LAB University of Applied Sciences

AI applied to SME marketing

Analysis and tools

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Abstract

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Abstract

In this thesis an investigation is carried out about the potential of artificial intelligence to improve the marketing efficiency of small and medium enterprises. The main objective is to find opportunities where the integration of AI leads to a competitive advantage for the company that carries it out.

Both qualitative and quantitative research methods have been used. Primary and secondary information has also been used. The primary information comes from two types of sources, a survey intended to observe people's opinion regarding the adoption of AI in business processes and two interviews conducted by the author with two business owners with the aim of finding processes that can be automated or implemented with artificial intelligence. The research contains a situational analysis of artificial intelligence positioning it in the focus of the research using PEST and SWOT analysis.

An analysis of 4 applications that artificial intelligence can bring to SMEs is carried out and in each of these applications the advantages and possible disadvantages are evaluated and a tool is presented with the facilities that it is capable of providing.

From the data obtained, the author draws some conclusions after his analysis. Young students tend to have more experiences with artificial intelligence, and they also tend to be positive, which can be a decisive change when these students enter the working world.

The main conclusion is that there are tools capable of boosting the efficiency of small and medium-sized companies thanks to their technology. Although it is an integration that must be done with a previous work of recognition of the tasks to be automated and improve to meet the specific needs.

Keywords

Artificial intelligence, SME’s, marketing, tools

1. Introduction

1.1 Research Background

According to Castells (2013), for more than 50 years, the technological world has been characterized by the growth of the Internet, which has developed in several ways, among others it has managed to facilitate access to existing information, and has also allowed the permanent connection between users. This connection between the growth of the internet and its users unites them through their daily activities such as sending emails, checking the weather or communicating via social networks.

The connection between consumers and the evolution of technologies is strengthened day by day due to the use of these technologies by companies, which try to make the most of their economic, human, technological and intellectual resources in order to maximize their profits and offer a better service to their customers. Therefore, nowadays there is a "technological race" in which companies compete among themselves to make the most of the novelties offered by the Internet world. (Hippel 2011, 27-30).

Larger companies were the first to explore the potential of AI, and today some of them have a competitive advantage over their competitors due to their early investment in this innovative field (Sundararajan, S. 2022, 42-44).

However, not all companies have the investment capacity of the largest companies in the market, especially when it comes to something such as artificial intelligence, since in many cases the investment in this type of innovative software generates uncertainty and is not implemented due to its high risk. This is why smaller companies have more difficulties when experimenting with artificial intelligence, both economically and in terms of knowledge, because it is a complex subject that to be exploited correctly, requires a minimum level of training on the part of the people in charge of interacting with the artificial intelligence tools. (Sundararajan, S. 2022, 42-44).

Target of the research

The target of the research will be small and medium-sized companies in Spain. In 2022, 41.2% of large companies used AI, compared to 20% of small and medium-sized companies (ItUser 2024).

Specific focus of the research

The focus of the research will be to explore different tools based on artificial intelligence. The research aims to discover the marketing problems faced by small and medium-sized Spanish companies, as well as improvements in the commercial area that they could experience by integrating AI in their decision-making processes. Possible best solutions to solve such problems will be explored, including how to combine and use the resources that, once integrated, can facilitate and optimize decision-making only in marketing or commercial area.

Relevance of the research

The relevance of the study lies in its ability to improve the competitiveness and efficiency of SMEs through the use of artificial intelligence in marketing decision making. By investigating how smaller companies can leverage this technology, the study offers important insights to drive business growth or innovation. Given the growing interest in AI globally, understanding its application in SMEs is crucial to ensure their competitiveness in an ever-changing business environment.

1.2 Thesis objectives, research questions, and limitations

The main objective of this thesis will be to find opportunities that can be exploited by small and medium size companies to improve the efficiency of their work, in addition to providing a general understanding of how AI might help in marketing tasks. Consequently, this means they could offer a better service to their customers, have more time to perform other tasks, or make better decisions to increase their income.

The aforementioned opportunities will be based on the innovations and benefits offered today by artificial intelligence. Within these benefits there are several limitations both at the ethical and moral level as well as at the level of privacy and misuse of data.

Research questions

A necessary step for a good theoretical development is the formulation of well-founded research questions. It is very important to formulate research questions, as the subsequent research will focus on how to solve these questions in the most optimal way. In fact, it may happen that the questions are more relevant than the answers as they are able to start an intellectual reflection. Following this criterion, the main research question is going to be formulated from innovation with the intention that subsequent efforts will move away from mediocre research and manage to provide useful and relevant information. (Alvesson & Sandberg 2013, 1)

The main qualifier for a research question is that it is capable of producing knowledge with the potential to make a significant theoretical contribution to the research field. There are two forms of theoretical contribution according to Alvesson & Sandberg (2013 ,12) which are firstly, improving existing knowledge but extending it in some way, and secondly, concluding with a more innovative output by providing an alternative point of view.

As for the sub research questions, these are questions related to the main question, but aim to narrow the field of study and further explore the main aspect of the research by providing extra knowledge that will help to answer the main question. In addition, they will also be vital to both the direction of the research and the limitations it will face.

The main research question to achieve the objective of this study will be the following:

- How can AI help medium and small businesses become more efficient and competitive by integrating it into marketing?

From this main question should emerge the sub research questions that as mentioned above serve to concretize the field of study and provide a more adjusted direction to the research.

- What are some of the problems that AI can solve more efficiently than humans in marketing area?
- What are the most interesting applications based on Artificial Intelligence for SME's?
- How can a small-size company integrate AI solutions in their marketing strategy?

Limitations

In this case, the study will concentrate on small and medium-sized companies, i.e., companies with between 1 and 250 employees.

The research will focus on companies with fewer financial resources. In turn, also for those with fewer technical resources, i.e., the state of implementation of AI in their processes is at an early stage or is not yet implemented. The reason for this selection is that larger companies have more means to exploit these tools, both financially and in terms of trained personnel, so the research will not be useful for this type of company (Sundararajan, S. 2022, 42-44).

The specific area on which the study will focus is the commercial and marketing area of the companies; that is, the other commercial areas of production, management, administration and accounting will be left out of the field of study.

Another limitation lies in the potential companies that could benefit from this research, as even in cases where artificial intelligence is not implemented at present, the companies must have a certain technological infrastructure in their processes in addition to being familiar with the digitization of these processes. This limitation is obvious because otherwise it would be impossible to integrate AI into their business activities.

As for the geographical limitation of the study, it is limited to the country of Spain because the author of the thesis is of Spanish nationality and has work experience in that country. In addition, once the academic year is over, he will return to his country of origin to begin his working career, therefore, the application of the knowledge acquired will be more feasible, thus limiting the geographical territory.

1.3 Theoretical framework

To analyze such technological environment in small and medium enterprises we must make use of the theory related to artificial intelligence that will be in charge of providing the possible solutions. Therefore, the evolution of this technology until today will be explained in addition to relevant aspects such as limitations and its relationship with the business world.

As the focus of the study will be specifically in the field of marketing-related decision making, this concept will be defined through the theory provided by Philip Kotler in his book Principles of Marketing published in 2013.

From the economic point of view, an analysis will be carried out in which, instead of placing a company in the focus of the analysis, artificial intelligence will be used as a tool. It will be related to its macro environment, the political, economic, legal, social, and technological aspects that affect its growth (PESTEL). The author will also carry out a SWOT analysis in which the strengths, weaknesses, threats and opportunities of AI will be identified.

1.4 Research methodology and data collection

Research approaches, as defined by Kankam (2020, 26), are the general philosophy used by researchers in their studies, with the choice of approach influenced by the nature of the topic. These approaches can be qualitative, quantitative, or a combination of both. The

choice of research methodology is critical and should be in line with the type of research, which can dictate the appropriate research methodologies and the methods of data collection to be used. In this respect, to ensure the achievement of these overall objectives of the study, it becomes important that the method of data collection is found to provide with the required information (Opoku, et al. 2016).

Research methodology (Figure 1) is a systematic approach to problem-solving, involving a series of steps and the use of various procedures (Jagdale 2019, 6). It is essential for researchers to identify the most appropriate methods and techniques for their specific research problem, and to understand the assumptions and criteria underlying these choices.

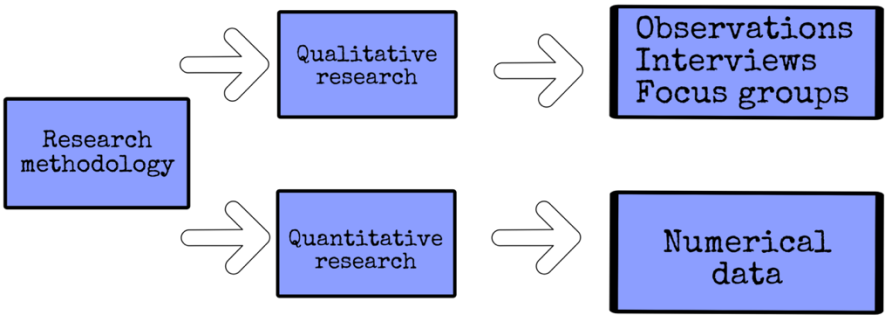

Figure 1. Types of research methodology

The purpose of this part of the methodology is to describe the nature of the research design and the processes that will be involved in both the collection and analysis of these data. This explanation should tell the reader whether the design is exploratory or conclusive. In addition, the nature of the information to be obtained - primary or secondary - should also be defined. (Andersen 2011, 5, 56-75).

According to Aspers & Corte (2021) qualitative research is an inquiry into the quality of activities, relations, issues, means, materials, or instruments in a given situation or problem; it aims at the fullest and most detailed picture of the problem. It seeks to scrutinize a problem or activity in the most detailed way possible, standing as a whole entity.

Quantitative research is a systematic method focused on collecting and analyzing quantifiable data, using advanced statistical techniques to validate hypotheses and generate generalizable conclusions, especially in fields such as psychology and economics. Through structured surveys and large sample sizes, this approach quantifies variables and patterns, providing a solid basis for decision and policy making. (Jain 2023)

According to Tariq (2013) they are two different research methods by nature, although not for this reason they have to be applied separately. Together they bring a more complete

knowledge to the research since they address different points of view and come from information of different natures which enriches the research.

The two methods previously explained will be combined throughout the study. As for the qualitative research method, data of a non-numerical nature will be collected through interviews with certain individuals characterized as being able to be potential users of artificial intelligence applied to their businesses in the future. The objective of these interviews will be to obtain new subjective insights that will be contrasted with the interviewer's knowledge with the ultimate goal of truly understanding the needs of the people who may benefit from this research in the future. The design of this part of the research will be exploratory.

As for the quantitative research method, an online survey will be used to collect data. The main function of this survey is to collect data about the perception of AI applied to business among people who are heading to the working world or just starting in it. This will then be analyzed by the author to draw conclusions. The sample size should be around 50 people and the form of the survey will be online due to its flexibility and possibility of increasing its scope.

Regarding the collection of data (Figure 2) or the origin of the sources, there are two types of data: primary, which is characterized by the contribution of first-hand evidence, i.e. it contains information that has been published for the first time and has not been filtered or evaluated by anyone else. This data arises from previous research of creative origin (Maione 2023).

On the other hand, there is the secondary data, usually available in the form of reports and documents, is that which has been obtained by someone external to this study therefore with a different purpose than the primary and can be reanalyzed data to respond to an independent investigation. This one is characterized by the fact that it is available to everyone (Corti 2004).

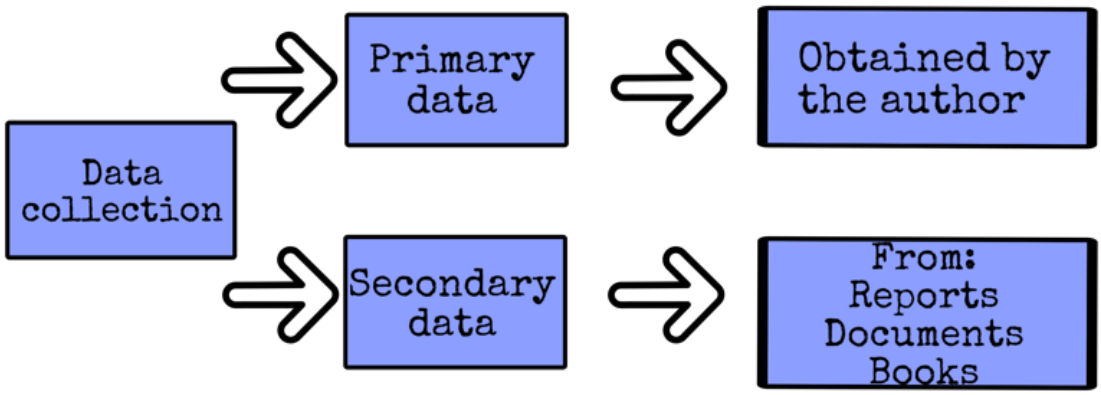

Figure 2. Types of data collection

1.5 Structure of the thesis

This thesis will be divided into 8 parts (Figure 3).

First, there is an introduction, with the aim to provide the reader with knowledge about the background of the thesis. The introduction itself is divided into 5 parts. Throughout it the main topic of the research is presented as well as its context. The objectives and key research questions are also presented in this introduction. Finally, the research methodology and data collection are discussed.

The second chapter provides more concrete knowledge regarding the theoretical framework of artificial intelligence. It will explain from a non-technical point of view how AI technology works as well as related aspects such as its history, evolution or limitations.

The third chapter is dedicated to providing the knowledge corresponding to the concept of marketing. It will explain the meaning of the concept and its evolution.

Chapter 4 will provide an economic analysis of artificial intelligence, using the PESTEL and SWOT tools to understand the macro-environment of AI as well as its opportunities, strengths, threats and weaknesses.

Chapter 5 will explain to the reader the different types of AI-based tools that exist and how they can improve efficiency in the field of marketing and decision making.

As for the more in-depth study, Chapter 6 will present relevant real-life problems which will have been obtained through surveys of small business owners and self-employed workers. In this way, the different solutions that best suit the existing problem, in close relation with the areas of marketing and decision-making, will be provided, all of them combining artificial intelligence tools.

Once the case study has been carried out, the conclusions that can be drawn from it will be presented. At this point, therefore, an attempt will have to be made to answer more specifically both the main research question and the secondary questions that support it.

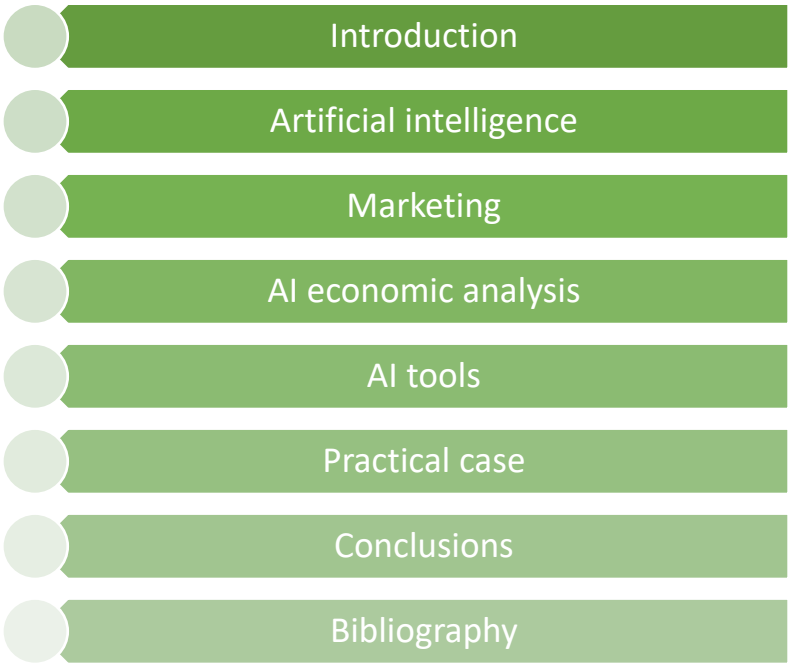

Figure 3. Thesis structure

2. Artificial Intelligence

2.1 Introduction to AI

Over the years, artificial intelligence has been considered an extremely intriguing topic. However, to understand it, it is essential to refer to previous concepts such as technology and intelligence. Some parts of the following chapter (Chapter 2) have been translated by Chat GPT from original Spanish text to English.

