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INSTITUTO
UNIVERSITÁRIO
DE LISBOA

HUMAN-ARTIFICIAL INTELLIGENCE ENGAGEMENT
EXPLORING THE PERSPECTIVES OF USERS AND TOURISM
MANAGERS

Mónica Montes Mendes Rocha Ferreira

Doctor in Management, specialization in Marketing

Supervisors:

Professor Sandra Maria Correia Loureiro, Associated Professor
with Agregation, Iscte - Instituto Universitário de Lisboa and
Business Research Unit (BRU-IUL)

Professor Hélia Gonçalves Pereira, Associated Professor, Iscte -
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December 2021

Aqui dentro há ausências

Com nome e sobrenome

Voz e cheiro

Toque e (não) esquecimento

Adaptado de Maxwell Santos (1930/2007)

ACKNOWLEDGMENTS

Gratitude is more than just giving thanks. It fills my soul, guides my path and lights my life.

To my mother. Her complete devotion and surrender to life, belief, hope, and faith are essential for me to continue dreaming. She always puts family first, even when it is not in her best interest. It is she who supports me, who consoles me. It is my haven.

To those who live on the other side of the road – to my grandfather, for his serenity, tranquillity and love; to my grandmother, for her courage, resilience and joy; to my aunt, for her determination, example and dedication; and to my father, for his demand, effort, sacrifice and, above all, for his discernment. It is only possible to get here because they live in my heart.

To my children, who are my greatest gift. They are always by my side; no matter what, when, where, or why, they are always with me. May the end of this stage serve as an example of how it is never too late to dream, that the effort pays off and that believing in ourselves makes all the difference. They are my daily engine and what makes me a better person. Manuel keeps my feet on the ground, and Mariana takes me to heaven. To Guilherme because he taught me how to be a mother.

Gratitude to the men in my life Much of what I am today, I owe them, also.

For the two people who have become a reference in my life. Thanks to Hélia for her example, deep friendship, and for being my sister at heart. Always believing in me, never leaving me behind, and listening to me. Thanks to Sandra, the friend I gained during this journey. She believed in me from the first moment, from the first minute we met, and pulled me by her hand.

To my students, who never stop motivating and challenging me. They brightened my day with their friendship, energy, originality, and happiness. Thanks to Iscte for believing in my path and that it has become “my home”.

To all, my apologies for the absence. Not everything was easy, but I believe better days will come, and new dreams are about to be fulfilled. We must continue to believe.

The motto of my life – there is always space for improvement!

So, let's get to it!

RESUMO

O progresso e a sofisticação dos sistemas tecnológicos prometem acelerar o setor do turismo, influenciando a gestão das empresas, nomeadamente ao nível comercial, recursos humanos e planeamento.

O objetivo principal desta tese é analisar a evolução da literatura sobre inteligência artificial e como pode ser integrada aos construtos de envolvimento, conhecimento íntimo, autenticidade, apego e propriedade psicológica. Para alcançar os resultados pretendidos, várias análises foram efetuadas.

Em primeiro, efetuou-se uma revisão completa da literatura, através da análise de artigos científicos, com o objetivo de compreender o desenvolvimento da pesquisa científica sobre inteligência artificial e o compromisso do utilizador.

Em seguida, foi realizado um estudo qualitativo, com o propósito de avaliar o impacto dos assistentes virtuais na indústria do turismo, tanto ao nível da organização como ao nível dos seus clientes, utilizando o método análise temática, a entrevistas estruturadas com gestores de topo do setor do turismo. Os resultados mostram que os benefícios do uso da inteligência artificial superam os negativos e que terão impacto na gestão das empresas.

Por fim, dois estudos quantitativos foram realizados com o objetivo de analisar quais os fatores que influenciam o envolvimento do cliente. O primeiro estudo analisa os construtos de autenticidade e apego como motivadores do envolvimento entre turista e assistente virtual, comprovando que esses fatores influenciam significativamente a interação entre eles. O segundo estudo investiga a comunicação entre a assistente virtual e o seu utilizador, enfatizando a importância do conhecimento íntimo, autenticidade e conexão como motivadores psicológicos. Os resultados mostram que todos os três construtos têm um impacto significativo no envolvimento do cliente com a assistente virtual.

Palavras-chave: Inteligência artificial, compromisso do utilizador, propriedade psicológica, apego, autenticidade, conhecimento íntimo, auto-conexão, proeminência

Classificação JEL: M14; M31

ABSTRACT

The progress and sophistication of technological systems promise to accelerate the tourism sector, influencing business management at the commercial, human resources, and planning levels.

The main objective of this thesis is to analyse the evolution of the literature on artificial intelligence and how it can be integrated with the constructs of engagement, intimate knowledge, authenticity, attachment, and psychological ownership. Several analyses were carried out to achieve the intended results.

First, a comprehensive literature review was done, through the analysis of scientific articles, to understand the development of scientific research on artificial intelligence and user engagement.

Secondly, a qualitative study was conducted to evaluate the impact of virtual assistants in the tourism industry, both at the organization and customer levels, using the thematic analysis method in structured interviews with top managers of the tourism sector. The results show that the benefits of using artificial intelligence outweigh the negative ones and will impact firm management.

Finally, two quantitative studies were performed to analyse which factors influence customer engagement. The first study analyses the constructs of authenticity and attachment as motivators of engagement between tourists and virtual assistants, proving that these factors significantly influence the interaction between both. The second study investigates the communication between the virtual assistant and the user, emphasizing the importance of intimate knowledge, authenticity, and connection as psychological motivators. The results show that all three constructs significantly impact customer engagement with the virtual assistant.

Keywords: artificial intelligence, user engagement, psychological ownership, attachment, authenticity, intimate knowledge, self-connection, prominence

JEL Classification: M14; M31

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LIST OF ACRONYMS

Artificial intelligence (AI)
Brand Attachment (BA)
Compound Annual Growth Rate (CAGR)
Customer Brand Engagement (CBE)
Customer Engagement (CE)
Deep Learning (DL)
Gross Domestic Product (GDP)
Human-computer interaction (HCI)
Intelligence virtual assistance (IVA)
Internet of Things (IoT)
Knowledge Management (KM)
Machine Learning (ML)
Marketing Science Institute (MSI)
Natural Language Processing (NLP)
Personal Intelligent Agents (PIA)
Psychological Ownership (PO)
Segmentation, targeting, and positioning (STP)
Service-dominance logic (S-D-L)
Virtual Personal Assistant (VPA)
Voice user interfaces (VUIs)
Web of Science (WoS)

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INTRODUCTION

In today's world, critical concepts such as Artificial intelligence (AI), Virtual Assistants (VA), users, and information and communication technologies are being developed and incorporated into the strategies of companies across a wide range of industries. The goal is to achieve a sustainable competitive advantage based on innovation and value customization. The technological industry is rigidly following an exponential trajectory that not everyone can keep up with, yet it is already there in their daily lives. Billions of customers complement additional data, allowing robust automation-based solutions. Since robots and machines can discover optimum solutions to complex problems without human intervention, this technology is transforming not only firms but also people's lives. Data changes almost every element of how we perceive and shape our reality. As businesses consume massive amounts of data and seek to integrate and analyse it for insights, they are turning to artificial intelligence to find trends and patterns that indicate opportunities for improved decisions (IBM Market Development & Insights, 2021).

The science that is powering the AI revolution has also undergone tremendous transformation. The maturation of machine learning (ML), which has been fostered in part by the development of the digital economy, is the most visible of them (Stanford University, 2016).

Every day, AI is changing the way we think and connect. The integration of artificial intelligence in the lives of consumers and companies is already a reality (Unlabel, 2021), and they are definitely in our lives (Shanhong, 2021). AI is changing how people interact with technology. Human-machine relationships will become more nuanced, fluid, and personalized as AI systems learn to adapt to individual personalities and goals. The measure of success for AI applications is the value they create for human lives. Going forward, the ease with which people use and adapt to AI applications will largely determine their success (Stanford University, 2016). AI consumers might not know they are using AI, but AI is improving their lives by drastically improving their day-to-day work and decision-making (Data Iku, 2021).

AI statistics in the business and technology industries are evolving. The worldwide AI market is estimated to be worth over \$60 billion by 2025, will boost global GDP by \$15.7 trillion by 2030, and has the potential to boost firm productivity by 40% (Shanhong, 2021). After years of enthusiasm, AI is finally becoming a reality and has made its way into the business world (Unlabel, 2021). Organizations can use AI as a set of assets that assist teams in making better decisions (Data Iku, 2021).

In the next decade, key technologies will drive significant transformations. Although each technology alone is a force for change, it is at the intersection of multiple innovations in technological domains where new accessibility is discovered, developed, and implemented (IBM Market Development & Insights, 2021).

Artificial intelligence, Machine Learning, and Deep Learning are here to stay, and organizations recognize that it is imperative to start or expand the deployment of these innovative technologies. The benefits are many: streamlined operations, enhanced ability to identify marketplace trends, improved products and services, and a better customer experience (IBM Market Development & Insights, 2021).

Virtual recognition still has a long way to go, but Apple, Amazon, and Google have made huge strides in the field with Siri, Alexa, and Google Assistant, respectively (Insider, 2021). By 2030, personal technologies, namely Intelligent Virtual Assistants (IVA), that are firmly woven into the operating systems of major big digital firms will become the go-to for user experience delivery (Gartner, 2019).

Virtual assistants, also called intelligent virtual assistants (IVA), can now be found in billions of devices worldwide. As the name implies, this type of AI agent serves as an assistant for its users by responding to commands, giving information, providing entertainment, and assisting with everyday tasks (Statista, 2021). Artificial intelligence is expanding rapidly across multiple application areas, allowing machine learning to be used in everything from chatbots to autonomous cars (Loureiro et al., 2020).

Tourism is no exception. Tourism has emerged as a critical player in international trade and one of the primary sources of revenue for many developing nations. Over the years, tourism has evolved and diversified to become one of the world's fastest-growing sectors. The travel industry is now changing from its deepest roots to the most insignificant process (Ascolese & Llantada, 2019). Tourism encompasses many enterprises, including hotels, transportation, attractions, and travel agencies.

The tourism sector has seen a considerable expansion along with the increased variety and rivalry among destinations. Tourism significantly contributes to several national and local economies (World Travel & Tourism Council, 2021). Global Travel Market 2022-2026 (Research and Markets, 2021) report states that the travel industry is expected to increase by \$451.19 billion between 2022 and 2026, at a CAGR of 13.86 per cent throughout the projected period.

Tourism management success relies on thoroughly understanding ever-changing consumer behaviour to mobilize essential resources to fulfil their requirements and needs. On the one

hand, modern information technology has fundamentally changed the way travellers access and consume tourism products. On the other hand, the large amount of information has created new needs and opportunities for firms to gain access to data and a better understanding of travel behaviour (Xiang & Fesenmaier, 2017). Thus, the appropriate use of the critical enabling technologies plays a crucial role in the tourism sector becoming more competitive (Peceny et al., 2016).

Tourists use information and communication technologies to analyse, compare, evaluate, and choose the destination that better suits their expectations, desires, and needs. Therefore, tourists gradually have more control over the process, are more responsible for their choices, and feel more independent (Ferreira et al., 2021). The paradigm changes in the interactive world as consumers gain proficiency in using emerging communication platforms. Engaging consumers has become a strategic requirement for marketers seeking to cultivate customer-brand connections to boost profitability. Customer engagement (CE) activities are critical in today's connected environment. Consumer engagement, which measures customers' investment in brand-related interactions, is essential (Rasool et al., 2020). Various firms create activities to enhance customer participation (Beckers et al., 2017). Engagement is a significant and meaningful concept in organizational behaviour, marketing, social psychology, and education (Alvarez-Milán et al., 2018).

1.1 Research problem

Overall, the study of engagement associated with using artificial intelligence and, in particular, what may be the antecedents of engagement – in the relationship between humans and artificial intelligence agents – needs to be further studied. With this identified gap, this thesis is dedicated to understanding the perspective of tourism managers in incorporating these technologies into their organizations and then to analysing the engagement engines from the user's perspective in the context of tourism.

Two main theories guide this thesis: attachment theory and psychology ownership theory. Attachment theory in marketing focuses on the bonds between humans and objects or brands (Park, Macinnis, Priester, & Eisingerich, 2010; Tran et al., 2017; Obilo et al., 2021). This thesis analyses the relationship between consumers and intelligent virtual assistants. The psychological ownership theory expresses the cognitive-affective state in which consumers feel they possess an object, in this case, the intelligent virtual assistant (Pierce et al., 2003).

1.2 Research questions and objectives

This research seeks to contribute to the development of scientific knowledge in the areas of artificial intelligence, marketing, and tourism. In this vein, we will explore what drives consumers to engage with artificial intelligence and how the engagement process between humans and AI technology takes place by analysing authenticity, attachment, intimate knowledge, psychological ownership, and engagement.

1.2.1 Research main objectives

- a. Contribute to the development of literature in the field of artificial intelligence and its integration with the concept of customer engagement and other related concepts, such as attachment, authenticity, or psychological ownership,
- b. Answer to the literature gap, which claims for studies on AI and engagement. It is also a priority of the Marketing Science Institute (MSI) for 2020-2022 (MSI, 2022).

1.2.2 Research questions and specific objectives

- a. What research has been conducted so far on artificial intelligence and engagement?
- b. What are the changes that companies in the tourism sector face to implement new technologies such as artificial intelligence?
- c. Can the emotional attachment and the perception of authenticity affect the engagement between intelligent virtual assistants and tourists?
- d. What is the role of psychological ownership in the relationship between the drivers – intimate knowledge, authenticity, attachment and engagement?

Therefore, the specific objectives are:

1. To understand what research has been conducted so far related to artificial intelligence and engagement,
2. To understand the challenges of implementing new technologies in the tourism sector at the organizational level and particularly in the relationship between technologies and employees,
3. To analyse tourist-virtual assistant communication by demonstrating the effect of authenticity and attachment as drivers of user engagement,
4. To analyse the consumer-virtual assistant communication by demonstrating the effect of intimate knowledge, authenticity and attachment as drivers of engagement via psychological ownership.

1.3 Research philosophy and ethical issues

Neuman (2006) advocates that the positioning of the research influences the research questions and supports the methodological choice, research plan, data collection, data treatment, and discussion. A philosophical paradigm is a system of thinking that collects the system of beliefs and assumptions guiding knowledge production (Saunders et al., 2015). In the primary research, philosophies are four main areas. They are positivism, realism, interpretivism, and pragmatism. Auguste Comte and John Stuart Mill's positivism view sense impressions as distinct sources of knowledge. Researchers deal with visible social reality, and the findings can be generalized. In this case, researchers tend to construct hypotheses based on existing theories and develop research that allows to support or refute them, resulting in the theory's future growth (Remenyi et al., 1998).

Realism implies that there is a reality outside of the mind. Direct realism holds that what researchers observe is what they have, but critical realism holds that what humans perceive are sensations, which are representations of what is actual (Novikov & Novikov, 2013).

Interpretivism supports researchers in interpreting study aspects, implying that researchers believe that access to reality is only attainable through social constructs such as language, tools, or common meanings (Myers, 2008). Researchers evaluate actors' social roles using their own set of meanings.

Pragmatics believes that there are several ways to perceive the world and conduct research, that no single point of view can ever provide the complete picture/understanding of the world, and that there may be multiple realities (Saunders et al., 2015). This last philosophy is followed in the current thesis. A mixed approach is utilized in pragmatism, as are numerous distinct approaches.

Mixed methods research is *a type in which the researcher blends qualitative and quantitative research methodologies, methods, approaches, concepts, or language into a single study* (Johnson & Onwuegbuzie, 2004, p. 17). Indeed, using a mixed-method approach is seen as the third methodological trend, the previous two, qualitative and quantitative (Tashakkori & Teddlie, 2010). Pragmatists appreciate the use of qualitative and quantitative research methodologies and believe that using only one methodological approach is ineffective (Tashakkori & Teddlie, 2010; Saunders et al., 2016).

The research described in this thesis was done secretly, privately, and courteously, from recruitment through participation and data collection to the distribution of findings. Before participation in the research, all individuals freely provided their information.

1.4 Thesis structure

The first section of this thesis corresponds to the introduction. The introduction presents the topic of investigation and its relevance, the research questions, the objectives to be achieved (overall and specifics), and the research philosophy and ethical issues. The last part of the introduction provides the structure of the thesis.

Chapter 1 gives an overview of the literature concerning the key concepts to this thesis, that is, artificial intelligence, virtual assistants and engagement, by doing a comprehensive literature review. The chapter starts with a bibliometric analysis of the literature, studying the prominent authors in the field, intending to capture the core group of articles dealing with artificial intelligence and engagement. This comprehensive literature review intends to understand what research has been conducted so far related to artificial intelligence and engagement. The two subsequent subchapters of this chapter focus on defining the above concept: 1) Artificial intelligence in the business and marketing and tourism field, its roots and evolution, including virtual assistants as well; 2) Engagement is an essential field in the marketing and tourism context. It reviews the interaction between artificial intelligence and customer engagement to understand the engagement process using personal virtual assistants.

Chapter 2 analyses the importance of virtual assistants in the tourism sector and how they impact the organization and its customers. A thematic analysis of 10 structured interviews with market players was conducted. The results show that the advantages of using this technology outweigh the disadvantages and that they have/will impact organizations, namely in developing competencies and optimising resources and processes.

Chapter 3 presents a quantitative study to further understand tourist-virtual assistant communication by demonstrating the effect of IVA authenticity and IVA attachment as drivers of user engagement. Results show that users become engaged when they view their communication with virtual assistants as authentic. Tourists who are closer to their virtual assistant, thinking, feeling and using the device to interact with brands are also more related to the information and recommendations the device gives and establishes a more substantial interaction. An article based on chapter 3 called “Tourist-virtual assistant communication: the power of self-connection and prominence” is accepted in *Anatolia: An International Journal of Tourism and Hospitality Research*.

Chapter 4 explores the role of psychological ownership in engaging users. A study was conducted to analyse consumer-virtual assistant communication by demonstrating the effect of intimate knowledge, authenticity and attachment as drivers of engagement via psychological ownership. According to the findings, people become more engaged when they perceive their

interactions with virtual assistants to be authentic. However, the strength of the attachment-engagement link is greater than that of the authentic-engagement relationship. Prominence is more significant than self-connection in building attachment. As a result, customers more connected to their virtual assistants establish a stronger relationship. An article based on chapter 4 called “You Are Only Mine! Engage with Voice Assistant While Find Destinations and Accommodations” is published in Journal the of Promotion Management.

The last section is dedicated to the conclusion. The conclusion starts with the overall discussion and then describes the final considerations to the academy, followed by contributions to business management, study limitations and suggestions for future research.

CHAPTER 1

COMPREHENSIVE LITERATURE REVIEW

The current chapter presents a comprehensive literature review. It starts with a bibliometric analysis of the literature, intending to capture the core group of articles dealing with artificial intelligence and engagement. The chapter also gives a Co-authorship analysis, Citation analysis, Co-citation and Co-word analysis. Then provides artificial intelligence in business and the connection to the concept of engagement. This comprehensive literature review aims to understand what research has been conducted so far related to artificial intelligence and engagement.

1.1 Bibliometric analysis of the literature

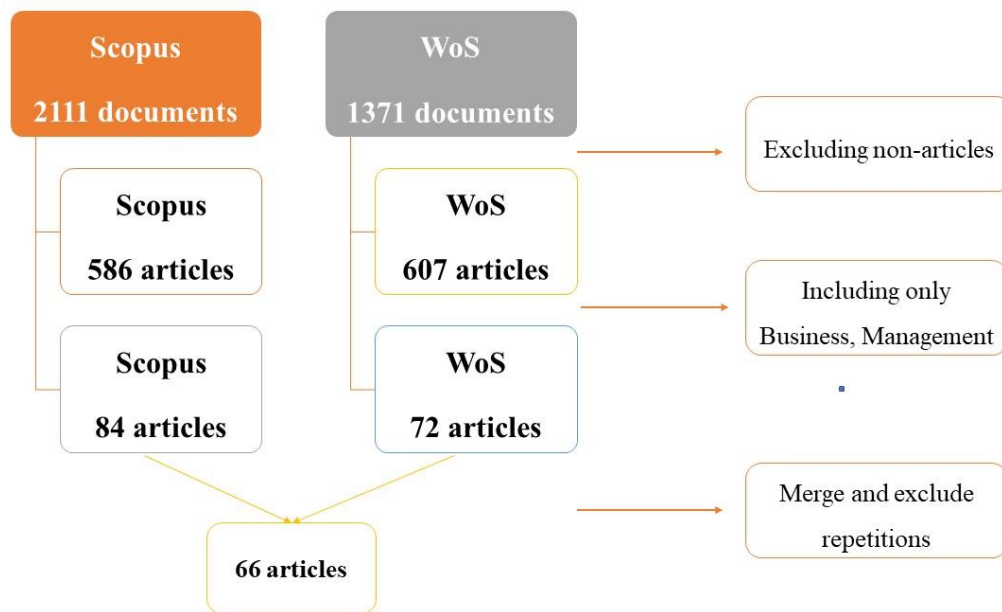
Bibliometric analysis of the literature allows to decipher and map the scientific knowledge of a specific field (Donthu et al., 2020; Donthu, Kumar, & Pattnaik, 2020; Donthu, Reinartz, et al., 2021).

This analysis help researchers to have an overview of the field and identify gaps. Two scientific databases are used for the current research: Scopus and Web of Science (WoS). These databases are selected because aggregate scientific articles are deposited in various well-known publishers, such as Sage, Emerald, Wiley, Taylor & Francis, or Elsevier.

The author has employed the following query in both databases (("artificial intelligence" OR "artificial-intelligence") AND engagement). The query considered that the primary goal of this research is to contribute to understanding what research has been conducted so far on artificial intelligence (AI) and the engagement process between users/consumers and AI.

The selection process for the 66 final sets of articles is illustrated in Figure 1.1.

