

iscte

INSTITUTO
UNIVERSITÁRIO
DE LISBOA

Consumer Behaviour in e-commerce

Pedro Filipe Sobral Costa

MSc in Management

Supervisor:

PhD Mónica Montes Mendes Rocha Ferreira, Invited Assistant
Professor,
ISCTE – University Institute of Lisbon

September, 2023

iscte

BUSINESS
SCHOOL

Marketing, Operations and General Management Department

Consumer Behaviour in e-commerce

Pedro Filipe Sobral Costa

MSc in Management

Supervisor:

PhD Mónica Montes Mendes Rocha Ferreira, Invited Assistant
Professor,
ISCTE – University Institute of Lisbon

September, 2023

Acknowledgements

I would like to start by thanking my family, especially my parents and brother, for always supporting me and working extremely hard to provide me with the chance to follow my dreams. I owe them this master's degree. No matter how many words of appreciation I write, there will never be enough. Therefore, I will keep this short.

Secondly, I would like to thank Professor Mónica Ferreira, for supervising my dissertation and helping me in the most critical moments throughout the development of my dissertation.

I would also like to thank my girlfriend, Carolina, as well as all my close friends who, in one way or another, played a very important role in my life and in the pursuit of my dreams. I cannot wait to see what the future has for us.

Additionally, I want to thank my dear UX team for always being so kind to me, but even more during these extremely stressful months. I would not be able to do this without your comprehension, trust me. As promised, I would like to give a special shoutout to Isabel, who sparked the initial inspiration for this dissertation.

Lastly, I would like to thank myself and my perseverance. Only I know how hard I had to work and how much I had to endure to get here, all the good and bad times of living and studying in four different countries growing up is something I will take with me forever. I did it.

Resumo

Atualmente, o e-commerce está cada vez mais a deixar de ser uma tendência emergente e a afirmar-se como uma forma consolidada, e preferida por muitos, para efetuar compras. Como resultado, tornou-se fundamental para as empresas terem uma presença sólida naquilo que é o mundo digital. Esta presença trouxe consigo uma sensação de urgência relativamente à constante otimização e melhoria da experiência de comércio eletrônico, com o objetivo de tornar as lojas online o mais rentáveis possível.

A principal meta desta dissertação é quantificar e compreender a verdadeira influência que algumas dimensões das compras online podem exercer no processo de tomada de decisão dos consumidores. Tendo em consideração este objetivo, foi elaborado um questionário com o propósito de estudar a influência e o impacto que cada dimensão pode ter nos consumidores, e, conseqüentemente, nas suas intenções de compra. Como parte deste processo, foi conduzida uma análise para testar a validade das hipóteses de pesquisa, através da análise de regressão linear múltipla.

Com uma amostra final de 158 participantes, os resultados sugerem que a Expectativa de Desempenho pode ter influência no comportamento do consumidor no contexto do e-commerce, enquanto não há evidências de que as outras variáveis desenvolvidos ao longo deste estudo tenham um impacto positivo nesta última.

Palavras-chave: Comportamento do Consumidor; E-commerce; Teorias de Adoção de Tecnologia; UTAUT; Website.

JEL: D12 (Economia do Consumidor: Análise Empírica) e D81 (Critérios para Tomada de Decisão sob Risco e Incerteza)

Abstract

Nowadays, e-commerce is becoming less of an upcoming trend and is finally establishing itself as a consolidated and preferred by many ways of shopping. Therefore, it became vital for companies to have a strong presence in the digital world. As a result, this presence brought a sense of urgency when it comes to constantly optimising and improving the e-commerce experience, with the goal of turning online stores as profitable as possible.

The primary goal of this dissertation is to quantify and understand the real influence that some dimensions of online shopping can have in the consumer decision-making process of consumers.

Considering that, a questionnaire was constructed to study the influence and impact each dimension would have on consumers and their purchase intentions. As part of that, an analysis was done to test the validity of the research hypothesis, being multiple linear regression.

With a final sample of 158 participants, the results suggest that Performance Expectancy can influence consumer behaviour in e-commerce. At the same time, there is no evidence that the other constructs developed in this study positively impact this last one.

Keywords: Consumer Behaviour; E-commerce; Technology Adoption Theories; UTAUT; Website.