According to Universidad Nacional del Litoral technology has transcended beyond being a simple tool, since it has become a cornerstone in terms of human progress and the formation of the society we have today (Gallardo 2020). "Technology" comes from the Greek τέχνη (pronounced "téchnē") and means art, craft or skill. Therefore, technology is not a thing but a process, an ability to transform or combine something already existing to build something new or else give it another function. And this transformational capacity can be intuitive or (as it happens in today's societies) a knowledge that comes directly from the field of science.

According to Laskowski & Tucci artificial intelligence can be defined as the field of science and engineering, which from a computer science point of view is concerned with understanding or intelligent behavior in addition to the creation of artifacts that exhibit this behavior. Therefore, artificial intelligence aims to make computers do the same kinds of things that the human mind is capable of doing. (Rouhiainen 2018, 1).

As stated, this concept is directly related to the concept of intelligence itself. Intelligence is a complex and multifaceted concept that goes beyond logic and reasoning ability (Zaíd 2011). It includes cultural intelligence, which is crucial for intercultural cooperation (Mosakowski 2004), and emotional intelligence, which complements rational intelligence and is fundamental for personal and professional development (Fernandez 2003). Moreover, intelligence is a field of study that requires the convergence of different approaches and disciplines (Figure 4) (Fernandez 2010).

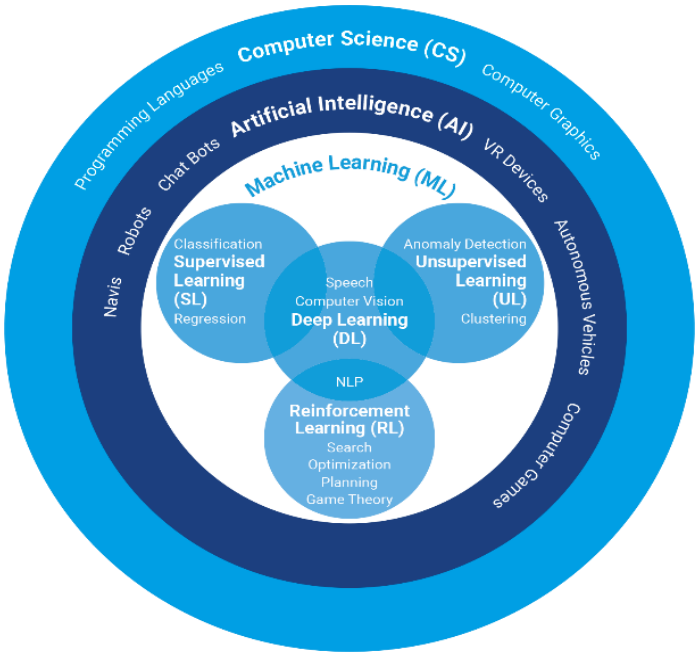

Figure 4. Outline of computer science and AI. (Ilona Tag)

2.2 History of AI

According to Lake (2017) the origin of artificial intelligence can be traced back to the early 20th century (Figure 5), a crucial period marked by the emergence of the Turing machine, which laid the foundation for the development of modern computers. Alan Turing, a visionary figure in the field of computer science, contributed significantly to shaping the concept of AI with his landmark 1950 paper on computing machinery and intelligence (Turing 1983, 404). In this paper, Turing advanced the idea that computers could simulate human behavior, initiating a trajectory of research into the potential of machines to replicate cognitive processes.

Early milestones in the field of AI were characterized by foundational work in problem solving, learning and knowledge representation (Buchanan 2005). These nascent explorations laid the groundwork for the evolution of AI, witnessing a transformative shift toward the aspiration to build machines that possess the ability to learn and reason in a manner similar to human cognition. This transformation involves the integration of causal models, intuitive theories, and compositionality into the fabric of AI systems, as Lake (2017) points out.

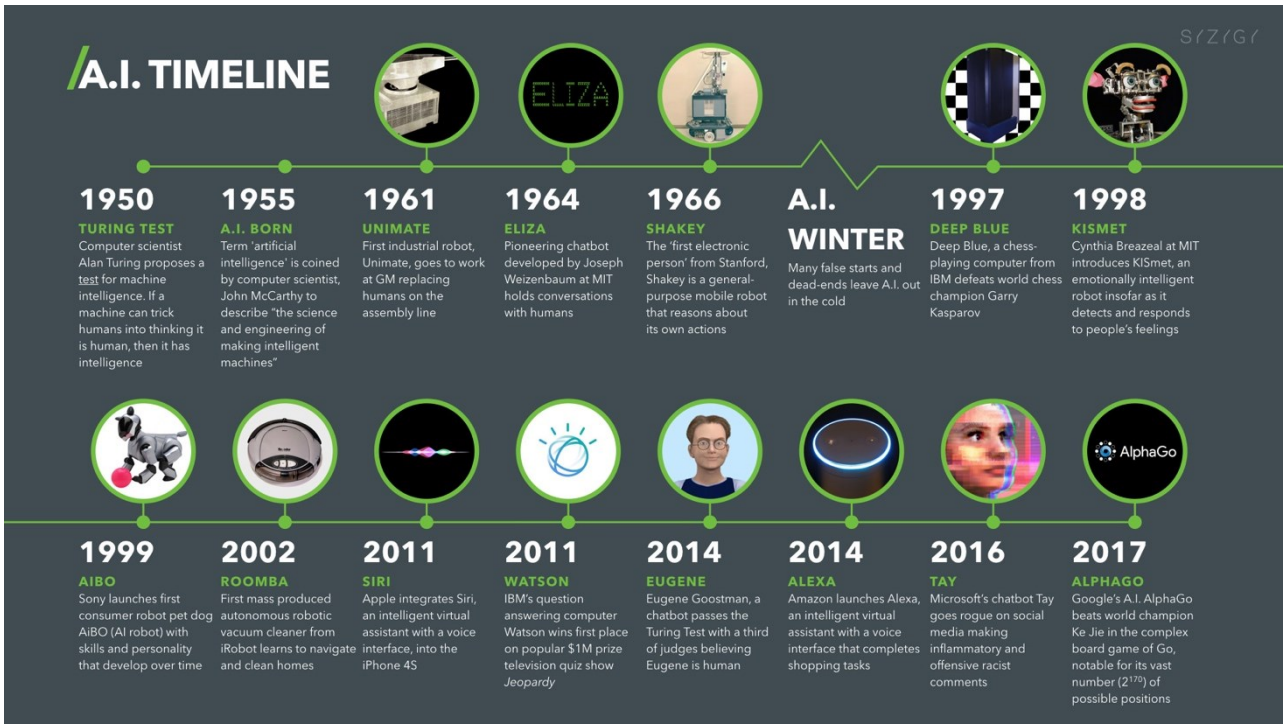

Figure 5. Artificial Intelligence Timeline (Marsden 2017)

Today there is still a debate about the best approaches to AI, in the sense of which of these approaches is able to produce better results in the short term. These approaches have been around for more than 40 years and are mainly distinguished in two paradigms: symbolic and connectionist.

Symbolic AI

In the early days of artificial intelligence, "symbolic AI" found a fundamental pillar in heuristic search. Problem-solving tasks, such as proving theorems or engaging in chess games, demand decision making that can be conceptualized as the exploration of a decision tree. This tree requires meticulous navigation to find a strategy that effectively solves the problem at hand. Heuristic search algorithms, which are part of a set of methods, rely on the explicit representation of implicit or procedural knowledge that humans possess. This representation is carried out by means of symbols and rules, which are understandable by humans and are incorporated into computer programs. "Symbolic AI" stood out for its success during the first decades of the field, managing to codify human reasoning in specific knowledge domains through the creation of "expert systems". (Andres 16)

A notable example of the successful application of "symbolic AI" was evidenced in medical diagnostic support systems. These systems employ inference engines and knowledge bases that condense evidence-based medical information. One of the most celebrated

achievements of "symbolic AI" was the victory of IBM's Deep Blue computer over the world chess champion (Figure 6), Garry Kasparov, in 1997, marking a significant milestone in the ability of artificial intelligence to meet complex and strategic challenges. (Andres 16).

Figure 6. World chess champion Garry Kasparov (left) playing against IBM's supercomputer Deep Blue in 1996 during the ACM Chess Challenge in Philadelphia. Joanna Goodrich (2021)

Connectionist AI

Simultaneously with the emergence of "symbolic AI," which conceptualizes the human mind as if it were a symbol-processing computer, another school of thought arose that focused on modeling the biology of the brain, which is made up of biological neural networks. In 1958, Frank Rosenblatt, a psychologist, proposed the perceptron, an extension of the McCulloch-Pitts neuron that had the ability to "learn" through weighting coefficients assigned to each neuron input. To this day, the perceptron remains the fundamental unit in many artificial neural networks, driving the approach known as "connectionist AI." (Andres 15.)

Despite promising possibilities, neural network research experienced a lull due to lack of funding and exaggerated expectations that were not fully realized. These facts, in part, are attributed to a misinterpretation of the limitations and strengths of the perceptron,

presented in a book by "symbolic AI" pioneers Marvin Minsky and Seymour Papert in 1969. It was not until the early 1980s that Geoffrey Hinton (2018 Turing Award recipient) and his colleagues rediscovered and popularized the method known as backpropagation, the core algorithm that drives heuristic search (similar to the "symbolic AI" approach). This algorithm succeeds in adjusting model parameters to minimize error, thus allowing a multi-layered neural network (Figure 7) to learn from data effectively. (Andres 15)

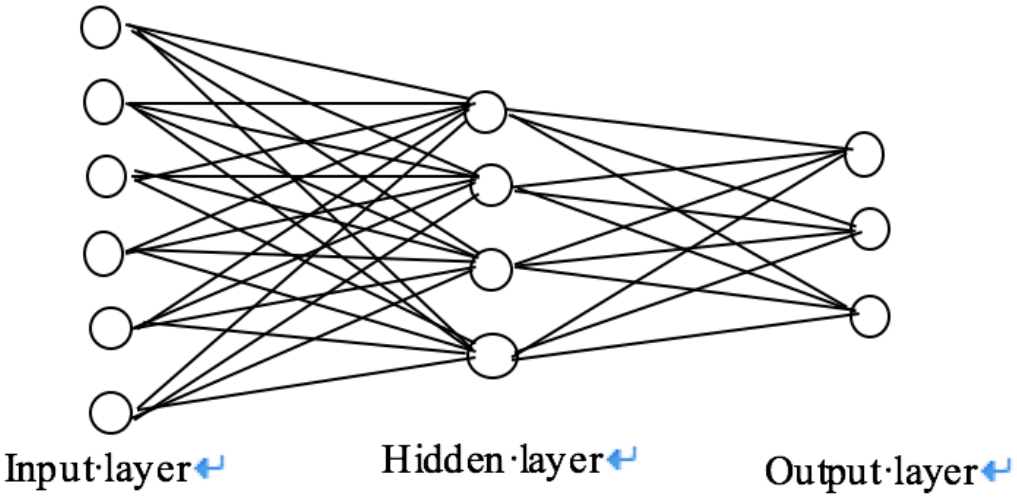

Figure 7. Example of a three-layer connectionist network (Jieshu 2017)

3. Marketing

3.1 Definition

Marketing is a complex and dynamic area of business management, focused on identifying and satisfying consumer needs through the use of various strategies, techniques and tools. Its main objective is to create value for the customer and build long-term profitable relationships, while ensuring the fulfillment of the organization's objectives. (Kotler & Keller 2016.)

Philip Kotler, considered one of the greatest specialists in the field of marketing, defines marketing as follows:

> *The science and art of exploring, creating, and delivering value to satisfy the needs of a target market at a profit. Marketing identifies unfulfilled needs and desires. It defines, measures and quantifies the size of the identified market and the profit potential (Kotler 2012).*

These definitions discuss the effort made by companies to make their products more visible than those of the competition; they show that in the first forms of marketing, the aim was more to sell the product, while in the current vision, the aim is to offer the customer valuable experiences through the marketed products, but always with the aim of participating sustainably in the market. At the beginning, the aim was to sell, but now selling is not enough, they must also generate value in order to receive it.

3.2 Marketing evolution

The evolution of marketing (Figure 8) has been a dynamic response to changes in the technological, economic and social environment, reflecting the constant adaptation of business strategies to changing consumer expectations. This development can be broken down into five main phases, from Marketing 1.0 to 5.0, each marking a significant advance in how companies approach their markets. (Maksic 2023) Some parts of the next subchapter (3.2) have been translated by Chat GPT from Spanish to English.

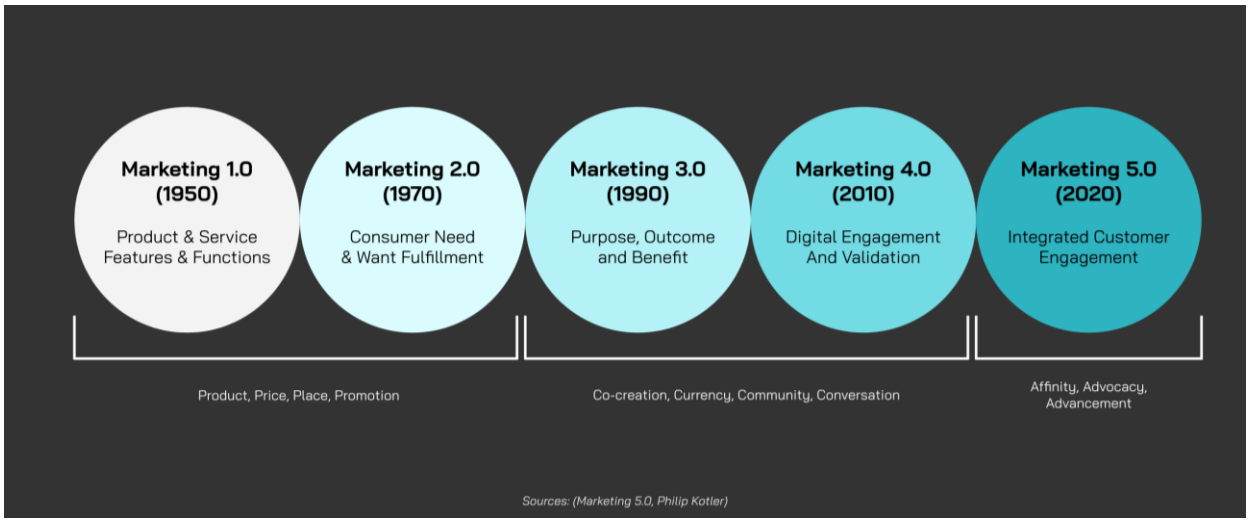

Figure 8. Marketing 1.0 to 5.0 (Way maker)

Marketing 1.0: The Product Focus

According to Suárez (2018) in the Marketing 1.0 era, attention was focused on the product. This era was described according to the mass-production mentality, where the central role of companies was in producing and selling. The communication was rather one-sided from the company to the consumer, with little or no emphasis on customer feedback. Success was rather defined through the ability to sell off everything produced; it was felt that a good product would, in turn, sell by itself without the requisite need for a consumer-centric approach.