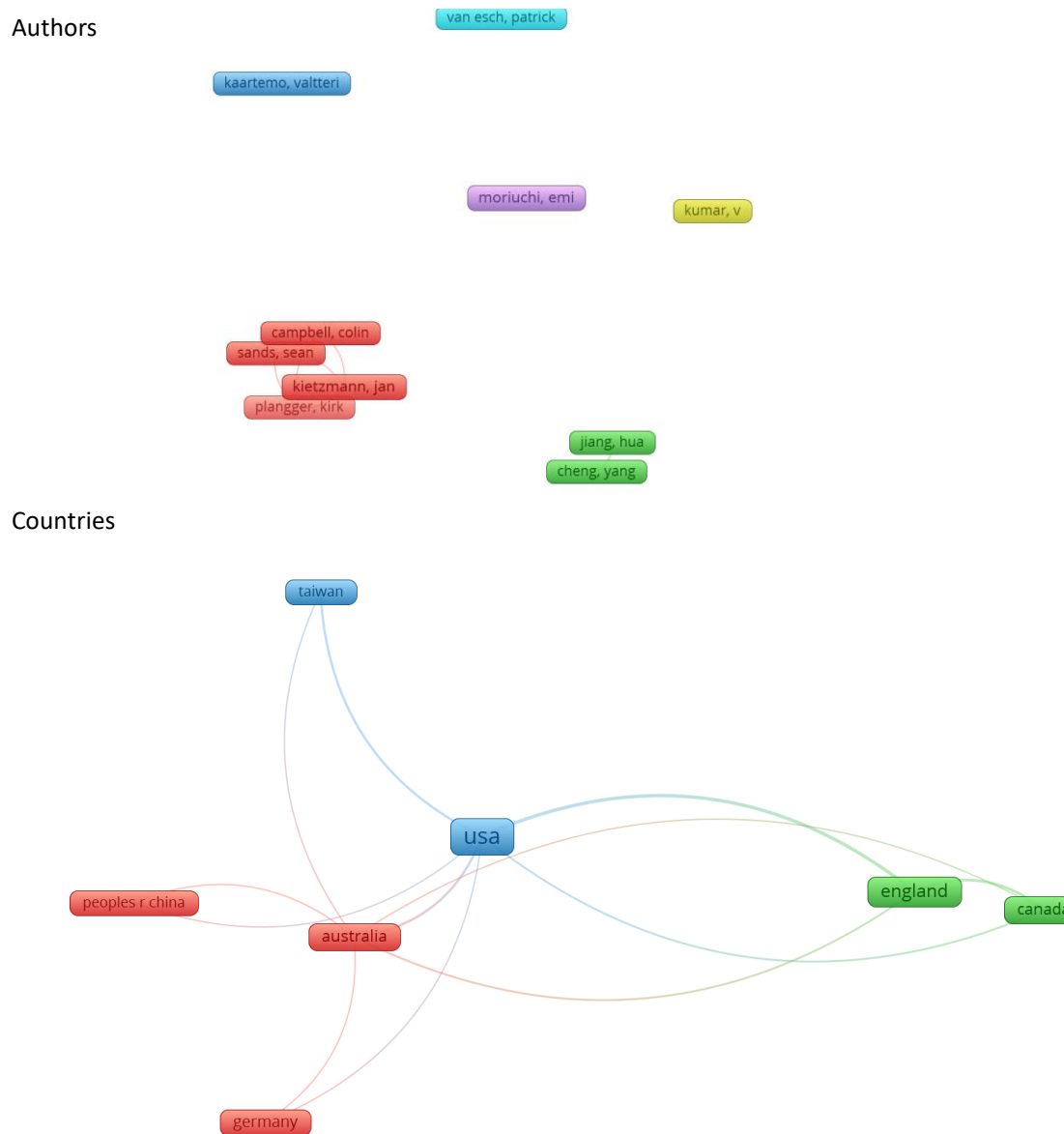
Figure 1.1 Selection process



Source: author's elaboration

The bibliometric analysis was conducted using the VOSviewer software (van Eck & Waltman, 2010). In this vein, co-authorship examines the relationships among authors and the countries where they are affiliated. Figure 1.2 shows the author's networks and the countries of affiliation, where the colours represent different networks.

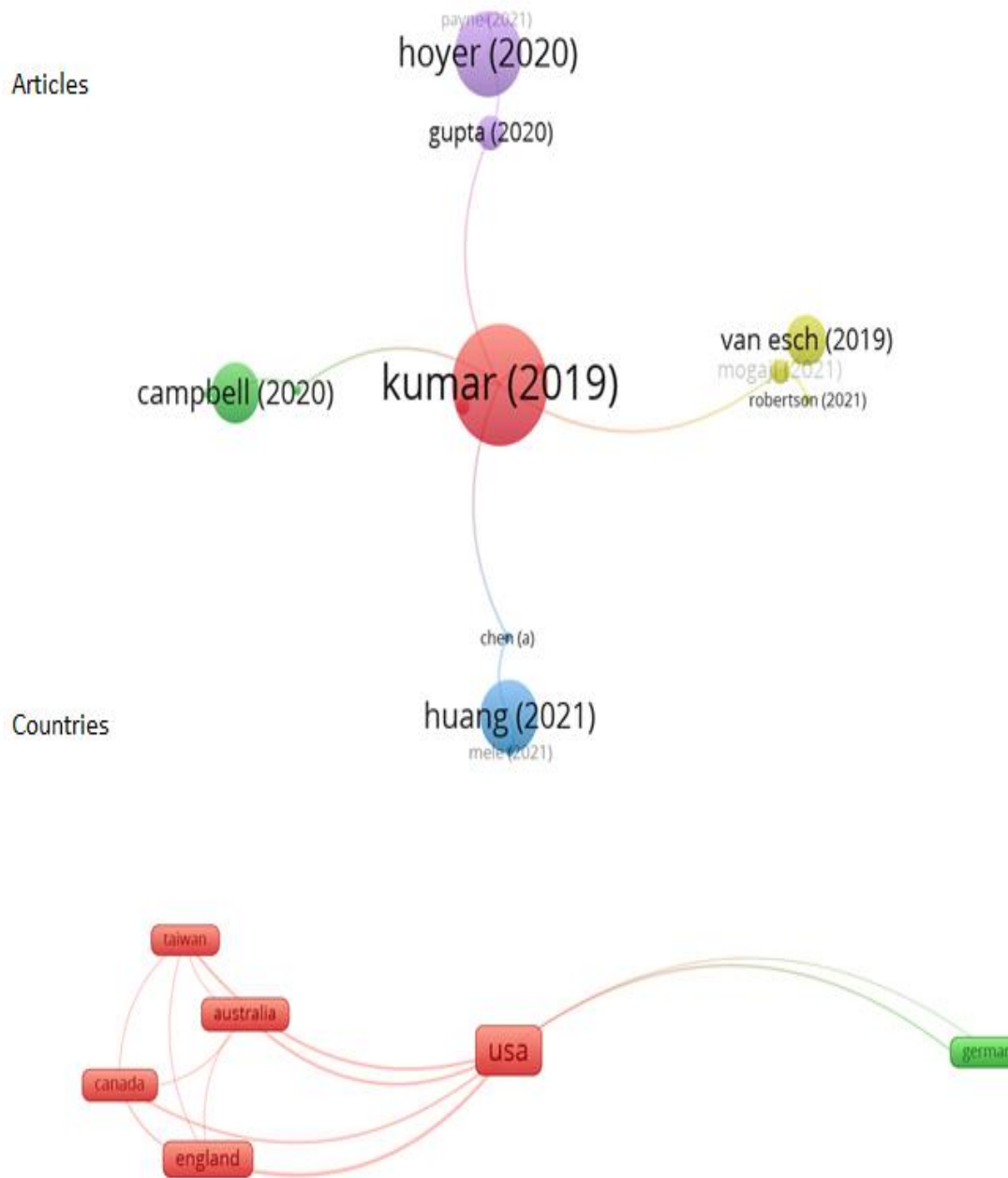
Figure 1.2 Co-authorship analysis



Source: VOSviewer

Citation analysis is presented in Figure 1.3. This analysis gives the relationship between articles and the countries where authors are affiliated, which leads to identifying the most influential articles in the field.

Figure 1.3 Citation analysis

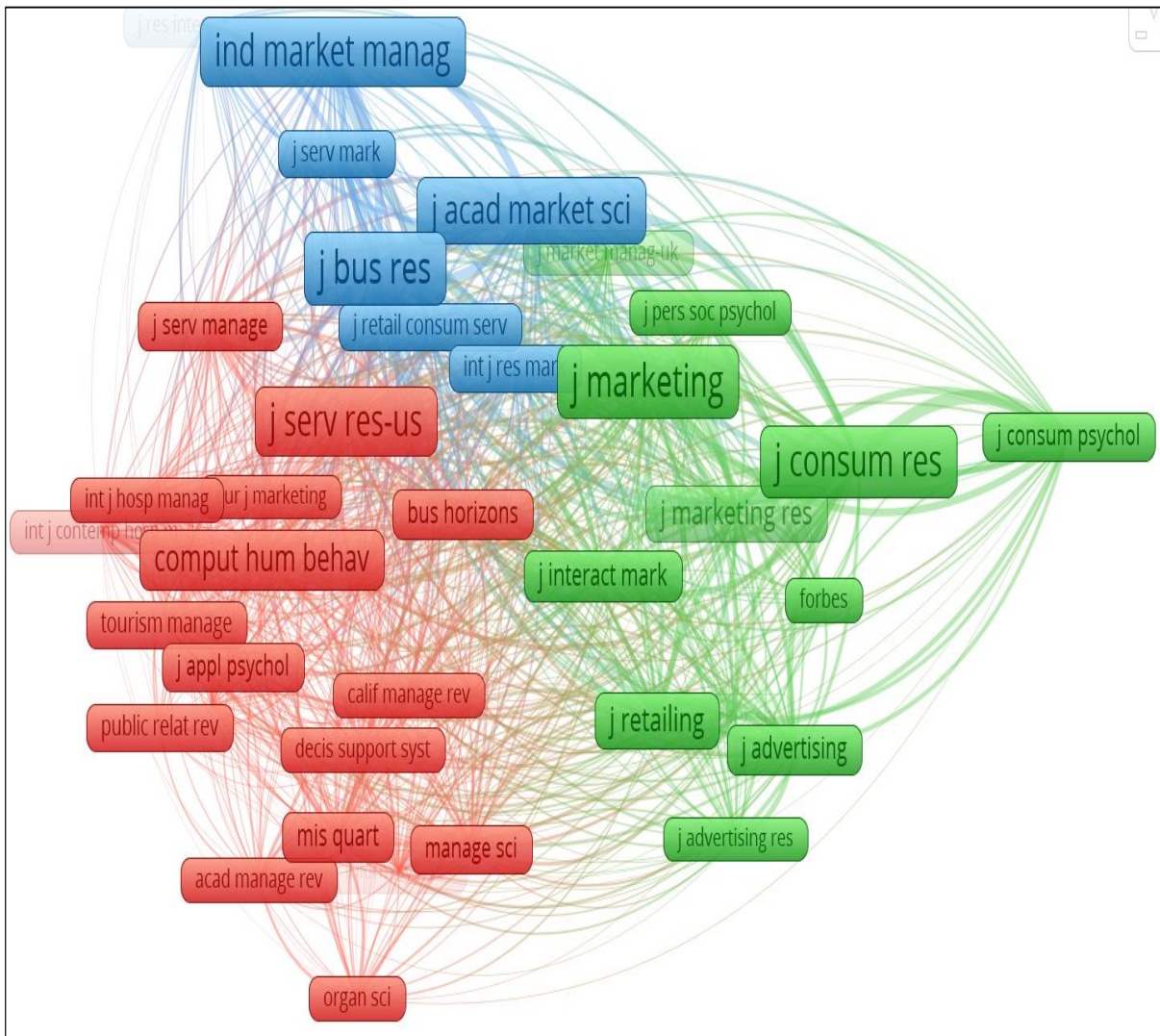


Source: VOSviewer

(Note: the size of the frame indicates the number of times that citations occur)

The co-citation analysis is relevant to understanding the development of relevant journals in the field. In Figure 1.4, the Journal of Marketing, Journal of Consumer Research, Journal of Service Research, Industrial Marketing Management and Journal of Business Research are among the most relevant in publishing the themes in this field.

Figure 1.4 Co-citation

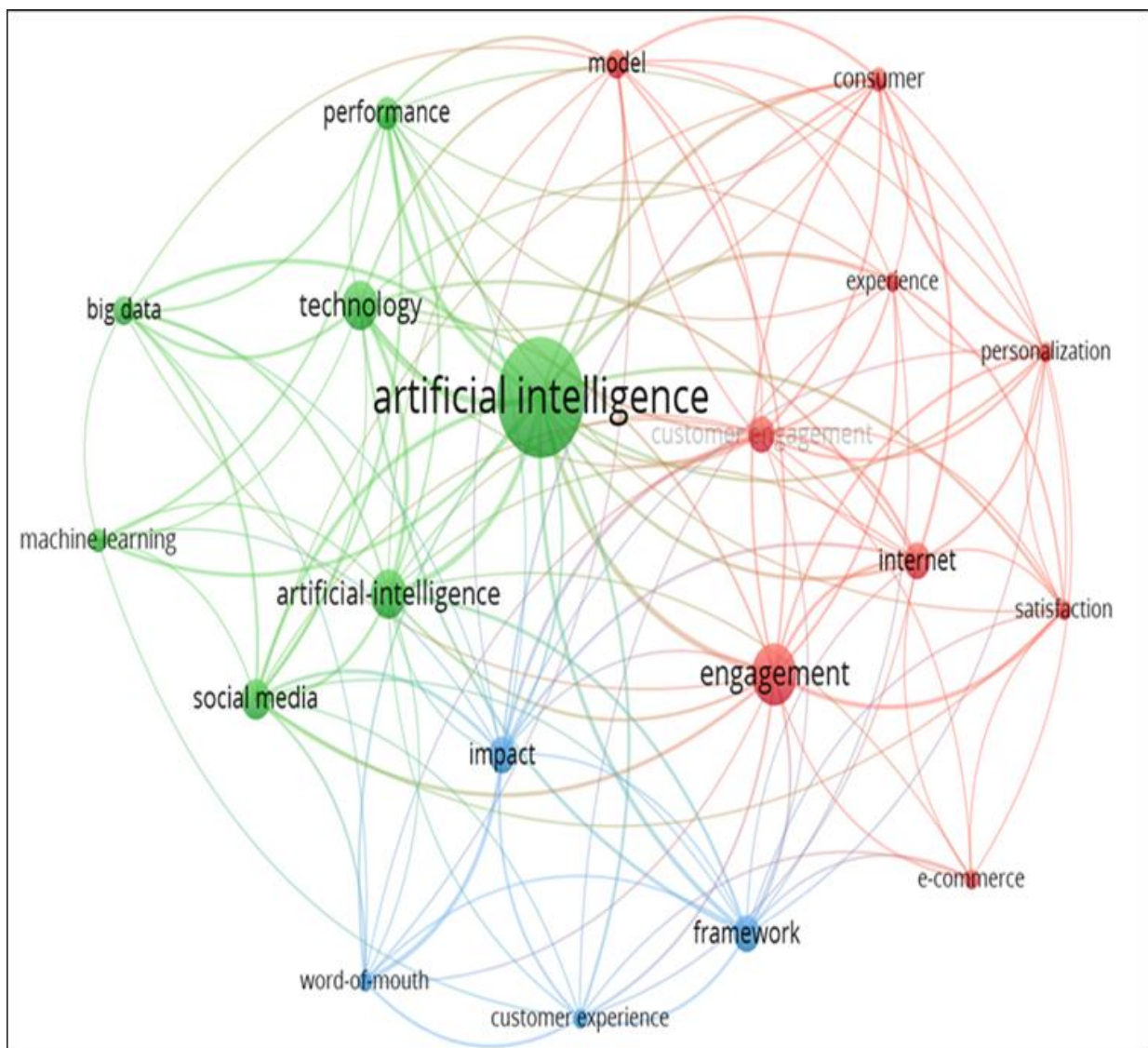


Source: Vosviewer

(Note: the size of the frame indicates the number of times that the co-citations occur for each journal)

Finally, the co-word analysis explores the existing or future relationships among themes in a research field. As shown in Figure 1.5, the word artificial intelligence is linked mainly to other words, such as big data, machine learning or social media. In the blue network, we can see words like social media, word-of-mouth or customer experience. In the red network emerges words like engagement, personalization, and satisfaction.

Figure 1.5 Co-word analysis



Source: Vosviewer

(Note: the node size indicates the number of times the keyword occurs. The link between the nodes represents the keywords that co-occur or occur together, and the thickness of the link signals signifies the number of times that the keywords co-occur or occur together).

1.2 Artificial intelligence in business: roots and evolutions

1.2.1 Meaning and roots of artificial intelligence

The concept of artificial intelligence is founded on the premise that human cognitive capabilities may be copied and automated, resulting in robots that can understand, explore and learn from databases. There is no current agreement on the concept of AI, which has evolved significantly over time and involves diverse points of view. Surprisingly, the absence of a definition agreed by the whole scientific community was what allowed this topic to expand at the rate it is now (Stanford University, 2016). According to Nilsson (2010, p. 13), *Artificial intelligence is the activity dedicated to the manufacture of intelligent machines, and intelligence is this quality that allows an entity to function properly and with forecasting in its environment.*

Russell and Norvig (2009) define AI as intelligence demonstrated by computers that mimic human cognitive functions such as problem-solving. AI is a catch-all term for the study of making robots intelligent. The notion refers to information systems inspired by biological processes and spans a wide range of technology (Simon, 2019). AI is defined as a system that mimics human traits, including communication, learning, and problem-solving improve cognitive functioning (Russell & Norvig, 2012) via higher-level, autonomous knowledge creation (De Bruyn et al., 2020). AI can supplement and replace human employees in industrial, intellectual, and social applications (Dwivedi et al., 2021).

Initially, the fundamental goal of AI was to create intelligent computers capable of replicating any intellectual and cognitive work, such as that of a human being (Bosse & Hoogendoorn, 2015). According to Simon (2019), no recognized overarching theory or paradigm drives study on this issue. However, research focuses on four components of human intelligence: learning, reasoning, problem-solving, and perception. Therefore, it is necessary to comprehend the nature of intelligent thought and activity by employing computers as experimental devices.

AI distinguishes itself from traditional information technologies that it comprises a sort of technology that can learn, connect and adapt to its surroundings (Huang & Rust, 2020). While AI is capable of self-learning, Huang and Rust (2020) also claim that the aims and results of AI applications are limited to the objectives they were built on and cannot always be intended to learn.

Several scholars divide artificial intelligence (AI) into two categories: Weak (artificial narrow intelligence) and Strong (artificial general intelligence) (Atkinson, 2016). The first category is inspired by the human brain but does not strive to duplicate it. It is composed of computer systems designed for statistical data processing and may perform specific tasks such

as a virtual assistant that recognizes virtual commands. This type of AI is already widely used in the technology industry and regular jobs. The ability of machines to do human intellectual functions is the second category - without boundaries and with a remarkable ability to communicate information and adapt quickly to changing surroundings (Atkinson, 2016).

Large data sets serve as the starting point for the creation of in-depth business intelligence, which encourages improvements in current corporate operations and opens the door to new business ventures. Deep learning and machine learning analyse enormous data sets to uncover subtle patterns and correlations in big data that might give businesses a competitive advantage. At the same time, AI's capacity to produce meaningful predictions needs substantial amounts of data and high-quality data. (TechTarget, 2021). To cope with vast amounts of data, AI uses two types of input data: structured data, which is traditional and standardized data (e.g., customer socio-demographics) and unstructured data (e.g., written texts, audio, and pictures). AI pre-processes unstructured inputs, and the outputs of these building blocks outperform natural human intelligence, which benefits marketers. The more unstructured data an AI system examines, the smarter it becomes, and the more useful the findings become for management. AI algorithms can enhance projections about whether consumers would buy the paid version or estimate their future worth by examining patterns and learning from data about consumers' past behaviour during a product's trial phase.

A computer must have the following capabilities: Natural Language Processing (NLP), which is the capacity of computers to read, comprehend and successfully communicate in a given language; Image Recognition, which enables marketers to detect photographs and videos posted by users on social media and which represent actual customer behaviour; Speech Recognition enables a computer to respond in a human-like manner (Ning et al., 2019; Sung et al., 2021) and to analyse the meaning of spoken words and enables a computer to process virtual inputs (Levis & Suvorov, 2012); Problem Solving and Reasoning enables AI to understand the nuances implicit in user-generated content, they describe what challenge they want to address and how they can handle data analysis. These fundamental processes result in the crucial discovery of patterns in data, which improves the ability to anticipate future behaviour. By finding trends in data, Machine Learning enables AI systems to "reason" and offer the best solutions for the individual customer's needs more precisely than humans can.

Since the start of artificial intelligence, theories and technology has evolved, and the range of application has expanded. The information process of human awareness and reasoning may be mimicked by artificial intelligence. Machine Learning, Deep Learning and Natural Language Processing are some of the subfields of AI. The study of a computer's ability to learn without

being explicitly taught is referred to as machine learning (Samuel, A., 1959). Natural Language and Deep Learning are also important. Chowdhury & Mavrotas (2005) define Natural Language as the ability to interpret and manipulate natural languages to perform tasks. Deng and Yu (2013) state Deep Learning as studies about brain activity to learn about abstraction, pattern recognition, and signal processing.

While AI may synthesize some common qualities, three main functional aspects can be assigned to AI individually: perceived anthropomorphism, perceived intelligence and perceived animacy (Złotowski et al., 2015). Anthropomorphism is the habit of imbuing a non-human creature or thing with human-like qualities (Chérif & Lemoine, 2019; Pfeuffer et al., 2019). Anthropomorphic features can instil prominent trust through an emotional connection with the item, resulting in a stronger relationship with non-human objects (Touré-Tillery & McGill, 2015).

Perceived intelligence is a critical component of artificial intelligence (Złotowski et al., 2015). Cognitive and reasoning ability in data processing intelligence has become vital to any AI algorithms (Hossain et al., 2020). Virtual assistants (VA) are the result of advances in speech recognition and innovations in how information is organized and integrated for virtual-based delivery (Littman et al., 2021). Virtual assistants are establishing a trustworthy image in families, with many people treating them as if they were a friend or family members. When building speech apps as an interactive channel on smart speakers and mobile devices, brands must consider this degree of consumer intimacy. Virtual assistants are advantageous to firms, and they intend to expand their use of speech technology shortly (Virtual Assistant Technology - Statistics & Facts | Statista, n.d., 2021). When people observe objects, they examine what they have just seen, identifying or not recognizing a specific stimulus based on past experiences and memories. The necessity for interaction was the driving force behind the development of this technology. The user may have an entire dialogue with the AI system by using intelligent virtual assistants (IVA), searching for news, ordering items or services, looking for local coffee shops or restaurants, and accessing contacts and email in a few seconds (Nilsson, 2011). Personal Intelligent Agents (PIA) are digital and virtual assistants that operate intelligently to answer and support consumers based on conversation data (Moussawi & Koufaris, 2019). Animacy is the belief in objects as living entities capable of interacting and following their laws (Dwivedi et al., 2021). The concept of animacy is when humans get attached to a tool, at least on an abstract level, they personify it.