JEL: D12 (Consumer Economics: Empirical Analysis) and D81 (Criteria for Decision-Making under Risk and Uncertainty)

Table of Contents

Acknowledgements	i
Resumo	iii
Abstract	v
Figure Index	ix
Table Index	xi
List of Acronyms	xiii
CHAPTER 1: Introduction	1
1.1 Context	1
1.2. Research Problem.....	1
1.3. Research Questions and Specific Objectives	2
1.4. Thesis structure	3
CHAPTER 2: Literature review	5
2.1. Technology Adoption Theories.....	5
2.2. UTAUT	6
2.3. Trust and Security in e-commerce	8
2.4. Website Design and Quality.....	10
2.5. Impact of Online Customer Reviews	11
2.6. Personalization in e-commerce	13
2.7. Literature Review Summary	14
CHAPTER 3: Research Framework	17
3.1. Theoretical Model	17
3.2. Formulation of Hypothesis.....	18
CHAPTER 4: Methodology	21
4.1. Research Design.....	21
4.1.1. Population.....	21
CHAPTER 5: Results and Discussion	25
5.1. Procedure.....	25
5.2. Data Analysis	26
5.3. Reliability and Validity Analysis	35
5.4. Multiple Regression	37
CHAPTER 6: Conclusions and Recommendations	41
6.1. Discussion	41

6.3. Managerial Implications.....42

6.4. Limitations and Future Research.....43

List of references45

Annex A53

Annex B57

Annex C67

Annex D69

FIGURE INDEX

Figure 3.1 – Research Framework	17
Figure 5.1 – Frequency of e-commerce websites' visits.....	28
Figure 5.2 – Frequency of e-commerce websites' purchases.....	28

TABLE INDEX

Table 2.1 – Literature Review Summary	14
Table 3.1 – Hypothesis description	19
Table 4.1 – Constructs and Items	23
Table 5.1 – Sample Characterization	26
Table 5.2 – Performance Expectancy – Descriptive Statistics.....	30
Table 5.3 – Effort Expectancy – Descriptive Statistics.....	30
Table 5.4 – Social Influence – Descriptive Statistics.....	31
Table 5.5 – Facilitating Conditions – Descriptive Statistics	32
Table 5.6 – Trust and Security – Descriptive Statistics	32
Table 5.7 – Website Design and Quality – Descriptive Statistics.....	33
Table 5.8 – Online Customer Reviews – Descriptive Statistics.....	34
Table 5.9 – Personalization – Descriptive Statistics	34
Table 5.10 –Cronbach’s Alpha of Facilitating Conditions if Item Deleted	35
Table 5.11 – Reliability Analysis – Cronbach’s Alpha.....	36
Table 5.12 – Kaiser-Meyer-Olkin and Bartlett’s test of Sphericity results in.....	36
Table 5.13 – Model Summary.....	37
Table 5.14 – ANOVA test.....	38
Table 5.15 – Multiple Linear Regression.....	39
Table 5.16 – Validation of Hypothesis.....	39

LIST OF ACRONYMS

eWOM – Electronic Word of Mouth

H – Hypothesis

IS – Information Systems

IT – Information Technology

KMO – Kaiser-Meyer-Olkin

RSs – Recommender Systems

TAM – Technology Acceptance Model

TOL - Tolerance

TPB – Theory of Planned Behaviour

TRA – Theory of Reasoned Action

UTAUT – Unified Theory of Acceptance and Use of Technology

VIF – Variance Inflation Factor

CHAPTER 1

INTRODUCTION

1.1 Context

In terms of context, in an era characterised by rapid technological advancements and ever-evolving consumer behaviours, the landscape of e-commerce has undergone a profound transformation. The shift towards digital shopping has redefined how consumers interact with products and services and reshaped the strategies and operations of businesses worldwide. This alteration became even more noticeable during and after the COVID-19 pandemic, when consumers, often limited from visiting physical stores, had to rely heavily on e-commerce to acquire many different types of products and services. Ultimately, this resulted in a significant increase in e-commerce use levels.

Additionally, this newfound ease of shopping reflects the relentless pursuit of enhancing the digital encounters between businesses and consumers. As e-commerce continues to evolve, the latter's expectations expand as well. Online shoppers increasingly demand seamless, secure, and highly personalised online experiences. In parallel, businesses are confronted with the imperative to adapt, innovate, and differentiate themselves in a fiercely competitive digital marketplace. Moreover, nowadays, companies look at Key Performance Indicators such as a number of visitors, pages per session or conversion rates and then proceed by formulating hypotheses on how to improve such measures, and ultimately test new solutions.

For this reason, many factors prove to have major importance when it comes to impact usage behaviour, which can consequently affect the financial performance of businesses across the globe. The following chapters will delve into specific areas of inquiry, each designed to illuminate a distinct aspect of the e-commerce landscape. By the end of the research, the target is to achieve a deeper understanding of the contemporary e-commerce ecosystem and more specifically, what can bolster consumer experiences, while paving the way for future advancements in this dynamic field.