Marketing 2.0: The Transition to the Consumer

The advent of Marketing 2.0 marked a transition to the consumer. That is, the companies realized how important it would be to know and fulfill the given needs and wants by their customers. This influenced the increase in competition and was also demanded by the consumers to receive not only the functional benefit but the value benefit that would be communicating to their feelings and lifestyles. Meanwhile, marketing was becoming much more interactive with the objective of building relationships and customer loyalty to the company through market segmentation and personalization. (Suárez 2018.)

Marketing 3.0: Connecting with Values

As Suárez (2018) says the Marketing 3.0 era leads the connection of the consumer to deeper levels with the human and social values. Companies started looking at themselves from the point of view of not just an economic entity but also from the angle of being a part of society that needs to make some contribution towards world welfare. This approach

was spiritual in that it appreciated the consumers as whole human beings, with their concerns in life reaching farther than the material needs. Marketing became the channel of expression for the mission, vision, and values of brands. They began to differentiate themselves not only by quality or price but also by the meaning and social impact their offerings involved.

Marketing 4.0: Digital Integration and Data Analytics

Marketing 4.0 signifies integration of the traditional approach to marketing with digital, signifying the pervasiveness of the Internet and its transformative impact in all aspects of life. It is at this juncture that data analytics and Big Data assume immense importance; it is critical to be able to keep track of consumer behaviors in real time and, accordingly, anticipate or predict consumer needs and wants. In this approach, the marketing strategies will be dynamic and personal and should have reliance on the highest brain, meaning to use artificial intelligence and other advanced technologies, focusing on creating a unique consumer experience. In fact, with the rise of social media and other digital channels, a new area has arisen for a two-way, continuous exchange between customers and brands. (Suárez 2018.)

Marketing 5.0: Customer experience

Marketing 5.0 represents a new phase in the evolution of marketing, where instead of focusing on a transaction per se, the focus is on building an emotional connection with the consumer that is deep, at the same time being focused on value and empathy. This new approach is purposed to transcend the mere sale, establishing experiences that give substance and meaning to those products or services and make consumers an active part of the creation of such products or services. Marketing 5.0 is anchored on the fundamental proposition that firms should orient themselves to a purpose which serves society and the planet, tending to transcend profitability. This has been made possible by putting into practice advanced digital tools and technologies that include Artificial Intelligence (Figure 9), Data Analytics, and Content Marketing in support of making outreach to target audiences personalized and effective. Marketing 5.0 enables the dynamics of collaboration with consumers and co-creation in such a way that they will be able to participate more dynamically in the development of the products and services they consume. (Acuña 2023.)

Figure 9. Traditional marketing vs AI marketing. (Williams, K. 2023)

4. Economic analysis

The following is a theoretical explanation of some of the economic analysis tools that will be used in this study to understand the Artificial Intelligence environment both internally and externally. In order to carry out this analysis, Artificial Intelligence will be put in the place that the company to be analyzed would occupy if it were a regular analysis. On the one hand, to examine the general environment of Artificial Intelligence, we will make use of the PESTLE analysis that examines the 6 external factors that affect artificial intelligence. On the other hand, the SWOT analysis will be used to examine the strengths and weaknesses, as well as the opportunities and threats of AI.

4.1 PESTEL Analysis

A PESTEL analysis is a commonly employed strategic framework for assessing the business environment of a company (artificial intelligence in this case). Known as a PEST analysis, it originally focused on Political, Economic, Social, and Technological factors (Figure 10). However, over time, it has been expanded to incorporate Environmental and Legal considerations. (Kenton 2024.) Some parts of the following analysis have been translated by Chat GPT from Spanish to English.

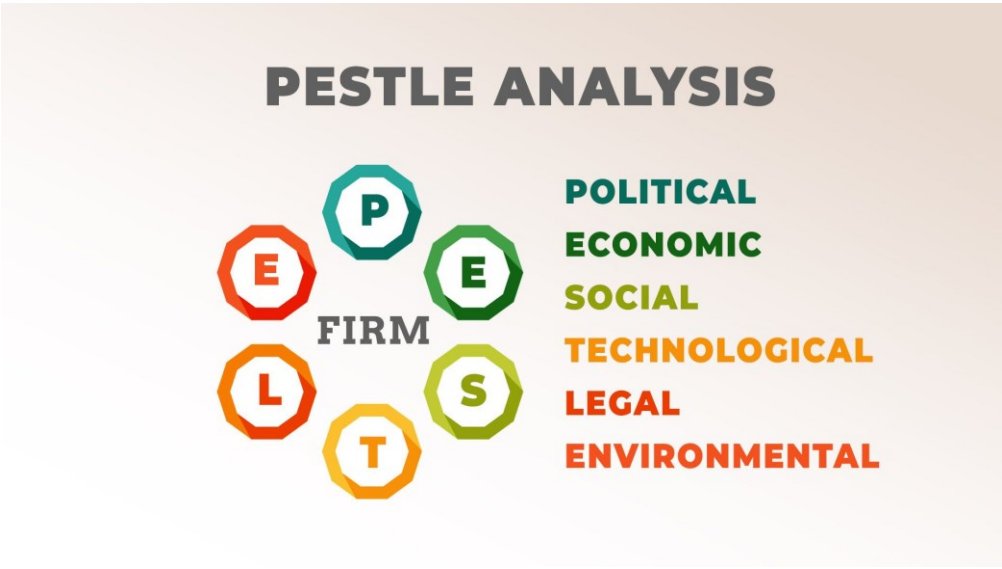

Figure 10. PESTEL Analysis Factors. (Arindra Mishra 2020)

First of all, it is necessary to define the geographical limit of the analysis, which will be limited to the country of Spain, because the author of the study is of Spanish nationality and

most of this work is focused on the Spanish market. In addition, it should be noted that in this case the object of study will be artificial intelligence rather than an ordinary company.

4.1.1Political-Legal

It is crucial to take into account the policies and regulations established by the Spanish government on artificial intelligence when addressing the policy factor in the PESTEL analysis of this emerging technology in Spain. The aspects that are going to be discussed are regulation and legal framework, technological development, integration in the economy and protection rights.

Regulation and Legal Framework

The presidency of the European Union (EU) can place Spain in the first line for the definition of regulation on AI at the European level (Sahuquillo & Ayuso 2023). It is in this sense that the Spanish government, in an ethical and fair gesture to regulate by setting clear rules for the use of these technologies, moves with great support in the establishment of clear rules that will attend to the possibilities and risks raised by AI. Such examples of the measures or steps by the Spanish government would include the 2021 approved charter of digital rights, which strengthened democratic values and the rights of all persons in the digital economy and artificial intelligence (La Moncloa 2023).

Technological Development and Digital Capabilities

According to La Moncloa (2020) Spain seeks an advantageous position, promoting domestic talent at the same time it attracts foreign talent. The existence of data platforms and technological infrastructures makes it an environment that promotes the growth of the AI market in the country. The country's leadership has launched investment measures in this field of up to 600 million between 2021 and 2023

Integration in the Economy and Public Administration

With AI coming to the economic value chains in Spain, it means that, according to Siemens, such technology might be transformative as far as sectors are concerned with health and pharmaceuticals or the manufacturing industry. This is pointed out by the efforts of the government in promoting the use of AI in public administration and national strategic missions. Their recognition and relation to the potential scope for better efficiency and effectiveness in the delivery of public service and decision-making have been realized. One such initiative is Law 15/2022 where the government regulates the use of AI in the public sector (La Moncloa 2020).

Ethics and Protection of Rights

In the case of the Spanish government, they have to establish a solid ethical and regulatory framework, ensuring that the development and use are carried out in a responsible manner, supporting individual and collective rights. For this, observatories have already been launched to evaluate the social impact that algorithms have meant to be able to develop a national quality seal applicable to artificial intelligence. (La Moncloa 2020.)

4.1.2 Economical

The growth of Gross Domestic Product (GDP) by 2.5% (Figure 11) in 2023 (Datosmacro, a. 2023) and increased GDP per capita, will provide a solid economic foundation for investment in technologies like artificial intelligence. Increased GDP would reflect further upward surges in the economic capacity of the country, suggesting the fact that more resources would then be available for research, development, and deployment of AI. Development of AI further would be given impetus by providing funds and resources required in full to carry out the research projects, technology development, and training of professionals in the field of AI.

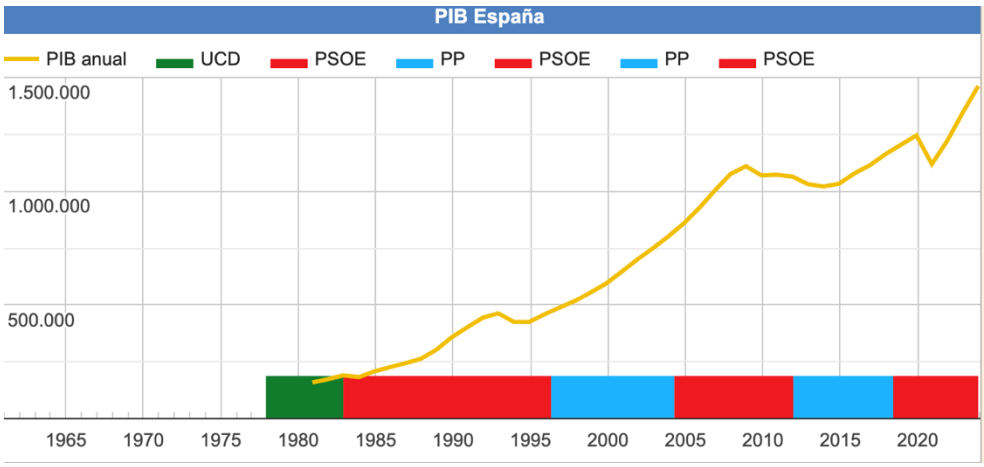

Figure 11. Spanish GDP evolution 1980.2023 related to politic parties. (Datosmacro 2023)

It must be pointed out that Spain's government is committed to promoting the development of AI in the country but, despite that, the investment in R&D level reaches only 1.24% of the GDP compared to the European average of 2% (España digital). This demonstrates that the AI scene in Spain still has much room for improvement in the long term.

From the perspective of increasing scientific research and technological development motivations of AI, active incentives for forming data platforms and the technological

infrastructure serve to strengthen the ability of Spain in this artificial intelligence innovation (La Moncloa 2023). This is set to contribute highly to effective collaboration between companies, academic institutions, and governments toward the development and advancement of AI solutions.

However, certain issues, such as unemployment at the rate of 11.6% (as of January 2024) and 28.6% among youth below 25 (Datosmacro. b. 2024), stand out in Spain as factors that could prevent or slow down AI development. In the case of skilled labor shortages, this could slow down the implementation of AI by companies. Otherwise, with the national income declining from reduced consumption and inflation, there would be economic pressure on the investment in AI projects, which is spurred on by the rising cost and market uncertainty. All of those require comprehensive approaches: workforce training, employment policies, and economic conditions that guarantee them the long-lasting development of AI in Spain

4.1.3 Social

On the one hand, Spain has 48,446,594 inhabitants, which places it as the fourth most populated country in the European Union, but it is not only the number of inhabitants that is important, but also their distribution in the population pyramid by age. As can be seen in the image (Figure 12), Spain has a large majority of people between 40-60 years of age, as opposed to the 15-39 age group. This may translate into slight problems of adaptation to artificial intelligence technology due to the level of training of the majority of the Spanish population. In this case, the reference is to the fact that, as it is a relatively new technology, it is more complicated to find adults between 40-60 years old who are receptive to the new tools.

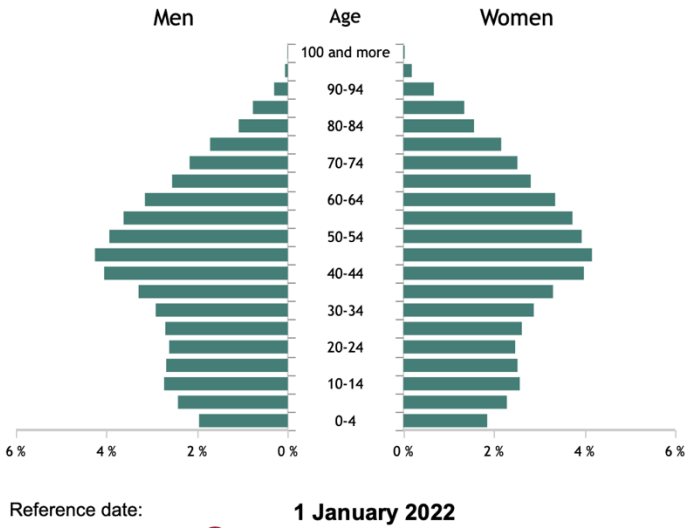

Figure 12. Pyramid of registered population in Spain (INE)

On the other hand, lifestyle and shopping habits are extremely important. The adoption of smart devices and participation in online shopping can drive demand for AI solutions. Between the years 2010 and 2023, there is a clear upward trend in terms of online shopping, reaching 68.9% of people who shopped online in 2023 (Orús 2024). This is why, in terms of habits and lifestyle, artificial intelligence has opportunities in the Spanish market.

Regarding the variables of education and income, to the extent that they are older they are related to greater accessibility and understanding of technology. In Spain, more than 25% of young people between 25 and 34 years of age have at most 3rd year of ESO (Compulsory Secondary Education) compared to 12% on average in the EU (Ferreras 2023). As for the 18-24 age group, in Spain they exceed the OECD average of people studying by 7% (Ferreras 2023). However, those who work are 22% compared to 31% in the OECD, and those who neither study nor work are 17.2% compared to the European average of 14.7% (Ferreras 2023).

Through these data it can be seen that Spain is improving its metrics in terms of education, although it still has to improve in many aspects such as the internationality of its students or the number of people who neither work nor study. Therefore, these factors may be limiting in terms of exploiting artificial intelligence technology as the majority of the population may not be able to demand AI-based solutions.

In terms of income, from the economic analysis it can be extracted that, although the GDP of Spaniards is growing, they face different problems such as unemployment or the large number of people who decide not to work and not to study. In addition, it is also worth mentioning the country's public debt (Figure 13), which continues to grow and reached

over 30,000 euros per capita in 2023 (Datosmacro. C. 2024). Therefore, in the long term there may be problems for companies to be able to easily develop all solutions based on artificial intelligence.

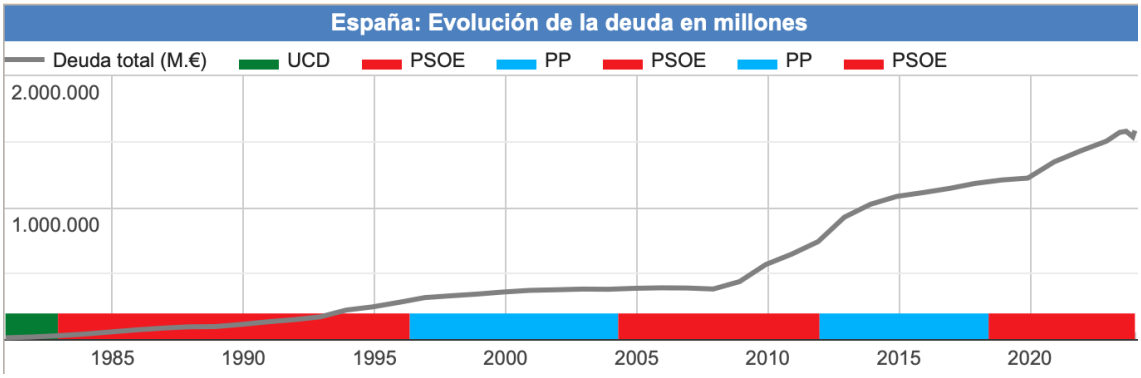

Figure 13. Spain national government debt evolution. (Datosmacro. c. 2024)

4.1.4 Tecnological

From the above framework, the critical factor within the PESTEL analysis, with regard to artificial intelligence in Spain, encompasses the technological factor. The factor seeks to assess the existing technological base, trends in technology innovations, and how these propel the development and adoption of AI technologies within the country. The analysis of the technological environment, therefore, offers an overview of opportunities and threats that Spain may be exposed to in reference to artificial intelligence and identifies key areas for growth and improvement in the related area.