In sum, artificial intelligence is a big virtual warehouse that collects visual, aural, textual, or numerical data and then uses that knowledge to conduct actions that offer the proper answer to a range of issues (Nilsson, 2011).

1.2.2 Evolution of artificial intelligence

According to Atkinson (2016), the technological advances we are watching in the field of artificial intelligence correspond to the sixth wave of fundamental technological revolutions in modern history. John McCarthy founded the first formal artificial intelligence defining effort at Dartmouth College in 1956. Subsequently, AI research has expanded to include pattern recognition, machine translation, physical/mechanical theorem-proving, robotics, intelligent control, and machine learning (Castro & New, 2016). Robots can learn from experience, adapt to new inputs, and perform tasks comparable to those people perform, thanks to artificial intelligence.

Since the early 1950s, many scientists, programmers, logicians, and theorists have worked to solidify the current knowledge of artificial intelligence. Breakthroughs and discoveries have revolutionized people's fundamental knowledge of the field (IBM Market Development & Insights, 2021).

Apple debuted Siri in 2011. Siri uses a natural language user interface to infer, monitor, respond to, and recommend goods to the user. In 2014, Microsoft released Cortana, its iOS version of a Siri-like virtual assistant. Amazon also created Amazon Alexa, a home assistant that has grown into smart columns that work as personal assistants (What Is Artificial intelligence (AI)?, IBM, n.d.). Sophia, a humanoid robot created by Hanson Robotics, was released in 2016. She is the first robot citizen in the world. Sophia possesses more human characteristics than earlier humanoids because of her ability to observe, make facial emotions, and interact via AI (A Complete History of Artificial intelligence, n.d.). Google produced BERT, the first two-way unsupervised linguistic representation that can be used in various natural language applications using transfer learning. In 2018, Bixby, Samsung's virtual assistant, was launched into the market. Among its capabilities are the ability to converse, ask inquiries, and make suggestions and comments. AI development and evolution is a never-ending process. Artificial intelligence is advancing at an unprecedented rate (A Complete History of Artificial intelligence, n.d.).

1.2.3 Artificial intelligence in business

Artificial intelligence (AI) is reshaping business, the economy, and society through altering stakeholders' and people's experiences and relationships (Loureiro et al., 2021). Aside from focusing primarily on 'artificial general intelligence,' the AI community has begun identifying a slew of more minor, less ambitious problems. Scholars are starting to identify sub-topics within AI, each with a unique goal of tackling real-world challenges (Bosse & Hoogendoorn, 2015).

Recognition systems, whether virtual features or fingerprints, are prevalent for a good reason. Biometric identity is increasingly required in our daily activities. Persistent recognition allows organizations to learn more about their customers and provide them with a level of customization that would be hard to do on a large scale otherwise (Future Today Institute, 2021).

AI has created new business and marketing opportunities (Duan, Edwards, & Dwivedi, 2019). According to Davenport (2018), AI consists of several technologies, such as robots, avatars, virtual bots, touchscreen kiosks, and narrowcasting (Huang & Rust, 2018; Pillai, Sivathanu, & Dwivedi, 2020; Vimalkumar, Sharma, Singh, & Dwivedi, 2021). AI also holds the potential to promote consumer engagement (Duan, Edwards, & Dwivedi, 2019).

The AI literature has identified several domains in which the technology can be applied: Digital Imaging, Education, Government, Healthcare, Manufacturing, Robotics and Supply Chain (Simon, 2019; Dwivedi et al., 2021). Autonomous technology's advancement can benefit many sectors (Simon, 2019; Loureiro et al., 2020). Artificial intelligence is rethinking and redefining how businesses interact with customers (Microsoft and EY, 2018). Companies and consumers will increasingly rely on the IVA, which controls and manages customer interactions (Klaus & Zaichkowsky, 2020; Ramadan, 2021).

1.2.4 Artificial intelligence in the marketing and tourism field

In recent years, businesses have undergone a technological revolution. Marketing is no exception. Among the primary reasons for implementing AI in marketing departments is the explosion of data created by the acquisition of information systems, the role of social networks in customers' lives, and the need to reduce costs and boost profitability. People today interact with technology through more advanced interfaces, going from ordinary keyboards to touchscreens, virtual commands, and beyond (Vaccaro et al., 2019).

AI is the most recent technological disruptor and has enormous commercial transformation potential. Customer trends, purchases, preferences, and dislikes, among other things, must be assessed using AI (Verma et al., 2021). In marketing, AI technologies such as business models, sales techniques, customer service alternatives, and consumer behaviours may be used (Fiorini, 2018).

Because of technological advancements and changes in consumer behavioural patterns, it is conceivable to determine that artificial intelligence (AI) may substantially influence the operations inherent in marketing efforts. Many artificial intelligence features, such as virtual assistants and chatbots, overlap. Alexa and Siri are instances of this concept, as they not only provide excellent customer service but also act on behalf of the consumers, conducting their requests in the same manner that a human assistant would. Intelligent virtual assistants enable organizations to engage with users or customers as a human would.

The technologies that power virtual assistants require massive amounts of data, which feeds artificial intelligence (AI) platforms, including machine learning, natural language processing and speech recognition platforms. As the end-user interacts with a virtual assistant, AI programming uses sophisticated algorithms to learn from data input and better predict the end user's needs (TechTarget, 2021). The objective of artificial intelligence is to learn, do reasoning and execute activities (Verma et al., 2021). Artificial intelligence marketing is a sort of marketing in which the concept and model of artificial intelligence are used to attain marketing goals.

Artificial intelligence (AI) in marketing is currently gaining importance due to increasing computing power, lower computing costs, the availability of big data, and advanced machine learning algorithms and models (Huang & Rust, 2021). In the context of marketing, the authors propose a three-stage strategic planning framework based on the marketing research–marketing strategy–marketing action cycle. Huang and Rust (2021) view strategic planning as a circular process. From conducting marketing research to developing strategies for segmentation, targeting, and positioning and designing specific marketing actions to execute the strategy, to construct the collecting learn, reason, and act.

Artificial intelligence aims to: a) learn that refers to all operations to gather information from customers or prospectuses. Whether obtained online or offline, this data is retained in customer or prospect databases; b) reasoning refers to the process by which data is turned into information and then into intelligence or insight. Here is where artificial intelligence and machine learning, in particular, play a critical role; and c) execute activities. Acting on intelligence gleaned from the previous rationale is possible (Verma et al., 2021). This computer

or robot operates on the idea of learning about a scenario through sensors and human interaction and then improving future user experiences (Bosse & Hoogendoorn, 2015; Stone et al., 2016; Simon, 2019).

AI is also rapidly gaining acceptance and importance in the larger realm of marketing. Many marketing functions have deployed AI applications such as consumer greeting robots, big data analytics for price adjustment and prediction, recommender systems for product and promotional personalization, natural language processing for customer engagement and in-store experience optimization, and sentiment analysis for customer satisfaction tracking (Huang & Rust, 2021).

According to Huang and Rust (2021), at the marketing research stage, AI is used for market intelligence (mechanical AI for data collection, thinking AI for market analysis, and feeling AI for customer understanding). AI is used for the strategic decisions of segmentation, targeting, and positioning at the marketing strategy stage. AI is ideal for learning novel customer preference patterns in unstructured data and can automate data collection about the market, environment, firm, competitors, and customers. It is also perfect for recommending the best segment(s) to target, identifying competitors in a well-defined or new market, and deriving insights into a product's competitive advantages. AI is ideal for interacting with the targeted customers about the product and can be used to understand potential customer needs and wants (e.g., who they are, what they want, and what their current solutions are). At this stage, AI is used for the benefits of standardization, and personalization, individually or synergistically. By using feeling AI, customer service and frontline customer interaction can benefit from the relational element of AI, such as social robots greeting customers and conversational AI providing customer service (Huang & Rust, 2021).

A marketing analytics tool based on artificial intelligence may assess the compatibility of a product design to the consumer's demands and the resulting customer satisfaction (Verma et al., 2021). Promotion tactics are transforming from physical to *phygital*, linking online and offline can create a much more complete and satisfying customer experience. The authors also claim that the customer determines the content, location, and timing in today's technology environment. Artificial intelligence can dynamically adjust prices in real-time scenarios. AI allows message tailoring and customization based on the customer's profile and preferences (Huang & Rust, 2021).

The standardization and industrialization of the distribution process benefit both suppliers and customers. Aside from its value in distribution management, AI also provides chances for customer involvement in the service environment. Service robots outfitted with emotional AI

algorithms come in helpful when it comes to surface acting. Embodied robots greet and engage with customers, but human elements must balance the service environment for customer delight. Automation of service processes with AI offers additional opportunities for performance and productivity improvement (Huang & Rust, 2018). Artificial intelligence may aid marketers with marketing strategy and planning by assisting with segmentation, targeting, and positioning (STP). Aside from STP, AI may assist marketers in envisioning the firm's strategic orientation. (Huang & Rust, 2017). Thus, the basis of marketing may not have changed, but how we communicate has evolved. The most challenging task for businesses is determining how and to what degree customers want to interact with this technology (Infosys Limited, 2018).

AI and virtual control, among other intelligent technologies, are expected to significantly influence the hotel industry (Cao et al., 2022). AI provides the ideal opportunity for travel companies to improve their marketing, customer service, customer experience, and retention. The travel and hospitality industries embrace cutting-edge technologies, such as Machine Learning (ML) and Artificial Intelligence (AI). Tourism is facing a more automated future (Tussyadiah, 2020). Tourism providers have started using intelligent machines in their operations. By gathering and analysing massive quantities of widely available consumer data, artificial intelligence can deliver hitherto undiscovered insights to travel companies and hoteliers (Infosys Limited, 2018). Artificial intelligence in the hospitality and tourism sector can bring enhancements that improve and prolong the trip and consumer loyalty. It is feasible to easily transport customers through each phase of their consumer journey using data synthesis and automation, predicting behaviours and boosting customer happiness. Developing tailored customer interactions and content creation might result in a customized experience for each individual. Contextual interaction may also engage customers and sequence the actions they do correctly (Edelman & Singer, 2015).

The ability of artificial intelligence (AI) to streamline operations and give relevant information is powering a new age of responsive, guest-centric hospitality. One of the developments in the tourist and hospitality business is the AI robot concierge. A growing number of hotel businesses have realized that offering outstanding customer service while capitalizing on customer expertise is critical to developing brand value. Intelligent Robot Concierge may easily be integrated into other systems, such as virtual-activated services and bots, to provide enterprises with even greater automation (Roberts, 2021).

Front-facing customer service is the most visible application of artificial intelligence in the hotel sector. Technology has proven to be quite successful, particularly regarding direct

messaging and online chat services, as well as responding to elementary concerns or requests. The emergence of artificial intelligence in chatbots and virtual assistants in the hotel sector has produced astounding results. They may be thought of as the digital equivalent of front-line customer service. Many individuals utilize aggregator websites to locate and book accommodations. AI-based functionality integrated into a website may minimize friction, increase sales, and deliver a booking experience personalized to customers' preferences. Even if customers prefer to book directly through the hotel's website, choosing desired dates and check-in information might be time-consuming and complex (4Sight, 2021).

Artificial intelligence is particularly relevant to travel and tourism for several reasons. Artificial intelligence systems may improve tourism in a variety of ways. From the tourist's perspective, AI allows them to find better and more relevant information, boosts their mobility, improves their decision-making, and, ultimately, provides a better travel experience (Tussyadiah & Miller, 2019). Intelligent automation in tourism reflects how information-intensive the industry is and how processing many data is necessary for tourists' decision-making. The concept of "smart tourist ecosystems" is supported by the collecting, distributing, and transformation of data with the integration of artificial intelligence tools, the internet of things, and other related technologies (Tussyadiah, 2020).

1.3 Artificial intelligence and Customer Engagement

1.3.1 Customer engagement roots and meaning

Customer engagement is no longer a one-time event but rather a continuous conversation. We live in an "always-on" culture that is digitally governed. Firms must be current in this regard and must keep up with and welcome innovative technologies because it is crucial if they want to reach a larger audience and keep their consumers engaged. Businesses focus on forming deep ties with customers that affect purchase decisions, interaction, and involvement over time. Organizations, by definition, have a purpose, whether to improve the product or boost loyalty and sales. Maintaining a stable and authentic relationship with consumers will make a significant difference in both areas. The consumer engagement construct has evolved and been reinterpreted throughout time, resulting in various definitions, concepts, and arguments used to explain it. Customer engagement (CE) research has concentrated on how firms may leverage customer interaction to generate profit and preserve a competitive edge (Prentice & Loureiro, 2018).

According to one of the most comprehensive descriptions in the literature, engagement is a highly context-dependent psychological state (Brodie et al., 2011) with cognitive, emotional, and behavioural dimensions that play a critical role in developing increasingly immersive interactions with customers. It displays motivation and intensity levels (Brodie et al., 2011). Engagement is the result of an individual's (subject) relationship with a focal item (object), which may include product offerings, organizations, or a focal brand (Hollebeek, 2011).

Aside from purchases, engagement is shown as a state of mind or activity. Bowden (2009) defined it as "a psychological process" that drives consumer loyalty. According to Van Doorn et al. (2010, p. 254), the idea is *a customer's behavioural manifestations that have a brand or company focus beyond purchase, stemming from motivating motivations*.

Kumar (2013) focuses on the diverse ways a customer can engage profitably with a firm. Engagement entails co-creation, interaction, and solution development, all dependent on the mindset that drives consumers towards a firm (Kumar et al., 2016). Accordingly to Kumar et al. (2016), engagement is a behavioural attitude, and it was operationalized into four facets: consumer purchase, referral, consumer influence, and knowledge. A firm can engage consumers in various ways, including promoting customer recommendations and requesting feedback on products/services (Kumar 2013). Cambra-Fierro, Melero-Polo, and Vazquez-Carrasco (2013) state that consumer engagement is a transactional and non-transactional activity that influences future brand and organizational performance.

Several authors (Bowden, 2009; Hollebeek et al., 2014; Calder et al., 2016) highlight the multifaceted perspective of engagement, defined as a multilevel, multidimensional construct that originates from thoughts and feelings about one or more rich experiences associated with achieving a specific goal and develop a flexible engagement scale. There may be some links between various engagement conceptions in the literature. Customer engagement attempts to differentiate customer attitudes and behaviours that transcend beyond buy patterns (van Doorn et al., 2010; Vivek et al., 2012). As a result, it is considered that the consumer's role is active, participatory, and co-creative rather than a passive receiver of corporate activity (Kumar et al., 2010; Brodie et al., 2011; Hollebeek et al., 2019).

Customer engagement is defined as a consumer's willingness to interact with a brand and the customer's volitional behaviour and spontaneous involvement (Bilro et al., 2020). The concept of consumer brand engagement has been established to represent the nature of consumers' brand interactions.

Consumer brand engagement (CBE) is described as a consumer's cognitive, emotional, behavioural, and co-creative brand-related behaviours in response to specific encounters

(Hollebeek et al., 2014). Initially, academics believed that cognitive processes and affection determine how much people engage with a brand (Hollebeek, Glynn, & Brodie, 2014). Consumer participation results in positive behavioural responses (Shiv & Huber, 2000; Jones, Reynolds, & Arnold, 2006; Dacko, 2017; Hilken et al., 2017). According to Hollebeek et al. (2014) and Tunca (2019), brand involvement correlates favourably with brand engagement. Regarding brands as engagement objects, three CBE dimensions have been validated, according to Hollebeek et al. (2014): a) cognitive processing (cognitive CBE), b) affection (emotional CBE), and c) activation (behavioural CBE). In terms of consumer-brand interactions, cognitive processing is defined as a consumer's level of brand-related thought processing and elaboration. The cognitive component consists of an ongoing process that assures consumers' long-term and active mental states of experience concerning their primary point of engagement (Hollebeek, 2013); affection is defined as a consumer's level of positive brand-related affect. The affective component is concerned with the participants' long-term emotional states towards the primary purpose of their engagement (Calder, Malthouse, & Schaedel, 2009), and activation is defined as a consumer's level of energy, effort, and time spent on a brand. The behavioural component is the behavioural manifestation of a focus on engagement. Hence, satisfaction has been considered an engagement consequence, with an expected positive relationship between the customers and brands (Brodie et al., 2011; Hollebeek et al., 2014).

The topic of engagement has been declared a research priority throughout the last decade (Brodie, Hoollebeek, Juric, & Ilic, 2011; Harmeling, Moffett, Arnold, & Carlson, 2017; Kumar, Rajan, Gupta, & Dalla Pozza, 2019). It provides an updated perspective on how organizations connect to and rely on numerous players, resources, and activities beyond their own organization's domain (e.g., customers, suppliers, and partners) to support value generation.

The majority of engagement research is primarily based on two related research streams: relationship marketing (Bijmolt et al., 2010; Kumar et al., 2010; Pansari & Kumar, 2016; Harmeling et al., 2017; Venkatesan, 2017) and service-dominant logic (Brodie et al., 2011; Chandler & Lusch, 2015; Hollebeek, Srivastava, & Chen, 2019; Ekman et al., 2021). According to Bilro et al. (2020), consumer engagement is a motivational and relational state with cognitive, emotional, and behavioural components that can occur between two actors, one of which is the customer(s) and the other a corporation.

The first part of customer engagement is their attitude, conduct, and level of connectivity with one another and the firm. Customers' interactive efforts, both direct (buying, suggesting, persuading) and indirect (giving feedback), are impacted by the many forms of consumer contact to achieve results, according to a consumer engagement typology, which Bilro and

Loureiro (2020) mentioned as benefits. These benefits might be real, such as a firm's performance (e.g., sales, earnings, or market share), or intangible, such as brand recognition (e.g., opt-in. privacy sharing, or relevant marketing activities).

Firms are focused on the quality of the relationships they build with customers and on increasing the benefits that customers may provide to their brands in addition to purchases (Prentice & Loureiro, 2018). According to Pansari and Kumar (2017), the relationship between brands and consumers is a critical component of consumer engagement. This link, which increases the contribution that customers are ready to make to the organization, is becoming more visible in the online interactive environment (Rosado-Pinto et al., 2020). Interactive brand communication and co-created brand experiences engage consumers (Garg, Gupta, Dzever, Sivarajah, & Kumar, 2020). Firms must understand that it is vital to understand and explore the notion of customer engagement (Bilro et al., 2020) because engaged consumers may create a variety of direct and indirect benefits (Kumar & Pansari, 2016).

Brodie et al. (2011) argue that the value of the consumer-brand connection is decided by the level of fulfilment derived from the customer's emotional attachment and the reasons behind this relationship.

By integrating previously dispersed resources, technologies, and business activities into something new, digital technology creates new mechanisms for generating business opportunities and creating value (Gill et al., 2017; Beckers, van Doorn, & Verhoef, 2018; Ekman et al., 2021). Virtual User Interfaces (VUIs) are used as a consumer engagement strategy among AI technologies. Applications with voice user interfaces (VUIs) such as Google Assistant, Siri, and Alexa, have been implemented and used in various contexts, such as autonomous vehicles, home appliances, education, commerce, entertainment, and public services. A virtual user interface (VUI) provides a powerful mechanism for human-computer interaction by enriching the virtual-based user experience. Many consumers believe VUI-enabled machines can think and speak like humans (Wang, 2020). An AI assistant is another example of a VUI (Kaplan & Haenlein, 2019), which has a built-in function that allows humans and machines to communicate via virtual. Its core technology is speech recognition and synthesis (Kepuska & Bohouta, 2018).

Speech recognition enables a computer to process virtual inputs (Levis & Suvorov, 2012), and speech synthesis enables a computer to respond using a human-like virtual (Ning, He, Wu, Xing, & Zhang, 2019). Applied technology has been shown to promote positive consumer experiences (Deng, Unnava, & Lee, 2019; Gómez, Lopez, & Molina, 2019) and consumer engagement through immersion (tom Dieck, Jung, & Rauschnabel, 2018). For example,

conversational AI embedded in augmented human objects has enormous potential to improve consumers' enjoyment and perceptions of novel retail experiences. When integrated into consumer engagement strategies, technology that provides immersive experiences effectively boosts consumer-brand engagement (Sung et al., 2021).

A dynamic environment between a brand/firm and its customers will increase their level of connectedness through mutual interactions, resulting in increased corporate performance, a robust competitive edge, and profitability (Kumar & Pansari, 2016). According to Brodie et al. (2011), consumer engagement is built on engaging customer experiences and co-created value. Kumar and Pansari (2016, p. 498) argue that engagement *represents co-creation, interaction, solution development, and so on, all of which depend on the attitude that drives the behaviour of customers and employees toward a firm*. It is possible to conclude that engagement may be developed through various interactions and experiences with organizations, brands, products, or services (Brodie et al., 2011; Hollebeek, 2011; Rosado-Pinto & Loureiro, 2020). Engagement is at the pinnacle of relationship marketing and is a success factor that leads to loyalty and long-term connections (Loureiro et al., 2020). Customer participation is a multidimensional idea (Bilro et al., 2020) that encompasses affection, cognition, and behaviour (Hollebeek et al., 2014). The concept of engagement explains a person's motivating state concerning a specific agent or item (Rosado-Pinto & Loureiro, 2020).

AI can increase customer engagement by improving the customer experience (Chung, Ko, Joung, & Kim, 2020; Liang, Lee, & Workman, 2020). Firms that use artificial intelligence to simulate intelligent human behaviour (Huang & Rust, 2018; Syam & Sharma, 2018) may increase customer engagement through human-computer interaction. Firms must adapt to this dynamic, unique environment and plan for the future using applied technology marketing to drive customer engagement and deliver immersive and memorable experiences (Sung et al., 2021).

According to customer engagement theory (Kumar & Pansari, 2016), if a user is pleased with his or her encounter with the firm and has an emotional connection, the user is engaged with the firm. Thus, the customer should be delighted and develop an emotional connection to the firm to be engaged (Babayev & Israfilzade, 2020).

Following Shao (2009), user engagement comprises consumption, participation, and creation. Furthermore, it is a dimensional form of online behaviour that allows us to differentiate between behaviour based on the user's level of involvement with the material.

