantages.

After understanding the reasons for introducing this technology, provided by the interviewees, it is necessary to understand how the interviewees perceive Artificial Intelligence, and if it influences their willingness to introduce this technology. So the interviewees responded if they consider this technology to be a competitive advantage, their answers are in the table below.

Table 6- Assessing if the interviewees consider AI to be a competitive advantage

| Text | Generic Category | Sub-category | Number of times | Interviewees |
|------|------------------|--------------|-----------------|---|
| Yes | 1.1 | 1.1.1 | 20 | 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18 19,20 |
| No | 1.1 | 1.1.1 | 1 | 21 |

Source: Author's Elaboration

As illustrated in the table 95% of the interviewees consider Artificial Intelligence as a competitive advantage, only one of them does not. Even though interviewee 21 considers important for companies to have in the near future the ability to accurately predict “the future” and constantly learn from performing tasks as a “superpower”, considering that this technology offers those aspects, they do not consider this technology as a competitive advantage. For them, Artificial Intelligence is nothing but a tool. They “doubt that it can be more than that”.

Most of the interviewees (1, 3, 5, 6, 7, 9, 11, 12, 14, 18, 19 and 20) consider this technology as a competitive advantage due its strategy benefits. 5, 6, 11, 14, 17 and 18 highlight the efficiency improve, 11 points out the quality and quantity AI systems produce, and 13, the reduction of human error. 4, 15 and 20 distinguish between companies that use AI from the ones that don't- similarly 4 and 5 argue that the use of AI is a way to differentiate themselves from the competitors (5 does it mentioning the levels of personalization achieved). According to Costa et al. (2019)'s research findings, Artificial Intelligence is a competitive advantage and differentiates the companies that use it from the ones that do not.

20 says that Artificial Intelligence allows companies to have a consistent data history, which according to them, “is the best advantage” a company can have. 19 argues that companies feel pressure to go digital, especially now considering the Covid-19 pandemic. 16 says that AI is a competitive advantage in many ways (“it depends the reason and how companies chose to use it”). Interviewees 10 and 13, despite considering Artificial

Intelligence as a competitive advantage, add that it depends: for interviewee 10 depends on the industry, while for 13 it relies on the amounts of data and the frequency in which companies create data. However, 17 states that AI introduction is a competitive advantage in any businesses.

Peyravi et al. (2020) believe that one of the main reasons companies introduce this technology is to remain competitive- allows companies to use the real-time information to adjust the strategy, and provide personalized customer service. Capatina et al. (2020) also mention its ability to provide real-time information as competitive advantage, adding that it can monitor the Marketing Mix, making sure it is appropriate for the customers, considering their buying stage.

Like previously stated, Kiruthika & Khaddaj (2017) consider it a competitive advantage due to its ability to interlinking the departments. Bruyn et al. (2020) also considers this technology to be a competitive advantage because allows the company to have access to large amounts of data. According to Mogaji et al. (2020), companies are changing their view about this technology that no longer is just a mean to reduce costs but a tool to increase competitiveness.

4.1- Understand if companies feel pressure to introduce this technology

After understanding whether the companies introduced Artificial Intelligence, the reasons to introduce this technology, the challenges/obstacles they face and how interviewees perceive it, this article wants to comprehend if companies see the adoption of this technology as necessary, do they feel pressure to do it? Unlike the results of Costa et al. (2019)’s research, not all interviewees say that the use of AI tools is a clear advantage, and 1, 2, 4, 13, 15 do not consider the introduction of this technology as a priority.

Table 7 - Assessing if companies feel pressure to introduce this technology

| Text | Generic Category | Sub-category | Number of times | Interviewees |
|------|------------------|--------------|-----------------|-----------------------------------|
| Yes | 1.1 | 1.1.2 | 13 | 2,3,5,7,8,9,11,14,17,18, 19,20,21 |
| No | 1.1 | 1.1.2 | 8 | 1,4,6,10,12,13,15,16 |

Source: Author’s Elaboration

Even though the Literature review discusses the reasons to introduce this technology and its effects on business, it does not address directly if companies feel/felt pressure to

introduce this technology. This research question emerged looking at the description of this technology's abilities- considering that it provides competitive advantages (Mogaji et al., 2020), increases organizational performance (Costa et al., 2019; Dias et al., 2021), helps companies to achieve their goals (Peyravi et al., 2020), helps managing customer expectations, respond to shorter strategy cycles (Ameen et al., 2021), and increases precision and accuracy (Mogaji et al., 2021), is it safe to consider the introduction of Artificial Intelligence as essential? Schrettenbrunnner (2020) considers it necessary to survive the complex data space and Peyravi et al. (2020) believe AI introduction became essential for Marketing activities.