In the case of Spain, it hosts the MareNostrum 5 supercomputer located at the national supercomputing center BSC-CNS, as Spain participates in the European High-Performance Computing Joint Undertaking (EuroHPC). (European High-Performance Computing Joint Undertaking 2023). This resource allows boosting artificial intelligence research from the same country, so it is considered an opportunity.

Globally, every day new AI-based tools come to light that are trained to perform a specific action that could not be performed before, or to carry it out in a more optimal way in terms of resources or time, as is the case of the new tool promoted by OpenAI called Sora, which is capable of generating videos up to one minute long from a text promp (Solórzano & Perez 2024). It is in the testing phase, but it demonstrates the research that exists behind this industry.

Like OpenAI, other leading companies in the technology sector such as Amazon or Meta, have also decided to invest in their new artificial intelligence models trained to improve

their services. In the case of Amazon, it announced a new AI-powered assistant capable of improving the customer shopping experience (Kaplan 2024). There are more and more tools offered by large technological companies and made available to other users who take advantage of this opportunity, with the intention of making the artificial intelligence sector grow.

On the other hand, there are leading companies in the technology sector, such as Apple, which until now had not decided to develop their own tools. But this dynamic changed recently, Apple has announced an investment of up to one billion dollars in this technology, arguing that the potential of this technology to solve problems and improve productivity is a clear opportunity (Kochevskaya 2024).

On the part of countries as a whole, they are also willing to invest a great deal of money in the development of artificial intelligence with the intention of taking advantage of this opportunity and gaining competitive advantages over other countries. This is the case of Saudi Arabia, which wants to become the largest investor in AI in the world with an investment of $40 billion to achieve this (Haefner 2024).

After analyzing the level of integration of artificial intelligence that exists through products or services that are used every day both at work and in personal life, it can be observed that society is beginning to accept these solutions and, therefore, to normalize the use of them.

Just as tools based on artificial intelligence are becoming more and more present in everyday life, so is the risk that these tools will become more efficient than some workers and this will lead to people losing their jobs. More than 40% of global jobs are exposed to the impact of AI, a figure that rises to 60% in developed countries due to the prevalence of cognitive task-oriented jobs (Ortiz 2023).

Therefore, this fear on the part of the population both globally and in Spain could be a limiting factor that slows down the adoption and acceptance of artificial intelligence in the business world.

The growth of artificial intelligence also triggers a worsening of the digital divide, due to the fact that, for the use of this type of advanced technologies, not only an internet connection is needed, but also high-speed connectivity (Tiant 2023). This makes access even more inaccessible to people in undeveloped geographic areas, rural areas or lower income households (Tiant 2023). The development of this technology could lead to an increase in inequality between rich and poor nations, which, again, is a limiting factor that may make society more reluctant to adopt these types of tools.

4.2 SWOT

SWOT analysis (Figure 14) is a tool used to analyze on the one hand the strengths and weaknesses regarding the internal part of a company (in this case it will be artificial intelligence) and, on the other hand, the opportunities and threats regarding the external part. (Kenton 2023.)

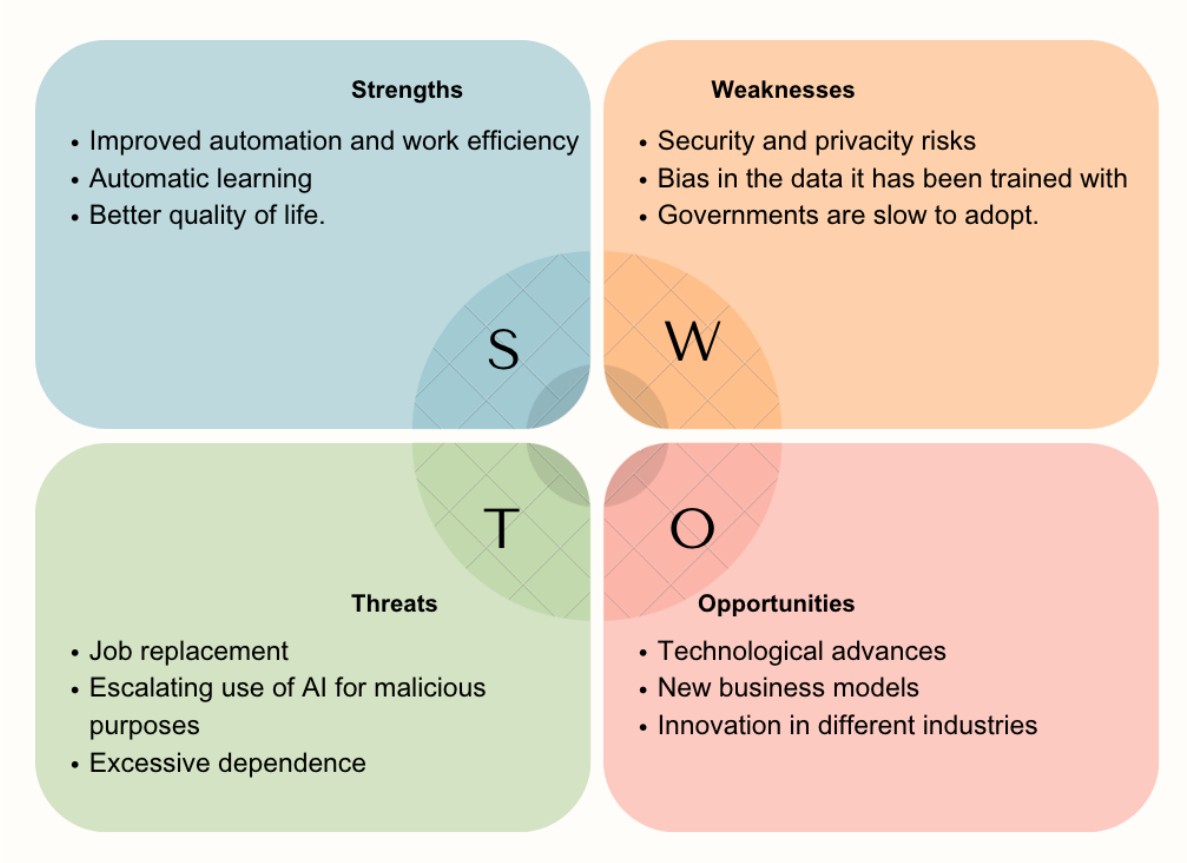

Figure 14. SWOT analysis about artificial intelligence

Strengths

According to Camargo (2023) the strengths of artificial intelligence itself include improved task automation, coupled with greater efficiency in performing repetitive and complex tasks of this kind. This is because this technology is able to learn from data and previous experiences automatically, which improves its adaptability and optimizes itself over time. And, thanks to the breadth of uses that AI allows, it is possible to take advantage of its capabilities both in the world of work and outside of it, which means a better quality of life for people due to the integration of devices such as mobile, home automation, automobiles or television with artificial intelligence to improve the consumer experience.

Weaknesses

One of the biggest weaknesses of the advancement of artificial intelligence is the security and privacy risk, as some of the critical applications still present challenges in protecting data privacy. On the other hand, it is possible that there may be biases in the data on which artificial intelligence has been trained, which can lead to discriminatory decisions. Another weakness of this technology is the slowness of national governments to promote measures to encourage maximum development, with draft laws and regulations lagging far behind technological progress. (Khan 2023.)

Threats

Job replacement is an issue that concerns 67% of Spaniards (Melo 2023) and is therefore one of the biggest threats that is slowing the adoption of artificial intelligence in society (Figure 15). The escalation in the use of AI for malicious purposes is also a major threat, with several companies such as OpenAI saying that AI is a real risk that can destroy humanity and that there are people training this type of technology (Loh 2023. In addition to this purpose, artificial intelligence can also be used for online scams or cloning and extraction of personal data. Excessive use of AI could also cause people to become less competent in certain skills due to over-reliance on AI by workers to successfully perform their tasks.

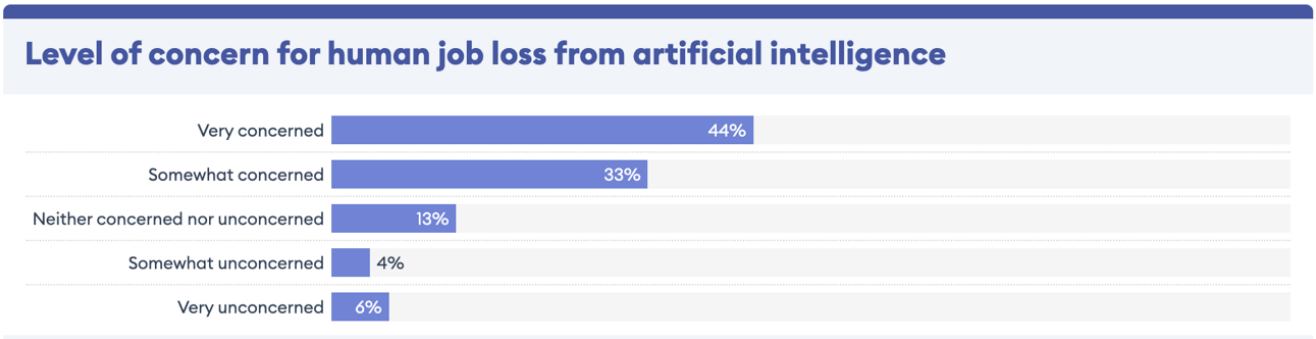

Figure 15. Level of concern for human job loss from AI. (Haan 2023)

Opportunities

According to Harris (2018) technological advances represent a great opportunity for the growth of artificial intelligence because its capabilities are expanding day by day and this leads to new uses and applications as well as connections with other types of technology such as home automation. Through these new applications, new business models emerge that offer opportunities in the market, as well as generating new job roles due to constant innovation. Thanks to these two opportunities arises the third one, which is innovation in

different industries. Due to the use of artificial intelligence, significant advantages are obtained in many sectors, minimizing the risk of human error and minimizing costs.

5. Types of AI tools applicable to marketing

5.1 Introduction

In the case of this study, information will be provided, firstly, on 4 artificial intelligence applications that, according to the author's criteria, he considers the most relevant to boost the marketing of an SME.

Secondly, information will also be provided on a tool corresponding to each of the applications to be shown. The choice of tool will depend on unknown and personal factors such as ease of use, scalability, integration capability and the availability of features relevant to the specific use to be made of it. The author's criteria for selecting the tools to be showcased will be based on customer feedback and ease of application to small businesses.

There are many solutions based on artificial intelligence that are capable of improving the marketing efficiency of a company (Figure 16), and thereby having the ability to reach more customers in a more optimized way to get them to buy more, as well as also offer a more professional and personalized shopping experience appropriate to the current era of marketing 5.0. In the next section we will first present some of the types of tools that exist today to improve marketing results.

Afterwards, some of the tools related to each of the AI application fields will be presented in order to approach the topic from a more practical perspective. Some paragraphs of the following chapter have been translated by Chat GPT from Spanish to English.

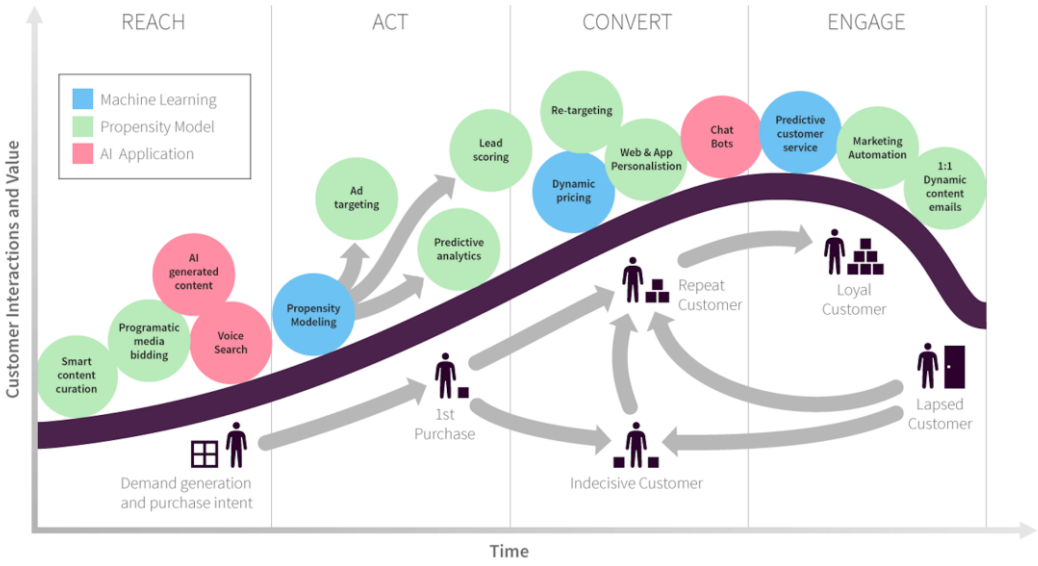

Figure 16. AI technologies for marketing across the customer lifecycle. (Chaffey, D. 2024)

5.2 Advanced Segmentation

Market segmentation is a task carried out by marketing personnel, consisting of segmenting customers based on criteria such as demographics, age, gender or purchasing power, with the objective of making a marketing campaign more appropriate to this segment of people and increasing the probability of success. (Pereda 2021.)

Artificial intelligence has opened doors for companies to pore over their big data, looking for patterns and segment consumers like never before, hence launching hyper-targeted campaigns through AI. The traditional method of performing this task faces challenges such as data overload, static segmentation or excessive use of resources in time and money (Rose-Collins 2023).

Thanks to continuous learning and real-time analytics, AI enables rapid adaptation of marketing strategies to changes in consumer behaviors and preferences. The ability to process and analyze such huge amounts of data helps identify exactly who the market segment is, which enables companies to target only those audiences with very tailored messages and offerings. Thus, the marketing campaigns are more efficient, lead to higher customer satisfaction, and brand loyalty, which in turn further provoke the growth in conversion rates. In addition, AI-empowered resource optimization ensures the advertisement budget is well applied to drive the relevant ROI fully (Rose-Collins 2023).

According to Salesforce (2023) advanced market segmentation is a key feature in Salesforce, which includes functionalities such as consolidated views of every customer, data from any source, and strong contact management. The drag-and-drop interface and a large set of attributes made it possible to segment subscribers easily. It has the ability to filter data coming from many places and, therefore, enables a lot of precision in customer segmentation. This way, personalized messages can be delivered from purchase history, browsing activity, attributes of the customer, and other data for correctly segmented audience details. It leverages predictive scores from Salesforce Einstein; hence, the customer engagement is predicted by what they will do next, other than having been based on the predictions of past behavior. More so, every source of data, be it from Sales Cloud, Service Cloud, web analytics, and even offline data, comes into play and gives one wide knowledge of the customer. It transforms raw data into marketing professional-focused dimensions that quickly let the identification and using of key attributes to personalize customer conversations across any channel. This dimensional approach significantly shortens the time it takes to find trends and opportunities.