The importance of user experience in human-computer interaction (HCI) research cannot be overstated. As the sharing economy and mobile applications grow more prevalent in people's

lives, users have progressively greater expectations regarding user experience (Geng & Guo, 2022).

According to O'Brien and Toms (2008), engagement is a quality of User Experience with the technology characterized by challenges, aesthetic and sensory appeals, feedback, novelty, interactivity, felt control and time, awareness, motivation, interest, and influence. The user engagement concept also explains how and why an application attracts people to use it. This concept elaborates user engagement to focus on personal interest and may influence the continued intention to use the application (Suzianti et al., 2019). User engagement evaluates a person's reaction to a specific offering. The frequency and duration a user interacts with a website, app, or other product is referred to as user engagement (O'Brien & Toms, 2008).

Virtual assistants (VAs) are one type of AI technology employed as a customer interaction approach. Google Assistant, Siri, and Alexa have been developed and utilized in various applications, including autonomous cars, home appliances, education, commerce, entertainment, and public services.

1.3.2 Engagement in the marketing and tourism field

The engagement process occurs because of two-way exchanges between the engagement subject (e.g., customer/consumer) and a specific engagement object, such as a brand (Spratt et al., 2009), resulting in specific customer/consumer engagement states characterized by specific engagement levels under certain contextual variables.

Marketing has developed its approach to customer management, similarly, shifting from a transactional to a relational period and now adjusting to the present era of engagement (Pansari & Kumar, 2017). This consumer engagement strategy is now represented in marketing practice and research (Kumar & Pansari, 2016; Gallup, 2019). It has proved crucial in developing a competitive edge through positively influencing central attitudes and actions such as satisfaction (Brodie, Ilic, Juric, & Hollebeek, 2013), loyalty (Hollebeek, 2011; Shanahan, Tran, & Taylor, 2019), in addition to brand usage (Hollebeek et al., 2014),

Consumers have become active participants in the manufacture and consumption of valuable goods. Academic research agrees on the significance of understanding engagement and the change in basic assumptions in consumer/firm interactions that it represents (Hollebeek et al., 2014). The cognitive processing dimension signs tend to capture brand engagement, whereas the emotional dimension indicators appear to capture brand attachment and/or self-brand connection (Obilo et al., 2021).

Due to the high level of competition, Kumar and Pansari (2016) believe that it is vital to keep the customer engaged, prompting the consumer to spend more, interact more with the brand, provide feedback and references, and promote positive word of mouth. Furthermore, the authors argue that engagement represents co-creation, interaction, and solution development, all dependent on the attitude that drives customer behaviour toward a firm, resulting in long-term competitive advantage. It is essential, theoretically and managerially, that customer engagement is not treated as an outcome but rather a process that leads to more measurable outcomes such as customer satisfaction or loyalty (Harrigan et al., 2017).

The subject of consumer engagement has been examined in the context of the tourism business. Customer engagement has increased brand loyalty, trust, and evaluations (Harrigan et al., 2017). According to Ahn and Back (2018), hotels should be aware of opportunities to promote brand engagement through distinctive and unforgettable experiences. Managers should be aware of individual variances in developing tailored experiences and retaining loyalty. Because it gauges a particular amount of interaction, customer engagement is an appropriate variable for better understanding processes in the tourist environment. Aside from these facts, customer interaction is a vital component of a firm's marketing role (Harmeling et al., 2017). Higher knowledge of consumer interaction tactics is required since it can assist in describing and forecasting visitor behaviour (So et al., 2014) more accurately. The variety of encounters provided by tourism amenities facilitates participation (Taheri et al., 2014).

Customer engagement following the consumption of a tourism service may still be motivated by the desire to share individual experiences and maintain a relationship with the touristic firm. It is especially true in touristic contexts when the emphasis is generally on the experience. Experience-based engagement programs are well-known for evoking long-term memories and changes in beliefs and affective attitudes, resulting in emotional connection (Harmeling et al., 2017). As a result, they can lead to consumer loyalty, whereas engagement is also known to promote loyalty (Harrigan et al., 2017).

CHAPTER 2 - THE ROLE OF VIRTUAL ASSISTANTS IN TOURISM: THE PERSPECTIVE OF HOTEL MANAGERS AND STAFF

This study analyses the importance of virtual assistants in the hospitality and tourism sector and how they impact the organization and its customers. A set of 10 structured interviews with market players were studied through a thematic analysis. The results show that the advantages of using this technology outweigh the disadvantages and that they have/will impact organizations, namely in developing competencies and optimising resources and processes. These benefits will ultimately benefit customers through improved customer service.

2.1 Purpose of the study

The rationale for this study is based on gaining an in-depth understanding of the importance of virtual assistants in the hospitality and tourism sector, equally for companies and their customers. It also intends to understand what changes companies will have to implement at an organizational level to follow the development of recent technologies to meet their customers. It is also essential to manage the relationship between these technologies and employees. In this vein, this study attempts to answer the following research question: What changes do companies in the tourism sector face to implement innovative technologies such as artificial intelligence? The aim is to understand the challenges of implementing innovative technologies in the tourism sector at an organizational level, particularly in the relationship between technologies and employees.

2.2 Methodology

Braun and Clarke (2006) define thematic analysis as identifying, describing, analysing, and reporting themes and patterns within data. Data may be presented and organised in a synthetic yet rich manner through detecting, analysing, and describing patterns or themes. The thematic analysis searches for themes crucial to describing a phenomenon (Daly, Kellehear, & Gliksman, 1997). As a result, according to Braun and Clarke (2006), theme analysis may be utilized with many epistemological orientations, has no sample restrictions, and is appropriate for various forms of qualitative data. The ultimate goal of thematic analysis is not to create a theory from basic concepts but rather a summary description of the facts via themes that sufficiently describe them.

The qualitative data was analysed by conducting thematic analysis, which is widely known for its flexibility (Brooks et al., 2015). Through this flexibility, thematic analysis allows for a

rich, detailed, and complex data description. In performing the thematic analysis, all transcripts from the interviews conducted in the original study were read twice, and preliminary notes were made. An inductive qualitative method was employed using structured in-depth interviews.

According to thematic analysis, themes within the data are analysed and described, following the process that Braun and Clarke (2006) outlined. The approach involves a six-phase process (Braun & Clarke, 2006). First, familiarizing with the data entails reading and re-reading it to get immersed and intimately familiar with its content. Second, coding entails the creation of first codes that identify essential data elements pertinent to answering the research questions. The coding procedure is part of the analysis (Miles and Huberman, 1994; Miles et al., 2013), and it uncovered a data characteristic that was interesting to the authors. The third is theme search, in which codes are organized to offer meaningful data pertinent to each probable theme. Fourth, themes are evaluated to verify that they accurately describe the data and develop a thematic 'map' of the analysis. Fifth, identifying the topics to provide precise definitions. Finally, writing, including the selection of vivid, appealing extract examples. Although these phases are sequential and build on the preceding ones, analysis is often a recursive process with back-and-forth movement between them.

2.3 Data analysis

This study took place in December 2020 and included ten structured interviews of professionals involved in the Portuguese tourism and hospitality market. These professionals represented ten companies, 7 top hotel managers, one experienced consultant in the market, and two from Turismo de Portugal. The saturation was achieved with this number of participants.

The interview script was sent by email, with the interviewees writing their opinions in the initial document and returning the definitive version using the same route. The email offered more time flexibility for respondents and an opportunity to get information at their convenience. This strategy also made transcription easier. Although the pandemic situations may be considered a constraint, a key advantage of online qualitative surveys is openness and flexibility to address a range of research questions of interest, as the method allows access to data that range in focus from interviewees' views, experiences (Braun et al., 2017). Hearing from multiple participants is typically about gaining richer insights into the topic of interest (Braun & Clarke, 2006; Braun et al., 2021). The authors also claim that is not to generate a sample that achieves statistical representativeness and allows straightforward claims of generalizability

This study began with no preconceived notions of reaching a particular outcome. It was supported by an impartial scientific inquiry as well as a review of the literature. We strive to

avoid making assumptions about how participants might think, feel, or experience particular things. Question-wording is crucial in survey research (Smyth, 2016).

The main question to research is to understand the importance of virtual assistants in the tourism and hospitality sector.

The following specific questions were put forward:

- a. How important is the use of virtual assistants in your industry?
- b. How important are virtual assistants to customers within the sector?
- c. In your understanding, what impact will virtual assistants have on your business development?
- d. What changes will companies have to make, at the organizational structure level, to follow the development of new technologies and, consequently, of customers?
- e. What changes will companies have to make, at the level of the relationship between these technologies and human collaborators, to follow the development of new technologies and, consequently, of customers?

2.4 Data treatment process

All the interviews were analysed with the respondent's permission and were later reproduced in a total of 1550 words, which provided five pages of transcript. This information was subject to a careful thematic analysis process (Braun & Clarke, 2006). A detailed analysis of the responses from each interview was conducted, and we identified significant categories of references made by the respondents that build meaning.

Codes were made as descriptive of participants' answers or thoughts as possible. An initial coding procedure was used to assign interview data to the categories. This initial coding served as a point of departure to explore the perspectives of the informant. This procedure was supported by writing analytic memos. After coding, we set out to identify themes.

It is essential to mention that identifying and characterising themes was a process. Initial ideas about themes were noted early on. Potential themes were described in writing throughout the initial stages of coding. After coding the interviews, codes were organized using MaxQda, Analytics Pro 2022, into potential themes or subthemes depending on their content. Often, codes were classified under several themes. At a few points throughout the analysis, the codes were reorganized to reflect the themes present in the data better.

In the 1st-order analysis, we tried to adhere faithfully to informant terms that emerged early in the research. In the initial phase of the research, we performed initial data coding, maintaining the integrity of 1st-order. After a comprehensive compendium of 1st-order terms was done,

organizing 1st-order codes into 2nd-order themes. We did a quotations performance to define segments of the interview that was deemed necessary, considering the goal we started the codification. Code's capture meaning in the data and are used as classification devices at distinct levels of abstraction to create sets of related information units. From a "low level" tool perspective, codes are short pieces referencing other pieces of text, graphical, audio, or video data. Something worth marking. In textual documents, a quotation is an arbitrary sequence of characters ranging in length from a single character to the entire data file. During this research, we sought similarities and differences among the categories defined. The result was a 2nd order analysis. For those categories, we gave labels or phrasal descriptors using informant terms.

The resulting themes and sub-themes are presented in Table 2.1. Concordance in the themes and their relevance was discussed and confirmed. Interviewees' direct quotes are also presented throughout the analysis to illustrate suggested themes and demonstrate that findings have directly arisen and are deeply embedded in participants' words and narratives. The thematic analysis identified several themes and components reflecting how Virtual Assistants can impact companies and customers in the sector.

Table 2.1 Themes and sub-themes of the analysis

Theme	Sub-theme
1. Business Impact	1.1 Positive Impact
	1.2 Negative Impact
	1.3 Brand image
	1.4 Business Optimization
	1.5 Develop Skills
2. Business Management	2.1 Relationship
	2.2 Customer Service
	2.3 Investments
	2.4 New Mindset
	2.5 Digital Transformation
	2.6 Human Resources

Source: Author's elaboration

2.5 Results

The data were related to the primary research and the 11 sub-themes that emerged from the data. Figure 2.1 represents the 11 sub-themes and their levels of importance within the study. We found that both human resources and customer service were the most mentioned comments by respondents.

Figure 2.1 Codes Cloud

Source: Author's elaboration



In the analysis of the respondents' responses, we found that the word customer was the most mentioned, as seen in Figure 2.2.

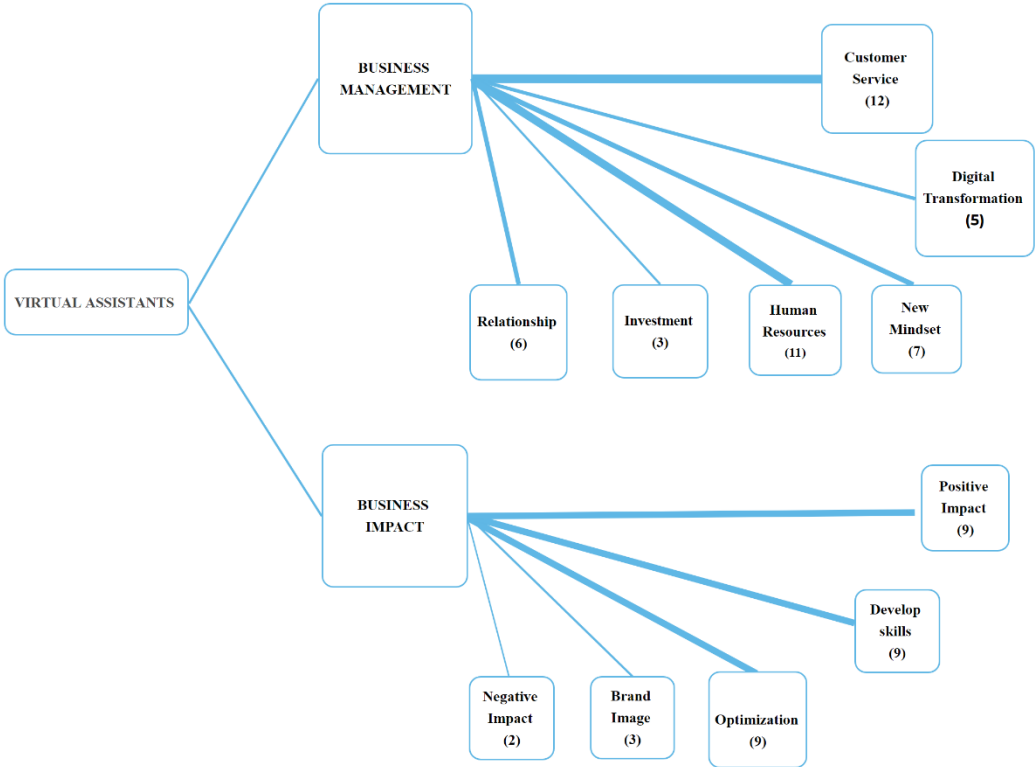
Figure 2.2 Words Cloud



Source: Author's elaboration

Figure 2.3 shows the sub-themes and illustrates the relation between them.

Figure 2.3 Visual map



Source: Author's elaboration

This study will focus on two significant themes featured in Table 2.1 since they were commonly mentioned.

Theme 1: Business Impact

Organizations understand the value that advanced analyses employing artificial intelligence and machine learning can give as more data becomes accessible for analysis (Answer Rocket, 2019).

Sub-theme 1.1: Positive Impact

Because of its dynamic efficiency, artificial intelligence is predicted to have a sizeable beneficial influence on firms. There are clear examples of industries where digital technologies have had positive and negative effects and other sectors where automation will most likely cause significant changes soon. Essentially, these transformations have been fueled by "routine" digital technologies such as enterprise resource planning, networking, information processing, and search. Organizations can achieve significant innovation by deploying and utilising digital technology. Analytics, artificial intelligence, machine learning, blockchain, bots and natural language, collaboration, cybersecurity, the internet of things, and wearable computing can improve a business's efficiency, effectiveness, and IT operations. Ventana's (2020) study states that firms most commonly profit from competitive advantage.

However, they also benefit from enhanced customer experiences, more sales, the capacity to respond swiftly to market possibilities, and cheaper expenses. Research conducted by Ventana (2020) finds that organizations most often benefit through competitive advantage but also improved customer experiences, increased sales, the ability to respond quickly to opportunities in the market, and lower costs.

TODAY'S HIGHLY RELEVANT HEALTH SECURITY ISSUES MAY ALSO CONSIDER THAT MACHINES CAN REPLACE SPECIFIC TASKS WITH TOTAL SECURITY BY NOT TRANSMITTING THE VIRUSES THAT PLAGUE US SO MUCH.

THE MORE TECHNOLOGICALLY ADVANCED CUSTOMERS ARE A SIGNIFICANT HELP IF THE VIRTUAL ASSISTANTS HAVE BEEN APPROPRIATELY PROGRAMMED AND PROVIDE THE AUTOMATIC RESPONSES EXPECTED BY THEM.

THEY FACILITATE AND IMPROVE THE FLOW OF WORK; THE RESULT IS ALWAYS REFLECTED IN THE CUSTOMER.

IMPROVE ATTENDANCE AND SERVICE LEVELS ENSURING IMMEDIATE RESPONSES 24 HOURS A DAY.

THEY HAVE A POSITIVE IMPACT, AS THE QUICKER THE RESPONSES, THE GREATER THE PROBABILITY OF CAPTURING BUSINESS, THUS PREVENTING THE “ESCAPE” OF POTENTIAL CUSTOMERS.

IT HELPS ORGANIZATIONS FREE THEMSELVES FROM BUREAUCRATIC WORK, FOCUSING MORE ON THE BUSINESS, CONSEQUENTLY MAKING THEM MORE COMPETITIVE.

VIRTUAL ASSISTANTS WILL HAVE AN INCREASING IMPACT ON THE DEVELOPMENT OF THE INDUSTRY.

THESE TOOLS CAN CONTRIBUTE TO BOOSTING SALES AND IMPROVING LEVELS OF SATISFACTION.

MAINTAIN THE RELATIONSHIP BETWEEN THE HOTEL AND THE CUSTOMER INSTANTLY AND 24 HOURS A DAY.

Sub-theme 1.2: Negative Impact

Tussyadiah (2020) verified that a technological failure could negatively affect organizations. The respondents also highlighted the probable negative impact if the service fails because of technological failures during human-robot communication.

EVEN THOUGH THEIR SUPPORT IS OFTEN SOMEWHAT LIMITED, IT IS IMPORTANT TO SUGGEST ALTERNATIVE CONTACT THROUGH OTHER, MORE TRADITIONAL CHANNELS TO ANSWER MORE COMPLEX ISSUES.

HAVE A NEGATIVE IMPACT IF THE SYSTEM IS NOT WELL CONFIGURED IN TERMS OF THE QUALITY AND CONSISTENCY OF THE ANSWERS PROVIDED BY THE ASSISTANTS.

Sub-theme 1.3: Brand image

In terms of differentiation, brands have a significant challenge. Companies are finding it increasingly harder to distinguish themselves in the eyes of the consumer as competition has reached record levels (Guèvremont et al., 2021). As a result, the participants identified this issue as well.

THE USE OF VIRTUAL ASSISTANTS IN THE TOURISM SECTOR CAN HAVE SOME IMPACT ON THE HOTEL'S IMAGE AND IDENTITY.

A HOTEL WITH A HI-TECH SPIRIT, YOUNGER AND/OR A BETTER PREPARED PUBLIC AND MORE COMFORTABLE WITH TECHNOLOGY WILL CONSIDER VIRTUAL ASSISTANTS AN ASSET.

IT WOULD GIVE A BOOST TO MODERNITY.

Sub-theme 1.4: Business Optimization

According to the respondents, virtual assistants play a vital role in the firm's management. They enable 24/7 customer support, cost savings through automation of regular procedures, enhanced customer service, aiding the sales department, and assisting the marketing sector in cost savings and greater efficiency.

SUPPORTING THE SALES THROUGH DIGITAL PLATFORMS, SUPPORT TO CALL CENTERS/RESERVATION CENTERS AND AS A CONCIERGE TOOL IN HOTELS.

ALLOWING THE UNINTERRUPTED PROVISION OF INFORMATION TO CUSTOMERS, INCLUDING PERIODS WHEN THIS WOULD NOT BE POSSIBLE, CONSIDERING THE AVAILABLE HUMAN RESOURCES.

THESE TOOLS CAN CONTRIBUTE TO BOOSTING SALES AND IMPROVING LEVELS OF SATISFACTION.

Even though humans are still involved, AI technology helps organizations scale (Unlabel, 2021). Artificial intelligence can automate data collection about the market, the environment, the firm, competitors, and customers. It is possible to track and monitor market data. These tasks are routine and repetitive and can easily be performed by Artificial intelligence (Huang & Rust, 2021).

THE POSSIBILITY OF AUTOMATING A SIGNIFICANT PART OF THE PROVISION OF INFORMATION TO CUSTOMERS CONSISTENTLY FREES UP RESOURCES FOR OTHER FUNCTIONS, WHERE THE HUMAN RELATIONSHIP CAN BE MORE VALUABLE FOR THE ORGANIZATION.

AI can potentially increase team efficiency and automate formerly manual activities (Omale, 2019). The areas where AI can help include sales and marketing. AI tools offer white-space analysis for sales and can recommend immediate action on opportunities in marketing.

THEY CAN BE AN IMPORTANT SUPPORT FOR THE HOTEL RESERVATION DEPARTMENTS, PROVIDING ADDITIONAL SUPPORT AND OPTIMISING THE CALL FLOWS THAT ARE FELT AT CERTAIN MOMENTS.

THEY FACILITATE AND IMPROVE THE FLOW OF WORK; THE RESULT IS ALWAYS REFLECTED IN THE CUSTOMER.

As a result, businesses thrive at the vital stuff: saving time and money, reducing agent turnover, improving customer happiness, and cultivating customer loyalty (Unlabel, 2021).

IMPROVE ATTENDANCE AND SERVICE LEVELS ENSURING IMMEDIATE RESPONSES 24 HOURS A DAY.

COST REDUCTION, AUTOMATION OF ROUTINE TASKS.

AUTOMATING SIMULTANEOUS CONTACT WITH A LARGE NUMBER OF POTENTIAL CUSTOMERS FOR A RELATIVELY LOW COST AND FILTERING/QUALIFYING BUYERS TO SERVE THROUGH OTHER CHANNELS.

ALLOW EXTENDING SERVICE TIMES, OPTIMIZING RESPONSE PROCESSES, AND ANSWERING REPETITIVE QUESTIONS WHERE THE HUMAN FACTOR DOES NOT ADD VALUE.

Sub-theme 1.5: Develop skills

New skills will be needed, and educating a workforce for a new technological era is an obvious problem that has been managed.

TRAIN EMPLOYEES WHO WORK WITH THEM DAILY, EITHER DIRECTLY OR INDIRECTLY.

TRAINING OF MANAGEMENT AND HUMAN RESOURCES FOR THE EFFICIENT USE OF TECHNOLOGY.

THE TECHNOLOGICAL KNOWLEDGE OF EMPLOYEES WILL BE ESSENTIAL.

TRAINING IN DIGITAL SKILLS AT THE OPERATIONAL LEVEL.

RE-SKILLING OF HUMAN RESOURCES WHOSE FUNCTION WAS TOTALLY OR PARTIALLY REPLACED BY NEW TECHNOLOGICAL SOLUTIONS.