How is this translated to the practice? As illustrated above, most of the interviewees (62%) feel/felt pressure to introduce Artificial Intelligence. The rest, 38%, offered different reasons to explain why they do not feel pressure: 1, despite finding it a "great" source of competitive advantage, the sector they work for makes it challenging to introduce this technology, so they do not feel pressure to introduce Artificial Intelligence. 4 and 13 say that in their sectors there is no pressure. 12 does not believe that "pressure" is the correct term to describe it, they, however, acknowledges a sense of urgency to deliver a better customer experience, and believe AI could be the solution.

Interviewee 6 when asked, said: "Not at all", adding that Artificial Intelligence is a tool to help managers so, the decision to implement and the pressure to introduce this technology depends on the manager. They also believe that its adoption depends on the sector, stating: "its introduction might not make sense in some sectors", the same with the pressure ("some sectors feel more than others"). According to them, this was not the case in the company. Despite stating that they do not feel pressure, they state that a "good" competitor must use this technology, and in their opinion "all the Top organizations" use this technology.

In interviewee's 10 opinion, in the majority of the Portuguese business system, estimating it around ninety-nine percent, there is no pressure; only in this system's elite (fintechs, start-ups, and "sophisticated" retail) feel it in large amounts. To them, this elite and in relatively large-scale organizations this "theme" is inevitable. Despite considering that the companies that did not introduce Artificial will not survive, they claim that there are companies that do not know what this technology is and will not know. When further asked about the previous comment, interviewee 10 compares companies to people and

add that “someone is not aware that they are dying until they do”, especially considering the rate markets change. In their opinion, is a matter of time until Artificial Intelligence is able to do everything.

Interviewee 15 believes that the pressure felt depends on the market and the customers, according to them, Portuguese customers probability do not value personalization and do not feel the need to change, and put the hypothesis that more developed markets feel more pressure. According to interviewee 16, the pressure a company feels depends on the size of the business, the industry, the volume of data, and the objectives. They add that most businesses do not need to introduce AI to improve their results. Interviewee 3 also believes that whether companies feel pressure, and the amount of pressure depend on the industry, nevertheless they also state that there is pressure to introduce Artificial Intelligence, mostly because of the market’s fast evolution, adding that the more tools a company has like this technology the more competitive it will be.

Interviewee 5 states that Artificial Intelligence is a part of a “new” set of tools companies should have, highlighting the necessity to develop new commercial approaches. They feel AI is becoming increasingly necessary. 7 says that this technology helps problem-solving and aids the relationship with the customer. Interviewee 8 states that, not only the strategy the company uses (omnichannel strategy) demands for new products and provides lots of information that can help business to understand their customers, but also, they added that business should adapt to the (“very fast”) changes in the environment and the market. 9 states AI allows the company to be “ahead of the competitors”.

Interviewee 11 accredits the pressure to the “reality of the market”, and the need to guarantee that the company remains competitive (“in the way it approaches the market and the creation of products and insights”). The need to “stay relevant, current and adaptable” is not only to be ahead of competitors that deploy similar methods and technologies and the customers that are more knowledgeable and expect a more efficient and more personalized service. They add that the pressure “does not come from management/leadership” but as a way “to deal with the increasing customer expectations”. Because the competition tends to increase, companies should introduce tools that allow them to have competitive advantage. They stated: “If companies do not feel pressure, they should. (...) This situation probably happens because senior management is not aware of the need”.

Interviewees 2 and 14 also say that the pressure comes from the market and the customer. Considering the increase of competition and what competitors are able to offer both find it important to introduce this technology. 17 says that although there is pressure, that some companies do not have the foundations necessary (“especially when it comes to data structure and architecture”) to introduce this technology. According to interviewee 18, “nowadays, everything is about Artificial Intelligence”. They add that the pressure to introduce this technology emerges from the need to automate processes and to improve services. 20 says AI introduction is a “global trend”, mostly because “how practical it is”.

Interviewee 19 believes that the “market and competitors force the digitalization and the use of Artificial Intelligence”, and it becomes necessary “to survive competition”. 21 does not know if there is pressure to introduce this technology per se, but declare that there is pressure “from the market” to adopt more convenient and more personalized solutions. It becomes necessary because “there are others who do it”. They also stated that it also “comes from the will to be more efficient”.