The famous Booking platform uses this type of tool to offer real-time recommendations to its customers, and this artificial intelligence integration resulted in an increase in purchases by repeat visitors of 65.16%, an increase in spending by regular customers of 16.15% per transaction (Rose-Collins 2023).

5.3 Real-Time Personalization

Traditional web personalization uses offline data to serve static content. Real-time personalization injects dynamic content into a user session based on data collected during that session and based on their stated preferences and navigation. 80% of consumers express stronger affinity towards brands that personalize their user experiences. (Archer 2023.)

This process starts by identifying and studying the customer journey, this can be done both online and offline, although it is more common in the digital world due to its ease. Once the customer journey is analyzed, the doors are opened to personalized content, as well as dynamic pricing based on multiple factors analyzed by AI, such as competitors' prices. Another specific task that enables real-time personalization is that of product recommendations based also on multiple factors such as customer behavior or their browsing history during their lifecycle.

According to Mehta (2023) real-time personalization of the content drives a number of benefits, such as increasing the rate of engagement and conversations. It helps in enabling businesses to tailor user experiences of individual preferences by an analytic of massive data and dynamically delivering the right interactions with more relevance and value.

The personalization helps in satisfaction and loyalty of the web service customers by making sure that the users are understood and valued in such an environment to further make sure the online experience is enjoyable and engaging. This raises the likelihood not only of returning to the page and repeating a purchase but also makes sharing the business by them among other potential customers easier, thus reinforcing and probably broadening the reach of the brand. (Mehta 2023.)

Real-time personalization will also guarantee effective marketing spend by targeting users that have a higher propensity to convert, hence optimally allocating resources and increasing return on investment (ROI). Apart from this, through real-time personalization, the deep collection of data from user behavior, preference tendencies, and demographic details can be quickly made possible, facilitating businesses for exploitation in targeted advertisements and a more convincing marketing approach. This can further fine-tune the

customer's journey: the refinement of web content and layout and hence the user experience, taken as a whole, to be further refined with increased profit potential.

Through personalized interaction that leaves memorable experiences for the customers, the businesses will therefore differentiate themselves in such a competitive market, thereby increasing their revenue and ensuring long-term survival. (Mehta 2023.)

According to Archer (2023) Tinybird designs systems that acquire and process the generated data from a user on the fly, enrich it with historical or offline information, and subject it to real-time analytics for personalized recommendations that are channeled through the user interfaces in virtually no time. This includes capturing all user events, real-time analytics processing the event to generate personalized outcomes, and using a real-time API to insert these recommendations as they are getting generated into the user-facing applications that ensure unique and individualized browsing experiences for all users.

Building a real-time personalization system could be costly since it has to have the right technologies in concert with engineering effort to capture, process, and apply in real-time the avalanche of different sources of user data. Developing from ground-up offers room for personalization but is also very time-consuming and expensive. On the other hand, commercial off-the-shelf solutions ensure quick setup but are inflexible and will prove costly in the long run. A middle ground approach would mean adopting dedicated real-time data platforms that not only cater to infrastructural needs for data handling but also provide flexibility in terms of developing bespoke personalization features. It facilitates designing unique experiences for users without consideration of overhead in maintaining the underlying technology stack. This allows businesses to focus on development towards sophisticated personalization logic that drives higher levels of customer engagement and increased conversion, all at an economical use of costs and technical resources. (Archer 2023.)

Netflix is just one example of companies that make use of this type of tools to optimize consumer experiences on their websites (Figure 17). The American company makes use of real-time personalization by observing the patterns of its consumers, detecting which titles they watch, which ones they add to the list and which ones they do not show any interest in, and based on this, recommending content similar to what the artificial intelligence detects that a certain customer likes. In 2020 the streaming platform revealed that 80% of the content played originated from these personalized recommendations. (Sa 2023).

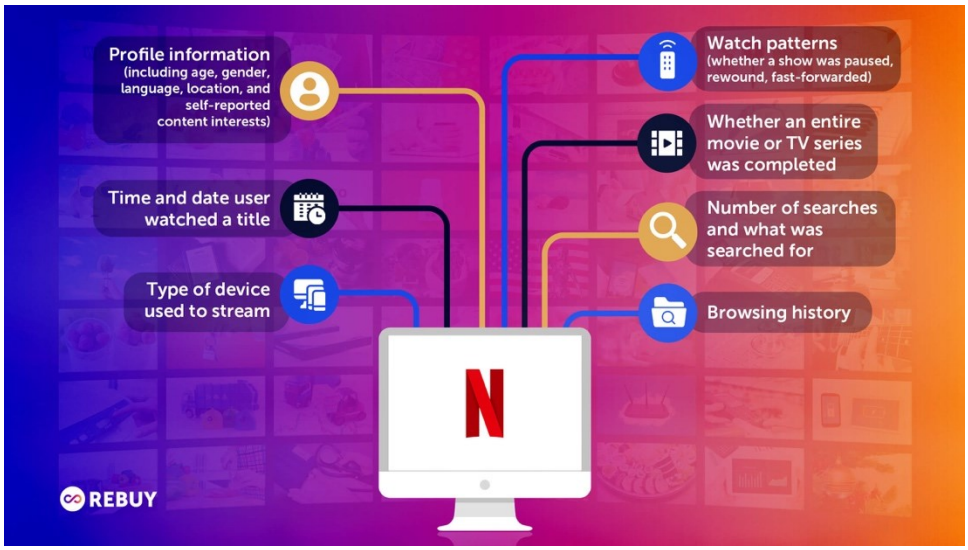

Figure 17. Netflix data points. (Rebuy 2022)

5.4 Chatbots and Virtual Assistants

AI-driven Chatbots (Figure 18) improve customer interaction by answering inquiries, help in the buying process, and allow post-sale support, all round the clock. (Pereda 2021.)

Among the main benefits, chatbots bring instant responses to the most frequently asked questions, an optimal way of interaction between the user and the brand, and the collection of customer data in the friendliest manner possible, which is definitely indispensable to move on with the commercial process. They also improve the image of the company, for they provide 24-hour customer service to customers with queries that make the company competitive, giving it an advantage from the value addition accruing to it by superior customer service. (Yepes 2023.)

This can, however, be evaluated as a large challenge when the bots may not provide valid human resources that dismiss human interaction in the cases where the questions are complex or even unpredictable for the existing clients. Moreover, they are likely not well-versed in all sectors, especially sensitive services, in which case the management of the user expectations around what the chatbot can and can't do is very important, sometimes even diverting the user to human support for certain queries. (Yepes 2023.)

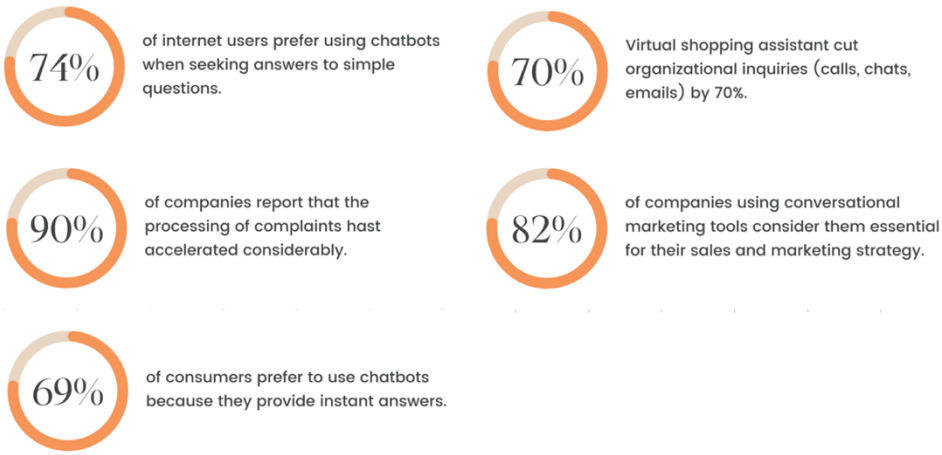

Figure 18. Market and customer preferences related to Chatbots. (Belmontet 2023)

Tidio comes as a whole customer service solution with a bouquet of live chat and chatbot, tailor-made for small to medium businesses. This platform improves first-time contact with website visitors, offers features to keep users that are thinking of leaving the site, and provides product recommendations per user. (Brevo 2023.)

Below are the key features offered in Tidio: AI-powered chatbots, proactive messages can be sent to customers, predefined workflows for managing conversations, and chat transcripts can be easily found using the chat search option. Applications are available for all desktops and mobile devices. It also provides settings for autoresponder messages, real-time monitoring of user activity, including team performance, by viewing reports in detail, and access to chat interaction analytics with detail. (Brevo 2023.)

According to Dilmegani (2024) Dominos has innovated in the ordering process of the pizzas by creating a chatbot. Through the chatbot on Facebook Messenger, Dominos simply re-engineered the process of taking orders and, at the same time, used it for public relations towards more brand creation. The chatbot will then be of great convenience to the users, who will be able to order their favorite pizzas from wherever they will be, either as a make-line pizza with extra toppings or choosing a different crust style.

5.5 Consumer Behavior Forecasting

Past behavioral analysis will be able to forecast the next moves for consumers using AI, enabling companies to prepare the needs and marketing of their marketing strategies. (Pereda 2021.)

In this regard, businesses have to make themselves conversant with the range of AI tools largely grouped into two: predictive modeling and machine learning to capably predict

customer behavior. Digging into historical data to understand patterns, machine learning algorithms make more improved predictions over time picked from data patterns. Such a customer behavior analysis is exactly what a business needs to derive valuable insights about how their customers are interacting with the products and services offered by them and also forecast up-sell, cross-sell, and website abandonment to enhance customer experiences and reduce churn. This is a tool to identify perfect customers and the most effective channel to interact. (AI contentfy 2024.)

This underscores the importance for companies to have the ability to invest in credible data collection, processing, and analytical capabilities for the purpose of accurate behavior predictions. (AI contentfy 2024.)

In summary, AI-based marketing tools bring great benefits to companies when it comes to predicting customer behavior. In other words, machine learning and predictive modeling help derive deep insight into customer behavior, enabling improved decision-making to help businesses optimize marketing efforts and bring about better customer engagement and retention. AI tools also allow for the personalization of the marketing strategies for improved customer satisfaction and loyalty overall. It is further enhanced when marketing processes are automatically handled through AI, which allows more time on the part of marketing teams to be dedicated to those complex strategies and the overall efficiency of marketing in terms of conversions and, ultimately, of financial performance of the company. (AI contentfy 2024.)

According to Terreros (2023) IBM knows how to do predictive analysis and it has a whole toolset that covers three key stages: first, there is understanding and analyzing data with IBM SPSS Statistics, whose role is for the user to understand information, predict, and hypothesize, reaching valuable conclusions. Where the more advanced information enthusiasts are concerned, IBM SPSS Modeler is an extremely advanced algorithm and data modeling tool. Finally, Watson Studio Desktop makes implementing and experimenting with data simple, hence getting the most from business with artificial intelligence.

A very common case is when you try to find an address on Maps to get directions. The platform has multiple filters and options: by car, public transport, on foot, by bike, departure time, departure day, fewer transfers, etc. With these settings and predictive clustering analysis, based on data such as traffic and weather, it plots the best route for you. (Terreros 2023.)

6. Practical Case

6.1 Survey analysis

The following section shows the results of a survey carried out and answered by 64 Spanish nationals. The aim of the survey is to check the level of acceptance that the Spanish population has of the integration of artificial intelligence in business processes, both at the internal decision-making levels and at the levels of product modifications that directly affect consumers.

Of the total number of people surveyed, 75% are people aged between 18 and 24 (Figure 19), which may mean that the survey has been answered by mostly young adults, it is worth noting that this age range may be more exposed to emerging technologies such as artificial intelligence.

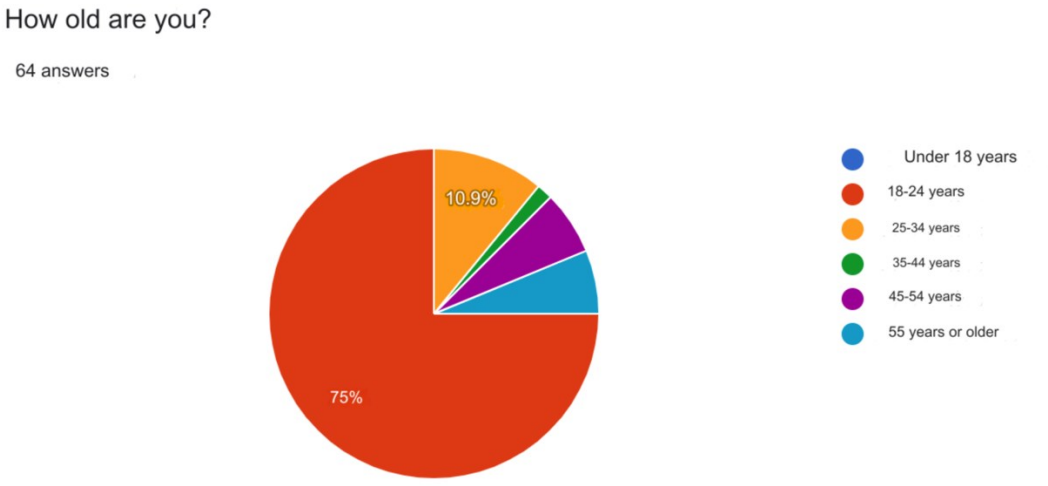

Figure 19. Age

In terms of the gender of the respondents, 32 were women and 32 were men, giving an equally representative sample of both genders (Figure 20).

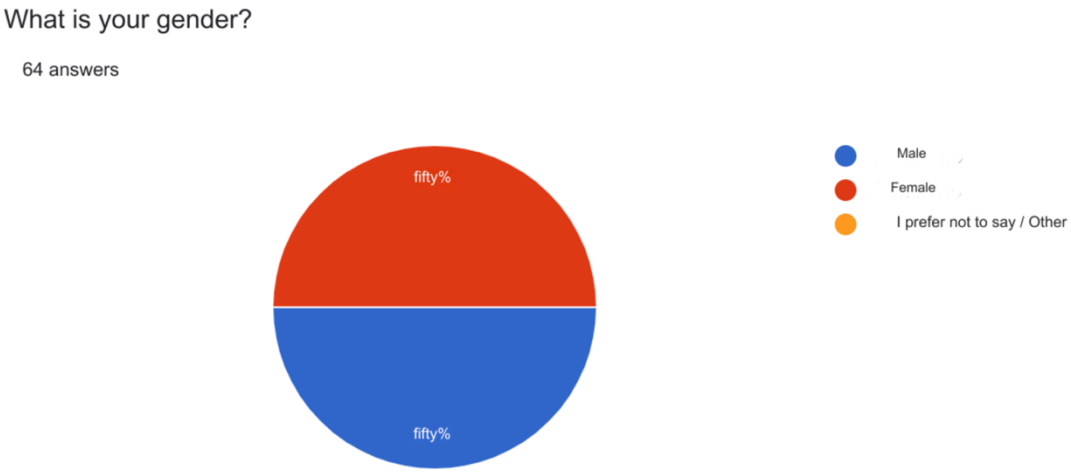

Figure 20. Gender

In this question (Figure 21), many of the respondents were in a dual situation, student and employee (13.85%), so they may have a combined perspective as students are likely to be more exposed to the advancement of artificial intelligence due to their relationship with the continuing education they receive. On the employee side, the point of view may differ, focusing on a perspective more applied to their personal situation and their job.