COMPANIES WILL INVEST A LOT IN TRAINING ACTIONS AND FOSTER BOTH PARTIES' RELATIONSHIPS.

THERE WILL BE MUCH WORK, WHICH NECESSARILY INVOLVES TRAINING AND THE REDISTRIBUTION OF TASKS.

The rapid growth of artificial intelligence and related technologies must be balanced. These might include current retraining staff in new skills and setting standards for the transparent and ethical use of customer data. It is necessary to be completely aware of the challenges associated with adopting intelligent automation in tourism and the range of its implementation (Tussyadiah, 2020).

Everyone must be prepared to extract the best these technologies can offer and see these technologies as support for customer satisfaction and fulfilment, not competition.

Theme 2: Business Management

Regarding managing organizations, which means coordinating and organising all business activities, respondents refer to virtual assistants as a good asset and the importance of investing in these technologies.

THE VIRTUALIZATION OF CUSTOMER SERVICE IS AN IMPORTANT TOOL TO ENSURE MORE EFFECTIVE MANAGEMENT OF THE RELATIONSHIP WITH CUSTOMERS.

IT IS AN EXCELLENT OPPORTUNITY TO LET TECHNOLOGY HANDLE THE MOST BUREAUCRATIC ASPECTS AND SUBSTANTIALLY IMPROVE FACE-TO-FACE SERVICE – WELCOMING CUSTOMERS, FOLLOWING THEM, COMMUNICATING AVAILABLE SERVICES, AND SELLING EXPERIENCES.

AI software applications enable workers to focus on high-value tasks, replacing routine ones, accelerating innovation and the development of new products (Plastino & Purdy, 2018).

Sub-theme 2.1: Relationship

Tourism has been studied because of its power to unite two entities: the self and the others, the hosts and the guests. Interactions between visitors, businesses/brands, and guest-host relationships are crucial in this industry (Tussyadiah, 2020).

VIRTUAL ASSISTANTS ARE A GOOD SOLUTION IN THE RELATIONSHIP BETWEEN TRAVEL AND TOURISM SERVICE PROVIDERS AND CUSTOMERS.

A “PEOPLE TO PEOPLE” BUSINESS, WHERE DIRECT CONTACT WITH HUMAN ASSISTANTS/CONSULTANTS PLAYS A PREDOMINANT ROLE, ESPECIALLY IN THE MARKET'S HIGHER VALUE-ADDED AND MORE DEMANDING SEGMENTS.

IDENTIFY TECHNOLOGIES CAPABLE OF SOLVING PAIN POINTS IN THE CUSTOMER RELATIONSHIP AND IN WHICH THE HUMAN COMPONENT DOES NOT ADD VALUE.

MAINTAIN THE RELATIONSHIP BETWEEN THE HOTEL AND THE CUSTOMER INSTANTLY AND 24 HOURS A DAY

Sub-theme 2.2: Customer Service

Respondents are aware of the importance of customer service to improve engagement. The customer relationship and this technology can boost customer service and frontline customer engagement (Huang & Rust, 2021). As a result, businesses excel at the critical problem of increasing customer pleasure and establishing customer loyalty (Unlabel, 2021).

WITH THIS DATABASE, IT WILL BE MUCH EASIER TO PERSONALIZE THE GUEST'S STAY AND OFFER PRODUCTS AND SERVICES ALIGNED WITH THEIR PREFERENCES.

Innovative technology applications in hospitality can leverage user experience values (Cao et al., 2022). The guests are motivated to adopt and engage with the smart technology (Gretzel et al., 2015).

CUSTOMERS INCREASINGLY EXPECT ACCESS TO DEVICES LIKE THESE ELSEWHERE OUTSIDE THE HOME, INCLUDING WHEN TRAVELLING.

These technologies help customer service teams automate repetitive tasks, so their agents can focus on creating memorable customer experiences (Unlabel, 2021).

IT WILL ALLOW THE EXTENSION OF THE SERVICE PERIODS TO 24/7.

THEY CAN BE AN IMPORTANT TOOL FOR CUSTOMER SUPPORT IN PROVIDING INFORMATION AND CLARIFYING DOUBTS, AVOIDING OVERLOADING THE RECEPTION OF THE UNITS

Machine Translation allows agents to dialogue with customers in many languages using natural language processing, which can automatically translate text across hundreds of languages. Instead of waiting days for an email answer, MT may shorten the period to minutes or hours. While AI can automate the labour of translating text, involving human agents in the process is the most effective way to make consumer contacts more personal (Unlabel, 2021). Customer analytics makes it easier and faster to predict consumer behaviour and react at the moment (Walgrave, 2018).

NEW GENERATIONS VALUE THIS FORM OF COMMUNICATION.

AN ASSISTANT WILL MOST LIKELY SPEAK THE GUEST'S LANGUAGE, FACILITATE CONTACT, AND NOT HAVE THE ISSUE OF HOURS TO TRANSMIT THE REQUESTED INFORMATION.

AI is more than an experiment for real-world customer service teams because it drives outcomes. AI-powered solutions enable organizations to generate highly personalized messages at a scale that could not have been achieved using humans alone. Additionally, virtual customer

assistants powered by AI can be used to improve the customer experience by reducing the time to respond (Omale, 2019).

IT ALLOWS THEM TO OBTAIN IMMEDIATE ANSWERS TO BASIC QUESTIONS ABOUT THE HOTELS' OFFERS, THUS AVOIDING SERVICE DELAYS.

24-HOUR/DAY ACCESS TO INFORMATION, REMOTE INTERACTION WITH HOTEL OR DESTINATION SERVICES AND THE POSSIBILITY OF CARRYING OUT INSTANTANEOUS OPERATIONS.

THROUGH VIRTUAL COMMANDS, TRAVELLERS GET THE VIRTUAL ASSISTANT TO PERFORM EVERYDAY ACTIONS AND TASKS DURING THEIR STAY, THUS INCREASING THEIR SATISFACTION AND CONVENIENCE.

GREATER CONSISTENCY IN CUSTOMER RESPONSES AND 24/7 SERVICE AVAILABILITY.

VIRTUAL ASSISTANTS CAN PROVIDE VALUABLE INFORMATION REGARDING GUESTS' BEHAVIOUR AND CONSUMPTION PREFERENCES

Many firms strive for enhanced customer experience (CX), which leads to increased customer satisfaction, loyalty, and advocacy. Thorough knowledge of consumers is the first step in providing an exceptional customer experience and leveraging artificial intelligence (AI) may aid in this understanding (Omale, 2019).

CONTRIBUTES TO THE CUSTOMER'S HAVING A MEMORABLE EXPERIENCE.

Sub-theme 2.3: Investments

Respondents seem to know that they must invest in implementing these technologies.

IT SHOULD BE CONSIDERED A PRIORITY ON THE LIST OF INVESTMENTS IN MARKETING, COMMUNICATION AND OPERATIONAL SUPPORT.

THESE ARE INVESTMENTS THAT HAVE AN OBJECTIVE RETURN.

ONGOING DIGITIZATION INVESTMENT PLAN FOR THE ORGANIZATION.

Sub-theme 2.4: New mindset

Identifying factors influencing innovation adoption at an organizational level is important to facilitate and accelerate the application of intelligent automation in tourism (Tussyadiah, 2020; Bulchand-Gidumal, 2020).

A CHANGE IN MINDSET IS NEEDED.

The mindset at the top of the organization must change regarding the advantages of adopting technology in specific fields of hotel operation.

STRUCTURES SHOULD NOT BE RIGID AND SHOULD UNDERSTAND THAT EACH TYPE OF EXISTING TECHNOLOGY BEST ADAPTS TO THE BUSINESS'S IDENTITY.

IT IS IMPORTANT TO MAKE ENTREPRENEURS AND MANAGERS OF COMPANIES IN THE SECTOR AWARE OF THE IMPORTANCE OF NEW INFORMATION AND COMMUNICATION TECHNOLOGIES.

THE IMPORTANT ISSUE WILL BE SENSIBLY BALANCING HIGH TECH VS THE HIGH TOUCH.

COMMUNICATION OF THE FIRM'S DIGITAL STRATEGY GOALS AND BENEFITS FOR THE ORGANIZATION AND EMPLOYEES.

THERE IS A WHOLE WORK OF EVANGELISING THE TEAM REGARDING THESE SAME ADVANTAGES, AND THE MESSAGE MUST BE CONVEYED THAT TECHNOLOGY WILL ALLOW MORE OPERATIONAL EFFICIENCY AND MORE TIME FOR A QUALITY SERVICE.

Sub-theme 3.5: Digital Transformation

The intelligent automation transformation will bring organizations changes to the organizational decision-making process.

TECHNOLOGY IS NOW CRUCIAL FOR ALL ACTIVITIES. TECHNOLOGY PLAYS AN INDISPENSABLE ROLE IN THE DYNAMISM THAT IS REQUIRED IN THE TOURISM AND HOSPITALITY SECTOR.

For example, digital transformation can enable and empower new ways of working, bring coherence and transparency to supply chains and allow organisations to adapt to and mitigate climate change.

MONITORING OF TECHNOLOGICAL DEVELOPMENTS

Once viewed as a technical requirement to remain relevant, digital transformation is now viewed as a strategic imperative that has the potential to transform how organisations operate and generate value in the marketplace. It can be both an enabler and a catalyst for transforming organisations' operations and generating value in the marketplace (Barker, 2021).

THIS SERVICE IS EXPERIENCING EXPONENTIAL GROWTH, AND EVERY DAY THERE ARE NEW OPPORTUNITIES FOR THIS TYPE OF ASSISTANCE FOR ALL BUSINESS AREAS.

STRATEGIC ANALYSIS ON TECHNOLOGY ADOPTION AND DIGITIZATION OF SERVICES IN WHICH THIS DIGITIZATION LEADS TO GREATER ECONOMIC RATIONALITY.

Sub-theme 2.6: Human Resources

The ability to make data-driven business decisions is key to sustainable success, whether an employee is a data analyst or a salesperson. Businesses need to understand the AI capabilities of modern BI tools and how AI can augment their workforces. In today's competitive market climate, embracing innovative technologies is essential for enabling the workforce and customers to engage successfully and increasing the potential return on the organization's assets (Answer Rocket, 2019). According to respondents, it is critical to explore the complementarity of human resources and intelligent systems in joint decision-making and work distribution.

IT IS A WAY OF TAKING ADVANTAGE OF EXISTING HUMAN RESOURCES FOR FUNCTIONS WHERE HUMAN RESOURCES ARE ESSENTIAL.

Furthermore, they indicate possible changes in staff responsibilities (Tussyadiah, 2020).

REPLACE SOME EMPLOYEES' CARRYING OUT TASKS, FREEING UP TIME FOR THEM TO DO OTHER THINGS.

The consequences of intelligent automation on the tourism industry are linked to productivity changes, and when and how many tourism and hospitality service jobs will be replaced by intelligent machines (Tussyadiah, 2020).

They also emphasize the significance of personal touch as an asset and differentiating factor in the tourist industry. A meaningful subject emerges from the automation of tourism services. It is possible to lose human contact throughout the tourism experience (Tussyadiah, 2020).

AI innovations must overcome understandable human fears of being marginalised to succeed. In the short term, AI will most likely replace tasks rather than jobs and create new types of jobs. Nevertheless, the new jobs that will emerge are harder to imagine in advance than the existing jobs that will likely be lost (Stanford University, 2016).

TECHNOLOGY, GENERALLY SPEAKING, WILL SURELY REPLACE SOME FUNCTIONAL CONTENT HITHERTO PLAYED BY PEOPLE.

THERE WILL BE SIGNIFICANT CHANGES AND MOST LIKELY A REDUCTION IN STAFF.

CLARIFY THAT THE OBJECTIVE IS NOT A TOTAL REPLACEMENT OF HUMAN RESOURCES WITH TECHNOLOGY,

LEAVING TIME AVAILABLE FOR HUMAN RESOURCES CAN DEDICATE THEMSELVES TO WELCOMING CLIENTS

AND WINNING THEM OVER EMOTIONALLY.

WE CANNOT FORGET THE IMPORTANT ROLE OF HUMAN CONTACT, WHICH IS IRREPLACEABLE IN THE HOTEL INDUSTRY.

2.6 Conclusions

2.6.1 Discussion

The rapid growth of artificial intelligence and related technologies must be balanced by policies and laws that maximise the benefits and reduce the risks of intelligent automation in tourism. It is paramount to drive a systematic and all-encompassing digital transformation (Barker, 2021). It is critical to have a clear awareness of the challenges associated with adopting intelligent automation in tourism, as well as the implications of its implementation (Tussyadiah, 2020). Increasing visitor numbers and significant technological improvements in the tourism sector necessitate that service providers differentiate themselves from the competition by delivering highly personalized services while keeping guest preferences in mind. As a result, best practices and current business procedures at all hierarchical levels of the firms should be redefined to suit guest preferences, create unique travel experiences, and promote customer loyalty. The complex process of assessing visitor preferences and monetizing guest data has developed with the rise of data analytics.

Using AI principles on top of data may now improve the accuracy of anticipating visitor decisions, thanks to developments in technology and tools. By integrating AI with advanced analytics principles, the travel and hospitality sectors have already begun to employ AI to give personalized service, resulting in a more excellent value and memorable experience for its guests (Infosys Limited, 2018).

Within the travel and hospitality business, digital transformation is the primary goal. Firms must adjust services, analyse consumer feedback, and provide virtual support. Personalization enhances the guest experience while increasing consumer satisfaction. Data from personal/professional networks and other sources are decoded to establish customer

preferences, purchasing behaviour, satisfaction levels, and likes/dislikes to achieve personalisation. The travel and hospitality business may modify services, analyse customer input, and provide virtual help. The system can instantly sift through massive amounts of data and draw critical judgments about a current or potential customer (Roberts, 2021). In the hospitality industry, intelligent technology applications may capitalize on user experience values. Instead of concentrating on strategic goals, digital transformation soon became more about chasing the next disruptive technology. Strategic transformation requires technological reorientation (Barker, 2021).

Implementing digital projects may face several obstacles, such as limited skills, out-of-date procedures, and work habits that are usually incapable of keeping up with the changes. The tourist industry should prioritize using digital technology to improve customer service and prosper in the face of competition. As technology progresses, identifying the point where digital demands converge with conventional organizational goals becomes easier (TechTarget, 2021).

Technology has become so pervasive, giving more benefits than ever before, that it looks challenging to live lacking. IVAs are a solution that can improve customer experience because of their assets, speed and convenience. IVAs facilitate a quick and effortless customer experience by reducing or eliminating wait times. By providing human-like and well-designed conversation, customers do not waste time repeating themselves and do not have to sift through menu trees or listen to irrelevant options. Customers can call at any time of day on any channel of their choice and communicate naturally. An IVA is always accessible and can comprehend what clients are saying, even if they have significant accents, background noise, or strange wording; c) Human Resources: IVAs contribute to this concept in two ways. The first is to assist agents in providing better customer service. With an IVA, repetitive activities that do not require human assistance may be completed entirely through self-service, allowing human agents to devote more time and effort to tasks that require their expertise. The second method is for an IVA to function as a helpful employee. IVAs can customize every contact in a manner that humans cannot since they have a higher propensity to retain and recall information. Therefore, they can personalize every interaction in a way humans cannot. There are different data sources available to IVAs. IVAs can access several sources of information about a single customer simultaneously. Moreover, IVAs may include this in the customer service contact (TechTarget, 2021).

The vast majority of managers think that their firm must provide knowledge to its employees about how to use and modify IT solutions individually. However, it will be challenging if they do not have highly technical knowledge. Therefore, firms should recognize

that using this technology offers a chance to make their staff an integral part of their digital transformation effort. It is not enough just to provide individuals with new tools; managers should actively train their employees to think as technologists, enabling human resources to solve problems with technology (Accenture, 2021).

Furthermore, participants have expressed an interest in these technologies. So far, it is feasible to say that AI is a technology with space for advancement and science with unknown boundaries. Firms should be alert to the evolution of this industry and be prepared to face significant challenges in their operations. AI is regarded as one of the most significant building blocks for furthering knowledge management (KM) since AI technologies considerably ease the collection, processing, and application of knowledge, assisting knowledge workers in their decision-making process (Sundaresan & Zhang, 2021).

Digital Transformation requires new methodologies, abilities, and talents that we need to empower. All this implies, among other things, that people who work in organizations can draw up problems that can be resolved with the help of tools and technology. Human resources can organize and classify data logically, elaborate models and simulations; automate solutions using algorithmic thought; study possible solutions to choose the most efficient procedure and generalize an objective problem-solving process for more complex issues (Ascolese & Llantada, 2019).

In this vein, understanding what drives user engagement for the tourism purpose is relevant to tourism managers. They recognize that the incorporation of AI and related technologies is crucial. However, they also intend to go further in perceiving what drives customers to be engaged with such technologies and point out that AI agents should be perceived as genuine representatives of the firms and develop strong emotional bonds with customers.

2.6.2 Theoretical implications

This study raises some new academic insights. Researchers should recognize AI and intelligent virtual assistants (IVA) as marketing tools and that they are significant to respond actively to the new challenges in this new world of possibilities and demanding consumers.

Developing a definition of AI and IVA in the tourism sector is important. Prior research does not clearly define these technologies in the tourism context. Academics tend to describe them regarding only technical features. However, in the future, academics should be able to explain how IVA and AI, as a whole, affect the tourism industry.

AI has a vital role in helping tourists in their experiences. AI agents contribute to the firms by recognising what tourists give value and offering different perspectives to create

personalised, up-to-date, and interactive firms-tourists relationships. Indeed, researchers need to understand that an experience is shaped not only by technical capabilities but also by the context and tourist empathy.

Finally, scholars need to explore the impact advanced technologies may have on the tourist sector, particularly in organizations (e.g., processes, strategies, cultural and management changes).

2.6.3 Managerial implications

This research provides numerous significant management principles that may assist firms in determining whether it is worthwhile to invest in Artificial intelligence and Intelligent Virtual Assistants and, as a result, how to incorporate them into the firm strategy effectively. Significant changes are expected in the future because IVA will have a more intimate relationship with customers.

First, managers must focus on positioning themselves on AI platforms to strengthen customer relationships. AI systems will be more knowledgeable than customers, resulting in higher degrees of enjoyment. They can anticipate their customers' needs and even predict the trade-offs they are willing to make.

Second, firms must provide memorable experiences across all conceivable contact points. It will be possible to create unforgettable experiences by adopting these technologies. AI and IVA, in particular, have proved that they can produce better results in terms of experience quality because both technologies help to provide hyper-connected customer experiences.

Third, travel and hospitality firms must examine the complete customer journey, including integration across all touchpoints. Customers decide how, when, and why they want to interact with a brand and the channel (or channels) they want to use. However, digital transformation and reaching customers where they are requires more than providing different digital touchpoints. Frequently it results in independent channels that are neither coherent nor useful to customers. With the fast progress of technology, changes in how customers engage with companies, and consumer expectations of 24-hour accessibility, firms must reconsider how and where they meet their passengers.

Fourth, travel and hospitality providers should prioritize reducing wait times. Travellers anticipate a hassle-free, convenient, and rapid customer care experience. Call handling time is reduced by automating the reservation and booking processes, resulting in a highly efficient and productive experience.

Finally, firms must be able to develop interaction between human resources and technology to accomplish this goal. They must stop functioning in silos and work with these technologies to provide a homogeneous consumer experience. Businesses that do not plan for the near future may be unable to compete in the following decades. Executives should expressly endeavour to carry out short to medium-term strategies to begin thinking about this shift. Given the enormous reach of AI, it is critical to begin by prioritizing challenges to tackle (e.g., engaging customers, developing skills, optimising operations and having a new mindset). A significant difficulty associated with this transformation is forming collaborative relationships with IVA or AI to reduce the danger of becoming a follower and losing competitive advantage. Therefore, firms must be empowered to start, produce, learn, and continually expand in the market. Organizations recognize that upskilling is key to AI staffing to swiftly acquire high-performing talent and shape it to meet the increasing demands associated with scaling AI. Tourism managers should create conditions for employees to learn how to manage AI and related technologies.

2.6.4 Limitations and future research

The means of communication through which the questionnaire was disseminated were only via email, which can skew the results since managers already recognize and use technology. The covid-19 pandemic did not allow direct interaction with the interviewees. As a result of the use of semi-structured interviews, the potential of conducting face-to-face interviews will allow for the acquisition of additional data, allowing the interviewer to build some new notions. It would be essential to extend the sample to a more significant number of managers of different accommodation types and industry players, conducting face-to-face semi-structured interviews to gain more insights into the application of IVAs in the tourism sector.

CHAPTER 3 - ATTACHMENT AND AUTHENTICITY AFFECTING USER TOURIST ENGAGEMENT

In a changing world where artificial intelligent agents communicate with tourists, understanding the communication interaction between tourists and users is key to business success. The current study intends to further understand tourist-virtual assistant communication by demonstrating the effect of IVA authenticity and IVA attachment as drivers of user engagement. Here, IVA means intelligence virtual assistance.

A panel sample of 200 users of intelligent virtual assistants for tourism was recruited to fulfil a survey using Qualtrics during March 2021. Findings show that users become engaged when they view their communication with virtual assistants as authentic. Nevertheless, the relationship between IVA attachment and user engagement is stronger than the relationship between authenticity and engagement. Prominence is more significant in creating IVA attachment than self-connection. Therefore, tourists who are closer to their virtual assistant, thinking, feeling, and using the device to interact with brands are also more related to the information and recommendations given by the device and establish a more robust interaction.

3.1 Purpose of the study

Artificial Intelligence is expanding rapidly across multiple application areas, allowing machine learning to be used in everything from chatbots to autonomous cars (Loureiro et al., 2020). Artificial Intelligence knows patterns, routines, locations, products, expressions, and more. In other words, artificial intelligence is a large virtual warehouse that collects visual, verbal, textual, or numerical information and uses retained information. It transforms it into actions that answer many questions correctly (Nilsson, 2010). The relationship between computing and cognition is characterised as artificial intelligence, an area of computer science. (Huang & Rust, 2018). It is the combination of programming languages applied to solve patterns and symbols.