5. Conclusion

This research’s main objective was to understand whether companies located in Portugal are introducing Artificial Intelligence, mainly in marketing operations, and the reasons behind it and the results of this decision. To this end, a Literature Review about the introduction of Artificial Intelligence was carried out. Subsequently, the following research questions came up: Why companies in Portugal use Artificial Intelligence? What are the obstacles, challenges, reasons to introduce, and the perception of this technology? Is there Pressure to introduce this technology?

To assess it, this article performs a content analysis of twenty-one interviews with professionals familiar with the theme, across different sectors: one Credit union, one NGO, one Market Studies Agency, one Insurance Company, one Retailer, three Creativity Agencies, four Pharmaceuticals, four Real Estate, five Fast Moving Consumer Goods.

The results showed that, in our sample, most interviewees (76,2%) works in a company that adopted Artificial Intelligence. Drilling down by industry sector it was observed that in the Fast-Moving Consumer Goods only one of the organisations had not introduce it. In the Pharmaceutical Industry, half of the organisations in our samples uses Artificial

Intelligence. In Real Estate organisations studied, 100% adopted AI, while only one creativity agency uses this technology. Regarding the rest of the Sectors that were considered in our samples, only the Market Studies did not deploy Artificial Intelligence.

The majority of the remaining 23, 8%, three out of five interviewees did not feel the need to introduce Artificial Intelligence yet. And when questioned about the biggest obstacle for its introduction is how much the company values the relationship with the customer and the fear that Artificial Intelligence could jeopardize it. To compare if 76,2% of the interviewees, the ones that did introduce Artificial Intelligence, overcame the obstacles mentioned, were asked to describe the main difficulties in AI adoption.

The reasons that overlap are: the cost of the investment, mentioned by fifteen out of twenty-one, the effect on the relationship with the customer, highlighted by nine, and data related issues- data collection, the amount, privacy, and security- named by six. Interviewees 5, 7 and 9 believe that the main impediment to the introduction of Artificial Intelligence is when the senior management does not understand the benefits of this technology and interviewees 5, 9, 19, and 21 also point out the lack of knowledge surrounding AI.

In contrast the main reason presented for its introduction was the degree of personalization achieved, mentioned by thirteen interviewees, and the ability to provide important strategic information, pointed out by eleven out of the twenty-one interviewees. When investigating the interviewees' perception of Artificial Intelligence, only one did not consider it as a competitive advantage, interviewee 21. Despite using this technology and affirming that there is pressure to introduce this technology, this interviewee, sees AI as "a tool and nothing more". The remaining 95% considers it as a competitive advantage, mostly because its strategic benefits (highlighted 1, 3, 5, 6, 7, 9, 11, 12, 14, 18, 19 and 20) and the increase in efficiency (presented by 5, 6, 11, 14, 17 and 18).

Some answers to the last question were surprising, for example, interviewee 6 despite working with this technology, seeing it as a competitive advantage, and stating that "a good competitor must use this technology. (...) and all of the Top organizations use it", does not feel pressure "at all". Interviewee 10 argues that "probably 99% of the Portuguese business system does not and will not feel pressure". When asked about the survival of the companies that "do not and will not know what this technology is", the

interviewee compared companies with people, arguing that: “People are not aware that they are dying until they do”.

This article contributes for the development of the discussion of the state of the art surrounding the theme of Artificial Intelligence’s introduction on the marketing business context, addressing the main challenges, benefits and the potential effects on performance and competitiveness. In this regard, this research contributes to the development of the business field in the following two ways: a) framing this research in an analysis of different perspectives and definitions about the introduction of Artificial Intelligence in companies; b) observe the extent of AI introduction in companies located in Portugal, while researching the benefits and challenges of its introduction, how it professionals perceive this technology, and the risks companies might face if choose to not introduce it. Thus, allowing the conceptualization of new questions for the exploration of this theme.

Firstly, it is essential to keep in mind that the findings presented in this research are the result of the inherent limitations of a small sample (in both interviews and the company’s sectors), so there is no possibility to generalize the obtained results for other contexts and samples. It is important to note that even tough, this research produced some findings that are in conformity with the theory exposed in the literature review, it is only an exploratory study.

It is important to carry out in-depth research that analyses and characterizes the theme in detail, to permit the identification of the knowledge required to understand new marketing applications. It would be enthralling to speak with more professionals in different industry sectors, collecting and analysing more data to have a deeper understanding of this theme.

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