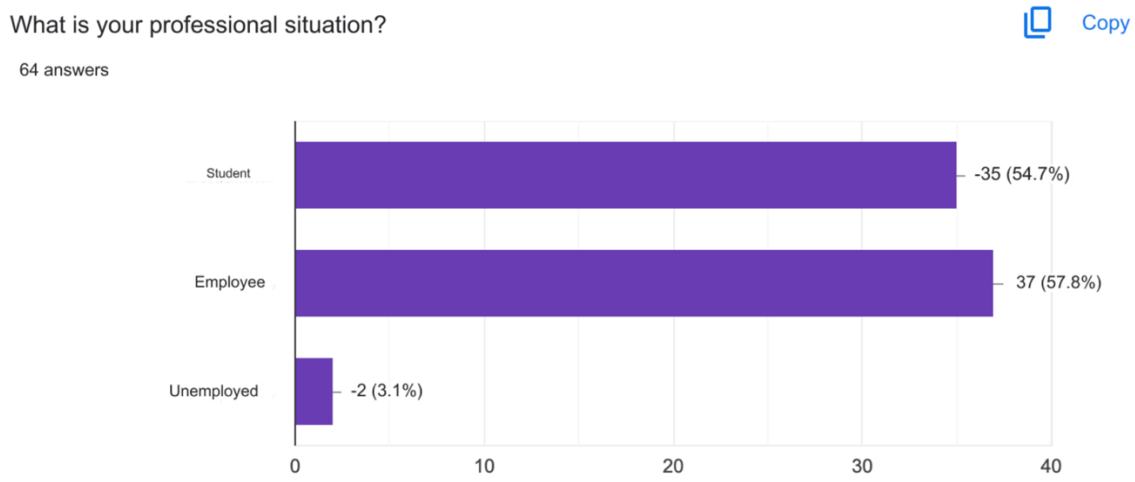

Figure 21. Professional situation

71% of people who answered this question are part of the target group of this study (self-employed (Figure 22), small and medium-sized companies), which provides a very interesting insight into how these workers perceive the advance of artificial intelligence, especially in their workplaces. On the other hand, it is possible that workers belonging to large

companies provide a different view because these companies generally invest more in the development of technologies.

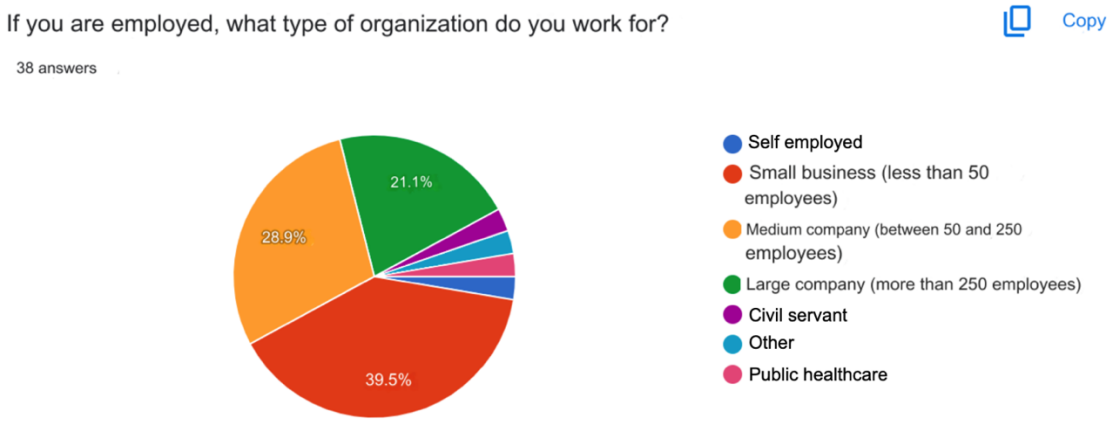

Figure 22. Type of organization

Most participants are at least somewhat familiar with artificial intelligence (Figure 23), which may be due to their sporadic but non-professional use of artificial intelligence. People who are somewhat and very familiar will have a more educated opinion based on their own experiences and knowledge. People who are not very familiar or not familiar at all will be more susceptible to external influences such as the media in generating their judgement.

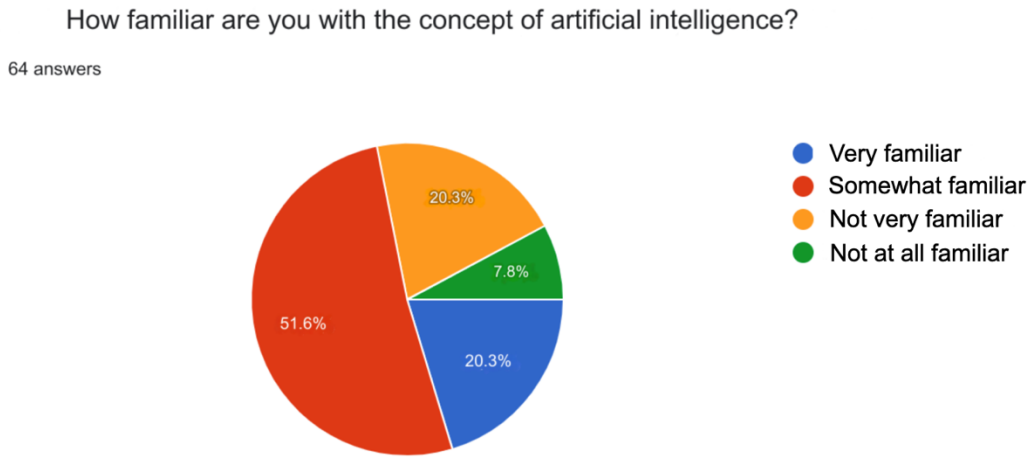

Figure 23. Familiarity

The majority of people voting have had positive experiences with the use of artificial intelligence which will help these people to have a more optimistic view on the integration of technology into business processes (Figure 24). However, there are 40.5% of people who either have no experience or are neutral, so this group of people will have a more cautious

attitude towards future implementations due to their scepticism. On the other hand, only 2 people said they have had negative experiences with the use of AI.

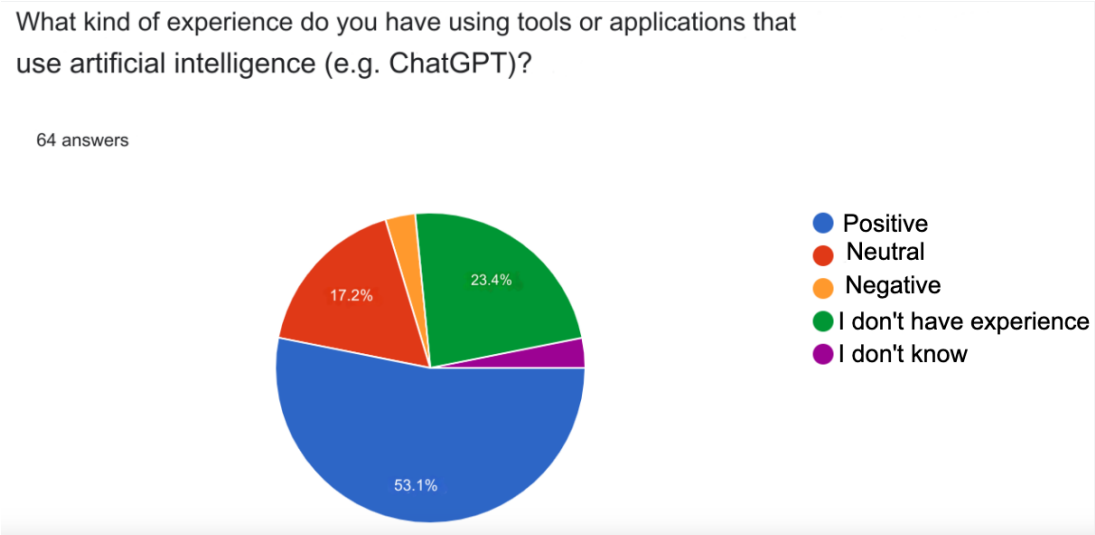

Figure 24. Experience

Positive effects such as improved efficiency or productivity remain the most voted with around 65% of people (Figure 25). However, there is also a large share of people around 34% who perceive negative effects, suggesting that these issues should be addressed more forcefully as loss of work or lack of human control are some of the concerns of the respondents. A number of people indicated other types of effects that they consider possible:

- *Controlled integration, used as a tool and not as a substitute, can improve productivity, save time and avoid mistakes, but given the system we work in today, this would mean a drop in wages and employment (at least for a few years until it is regulated). Moreover, if we continue to educate with the possibility of AI, work performance will probably get worse and worse, and not only because of laziness, but also because of inability ("If there is already a tool that does my job, I don't need to learn anything).*

- *Automated organization.*

- *Improved analysis of all types of data related to many departments of the company.*

- *Security problems in protection systems.*

- *Changing the necessary skills of employees.*

- *Helps focus on les repetitive tasks*

These answers provided directly by certain respondents show their positive outlook but at the same time their concern about the security and protection of data and people.

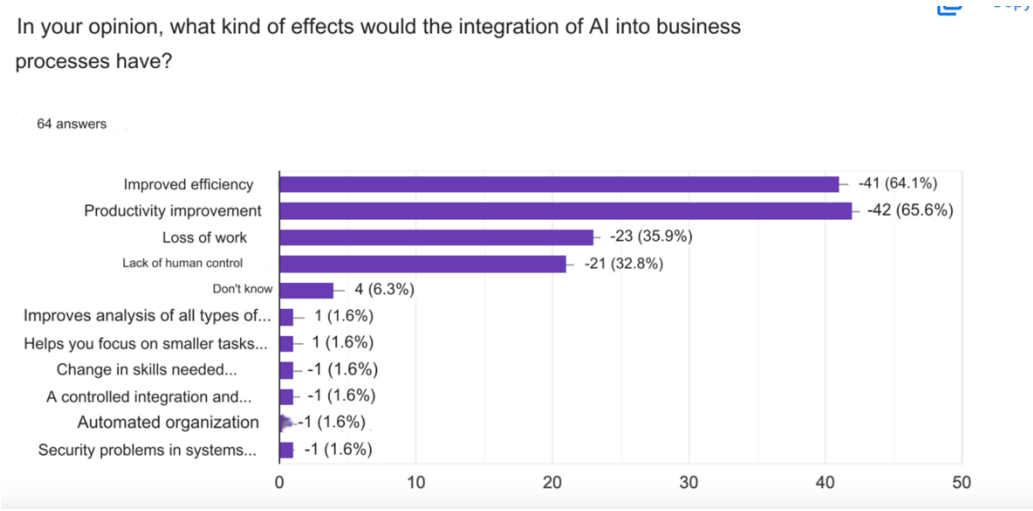

Figure 25. Effects

In terms of impacts related to customer experience and work efficiency or outcomes (Figure 26), the results show a large majority of people (around 50%) believing that artificial intelligence would improve customer service and work efficiency in their respective sectors. Around 10% of people voted that it could worsen customer experience and work outcomes. 25 people believe that AI will have a limited impact or do not know how it will affect, this may be due to the sector or industry in which they work. Finally, some respondents chose to write their opinion on the issue:

- *It will make us think less.*

- *Dehumanization of the sector.*

- *If used well it can have a positive impact for the company.*

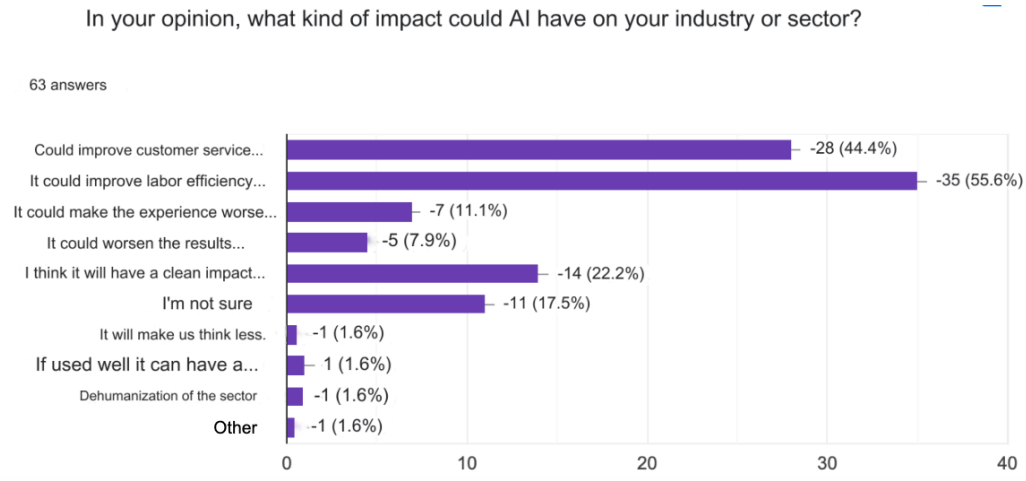

Figure 26. Impact in sector

The content that respondents are most willing to consume (Figure 27) is content in the form of images (43.8%), so it is likely that this format is the most widely accepted by society today. There is also a clear preference for content created entirely by humans, prioritizing human originality. The number of people who do not have a clear opinion also stands out, which may be due to a lack of knowledge about the technological capabilities of artificial intelligence in the field of content creation.

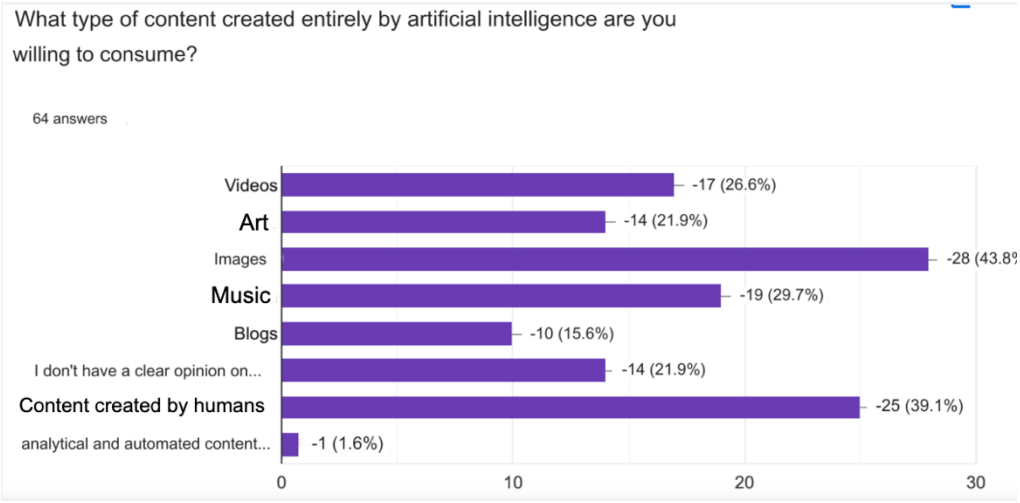

Figure 27. Content created by AI

As the most important factor in the acceptance of artificial intelligence (Figure 28), the emphasis on the ethics of AI development and use suggests that users, while remaining optimistic about technological advancement, remain concerned about the moral principles behind its rapid growth. On the other hand, with a similar vote are concerns about privacy and security, and the impact on employment, suggesting that advances in artificial

intelligence should be accompanied by appropriate job transition and new skills training programmes, as well as attempts to maintain public trust.