Despite the growing popularity of virtual AI assistants, little research has analysed interactions between users and AI virtual assistants, particularly in the tourism literature (Loureiro, Japutra, Molinillo, & Bilro, 2021). For instance, more research is needed to understand user interactions and virtual AI assistants (Huang & Rust, 2018; Kumar, Rajan, Venkatesan & Lecinski, 2019). Within the marketing and tourism contexts, we may find a lack of studies dedicated to the interaction between intelligent virtual assistants and tourists, particularly in understanding the engagement process (Prentice et al., 2020; Prentice & Nguyen, 2020). Therefore, can the emotional attachment and the perception of authenticity affect the

engagement between intelligence virtual assistance and tourists? The current study aims to analyse tourist-virtual assistant communication by demonstrating the effect of authenticity and attachment as drivers of user engagement.

This study attends to fill a gap in the tourism literature by analysing the level of engagement between users and Virtual Assistants based on the attachment theory discussing the effect of authenticity and attachment as drivers of engagement in tourist-virtual assistant communication.

3.2 Hypotheses development

3.2.1 Intelligence Virtual Assistant

A virtual assistant is the technological evolution of a personal assistant. They are devices equipped with Artificial intelligence that works through virtual commands. The customer can have a real conversation with the AI system, ask questions, search for news, order products or services, search nearby cafes or restaurants, and access contacts and emails in a few seconds (Nilsson, 2010; Ashfaq et al., 2021). Apps and social networks know what users like, let them talk to lifeless objects, and remind them of their priorities. They have long become the object of consumer desires by those interested in technology. Virtual assistants gain prominence through Siri (Apple), Google Now (Google), Alexa (Amazon), Bixby (Samsung), Watson (IBM), and Cortana (Windows). Virtual Assistants are one of the most popular AI applications. Supported by AI functionalities, they are devices that use the virtual to interact with humans and perform a wide variety of customer services – play music, turn on/off the lights, search for news, and buy online products, among others (Ashfaq et al., 2021). AI materialized through Virtual Assistants comes as the ground-breaking channel that is conquering its territory and becoming a private helper in each household (Huang & Rust, 2018).

It seemed a new philosophy where the customer starts walking around with an assistant who recognizes words, formulates sentences, understands the meaning, and gives an answer to their questions or requests in seconds. It is an emerging technology, but virtual assistants are at least worthy of our attention. After the adaptation phase to these devices and their additional improvement, they can be massively used. Virtual assistants are changing traditional human-computer interaction. They are redefining how consumers access service-related information from websites and applications to a large extent. Intelligence Virtual Assistants (IVAs) are facilitating a convenient way for individuals to interact with service providers as users. They are no longer required to have any (or limited) physical interaction with their devices, providing a more human-like experience (Alepis & Patsakis, 2017).

3.2.2 User Engagement

Over the past years, consumer engagement has emerged as one of the most central marketing concepts (Kumar et al., 2019). There is a growing compromise in the literature on the multidimensional nature of the consumer engagement concept, which comprehensively captures the notion of co-creative and interactive experiences. Engagement or tourism engagement is deeply embedded in experience, meaning engagement may be created through several interactions and experiences with tourism brands. User engagement assesses an individual's response to some offerings, such as a product, a service, or a website. An individual's degree of engagement may be determined directly through interaction or assessed through observation of the user's behaviours. Before making decisions, managers must critically consider and analyse all three (cognitive, affective, and behavioural) facets of the customer engagement construct.

Customer or tourism engagement and customer experience are genuinely connected because it is through various interactions and experiences with brands, products, or objects that the engagement can be created (Hollebeek, 2011; Loureiro & Sarmento, 2018; Da Costa & Loureiro, 2019; Rosado-Pinto & Loureiro, 2020). Customer engagement can be described as a customer's psychological state that occurs in a continuing and active process involving different dimensions, such as cognitive, emotional, and behavioural, and that can influence their commitment, attachment, bond, and loyalty to a brand or object (Brodie et al., 2019). Kumar and Pansari (2016, p.498) claim that engagement *represents co-creation, interaction, solution development, and so on, all of which depend on the attitude that drives the behaviour of customers and employees toward a firm*. Hollebeek (2011) defines engagement as a multifaceted concept that includes aspects of affection, cognition, and behaviour. Hence, *collectively, 'immersion', 'passion' and 'activation' represent the degree to which a customer is prepared to exert relevant cognitive, emotional and behavioural resources in specific interactions with a focal brand* (Hollebeck, 2011, p.565). Rosado-Pinto and Loureiro (2020) refer to engagement as the motivational state of human beings, in their most diverse functions, with a particular brand or object. This state can be enhanced by the sense of ownership and the desire to discover more about brands, companies, locations, and culture, among others.

A dynamic environment between tourism brands and customers will increase the level of connection between both parties through mutual interactions (Brodie et al., 2019). According to Bilro and Loureiro (2020), customer engagement is rooted in co-creation value. Brodie et al. (2011) also affirm that the basis of customer engagement is an interactive customer experience. Customer engagement has been conceptualized as a mechanism or process that

builds up through various attitudes/behaviours and turns into favourable brand outcomes (Naumann & Bowden, 2015).

The engagement concept is employed to investigate firms-customers relationships through rational or emotional bonds (Rosado-Pinto & Loureiro, 2020). Customers are not strictly rational; they have strong emotional bonds with the brand. Literature's central point of view considers a multi-dimensionality of customer engagement (cognitive, affective, and behavioural) (Bilro & Loureiro, 2020; Rosado-Pinto & Loureiro, 2020). Firstly, the cognitive dimension owns a constant cognitive process that ensures consumers' permanent and active mental states of experience concerning the focal point of their engagement (Hollebeek, 2014). Secondly, the affective dimension deals with the continuing emotional states concerning the important point of their engagement (Calder, Isaac, & Malthouse, 2016). Lastly, the behavioural dimension is the interactive manifestation toward an engagement focus beyond the purchase. In this vein, engagement can also be associated with the relationship between tourists (the user of IVA).

3.2.3 IVA Attachment

The Attachment-Aversion model of the consumer-brand relationship has been proven to be relevant in explaining the relationship between humans and objects or brands (Park et al., 2010; Tran, Barbosa, Maisel, & Zedonek, 2017). The perception of authenticity reflects that customers regard the experience as authentic and genuine. The idea that customers might form significant emotional attachments to brands argues that an object's level of emotional attachment reflects the nature of an individual's engagement with the thing (Park et al., 2006; 2010). Park et al. (2010, p. 2) developed the idea that the attachment construct covers cognitive and affective aspects of the consumer-brand bond. However, they recognize that *though cognitive in its representation, the brand-self linkage is inherently emotional, involving myriad and potentially complex feelings about the brand*. Marketing research suggests that consumers can also develop attachments to objects and other non-human or non-personal entities, such as tourist brands (Fournier, 1998), celebrities (Thamson, 2005) and possessions (Kleine & Baker, 2004). In fact, despite its popularity, the investigation has not yet allowed a better clarification of the properties of the attachment construct (Park et al., 2006, 2010).

According to consumer psychology, consumers, as tourists, can form emotional connections to gifts, collectables, cities, places, and brands (Thomson et al., 2005; Park Macinnis, Priester, & Eisingerich, 2010) and, consequently, with Virtual Assistants. Park et al.

(2010) refer to that as the strength of the bond that attaches the brand to the consumers. The mental representation of a consumer can reflect this bond.

Thomson et al. (2005) conceptualize emotional brand attachment as the bond which connects a consumer to a brand, characterized by feelings of affection, connection, and passion. Consistent with attachment theory (Mikulincer & Shaver 2007), this bond is exemplified by a rich and accessible mental representation that involves feelings and ideas about the brand and the brand's relationship to the self. Yim, Tse and Chan (2008) describe the attachment theory as the dynamics and functions of feelings of affection in relationships with others, such as friends, romantic partners, objects, and brands. According to Park et al. (2006), people develop feelings for objects, products, stores, brands that they trust to fulfil their functional, experiential, and emotional needs. Attachment can express a consumer connection with a brand, and it is possible to consider a bond between users and virtual assistants that they consider as theirs (Schmitt, 2012). Park et al. (2010) proposed two core constructs that can explain the conceptual properties of brand attachment: brand-self connection and brand prominence.

Brand-self connection represents the cognitive and emotional connection between the individual self and the brand (Belk, 1998; Escalas, 2004). Thus, an individual can establish cognitive bonds between the self and the brand, so the brand becomes a part of the self.

Therefore, this brand self-connection is fundamentally emotional (Thomson et al., 2005; Mikulincer & Shaver, 2007), involving countless and complex feelings about the brand. Tourists can be connected to a tourism brand because it represents who a tourist is or because it is meaningful considering identity, personal objectives, concerns, or life projects (Mittal, 2006).

Brand self-connection is an essential component of attachment because it centrally represents the concept of attachment as the link that connects a person to a brand. Tourists can develop a strong brand self-connection since, on the one hand, the tourist brand is part of a person's self-conception, and on the other hand, it has instrumental value. Positive feelings and memories about the brand can serve as an indicator of attachment.

According to Mikulincer (1998), as Virtual assistants, positive memories about the attachment object are more prominent for consumers who are highly attached to it than for others who show weak attachment. The concept that brand-self connections develop over the period and through experience proposes that the related thoughts and feelings become part of a consumer's memory, which is brand prominence. In essence, prominence reflects the cognitive and affective bond that connects the brand to the self. Brand prominence improves accuracy in measuring the "strength" of the bond connecting the brand with the consumer. Tourists for

whom brand self-connection is high and associations are also prominent may be more likely to engage in relationship-sustaining behaviours than those for whom the brand self-connection is high but prominence is low.

H1: IVA attachment is positively associated with user engagement

3.2.4 IVA Authenticity

Despite its importance, authenticity is an unsatisfactorily explored concept (Wang, 1999). Several authors provide different views and seemingly contradictory positions (Grazian, 2003; Beverland, 2006; Rosado-Pinto, Loureiro, & Bilro, 2020). Authenticity is mainly described in the literature as honesty, goodness, and uniqueness (Fine, 2003). It is identified by concepts such as being natural and simple (Boyle, 2003), as a value (Olsen, 2002), a motivational strength (Grayson & Martinec, 2004; Leigh, Peters, & Shelton, 2006), a perception (Rosado-Pinto et al., 2020), and the choice consumers make (Steiner & Reisinger, 2006).

Brands, such as tourism brands (e.g., brands associated with accommodation or tourism activities) that seek authenticity as the main element of their identity can obtain it while maintaining their traditions (Loureiro, 2020). Brown et al. (2003) argue that brands with a sense of history and connection with traditional cultures, regions, and beliefs obtain a different identity that can add to their authenticity. Moulard et al. (2016) also defend that the inherent motivation of marketers and the passion for their products make an authentic brand. Consumers want authenticity in their lives through the products and brands they consume (Bruhn et al., 2012). Symbolic and emotional attachments are more significant, with brands understood as authentic (Ballantyne et al., 2006; Loureiro, 2020). If a tourism brand that is considered authentic is measured more positively, then the perception of the brand's authenticity should positively influence the consumer's behaviour towards that brand. According to this perspective, the authenticity of IVA represents the subjective perception made by the user when interacting with IVA. In this way, it is possible to consider that when the user realizes that IVA is authentic, he/she will feel closer to it and tend to be engaged with it, which leads to the following hypothesis:

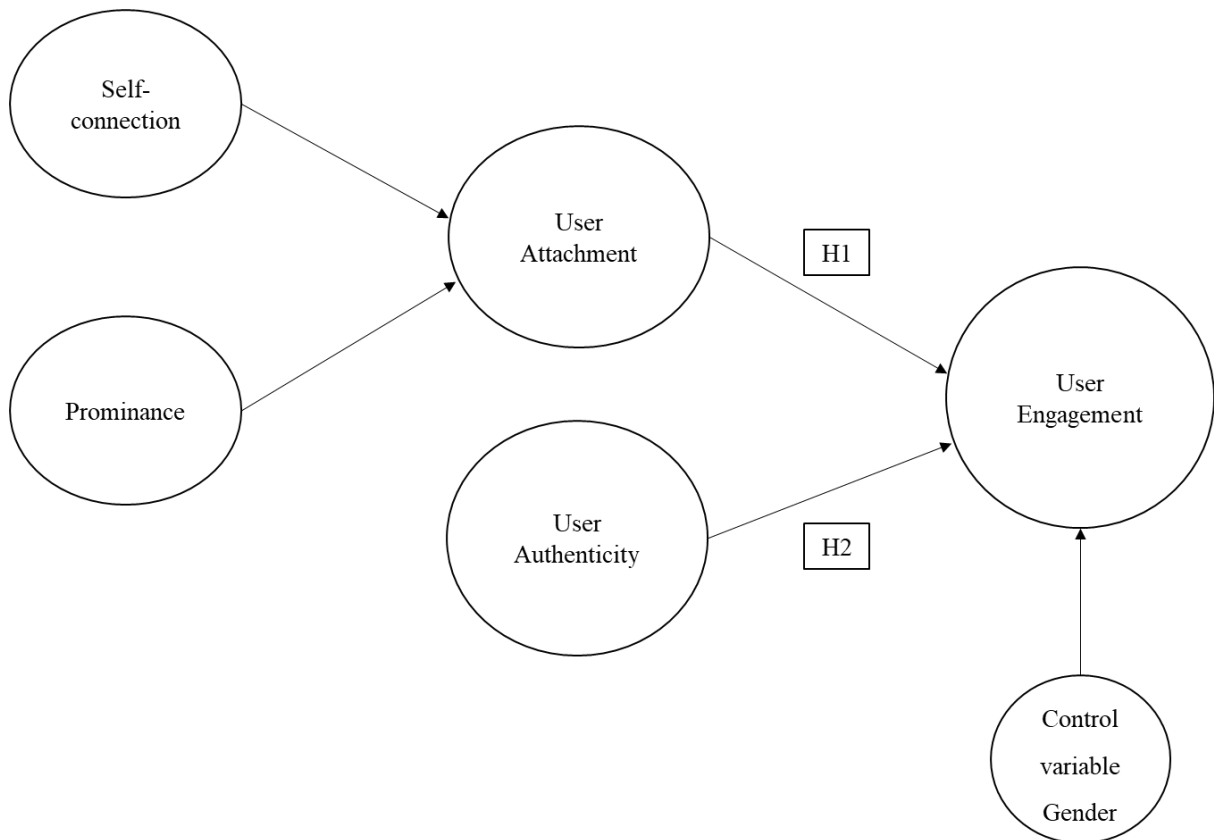
H2: IVA authenticity is positively associated with user engagement

3.2.5 Control variable

We consider gender as the control variable. Past studies suggest that gender may influence consumers' attitudes and behaviours (Eisingerich, Chun, Liu, Jia, & Bell, 2015; Lee, Kim, & Ham, 2016).

Taken all together, we proposed the following framework (see Figure 3.1).

Figure 3.1 Proposed model: attachment and authenticity affecting user tourist engagement



Source: author's elaboration

3.3 Methodology

The current study uses a Qualtrics panel to recruit participants who use a virtual assistant to select and make decisions on travel, accommodation, or cultural attractions. The sample brings together 200 participants who completed the survey using an IVA, most of whom used Siri, Cortana, Alexa, and Google. The participants were mostly between 45-54 (30%), and 56% (n=112) were male. Most held bachelor's or master's degrees (see Table 3.1). Following Loureiro et al. (2021), we asked participants to think about the IVA they use to search for

information and make decisions about accommodation and other tourist aspects, such as travel or cultural attractions. Before launching the survey, the questionnaire was pre-tested with 15 individuals to analyse the content validity. Only very few aspects were improved. The content analysis ensured that the questionnaire was clear to the participants.

Table 3.1. Sample profile

Sociodemographic	Frequency	Percentage (%)
Gender		
Female	88	44
Male	112	56
Age		
18-24	42	21
25-34	36	18
35-44	42	21
45-54	60	30
55-64	18	9
65	2	1
Educational level		
Basic (9th grade)	1	0.5
Secondary (12th grade)	35	17.5
Bachelor's degree	84	42
Master's degree	74	37
Doctoral degree	6	3

Source: author's elaboration

All the constructs were measured using scales adapted from past studies. IVA attachment was measured as a second-order formative construct based on Park, Macinnis, Priester, Eisingerich, et al. (2010). IVA authenticity was based on Manthiou, Kang, Hyun, and Fu (2018). User engagement was adapted from tom Dieck, Jung and Rauschnabel (2018). All items were measured using a Likert-type scale of 7 points (1-completely disagree to agree 7-completely agree), except for attachment, where we used a scale from 0 (Not at all) to 10 (Completely).

3.4 Results

Partial least squares (PLS) is an iterative combination of principal component analysis and regression employed to analyse the variance of the constructs in the model (Hair et al., 2017). The proposed model has second-order formative factors (self-connection and prominence), leading us to use the repeated indicators method to treat data (Kleijnen, Ruyter, & Wetzels, 2007) (see Table 3.2). The software smartPLS 3.0 was used to treat data.

Table 3.2. Construct Reliability and Validity

Construct	Item	Item loading	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
IVA authenticity	AUT1: The Virtual Assistant possesses a clear philosophy which guides the brand promise	0.814	0.725	0.739	0.824	0.540
	AUT2: The virtual assistant knows exactly what it stands for and does not promise anything which contradicts its essence and character	0.714				
	AUT3: Considering its brand promise, the virtual assistant does not pretend to be something else	0.708				
	AUT4: Considering its brand promise, the virtual assistant does not favour its target group; moreover, it shows self-esteem	0.717				
Self-connection (a)	AS1: To what extent is a virtual assistant part of you and who you are?	0.801	-	0.701	0.846	0.733
	AS2: To what extent do you feel personally connected to virtual assistants?	0.908				
Prominence (a)	Ap1: To what extent are your thoughts and feelings towards virtual assistants often automatic, coming to mind seemingly on their own?	0.935	-	0.858	0.933	0.875
	Ap2: To what extent do your thoughts and feelings towards virtual assistants come to you naturally and instantly?	0.936				
User engagement	ENG1: The experience with this virtual assistant has motivated me to find out more about different accommodations	0.904	0.892	0.892	0.933	0.822
	ENG2: This experience with virtual assistants has motivated me to learn about different travel alternatives.	0.907				
	ENG3: This experience with virtual assistants has motivated me to use them for searching cultural attractions.	0.910				
Second-order formative constructs		First-order constructs/dimensions		Weight	t-value	P values
	Attachment	Self-connection		0.481	28.284	0.000
		Prominence		0.587	34.035	0.000

Source: author's elaboration according to SmartPLS 3.0 output

Note: (a) construct with two items

The PLS approach requires the adequacy of the measures at the first-order construct level (item reliability and construct validity and reliability) to be analysed before testing hypotheses. Thus, item loading, Cronbach’s alpha, and other construct measures are above 0.7 (see Table 3.2). The measures demonstrate convergent validity, as the values of AVE (average variance extracted) are above 0.5 (Wetzels, Odekerken-Schroöder, & van Oppen, 2009).

The parameter estimates of indicator Weight (measures the indicator's contribution to the construct's variance) and its significance (t-value) should be analysed at the second-order construct level. A significant level of 0.001 means that both self-connection and prominence are relevant in formatting the attachment index (Robert & Thatcher, 2009). The variance inflation factor (VIF) value of 2.30 for the indicators is below 3.33 (Diamantopoulos & Siguaw, 2006) and does not pose collinearity.

Regarding discriminant validity, two criteria were employed (see Tables 3.3 and 3.4), and both are met. The correlations between each first-order and second-order construct are higher than 0.71, demonstrating that they have more than half of their variance in common (MacKenzie, Podsakoff, & Podsakoff, 2011).

Table 3.3. Discriminant validity- Fornell-Larcker Criterion

	Authenticity	Self-connection	Engagement	Prominence
IVA authenticity	0.735			
Self-connection	0.483	0.856		
User engagement	0.569	0.574	0.907	
Prominence	0.505	0.751	0.535	0.936
	Correlation between first- and second-order constructs			
	Self-connection		Prominence	
IVA attachment	0.922		0.948	

Source: author’s elaboration according to SmartPLS 3.0 output

Table 3.4. Heterotrait-Monotrait Ratio (HTMT)

	Authenticity	Self-connection	Engagement	Prominence
IVA authenticity				
Self-connection	0.624			
User engagement	0.663	0.733		
Prominence	0.595	0.863	0.612	

Source: author’s elaboration according to SmartPLS 3.0 output

In the current study, a non-parametric approach (Bootstrap 5000 re-sampling) was employed to estimate the precision of the PLS and support the hypotheses. All path coefficients are significant at 0.001 (see Table 3.5). The effect size is small.

Table 3.5. Structural results

Path	Beta	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	f2	Bias Confidence Lower Bound	Corrected Interval Upper Bound	Hypothesis
Direct Effect								
IVA attachment → User engagement	0.403*	0.043	9.443	0.000	0.209	0.324	0.482	H1 supported
IVA authenticity → User engagement	0.356*	0.040	8.785	0.000	0.163	0.280	0.434	H2 supported
	R2	Q2						
	User engagement	User engagement						
	0.440	0.342						
Specific indirect effect								
Self-connection → IVA attachment → User engagement	0.194*	0.022	8.642	0.000		0.153	0.236	
Prominence → IVA attachment → User engagement	0.236*	0.024	9.697	0.000		0.192	0.281	

Source: author's elaboration according to SmartPLS 3.0 output

Note: $p < 0.001$; f^2 effect size

Regarding gender, as a control variable, the multigroup analyses (PLS-MGA) do not reveal any difference (see Table 3.6). Thus, gender does not exhibit significant differences.

Table 3.6. PLS-MGA for gender

Path				Path Coefficients-diff	
				(gender_Gender (female) - gender_Gender(male))	p-Value
IVA authenticity engagement	→	User	0.034	0.665	
Self-connection attachment	→	IVA	0.001	0.491	
IVA attachment engagement	→	User	0.042	0.324	
Prominence	→	IVA attachment	0.002	0.531	

Source: author's elaboration according to SmartPLS 3.0 output

3.5 Conclusion

3.5.1 Discussion

Intelligent Virtual Assistants redefine how consumers access products, seek information, and interact with brands. The additional advantage of an IVA lies in its ability to understand the intimate information of its users deeply. It includes their daily routine (e.g., when they wake, go to sleep, cook, and relax, among others), their preferences, and their personal information (e.g., gender, age, occupation, life status, payment information). Such information enables tourists to engage with brands via their IVA in a highly stimulating social environment resembling the interactions with service staff in-store. At the same time, IVAs have the added benefit of utilising personal information in a closed (in-home) private environment.