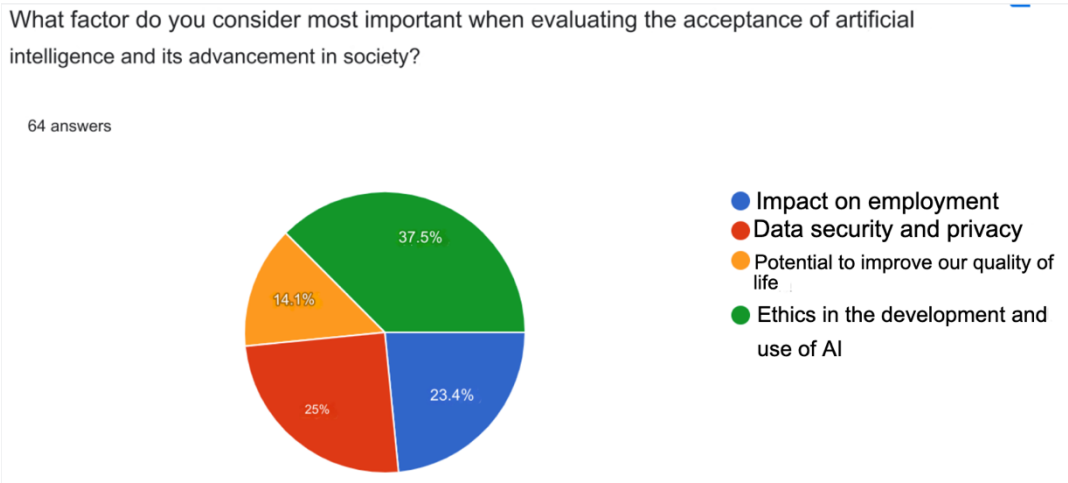

Figure 28. Factor

Almost half of the respondents think that AI can generate self-awareness and thus control humanity, showing real public concern possibly about the media influences they have been exposed to in their lifetime (Figure 29). Fewer people voted that they do not believe this could happen, probably based on the current limits of artificial intelligence. On the other hand, there are 14% of people with an unclear idea about this issue, reflecting that these people may not have enough information or education on the subject to give an opinion.

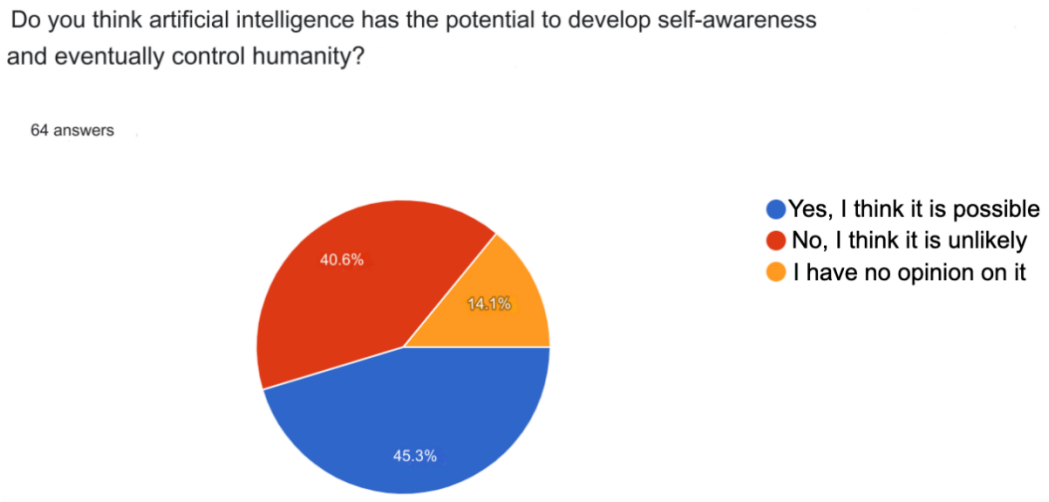

Figure 29. Self-awareness

General insights

Employees and students tend to have positive experiences with AI tools. Lack of experience is more common among employees, probably due to the variability in technology adoption in different types of organizations. This is why as this tool is implemented in organizations of different sizes, the variability in task automation capabilities within them will increase. Another relevant insight that can be obtained from this is that since artificial intelligence is more popular among students, as they enter the working world, they will bring with them the knowledge and experience they have with AI, which can translate into an increase in its use among companies.

On the other hand, there is a positive perception towards AI Integration as the general trend is positive towards the integration of AI into business processes, with many participants expecting this to result in efficiency and productivity improvements. Reflecting a recognition of the potential benefits that the technology can offer businesses. At the same time, there is also a trend of concern about automation and the employment of people.

A critical issue for the people is the importance of ethics and safety in the development and use of artificial intelligence, suggesting that any technological advances in this field will need to give significant consideration to these aspects in order to gain and maintain the trust of users.

6.2 Interview analysis

Two interviews have been conducted to provide a more practical point of view to this research. The objective of these two interviews is to gather information about the operation and methodology of two different individuals to succeed in their respective businesses.

The process began with the formulation of some questions with the idea that they would serve as a guide for the interview, these questions are divided into blocks that the author considers that must be present in a successful marketing strategy. Each block contains different questions in order to specify the topic in question and obtain complete information. Subsequently, the two interviews were conducted in video call mode between the author and the two subjects. They were carried out for case 1 on May 19th, 2024, and for case 2 on May 20th, 2024 and both by means of a fluid conversation through the guiding questions that had been previously written, while the interviewee answered, the author wrote down what the interviewee said. Once the call was made, the information collected was analyzed and contrasted with the theory already contained in the research in order to identify gaps where the subjects could develop more efficient marketing.

6.2.1 Case 1

The first subject interviewed is the owner of a clinic (Figure 30) that offers nutrition services to all types of publics. This clinic is located at Calle Federico García Lorca Nº2 and has been in operation since October 17, 2022. It currently has a total of 57 active clients. These clients have completely different objectives, some of them come to the clinic for aesthetic reasons and with the intention of losing weight. Others come because they have some kind of illness and need to take care of their diet to ensure their wellbeing. And another segment of clients are athletes who need help with the planning of their different objectives during the season, in addition to a specific planning also for competition days.

Figure 30. Nutritionist logo

Regarding the content block, the interviewee stated that he did not have the social networks focused on acquiring more clients, but rather on generating a minimum of value and using them as a form of contact for the younger client sector should they want it. The content creation process starts with the idea, which sometimes comes from other social media posts, university notes, or personal interest. Subsequently, he proceeds with the creation of a video, since this is the content format he usually provides, and finally its publication. The current frequency of publication is every two months, although at the beginning of the business was once a week, but due to the tedious process has been reduced to publish every two months. He also indicates that it is a part of his job that he is not passionate about and for that reason he has little interest in it. Instagram is the only online channel where he posts content. As for the engagement of his content, it seems that the sweepstakes format is the most popular among his followers. Finally, he indicates that he believes that artificial intelligence can improve the efficiency of his content through the generation of a different content than the one he currently publishes, such as using drawings or written type.

The analysis of the sentiment corresponding to their social networks (Figure 31) through comments and reactions from the audience is managed in a personal and intuitive way. As for the insights offered by Instagram to monitor information from business accounts,

the interviewee does not view them regularly, so he does not take advantage of them to adapt his content strategy.

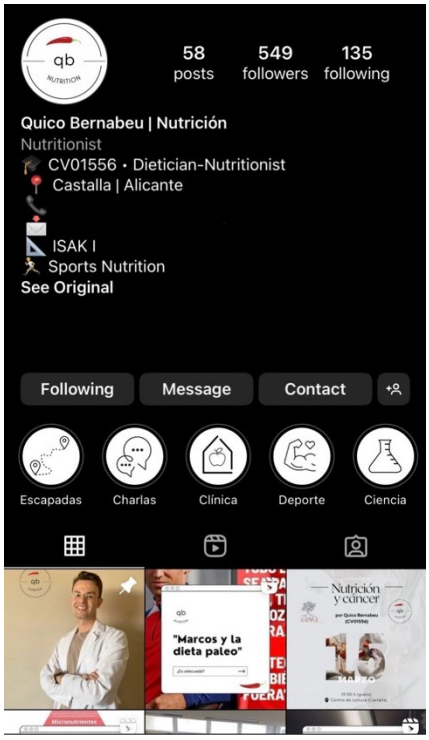

Figure 31. Nutritionist Instagram profile

The segmentation is carried out intuitively by assessing the background of its customers and the reasons why they come to its services, so it divides them into 3 groups, athletes, people who want to lose weight, and people who have some kind of disease. In terms of marketing, it does not distinguish between groups through the message it gives on social networks since, as mentioned above, it does not generate content to acquire new customers. In terms of data that could be collected and analyzed to perform a more advanced segmentation are age, population, lifestyle, goals sought or trends in their buying behavior. Finally, the interviewee believes that artificial intelligence could be useful for more advanced segmentation.

On the other hand, the interviewee does not store historical customer data and does not do email marketing either, as he does not consider it interesting in his type of sector. The same goes for paid online advertising. As for chatbots, he does not have any experience with them, although he does perform a repetitive action that could be automated, this action is a reminder message about the appointment with the clients one day before the appointment.

In the open-ended questions, the subject states that he is not willing to invest time and/or money in learning how to integrate artificial intelligence into his processes because he does not consider it as important and profitable. On the other hand, he is not sure that his competitors use this type of tools. The aspect of his marketing that could benefit the most according to the business owner is the part of obtaining and analyzing historical customer data to obtain more information for general decision making.

Taking into account the current situation of the interviewee in terms of his marketing strategy, and observing the individual needs he has in the different blocks of his strategy, we will proceed to contrast this information with the blocks of tools that have been explained previously in point 5 (Types of AI tools applicable to marketing).

The business owner claims not to make more content because he considers it a tedious process and that he does not like it, but he also expresses that he would like to be more constant in social networks and that he would not mind changing the format of his content from the current videos to another type. One possible solution to this problem is to use a video design tool that allows the explanation of complex concepts in a simple and visual way.

Vyond is an AI-powered video creator that allows the design of animated whiteboard videos in a simple and intuitive way (Vyond 2024), so it would fit the needs of the between-viewer to create a different type of content and in a more automatic way. The use of a generative voice application with artificial intelligence is ruled out since the nutritionist expressed that, despite being open to changing the format of his content, he would like to maintain a personal touch for followers to identify him through the content.

As for the reminder messages that are sent to his clients the day before the clinic appointment, they can be automated with Twilio, a platform specialized in automating communication with clients (Marthinusen 2022). It has a function specifically created for appointment reminders via WhatsApp which would benefit the interviewee by saving time in making these reminders daily and manually. Here are the steps to follow to design an automatic appointment reminder within the Twilio app (Figure 32):

- Step 1 (Integrate). Use Twilio's developer-friendly platform and APIs to integrate with your appointment system database or customer relationship management system. (Twilio 2024).
- Step 2 (Create workflows). Write code or use our low-code Studio editor to create workflows to send appointment reminder texts, emails, or phone calls. (Twilio 2024).

- Step 3 (Schedule and send notifications). Schedule appointment reminders to go out at a set time-like one week, two days, or one hour before the appointment. (Twilio 2024).
- Step 4 (Confirm, reschedule, or backfill). Collect responses by email, text, WhatsApp, or voice to confirm. Then reschedule or backfill any last-minute cancel-lations. (Twilio 2024).
- Step 5 (Update system). Log confirmations or changes in the customer's record and inform employees (Twilio 2024).

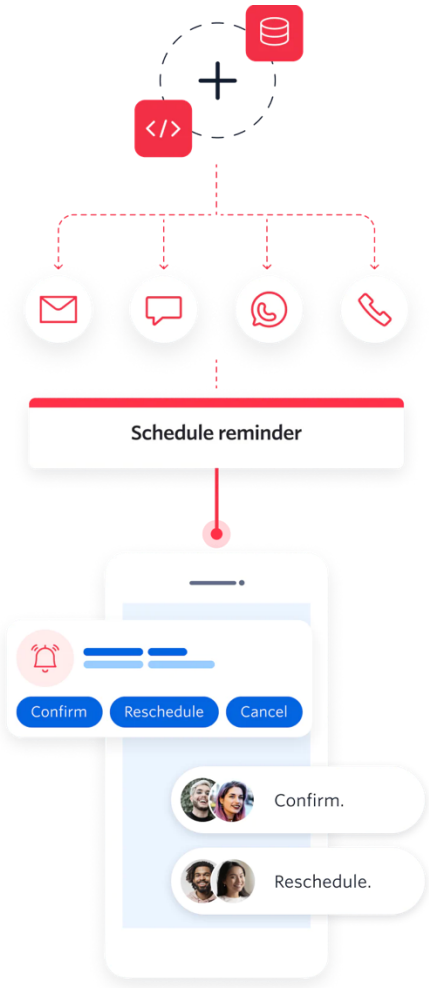

Figure 32. Twilio appointment reminder system. (Twilio)

To review, the interviewee stated in the open-ended question that the part of his market-ing that could benefit the most from the integration of artificial intelligence was the analysis of historical customer data, with the objective of identifying patterns and predicting future customer behavior. The business owner could benefit from this information by anticipating the needs and preferences of its customers, personalizing the service it offers, optimizing prices by adjusting them to the plans that best suit its audience and could also perform

advanced customer segmentation based on all the variables that have been mentioned above.

In this case, the IBM Watson tool that has already been introduced in section 5.5 on predicting customer behavior is one of the tools capable of performing the tasks that the interviewee stated would be helpful. First, he should create an IBM cloud account, then configure IBM Watson by choosing the necessary services (Watson studio, Watson assistant, Watson machine learning). Step 3 is the integration of the data using Watson studio, once the data is created you can train and deploy the AI models. In step 4 the models will be created and trained with the help of Auto AI to later evaluate these models and their performance. Once the models are prepared, they should be deployed, using Watson-generated APIs to connect the models to the desired business and CRM applications (IBM Watson studio, 2024). In addition, this tool can be integrated with Twilio to work together and record all the data coming from WhatsApp.

6.2.2 Case 2

The second subject interviewed is CEO of a start-up company called Livexperience (Figure 33). It is formed by two members and its raison d'être is the Euro-European youth mobilities service. That is, they offer services for students and teachers to enhance the international dimension of education through linguistic diversity. Their function is to act as an intermediary between the educational centers and the companies in which the students can carry out their internships. Thus, there are two types of clients: on the one hand, vocational training schools, and on the other, companies that will provide students with the opportunity to complete their studies by doing internships abroad. The first steps are currently being taken as a pilot test, creating agreements with clients and companies that one of the two partners knew personally beforehand.

Figure 33. Livexperience logo

The content of Livexperience is still in the creation phase, this is due to the fact that the company has just been born, so the partners are creating the first publications that will be shared as soon as they are ready. In any case, the content is divided into three platforms, firstly, Linkedin, aimed at finding European companies that are willing to host students from other European countries and offer them internship programs. On its own website, written content can be found relating to industry news, success stories, information on new destinations or the benefits of doing an internship of this type. And finally, content in video format on the TikTok platform, more focused on the end consumer who are vocational training students. The frequency of publication is intended to be two days per week. Regarding the content that generates the most engagement, it does not have an answer because it has not yet been published. As for the criteria applied to decide what content to create for each platform, it is done based on the general idea that the two partners have regarding each of the platforms. When asked whether AI-aided content generation could improve the efficiency of the content, the interviewee said that especially written content could be better tailored to the target audience, which was beneficial.