Previous research has outlined that consumer brand engagement results in favourable marketing outcomes (Hollebeek et al., 2014). IVA can be considered an actor in the engagement process as it co-creates value with the consumer and the brand. Engagement behaviour is driven by individual needs (Hollebeek et al., 2014), about the practical benefits of tourist-IVA engagement. Therefore, the utility and the relationship developed through brand engagement via an IVA results in future intention to use the IVA. Therefore, findings suggest

that those tourists who engage in tourist activities via their IVA are eager to use the IVA again, for the same purpose, in the future.

The complexity and accuracy of virtual recognition technology and virtual assistant software have grown exponentially in the last few years. Available virtual assistant products from Apple, Amazon, Google, and Microsoft allow users to ask questions and issue commands to computers in natural language. This technology has many possible uses, from home automation to translation to companionship and support for the elderly. However, as this technology matures, we should monitor these products and be ready to accept a change of scenery in all industries. Tourists are increasingly proficient in using emerging communication platforms. Given this change in basic assumptions in the interactive environment, engaging tourists has become a strategic imperative for tourism managers to understand how the tourist can be engaged to an IVA.

3.5.2 Theoretical implications

AI virtual assistants are still a technology in progress, and the range of possibilities is yet more extensive than the current capabilities of devices. Although it is expected that this technology will strongly affect our daily lives and how we communicate, buy, learn or search for information, it is also predictable that this will also be a subject of importance in the future in different areas.

Academically, this study extends the knowledge on tourist-IVA engagement by analysing two drivers: authenticity and attachment. Both drivers reveal to influence tourist-IVA engagement meaningfully. Therefore, they will become engaged when they perceive IVA's information about tourist activities and support as genuine or authentic. In the same way, when tourists create emotional ties with the IVA in searching for tourist information and support, they will become engaged in the relationship between tourists and IVA.

3.5.3 Managerial implications

The results presented in this study provide suggestions for managers. First, managers should be conscious of what new tendencies are changing the set to prepare and change effectively.

Second, this thesis contributes to a better understanding of the importance of connecting their brand (can be the brand related to an accommodation or tourist activities) to their customers, using IVA to improve or add value to the brand.

Third, users who are closer to their virtual assistant and use the device to interact with tourist firms and brands are more related to the information and recommendations the device

gives and establishes a more robust interaction. Tourist firms must consider IVA as a tool to influence and recommend tourist brands to the users.

Attachment is a pledge of an unconditional ongoing relationship as committed tourists are expected to be effectively engaged. Managers should consider the attempt to develop attachment by creating bond connections and shared values with customers.

3.5.4 Limitations and future research

Even though this study has valued findings, some limitations must be distinguished and suggestions for future research. First, the means of communication through which the questionnaire was disseminated online can skew the results since tourists already recognize and use technology. The pandemic situation did not allow the researchers to conduct the research through face-to-face interaction.

Secondly, although there are several explanations and demonstrations of what IVA is about, what its applications are, and how it can contribute to the most diverse areas, it is still notorious that tourists do not have sufficient information. It entails some prior knowledge to make it possible to understand it accurately. Therefore, new generations are prone to quite a few interactions and are the main force of innovation and technology; however, the different cohorts might impact these concepts differently. Thus, we recommend that future studies be conducted based on generational differences to understand the full impact of IVA.

Thirdly, future researchers can apply a different methodological approach to study the association between the constructs regarded in this study in diverse tourist product categories or brands in the same category.

Fourthly, it should be convenient to understand how tourists can be affected by the interaction between IVA and how they can be able to it to improve attachment and engagement. In addition, IVA technology promises to change the world as we see it and live it at the personal level and in all existing tourism business areas. For this to be done in a gradual way that does not have a negative effect, significant tourism destinations and organizations must begin to study and understand how IVA can be integrated into their businesses in the various extents of work. IVA can develop maintainable competitive advantages capable of meeting the needs of given tourism activity or even an entire market.

CHAPTER 4 - EXPLORING THE ROLE OF PSYCHOLOGICAL OWNERSHIP TO ENGAGE USERS

Artificial intelligent devices are gradually being incorporated into the tourism industry and used by tourists to search for information, book and interact with tourist organizations. The current study aims to analyse consumer-virtual assistant communication by demonstrating the effect of intimate knowledge, authenticity, and attachment as drivers of engagement via psychological ownership. A panel sample of 170 users of virtual assistants was recruited to fulfil a survey using Qualtrics during July 2021. Findings show that users become engaged when they view their communication with virtual assistants as authentic. Nevertheless, the strength of the relationship between attachment and engagement tends to be higher than the relationship between authenticity and engagement. Prominence is more critical in creating attachment than self-connection. Therefore, consumers closer to their virtual assistant, thinking, feeling, and using the device to interact with firms and brands are more related to the information and recommendations the device gives and establishes a robust interaction.

4.1 Purpose of the study

Artificial intelligence (AI) rapidly expands in various application areas, allowing machine learning to be employed in everything from chatbots to self-driving cars (Loureiro et al., 2020). One of the applications of AI is personal assistants, such as Siri (Apple), Google Now (Google), Alexa (Amazon), Bixby (Samsung), Watson (IBM) and Cortana (Windows). The key trigger for emerging this technology was the need for interaction. With intelligent virtual assistance (IVA), the customer can have a real conversation with the AI system, search for news, order products or services, look for nearby coffee shops or restaurants and access contacts and email in a few seconds (Nilsson, 2010).

Prior research has dedicated effort to the societal and organizational impact of AI and AI systems (Loureiro et al., 2020). The topic of societal AI covers regulations of robots in society and digital impacts (Ashfaq et al., 2020; Guèvremont, Durif, & Grappe, 2020). Organizational impact aggregates studies on how work will be transformed using AI, manufacturing, knowledge management, decision supports, or risk management (Kosala, 2017). AI systems are mainly technical reports of expert systems, systems design, and information infrastructure (Antonescu, 2018).

Within the marketing context, one may find a lack of studies focused on the interaction between intelligent virtual assistants and customers, particularly in understanding the

engagement process (Arora & Sanni, 2018; Prentice et al., 2020; Prentice & Nguyen, 2020). The current study contributes to fulfilling this gap by analysing consumer-virtual assistant communication by demonstrating the effect of intimate knowledge, authenticity and attachment as drivers of engagement via psychological ownership. The research question is: what is the role of psychological ownership in the relationship between the drivers – intimate knowledge, authenticity and attachment – and engagement?

Attachment theory has proven relevant in explaining the relationship between humans and objects or brands (Park et al., 2010). The perception of authenticity reflecting that customers can regard the experience as authentic and genuine has also been analysed frequently in marketing and hospitality contexts (Manthiou et al., 2018). Psychological ownership represents a customer's feeling of ownership toward an immaterial object (Pierce et al., 2001, 2003).

This research aggregates these concepts to argue that a customer, in their relationship with IVA, may perceive the experience as genuine, can develop emotional ties and have a deep knowledge of the virtual assistant (intimate knowledge) in such a way that they have feelings of ownership toward IVA and become engaged. Therefore, this study expands the theory of psychological ownership by incorporating authenticity and attachment antecedents and engagement as an outcome.

4.2 Hypotheses development

4.2.1 Psychological Ownership and Intimate Knowledge

The theory of psychological ownership deals with the role of psychological ownership in influencing the perceptions and behavioural intentions of consumers or users, considering potential outcomes such as word-of-mouth, satisfaction, or willingness to pay (Peck & Shu, 2011).

Psychological ownership (PO) has emerged as a significant predictor of attitudes and behaviours of individuals. It is increasingly attracting attention in consumer research and is described as *the state in which individuals feel as though the target of ownership or a piece of that target is “theirs” (i.e., “It is mine)* (Pierce et al., 2003, p. 86).

A common phenomenon is a sense of ownership toward possession targets, such as home, electronic gadgets, automobiles, places, and other people (Dittmar, 1992). Possessions affect people's identities once they become a part of their extended self (Belk, 1988). Individual self-concept is the *totality of the individual's thoughts and feelings having reference to himself as an object* (Rosenberg, 1979, p. 7) and the extended self of a person consists of external possessions that are claimed as ‘mine’ (Rochberg-Halton, 1984).

A sense of PO toward brands can be regarded as a sense of empowerment (Fuchs et al., 2010). The conceptual core of the state of ownership is the feeling of possession and of being intricately connected to an object (e.g., IVA), the object becoming part of the individual's extended self (Belk, 1988; Brown, Pierce, & Crossley, 2014). The IVA can represent this object that the consumer can consider as being the owner.

Intimately knowing is a relevant antecedent of PO (Pierce et al., 2001, 2003). Intimately knowing the target is understood as the broadness and depth of knowledge of the object (Pierce et al., 2001) and the object is here represented by the IVA. As individuals establish a relationship with objects, they know them intimately. Thus, individuals consider this object part of the self and develop feelings of ownership. Through intimate knowledge of an object (e.g., IVA), individuals also become more familiar with it, which contributes to establishing a sense of home. Intimately knowing the target is thus considered to fulfil humans' innate need for "having a place" (Brown et al., 2014). Based on the above consideration, we hypothesize:

H1: Intimate knowledge is positively associated with IVA-psychological ownership

4.2.2 IVA Attachment

Basic needs are covered by affective bonds, which begin with the bond between mother and child, and continue with kinship, friendship, and romantic relationships (Weiss, 1988; Thomson, MacInnis, & Park, 2005; Park et al., 2010). Ugalde et al. (2017) distinguish between the feeling of attachment (with few variations over time) and the behaviour of attachment (which occurs sporadically), which mainly differ in terms of the duration of these feelings.

In consumer psychology, consumers can form emotional attachments to gifts, collectables, places of residence, brands (Thomson et al., 2005; Park et al., 2010) and IVA. Academics recognize that brand attachment includes emotional links with brands (Thomson et al., 2005; Park et al., 2006; Park et al., 2010). Brand attachment is a form of self-extension similar to interpersonal bonds (Kleine & Baker, 2004). Individuals extend their 'self' to objects, such as other individuals, places, and possessions (Belk, 1988). Thomson et al. (2005) are the first to develop a measurement of emotional brand attachment and conceptualise it as emotional bonding, utilizing the degree of affection, passion, and connection to measure attachment.

Brand attachment captures both emotional and cognitive bonding, reflecting brand self-connection (Park, MacInnis, & Priester, 2006), which is the belief held by consumers on the relevance between the brand and 'their self' (Fedorikhin, Park, & Thomson, 2008). This

definition goes along with research using self-brand connections, which refer to the extent that a brand has been incorporated into consumers' self-concept (Escalas, 2004).

Park et al. (2010) mention two critical factors that reflect the conceptual properties of the construct: brand self-connection and brand prominence. Brand prominence is defined as an individual's perceived memory accessibility to a brand. In addition to brand self-connection, previous research suggests that the extent to which positive feelings and memories about the attachment object are perceived as top of mind also serve as an indicator of attachment. According to Collins (1996), positive memories about the attachment object (e.g., IVA) are more prominent for people who are highly attached than for those who show weak attachment. The notion that brand–self connections develop over time and through experience suggests that brand-related thoughts and feelings become part of a person's memory and vary in the perceived fluency or the ease with which they are brought to mind. Prominence reflects the salience of the cognitive and affective bond that connects the brand or other object (e.g., IVA) to the self. This salience is reflected by the perceived (1) ease and (2) frequency with which brand-related thoughts and feelings are recalled.

In this vein, an artificial intelligent device user can be attached to an IVA like a consumer is attached to a brand. Consistent with attachment theory (Mikulincer & Shaver, 2007), this bond is exemplified by a rich and accessible memory or mental representation that involves thoughts and feelings about the IVA and the IVA's relationship to the self. Therefore, the emotional bond to an IVA is expected to develop a sense of psychological ownership. Users who establish a strong relationship with IVA through mental representation that includes thoughts and feelings are expected to develop a feeling of possession and connection to the IVA. Therefore, the following hypothesis is formulated:

H2: IVA attachment is positively associated with IVA-psychological ownership

4.2.3 IVA Authenticity

In the marketing literature, two approaches of authenticity are emphasized. One stresses the objective dimensions from the brand management perspective as a source of information for consumers to judge brand authenticity (Beverland, 2006; Rosado-Pinto, Loureiro, & Bilro, 2020). With this approach, for example, Brown et al. (2003) claim that brands with a sense of history and connection with traditional cultures, regions and core beliefs obtain a distinctive identity that can add to their authenticity. Beverland (2006) argues that brands seeking authenticity as a fundamental element of their identity can acquire a genuine aura of authenticity by maintaining their traditions and striving for excellence in production. However,

this approach ignores how consumers perceive authenticity. Moulard et al. (2016) also advocate that the intrinsic motivation of the brand managers and the passion for their products – not the brand’s commercial motivations – make an authentic brand.

Another approach takes the consumer perspectives to emphasize authenticity's subjective, contextualized and socially constructed nature (Grazian, 2003; Leigh et al., 2006). Within this view, authenticity is constructed as being influenced by consumers’ interpretation, knowledge, interest, and personal tastes (Grazian, 2003). Academics have shown that even the distinction between authentic and inauthentic is not objective but subjective and socially constructed (Leigh et al., 2006).

Within the last approach, we can find the concept of brand authenticity, which represents a value proposition to consumers who seek meaning and true self. Significantly, the desire for authenticity has escalated in a commercialized world flooded with undistinguishable products and brands (Arnould & Price, 2000; Beverland & Farrelly, 2010). Consumers aspire for authenticity in their lives through the products and brands they consume (Bruhn et al., 2012). Prior research indicates that brand authenticity positively impacts customer responses to brands, reflecting the aspirational value provided to authenticity (Morhart et al., 2015). Both symbolic and emotional attachment is higher with brands that are perceived to have an authentic image (Ballantyne et al., 2006). If a brand perceived as authentic is evaluated more positively, that perception should positively influence consumers’ behavioural intentions toward the brand. Thus, IVA authenticity represents the subjective perception of the human in interaction with the IVA that the device is authentic or genuine and provides accurate information (Manthiou et al., 2018). Based on these aspects, we can consider that when the user perceives the IVA as being authentic will feel closer to the IVA and develop a sense of ownership, leading to suggest the following hypothesis:

H3: IVA authenticity is positively associated with IVA-psychological ownership

4.2.4 User Engagement

Engagement, brand engagement, customer engagement or consumer engagement are expressions deeply rooted in experience, which means that it is through various interactions and experiences with brands, products, or objects that engagement can be created (Brodie et al., 2011; Da Costa & Loureiro, 2019; Rosado-Pinto & Loureiro, 2020). Although a relatively recent subject of study, engagement is the pinnacle of relationship marketing, a driver of success that leads to loyalty and long-lasting relations (Loureiro et al., 2020).

Brodie et al. (2011) claim that interactive customer experiences and co-created value are the cornerstones of customer engagement. A dynamic environment between a brand/firm and customers will increase their level of connectedness through mutual interactions, which is a source of enhanced corporate performance, superior competitive advantage, and profitability (Kumar & Pansari, 2016).

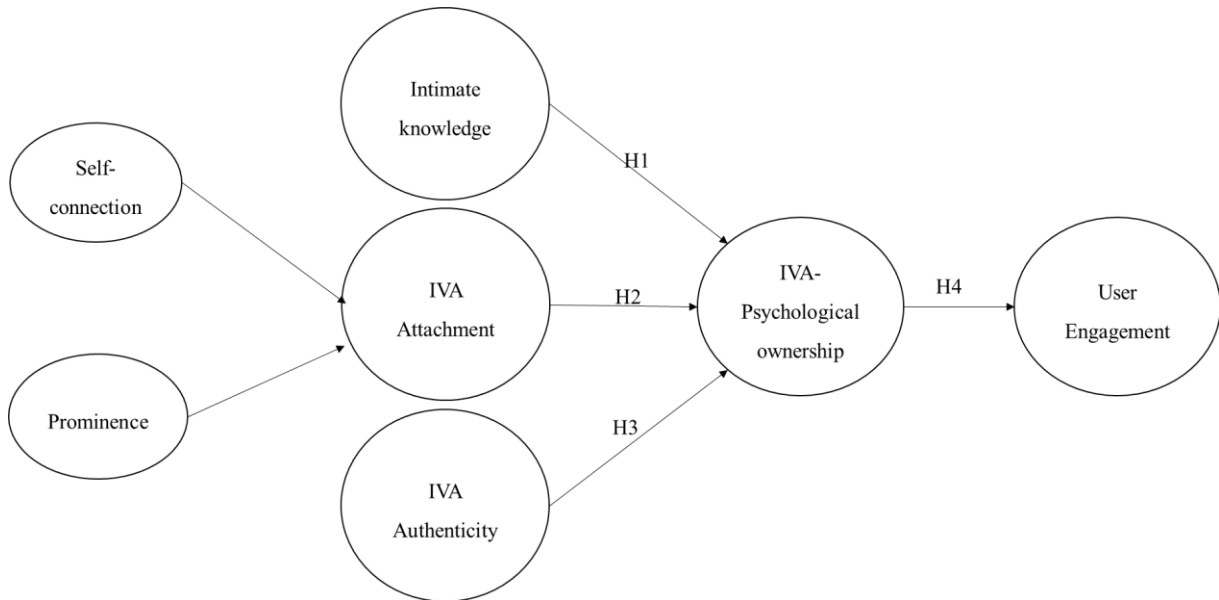
Customer engagement is a complex and multidimensional concept rooted in co-created value (Bilro & Loureiro, 2020). Kumar and Pansari (2016, p. 498) argue that engagement *represents co-creation, interaction, solution development, and so on, all of which depend on the attitude that drives the behaviour of customers and employees toward a firm*. Hollebeek et al. (2014) also consider customer engagement as a multifaceted concept that includes affection, cognition, and behaviour. Overall, the engagement concept represents a motivational state of humans (e.g., consumer, user, actor, tourist) with a particular agent or object (e.g., brand, firm, device) (Rosado-Pinto & Loureiro, 2020).

The current study regards user engagement as customers' motivational state with IVA (ton Dieck, Jung, & Rauschnabel, 2018, Prentice & Nguyen, 2020). Thus, this motivational state can be enhanced by the sense of ownership and develop a desire to learn more about different accommodations, alternatives for travel or searching cultural attractions. A user who is close to their IVA and feels that IVA is of him/her will be more motivated to use the IVA for several tasks. Therefore, the following hypothesis is suggested:

H4: IVA-psychological ownership is positively associated with user engagement

Considering that, we proposed a model to explore psychological ownership's role in engaging users.

Figure 4.1. Proposed model: exploring the role of psychological ownership to engage users



Source: author's elaboration

4.3 Methodology

4.3.1 Data collection

A questionnaire was prepared considering scales previously tested and adapted to the current context. The first part of the questionnaire contained control questions to assure that participants were aware of the meaning of an intelligent virtual assistant, that they have one and that they use the IVA. The last part of the questionnaire had the socio-demographic variables. After preparing all questions, a pilot test with the help of 15 IVA users was conducted. Only a very few adjustments were made.

The questionnaire structure considered that the items were concise, without unfamiliar terms and complex syntax and that the physical distance between items of the same construct was also regarded to avoid common method bias. A panel sample using Qualtrics allowed us to spread the questionnaire among participants of English native language. Data were collected during July 2021. The participants were instructed to answer the questions thinking about the situations where they use the IVA to find out more about different accommodations,

alternatives for travel or searching cultural attractions, that is, when they search for a destination.

We received a total of 170 usable questionnaires from an initial 200 (the rest were eliminated for being incomplete). Regarding gender, 64.7% are female, and the majority has between 45 and 54 years old (32.4%), followed by the range 18-24 years. (23.5%). Bachelor's degree is the educational level of 58.8% of the user.

4.3.2 Variable and measurement

The items of the constructs were measured using a 7-point Likert-type scale, except for self-connection and prominence, where we employed an 11-point scale (0 - Not at all to 10 – Completely). Therefore, self-connection and prominence items were adapted from Park et al. (2010). IVA authenticity from Manthiou et al. (2018). IVA psychological ownership and intimate knowledge were adapted from Danckwerts et al. (2019). Finally, user engagement by ton Dieck et al. (2019).

4.4 Results

The proposed model presents many variables and second-order formative factors, leading us to treat data using the repeated indicators method (Kleijnen, Ruyter & Wetzels, 2007). The adequacy of the measures is assessed by evaluating the item loadings, the convergent validity, and the discriminant validity of the constructs. Item loadings are higher than 0.7, indicating that the construct explains over 50% of the variance in the indicators (Wetzels, Odekerken-Schröder, & van Oppen, 2009). All Cronbach's alpha and composite reliability values are above 0.7, and the measures also demonstrate convergent validity with AVE values above 0.5 (see Table 4.1).

At the second-order construct level, Weight indicates the formative indicator's contribution to the construct's variance. The significant level of the weights means self-connection and prominence are relevant to the IVA attachment formative index (Robert & Thatcher, 2009). Variance inflation factor (VIF) below 3.33 means that the results do not have multicollinearity issues (Diamantopoulos & Siguaw, 2006).

Table 4.1. Measurement model

Construct	Item loading	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Self-connection		0.701	0.703	0.846	0.733
AS1: To what extent is the virtual assistant part of you and who you are?	0.801				
AS2: To what extent do you feel personally connected to a virtual assistant?	0.909				
Prominence		0.857	0.858	0.933	0.875
AP1: To what extent are your thoughts and feelings towards the virtual assistant often automatic, coming to mind seemingly on their own?	0.935				
AP2: To what extent do your thoughts and feelings towards the virtual assistant come to you naturally and instantly?	0.936				
IVA authenticity		0.725	0.752	0.821	0.536
Aut1: The virtual assistant possesses a clear philosophy which guides the accommodation or attractions promise	0.800				
Aut2: The virtual assistant knows exactly what it stands for and does not promise anything which contradicts its essence and character	0.701				
Aut3: Considering its promise, the virtual assistant does not pretend to be something else	0.702				
Aut4: Considering its promise, the virtual assistant does not favour any group, entity accommodation or attraction moreover	0.759				
Intimate knowledge		0.804	0.830	0.884	0.718
IK1: I am intimately familiar with this virtual assistant service	0.859				
IK2: I have a depth of knowledge as it relates to the virtual assistant service	0.904				
IK3: I have a comprehensive understanding of the virtual assistant service's features	0.773				
IVA-psychological ownership		0.753	0.755	0.890	0.802
PO1: I feel a high degree of personal ownership for this virtual assistant service	0.902				
PO2: I sense that this virtual assistant service is mine	0.888				
User engagement		0.892	0.893	0.933	0.822
Eng1: The experience with this virtual assistant has motivated me to find out more about different accommodations	0.903				
Eng2: The experience with a virtual assistant has motivated me to find out more about different travel alternatives	0.905				
Eng3: The experience with a virtual assistant has motivated me to use it to search for cultural attractions	0.912				
Second-order formative	First-order constructs/dimensions		Weight	T Statistics ((O/STDEV))	VIF
Constructs					
IVA attachment	Self-connection		0.482	28.674	2.298
	Prominence		0.586	34.994	2.298

Source: author's elaboration according to SmartPLS 3.0 output

Two criteria were employed to analyse discriminant validity. Table 4.2 shows that the Fornell-Larcker criterion and the correlations between first-order and second-order constructs are higher than 0.71 (MacKenzie, Podsakoff & Podsakoff, 2011), meaning that both constructs contribute to IVA attachment. Table 4.3 displays that the values of the HTMT ratio are below 0.90.