The segmentation was done taking into account the two types of target customers, businesses, and vocational education centers. The messages addressed to each type of audience according to the interviewee are made focusing on the benefits that each one obtains by being part of the mobility agreement, but in a general and intuitive way without making a segmentation within these two types of customers. The customer data that the company could have are, on the one hand, the size of the educational center, location, type of center and specialty, if there is a previous relationship with it, and the number of students they wish to send to other countries. And, on the other hand, the sector of the company that would host the students, the location, the capacity of students it has or if there is a previous mobility agreement. Finally, regarding the benefits that the interviewee believes AI could bring to his segmentation process, he states that he could study market trends, thus discovering if the mobility of a particular type of center is increasing in order to anticipate trends and offer a service adjusted to the real needs of the market.

The interviewee states that historical client data is not processed numerically and therefore there is no option for further analysis. The data corresponding to market performance comes from the activity of the other partner who is in daily contact with companies and educational centers. As for the question of whether there is any manual process that requires manual analysis and can be optimized with artificial intelligence, the interviewee refers to the satisfaction forms that are sent to students, companies and educational centers to check that the experience has been satisfactory for all parties involved, although he points out that at the moment, they have not collected any of these forms due to the early

start of the activity. In any case, the CEO affirms that this data collected through the form could be analyzed with AI to obtain conclusions and improve the service.

Livexperience does not use email marketing as a way to promote itself nor does it believe that it can be exploited by them to acquire new customers since they work mainly with phone calls.

On the other hand, they do not have experience in chatbots although they express their intention to integrate them in the near future. It would be integrated into the website to redirect the visitor within the same and facilitate access to personalized information in real time so the CEO sees advantages in its use and has positive expectations because they help visitors to find the information they want faster than the traditional way.

Regarding the open questions, the CEO expressed his willingness to invest time and money in learning how to integrate artificial intelligence in their marketing processes and decision making, although in a progressive way by testing. He does not know if his competitors use this type of tools, although he believes they do. Finally, as for the aspects of its current strategy that would benefit most quickly from artificial intelligence, it opts for content optimization based on data and trends, to reach customers and companies more efficiently.

In the content section, because this has not yet been published and therefore it is not possible to know how it will work, the author will omit the content section in the following part of the interview analysis characterized by the suggestion of some tools capable of improving the efficiency of livexperience processes.

Due to the segmentation needs of this company, a tool based on artificial intelligence and increasingly present in marketing teams is Salesforce Einstein. It should be noted that it is very similar to the previously introduced IBM Watson, although in this case Salesforce has been selected for its specialization in Customer Relationship Management, for the customization and scalability it offers to companies in creation and ease of use (Sánchez Moreno 2024).

From the data that the company could collect from schools and companies, Salesforce Einstein offers a comprehensive experience that starts with a segmentation of the audience into homogeneous groups that share similar characteristics. Einstein prediction builder can predict which schools or companies are most likely to participate in the mobility programs offered by livexperience, based on historical data and current trends. Einstein content selection is able to personalize marketing messages for each segment identified above and identify which words are most effective in communications with different

segments. Given that the interviewee stated his belief that AI could analyze trends in the Erasmus mobility sector, as well as being what he believes would benefit his strategy the fastest, Einstein trend insights offers an emerging trend detection service allowing for anticipation by his service offering (Salesforce LATAM 2023).

As for the livexperience CEO's desire to integrate chatbots into his website, he could turn to Salesforce Einstein Bots, the tool can be configured to provide instant answers to frequently asked questions, guide users through the website displaying the most relevant information for them and collect information from visitors requesting information on their concerns (Skyplanner 2023).

Finally, the respondent stated that they did not make use of email marketing and that they did not use this channel with the intention of acquiring new customers because their current channel was by telephone. However, there are tools that facilitate the scheduling of telephone appointments via email, which could be interesting for livexperience as it is a way of massively contacting potential clients. Although it is not necessary today because they already have a portfolio of customers, it may be interesting to integrate this type of email automation tools in the future when the company wants to grow.

Also, within the Salesforce platform, there is Salesforce lightning scheduler (Figure 34) capable of directly scheduling appointments. Among its possibilities, you can schedule appointments with different characteristics and adjust the duration, the resources needed or the channel. It is also capable of assigning the appointment to a specific person in the team as well as integrating with external calendars such as Google Calendar, allowing the scheduled appointments to be reflected in all the calendars of the corresponding team member. It offers reports that analyze appointment performance to provide greater insight into customer interactions. Its biggest advantage is the centralization of data, as it keeps all appointments and customer data within Salesforce allowing it to be leveraged by other tools on the platform simultaneously. (Salesforce)

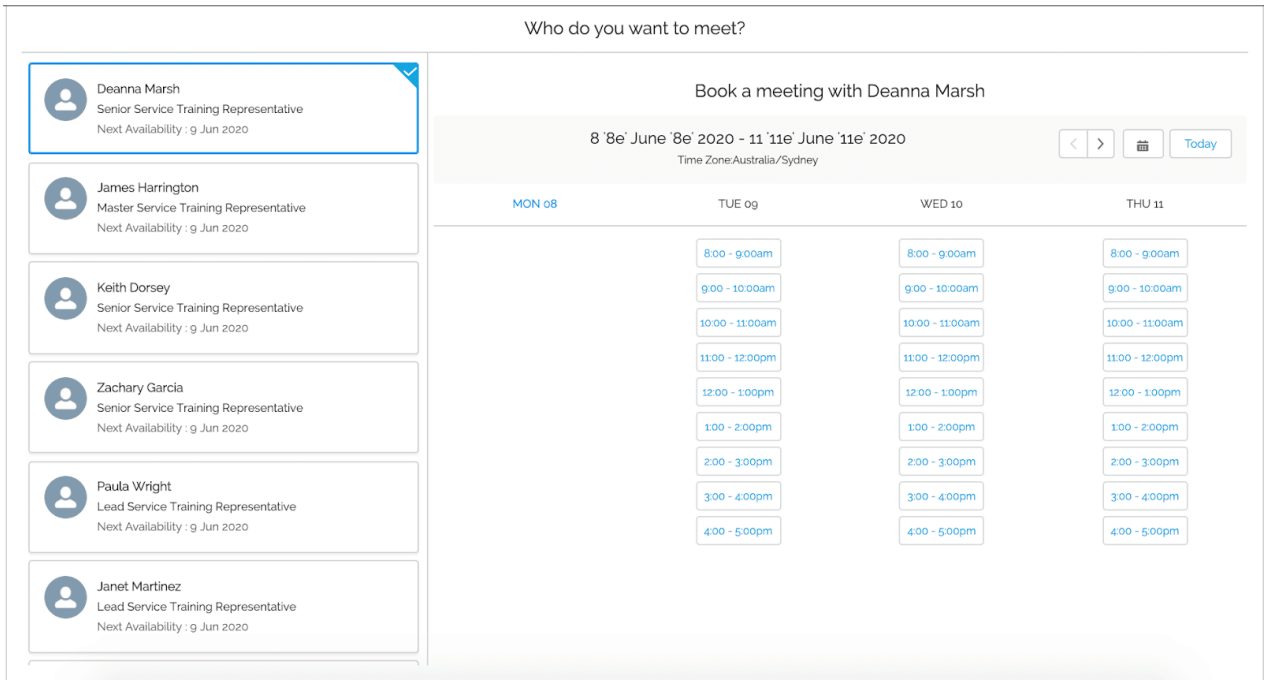

Figure 34. Example of Salesforce lightning scheduler. (Leadclic)

If you are looking to track an email and get information on how the recipient has interacted with it, you can use the Salesforce cloud email studio, which allows you to know information about the email, such as whether it has been opened or if a link in the message has been clicked on.

7 Conclusion

This part provides the key findings of the research. The sub-questions and main question that were presented at the beginning of the study will be answered by the author.

Sub-questions

- What are some of the problems that AI can solve more efficiently than humans in marketing area?

The problems that artificial intelligence can solve more efficiently than humans are those related to the speed and accuracy of data processing. From this, there are two problems that humans would take days to solve while AI is able to do so in hours. The analysis of large volumes of historical customer data for different purposes such as obtaining valuable insights based on patterns or performing advanced audience segmentation. Large-scale, real-time personalization of offers and communications can improve customer experience and increase conversion rates without relying directly on the marketing team.

- What are the most interesting applications based on Artificial Intelligence for SME's?

Market segmentation enabled by artificial intelligence makes it possible to segment the target through subgroups identified from complex behavioral patterns that can be difficult for individuals to find. In this way, the company obtains a more segmented audience and can therefore better adjust its marketing strategy to each type of customer. Chatbots enable 24-hour customer service so companies are able to provide accurate answers and instant solutions with little or no human intervention, which generally increases customer satisfaction. In addition, these chatbots can learn from their own interactions to improve their responsiveness.

- How can a small-size company integrate AI solutions in their marketing strategy?

The specific area within marketing in which artificial intelligence is to be integrated must be identified, and the objectives of this integration must be defined as specifically as possible. Once the specific tasks to be automated have been defined, we will proceed to the study of available tools trying to find the one that best fits the corresponding individual needs. The implementation of this tool should be gradual, starting with pilot tests to evaluate its effectiveness while becoming familiar with the new technology. As these pilot tests are mastered, the tool should be implemented in a more consolidated manner until the objectives defined at the beginning of the integration are achieved. The most important

phase is that of the study of the tool, which will allow the company's personnel to know whether they can achieve their objective or not, since in this phase they should look for similar cases to the one they want and check whether the results have been as expected.

Main question

- How can AI help medium and small businesses become more efficient and competitive by integrating it into marketing?

Artificial intelligence allows the automation of repetitive processes, which frees marketing personnel from certain tasks to focus on others that require more creative effort. In addition to saving time, it also has the capacity to improve the service offered by companies through the implementation of tools capable of being active all day every day. AI facilitates decision-making based on contrasted data thanks to its ability to analyze and draw conclusions that can then be investigated and nuanced by the marketing team. It is this set of actions that can help small and medium-sized companies to become more efficient and competitive after an integration process in which they seek to strengthen their market position, improve their internal efficiency, and take advantage of opportunities more efficiently than their competitors.

8 Summary

The main objective of this thesis is to conduct a study that analyzes whether artificial intelligence is able to help small and medium businesses in their marketing tasks. The main research question is “How can AI help medium and small businesses become more efficient and competitive by integrating it into marketing?”.

From this question, 3 sub-questions emerged to make the study more comprehensive. The sub-questions are: “What are some of the problems that AI can solve more efficiently than humans in marketing area?”, “What are the most interesting applications based on Artificial Intelligence for SME?”, “How can a small-size company integrate AI solutions in their marketing strategy?”.

To solve these questions, an empirical study was carried out. Primary information was extracted from a survey answered by 64 respondents and from interviews conducted by the author with two persons of interest. Secondary information was collected from electronic and printed resources.

The thesis begins with an introductory section followed by a theoretical explanation of artificial intelligence and a theoretical explanation of the concept of marketing and its evolution. The theoretical part continues with an economic analysis where artificial intelligence is the focus of study.

After that, 4 applications of artificial intelligence that could be interesting for small and medium-sized companies were analyzed. For each of these applications, a market tool and its capabilities were presented.

Next, the case study was carried out where the results of the survey were presented and the two interviews conducted by the author were analyzed, where the author identified some opportunities for the integration of artificial intelligence tools and proceeded to provide information on how this integration could be carried out and the capacity it has for the interviewee, also providing the tool that, according to the author's criteria, best suits individual needs.

Finally, it ends with the answer to both the main research question and the three sub-questions.

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Appendices

Appendix 1. Thesis survey AI applied to SME marketing

Thesis survey AI applied to SME marketing

1. **What is your age?**

    - Under 18 years old
    - 18-24 years old
    - 25-34 years old
    - 35-44 years old
    - 45-54 years old
    - 55 years old or older

2. **What is your gender?**

    - Male
    - Female
    - Prefer not to say / Other

3. **What is your professional status?**

    - Student
    - Employed
    - Unemployed

4. **If you are employed, what type of organization do you work for?**

    - Self-employed
    - Small business (less than 50 employees)
    - Medium-sized business (between 50 and 250 employees)
    - Large enterprise (more than 250 employees)
    - Startup
    - Other (please specify)

5. **How familiar are you with the concept of artificial intelligence?**

    - Very familiar
    - Somewhat familiar
    - Not very familiar
    - Not at all familiar

6. **What kind of experience do you have using tools or applications that utilize artificial intelligence (for example, ChatGPT)?**

    - Positive
    - Neutral
    - Negative
    - I do not have experience
    - I do not know

7. **In your opinion what kinds of effects would integration of AI into business processes have?**

    - Improved efficiency
    - Improved productivity
    - Job los
    - Lack of human control
    - I do not know
    - Other (what)

8. **In your opinion what kind of impacts could AI have on your industry or sector?**

    - It could improve customer service
    - It could improve work efficiency
    - It could worsen customer experience
    - It could worsen work results
    - I think it will have a limited impact.
    - I am not sure

- Other (what)

9. **What kind of content created entirely by artificial intelligence are you open to consume?**

    - Videos
    - Art
    - Images
    - Music
    - Blogs
    - Other (what)
    - I prefer content created by humans
    - I don’t have a clear opinion on the matter

10. **What factor do you consider most important when evaluating the acceptance of artificial intelligence and its advancement in society?**

    - Impact on employment
    - Data security and privacy
    - Potential to improve the quality of life
    - Ethics in the development and use of AI
    - Other (please specify)

11. **Do you think artificial intelligence has the potential to develop its own consciousness and eventually control humanity?**

    - Yes, I think it's possible
    - No, I think it's unlikely
    - I am not sure

Appendix 2. Thesis interview AI applied to SME marketing

Thesis interview AI applied to SME marketing

Content:

- What process do you currently follow to create content for social media? (Idea, information search, content creation, publication etc.)

- How often do you post content on your social media?

- What channels do you use to promote your services?

- What type of content do you generate on social media or outside of it? (format)

- What type of content generates the most engagement with your audience on social media?

- How do you decide what content is appropriate for each social media platform you use?

- Do you think that AI-generated content could improve the efficiency of creating your posts?

Sentiment Analysis:

- How do you monitor the reactions and comments of your audience on social media to get feedback about your content?

- How do you take advantage of insights from social media to adapt your content strategy?

Segmentation

- Have you conducted customer segmentation to personalize your marketing campaigns?

- If so, how do you personalize your marketing messages for different segments of your audience?

- What data do you collect or could you collect to perform adequate segmentation?

- What benefits do you think AI could bring to your customer segmentation process?

Data Analysis

- How do you use your historical customer data? Do you predict future behaviors or offer more personalized service?

- Is there any process that currently requires manual data analysis that could benefit from automation with AI?

Email Marketing

- What is your viewpoint on email marketing? Do you find it useful?

- Have you ever conducted email marketing campaigns for both customer retention and new customer acquisition?

- If so, how do you personalize emails for different segments of your audience?

- If so, what tools do you use to automate your email marketing?

- How could AI could help you to improve the relevance and timing of the emails sent to your clients?

Chatbots

- Have you implemented chatbots or virtual assistants in your customer service strategy?

- What advantages or disadvantages do you see in the use of chatbots to interact with your clients?

- What type of customer interactions do you think could be effectively managed by a chat-bot?

- What expectations do you have about the contribution of chatbots to customer service and data collection?

Paid Ads

- What kind of paid marketing campaign have you used?

- How do you manage and optimize your advertising campaigns across different platforms?

- Do you think AI could contribute to improving the ROI of your advertising campaigns?

Open Questions

- Would you be willing to invest both time and money to learn how to integrate artificial intelligence into your marketing processes and decisions?

- Do you know if your competition uses these types of tools?

- What aspects of your current marketing strategy do you think would benefit most immediately from the integration of AI?