Table 4.2. Fornell-Larcker Criterion

	1	2	3	4	5	6
1.IVA authenticity	0.732					
2.Self-connection	0.492	0.856				
3.User engagement	0.564	0.574	0.907			
4.Intimate knowledge	0.532	0.475	0.461	0.847		
5.Prominence	0.514	0.752	0.535	0.446	0.936	
6.IVA-psychological ownership	0.575	0.658	0.653	0.541	0.601	0.895
	Correlation between first- and second-order constructs					
	Self-connection			Prominence		
IVA attachment	0.922		0.948			

Source: author's elaboration according to SmartPLS 3.0 output

Table 4.3. Heterotrait-Monotrait Ratio (HTMT)

	1	2	3	4	5
1.IVA authenticity					
2.IVA attachment	0.617				
3. User engagement	0.663	0.675			
4.Intimate knowledge	0.682	0.582	0.528		
5.IVA-psychological ownership	0.723	0.830	0.797	0.680	

Source: author's elaboration according to SmartPLS 3.0 output

Note: HTMT refers to Heterotrait-Monotrait Ratio

The non-parametric approach Bootstrap (5000 re-sampling) was employed to estimate the precision of the PLS to support the hypotheses. Table 4.4 shows that all path coefficients are found to be significant at the 0.001 level, so the hypotheses are supported. By analysing the indirect effects, one can confirm the mediation role of IVA psychological ownership. The values of R^2 demonstrate a good level of predictive power, as the constructs in the model explained 53.9% of the variance in IVA psychological ownership and 42.7% of the variance in user engagement. The positive values of Q^2 reveal that the relations have predictive relevance. The effect size demonstrates the magnitude of relationships between IVA attachment and IVA-

psychological ownership, and this last and IVA engagement. The control variable was gender. When using multi-group analysis, no significant effects were detected.

Table 4.4. Structural results

Path	Beta	Standard Deviation (STDEV)	T Statistics ((O/STDEV))	P Values	f2	Bias Corrected Confidence Interval	Hypothesis
Direct effect							
H1: Intimate knowledge → IVA-psychological ownership	0.200*	0.048	4.182	0.000	0.057	0.112 0.300	Supported
H2: IVA attachment → IVA-psychological ownership	0.450*	0.046	9.877	0.000	0.286	0.357 0.533	Supported
H3: IVA authenticity → IVA-psychological ownership	0.225*	0.036	6.329	0.000	0.068	0.144 0.287	Supported
H4: IVA-psychological ownership → User engagement	0.653*	0.034	19.070	0.000	0.745	0.581 0.715	Supported
	R ² _{Psychological ownership}	0.539	Q ² _{Psychological ownership}	0.409			
	R ² _{User engagement}	0.427	Q ² _{User engagement}	0.332			
Specific indirect effect							
IVA authenticity → IVA-psychological ownership → User engagement	0.147*	0.026	5.602	0.000		0.097 0.207	
Self-connection → IVA attachment → IVA-psychological ownership → User engagement	0.142*	0.017	8.446	0.000		0.107 0.174	
IVA attachment → IVA-psychological ownership → Use engagement	0.294*	0.032	9.072	0.000		0.230 0.359	
Prominence → IVA attachment → IVA-psychological ownership → User engagement	0.172*	0.019	9.259	0.000		0.136 0.210	
Intimate knowledge → IVA-psychological ownership → IVA engagement	0.131*	0.034	3.904	0.000		0.067 0.200	
Self-connection → IVA attachment → psychological ownership	0.217*	0.023	9.277	0.000		0.170 0.258	
Prominence → IVA attachment → IVA-psychological ownership	0.264*	0.027	9.857	0.000		0.211 0.316	

Source: author’s elaboration according to SmartPLS 3.0 output

Note: p < 0.001; f2 effect size

4.5 Conclusions

4.5.1 Overall discussion

This study first attempts to analyse IVA attachment, intimate knowledge and IVA authenticity as antecedents of IVA psychology ownership and user engagement as an outcome. The four hypotheses were supported, demonstrating that the theory of psychology ownership can be extended into the context of artificial intelligent virtual assistants. These findings deserve further discussion. First, intimate knowledge affects IVA-psychological ownership ($\beta=0.200$, $p<0.001$). When users establish a relationship with the IVA, they come to do anything to know IVA intimately (Pierce et al., 2001). The knowledge develops a cognitive bond with IVA leading to psychological ownership, that is, a state of mind that users consider the IVA as a piece of it is “theirs” (Fuchs et al., 2010).

Second, the emotional bond established in an attachment process influences the sense of ownership ($\beta=0.450$, $p<0.001$). The emotional and cognitive attachment between a user and IVA is similar to what is established between an individual, an object or a brand (Thomson et al., 2005; Park et al., 2010). The salience of the bond with IVA during the frequency of using an IVA and the incorporation of the IVA into the user's self-concept (Escalas, 2004) are two relevant facets of IVA attachment which influence the perception of ownership from the view of the user.

Third, the perception of authenticity leads to psychological ownership ($\beta=0.225$, $p<0.001$). A subjective perception that the IVA is genuine and provides essential and trustful information (Manthiou et al., 2018) contributes to the sense of ownership. Nevertheless, from the three antecedents of psychological ownership in this study, the findings reveal that IVA attachment is stronger than the other two, intimate knowledge and IVA authenticity. It is a valuable theoretical contribution to extending the theory of psychological ownership.

Finally, psychological ownership affects IVA engagement ($\beta=0.200$, $p<0.001$). Therefore, IVA engagement is a relevant outcome of psychological ownership, which is another relevant theoretical contribution. Psychological ownership can be a motivational contribution to enhancing the interactive relationship between the user and the IVA. Psychological ownership can develop a desire to find more about different accommodations and search for cultural attractions and other activities connected to a specific destination. Therefore, psychological ownership is a mediator between the drivers considered in the current study and user engagement.

4.5.2 Theoretical implications

Regarding theoretical implications, this study extends the knowledge on tourist-IVA engagement by analysing the role of psychological ownership as a moderator between intimate knowledge, authenticity and attachment and the outcome engagement. The three drivers significantly affect psychological ownership, and this last influence directly affects IVA engagement.

However, the main path goes from authenticity to engagement via psychological ownership. When users perceive the information about tourist activities provided by IVA and its support as genuine or authentic, they will tend to consider the IVA as being psychological of the user and become engaged.

Therefore, this study contributes to the literature on AI and engagement associated with tourism and marketing in four main aspects.

First, the study provides academics with a bibliometric analysis and an overview of the extant literature. Second, the research highlights the importance of incorporating AI and related technologies in firms and the need for training human resources to use them.

Third, the proposed models gave, for the first time, the role of psychological ownership as a relevant mediator between authenticity, intimate knowledge, or attachment and user engagement.

Finally, this research clarifies that attachment, intimate knowledge and psychological ownership are more relevant constructs leading to user engagement than authenticity.

4.5.3 Managerial implications

The findings of this study provide implications for managers. First, managers should always be aware of what new tendencies are changing the scenery to prepare and change adequately.

Second, managers should better understand the importance of connecting their brand to their consumers using all points of the consumer's journey, using IVA to improve or add value to the brand.

Third, consumers who are closer to their virtual assistant and use the device to interact with firms and brands are more related to the information and recommendations given by the device and establish a stronger interaction. For that, firms must consider IVA as a means to influence and recommend brands to users. Attachment is a pledge of an unconditional ongoing relationship as attached customers are expected to be effectively engaged. Managers should consider attempting to develop brand attachment by creating bond connections and shared values with consumers.

Finally, firms must be empowered to start, produce, learn, and continually expand in the market. Organizations recognize that upskilling is key to AI staffing to swiftly acquire high-performing talent and shape it to meet the increasing demands associated with scaling AI. Tourism managers should create conditions for employees to learn how to manage AI and related technologies. Managers should not only be concerned about implementing these technologies but also provide training and encourage employees to use the technologies.

4.5.4 Limitations and future research

Although this study has valuable findings, several limitations must be noted and suggestions for future research. First, the means of communication through which the questionnaire was disseminated were only social networks. It can skew the results since consumers already recognize and use technology. The covid-19 pandemic did not allow the authors to conduct the research through face-to-face interaction.

Second, although there are many explanations and demonstrations of what IVA is about, what its applications are and how they can contribute to the most diverse areas, it is still notorious that consumers do not understand it accurately. Therefore, new generations are prone to several interactions and are the main force of innovation and technology. However, the different generations might have a different impact on these concepts. Thus, the authors recommend that future studies be conducted based on generational differences to understand the full impact of IVA in BA and PO.

Thirdly, future researchers can apply a different methodological approach to study the association between these constructs: IVA attachment, intimate knowledge, and authenticity. It might be interesting to test the proposed framework in different product categories, such as luxury cosmetics and financial brands.

Fourthly, it should be convenient to understand how consumers can be affected by the interaction between IVA and how can they manage it to improve brand attachment. The authors suggest studying the long-term consequences of brand authenticity, as brands that make consumers feel connected and true to themselves tend to create a strong emotional attachment to the brand.

Finally, IVA technology promises to change the world as we see it and live it at the personal level and in all existing business areas. For this to be done in a gradual way that does not have a negative impact, large companies must begin to study and understand how IVA can be integrated into their businesses in the most diverse areas of work. Only in this way, companies

will be able to progress. Indeed, IVA can develop sustainable competitive advantages capable of meeting the needs of a firm or even an entire market.

CONCLUSION

1.1 Overall Discussion

This thesis contributes insights into the significance and impact of AI, in particular, intelligent virtual assistants, when engaging with users and how it affects the future of firms. Since the Internet became a visual medium, this trend has become globally disruptive. The consumer experience is constantly evolving. As a result, companies must keep ahead of their consumers' expectations and match their requirements as a crucial topic in the tourism and marketing industries).

Projections show us that Intelligent Virtual Assistants are growing daily and conquering the countries they are launching in. The US adoption case is the most popular, but countries closer to home in terms of location and culture are also good predictors for a Portuguese adoption and success. In Italy, 35% of users purchase through IVA for clothing and technology items, and 31% use it for whole food items (Statista, 2020).

This thesis combines topics such as IVAs, engagement, attachment, and psychological ownership, which were only studied separately in the past. Therefore, this is one of the value-added areas of this study which turns possible to reach new insights and conclusions. Thus, six significant aspects need to be highlighted.

First, the bibliometric analysis of the literature gave 66 scientific articles as a first core scientific information that allows to understand the state-of-the-art and discover key authors, prior studies, and other sources of credible information. These articles were paramount to designing and preparing the different studies presented in this thesis.

Second, the interviews show managers' concerns about using AI and related technologies in their firms. The literature review findings combined with those from the interviews suggested the conceptual models analyzed in the quantitative approach.

Third, virtual assistants are becoming almost ubiquitous in customers' lives. Managers may now obtain information from previously inaccessible sources thanks to IVA. Therefore, IVAs are increasingly impacting firms by allowing full customization of operations and providing consumer data. Managers will be able to gain a better knowledge of consumers who make different purchasing decisions and have different brand preferences, wish lists, and other distinguishing characteristics by utilizing IVA. In addition, firms can benefit from using AI to generate value in different business dimensions: improving process automation, gaining insights through data for decision-making, engaging customers and employees, and designing and delivering new products and services. Firms that efficiently exploit AI and other technical

developments will be more competitive in the marketplace. In sum, managers must stay updated on artificial intelligence and IVAs and modernize their businesses to keep up with the changes. Thus, a new mindset is important.

Fourth, attachment is a relevant driver of user engagement. Engagement behaviour results from individual needs (Hollebeek et al., 2014). When customers are emotionally attached to the IVA, they will become engaged, and they will use the IVA in the future. Although authenticity is also relevant to becoming engaged, attachment has a central role in such a process. Customers need to perceive that the IVA and its activities are genuine, authentic, and trustworthy, but they become engaged only when they bond with IVA.

Fifth, IVA-psychological ownership is a relevant mediator between attachment and user engagement. The emotional and cognitive bonds between a user and IVA can be very similar to what is created between two human beings or a human and an object (Thomson et al., 2005; Park et al., 2010). This bond creates the condition to become engaged because the user incorporates somehow the IVA into their self-concept (Escalas, 2004). Nevertheless, when the user perceives that he feels a high degree of personal ownership for the IVA and this feeling is combined with the emotional bonds, then the process of engagement is reinforced, and the user becomes connected for the long term.

Finally, intimate knowledge affects positively psychological ownership. As expected, when a user considers that he has developed an intimate relationship with IVA, he/she also develops a comprehensive understanding of the virtual assistant service's features. These aspects contribute to developing the sensation of being psychologically connected to the IVA.

The outputs presented from this study provided some contributions already discussed. Nevertheless, these findings must be reflected to understand their implications for theory and managers today. As mentioned in the literature, one must always be aware of what new tendencies are changing the scenery to anticipate adequately, prepare and evolve (Grewal et al., 2016).

1.2 Theoretical implications

This thesis contributes to the literature on AI and engagement associated with marketing and tourism-related areas in four major aspects.

First, the thesis provides academics with a bibliometric analysis and an overview of the extant literature.

Second, the research highlights the importance of incorporating AI and related technologies in firms and the need to develop human resources skills.

Third, the proposed models gave, for the first time, the role of psychological ownership as a relevant mediator between authenticity, intimate knowledge, or attachment and user engagement.

Finally, this research clarifies that attachment, intimate knowledge and psychological ownership are more relevant constructs leading to user engagement than authenticity.

1.3 Managerial implications

The findings of this thesis provide important implications for managers. First, managers should always be aware of what new trends are changing the scenery to prepare the business more adequately.

Second, managers should better understand the importance of connecting their brand to their consumers using all points of the consumer's journey, using IVA to improve or add value to the brand.

Third, consumers who are closer to their virtual assistant and use the device to interact with firms and brands are more related to the information and recommendations given by the device and establish a stronger interaction. For that, firms must consider IVA as a means to influence and recommend brands to users. Attachment is a pledge of an unconditional ongoing relationship as attached customers are expected to be effectively engaged. Managers should consider attempting to develop brand attachment by creating bond connections and shared values with consumers.

Finally, firms must be empowered to start, produce, learn, and continually expand in the market. Organizations recognize that upskilling is key to AI staffing to swiftly acquire high-performing talent and shape it to meet the increasing demands associated with scaling AI. Managers should not only be concerned about implementing these technologies but also provide training and encourage employees to use the technologies. Engaging a cross-functional team is critical to the success of the digital transformation. Collaboration across the business is required to develop a complete corporate digital strategy. It is critical to incorporate relevant departments from the start.

1.4 Limitations and future research

Even though this study has produced valuable results, several limitations must be noted and suggestions for future research. First, the means of communication through which the questionnaire (either qualitative or quantitative) was disseminated were only social networks. It can skew the results since consumers already recognize and use technology. The covid-19

pandemic did not allow to do the research through face-to-face interaction. It would be important to extend the sample to a more significant number of managers conducting face-to-face semi-structured interviews to gain more insights into the application of IVAs in their firms. In the two quantitative waves, a broader and more representative sample could help to understand the Human-artificial intelligence engagement.

Additionally, it would be interesting to conduct the same study in countries where artificial intelligence is better developed and used more frequently in daily tasks. To think global and act local means understanding local preferences and cultural differences for better integration and results. Although this expression was first used for environmental purposes, it has been the basis for companies who look to internationalize (Amey, J., 2010) and should also be considered in this topic.

Second, a longitudinal study will allow us to better understand the natural evolution of these relations over time in one area evolving at an extraordinary speed. A longitudinal study will add to the theory and allow tourism managers to understand the evolution of incorporating these technologies.

Third, although there are explanations and demonstrations of what IVA is about, its applications, and how it can contribute to the most diverse areas, consumers still need to increase their knowledge about it. The same is what relates to managers. Therefore, new generations are prone to several interactions and are the main force of innovation and technology. However, the different generations might have a different impact on these concepts. Thus, future studies should be conducted based on generational differences to understand the full impact of IVA on BA and PO.

Fourth, future researchers can apply a different methodological approach to study the associations between these constructs: IVA attachment, intimate knowledge, and authenticity. It might be interesting to test the proposed framework in different product categories, such as luxury cosmetics and financial brands.

Fifth, it should be advantageous to understand how consumers can be affected by the interaction between IVA and how can they manage it to improve brand attachment. Here, we suggest studying the long-term consequences of brand authenticity. Brands that make consumers feel connected and authentic to themselves tend to create a strong emotional attachment to the brand.

Sixth, IVA technology promises to change the world as we see it and live it at the personal level and in all existing business areas. For this to be done in a gradual way that does not have a negative impact, large companies must begin to study and understand how IVA can be

integrated into their businesses in the most diverse areas of work. Only in this way, companies will be able to progress. Indeed, IVA can develop sustainable competitive advantages capable of meeting the needs of a firm or even an entire market. Finally, another suggestion is to study and investigate ways to teach and educate the population about it and to show an idea that AI is secure, meaning that all possible problems related to it are avoidable. Artificial intelligence is inevitable, a reality for the future, so this introduction must be prepared to avoid rejection by possible users.

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APPENDIX A: QUALITATIVE STUDY- PERMISSION TO INTERVIEW AND INTERVIEW QUESTIONS

Within the scope of a PhD thesis in Marketing at ISCTE - Instituto Universitário de Lisboa, whose main objective is to analyze the importance of virtual assistants in the hospitality and tourism sector, your contribution is essential. All responses are confidential and will only be used for academic purposes. Thanks for your collaboration!

1. How important is the use of virtual assistants in your industry?
2. How important are virtual assistants to customers within the sector?
3. In your understanding, what impact will virtual assistants have on your business development?
4. What changes will companies have to make, at the organizational structure level, to follow the development of new technologies and, consequently, of customers?
5. What changes will companies have to make, at the level of the relationship between these technologies and human collaborators, to follow the development of new technologies and, consequently, of customers?

APPENDIX B: QUANTITATIVE STUDY: SURVEY

12/26/21, 7:39 PM

Qualtrics Survey Software

Informed Consent

Welcome to the research study! Dear participant, I'm a candidate for a Ph.D. in Management with a specialization in Marketing at ISCTE - Instituto Universitário de Lisboa and we are interested in understanding THE IMPACT OF USING VIRTUAL ASSISTANTS IN HOSPITALITY AND TOURISM CONTEXT. The main goal of the study is to analyse the impact of using Virtual Assistants in your experience in hospitality and tourism. All the ANSWERS WILL BE TREATED ANONYMOUS AND WILL NOT BE PUT TO ANY OTHER USE THAN FOR RESEARCH PROPOSE. The study should take you around 5 minutes to complete. Your participation in this research is voluntary. You have the right to withdraw at any point during the study.

By clicking the button below, you acknowledge: Your participation in the study is voluntary. You are aware that you may choose to terminate your participation at any time for any reason.

- I consent, begin the study
- I do not consent, I do not wish to participate

Do you know what are Virtual Assistants? (Is a voice-activated assistant that mimics human intelligence and natural conversation)

- Yes
- No

In the last 12 months, how many times have you used your intelligent virtual assistant

- a. Less than 1
- 1 to 5
- More than 5

What virtual assistant do you know?

- Siri
- Alexa
- Google Assistant
- Cortana
- Bixby
- Other
- None

The following statements express your identification and the emotional bond between you and the virtual assistant that you use, using 1 - Not at all to 10 - Completely

	1	2	3	4	5	6	7	8	9	10
To what extent do your thoughts and feelings towards virtual assistant come to you naturally and instantly?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To what extent do you feel personally connected to virtual assistant?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To what extent is virtual assistant part of you and who you are?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To what extent are your thoughts and feelings towards virtual assistant often automatic, coming to mind seemingly on their own?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The following statements express your perception about the authenticity regarding the virtual assistant you use. Please fulfil using from 1 – Strongly disagree to 7 - Strongly agree

	1	2	3	4	5	6	7
Considering its brand promise, the virtual assistant does not pretend to be something else	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Considering its brand promise, the virtual assistant doesn't favour its target group, moreover, it shows self-esteem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The virtual assistant knows exactly what it stands for and does not promise anything which contradicts its essence and character	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Virtual Assistant possesses a clear philosophy which guides the brand promise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Keeping in mind the virtual assistant you previously mentioned, please select your level of agreement to the following sentences, from 1 – Strongly disagree to 7 - Strongly agree

	1	2	3	4	5	6	7
I have a comprehensive understanding of the virtual assistant service's features	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I plan to switch from the virtual assistant services to another one	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I predict I would switch from the virtual assistant services to another one	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1	2	3	4	5	6	7
I intend to switch from the virtual assistant services to another one	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I sense that this virtual assistant service is mine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a depth of knowledge as it relates to the virtual assistant service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am intimately familiar with this virtual assistant service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a high degree of personal ownership for this virtual assistant service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The following statements refer to your engagement experience with the virtual assistant you use. Please fulfil using from 1 – Strongly disagree, to 7 - Strongly agree

	1	2	3	4	5	6	7
This experience with virtual assistant has motivated me to find out more about different alternatives for travel alternatives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This experience with virtual assistant has motivated me to use it for searching cultural attractions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The experience with this virtual assistant has motivated me to find out more about different accommodations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

This part the questionnaire has the goal of defining the respondent's profile

Gender

- Male
- Female

Age

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- +65

Education level

- Basic (9th grade)
- Secondary (12th grade)
- Bachelor's degree
- Master's degree
- Doctoral degree

Professional situation

- Unemployed
- Employed
- Working student
- Student
- Retired

Information about income is very important to understand the subject. Would you please give your best guess? Please indicate the answer that includes your entire household income per month

- Less than 500€
- 501€ to 1500€
- 1500€ to 2500€
- More than 2501€

Thank you very much for your collaboration!

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