1.2. Research Problem

The research problem is the scarcity of studies that have addressed the UTAUT theory either by trying to expand it or applying it to different contexts, which, in this case, is directly related to the

e-commerce environment. As suggested, "(...) the measures for UTAUT should be viewed as preliminary and future research should be targeted at more fully developing and validating appropriate scales for each of the constructs with an emphasis on content validity, and then revalidating the model specified herein (or extending it accordingly) with the new measures. Our research employed standard measures of intention, but future research should examine alternative measures of intention and behaviour in revalidating or extending the research presented here to other contexts." (Venkatesh et al., 2003, p. 468). Therefore, there is a gap regarding which dimensions impact consumer behaviour in e-commerce, and how impactful they are.

Additionally, although there is a vast knowledge about possible factors that drive the behaviour demonstrated by consumers when shopping online there is a clear absence of a framework, that by compiling the most relevant factors, can explain these correlations in the form of actionable insights. Furthermore, most of the literature tends to focus solely on one or two specific variables and provide a deeper interpretation of them, even considering that often, those explanations are not easily understood in terms of managerial implications. This is vital since businesses have become increasingly critical to grasping the underlying dynamics guiding consumer choices and actions. Addressing this knowledge gap, this dissertation will contribute to the academic discourse surrounding e-commerce and consumer behaviour, offering a more comprehensive framework for future research. On the other hand, these insights can serve as a compass for refining strategies, optimising user experiences, and ultimately enhancing competitiveness for businesses operating in the digital sphere.

1.3. Research Questions and Specific Objectives

The research questions are mainly related to which dimensions can effectively influence consumer behaviour in e-commerce, how impactful they are and how they have evolved. Additionally, it is essential to understand if the variables present in the widely known Unified Theory of Acceptance and Use of Technology are still enough to explain usage behaviour in online shopping, or if newer dimensions should also be taken into consideration.

This dissertation endeavours to shed light on critical dimensions of e-commerce, ranging from user behaviour and technology adoption to the influence of the variables belonging to the UTAUT theory as well as its expansion presented in this study where trust and security, website design and quality, online customer reviews and personalisation are included. Through a systematic

exploration of these facets, the aim is to discern patterns, uncover insights, and contribute to the ever-expanding body of knowledge in the field of e-commerce. Lastly, this research aims to provide actionable insights that bridge the existing knowledge gap and empower businesses to better serve today's digital-savvy consumers, which will bring value both in the managerial and societal context. This value, for businesses, can be expressed in the form of better comprehending how to improve e-commerce performance. Regarding the societal implications, the aim is to achieve a deeper understanding of what effectively improves consumers' experience when shopping online. This seems to be extremely important, since as previously stated, recently, online shopping observed an exponential growth when it comes to the number of users and its level of activity.

1.4. Thesis structure

Given this context, the present study has the goal of evaluating the influence and impact that multiple dimensions of e-commerce can have on consumer behaviour and its decision-making process. Therefore, the research is divided into the following chapters: 1. The literature review, in which all the important definitions and characteristics of the multiple dimensions are presented and serve as the foundation for the study: technology adoption theories, UTAUT, trust and security, website design and quality, online customer reviews and personalization. 2. After the literature review is presented, and based upon it, there is the research framework as well as the theoretical model, which are designed specifically taking into consideration the formulation of hypothesis to be studied in throughout the dissertation. 3. Furthermore, there is the methodology, where the research approach, data collection construction of the questionnaire as well as the scales utilized are introduced. 4. Following that, the findings chapter is mainly composed of the validation of the data, and also the display of the results. 5. Lastly, in the conclusions, which is the last chapter, the limitations of the research and recommendations are stated based upon the results gathered in the previous chapter.

CHAPTER 2

LITERATURE REVIEW

2.1. Technology Adoption Theories

There is vast variety of research, adoption and utilization of technology acceptance theories, however, the majority has the Technology Acceptance Model (TAM) as its foundation (Davis, 1989; Dube et al., 2020). The TAM consists of two specific variables such as “(...) perceived usefulness and perceived ease of use, which are hypothesized to be fundamental determinants of user acceptance” (Davis, 1989, p. 319) and consequently, user behaviour (Dube et al., 2020). However, this theory is characterized by being subjective and certainly does not reflect reality (David, 1989). Other important theory regarding technology adoption is the Diffusion of Innovation (Rogers, 1983), that explains the technological embracement from a different point of view, stating that the features of innovation have great responsibility in inducing acceptance as well as the characteristics of the consumers. There is also the Theory of Reasoned Action (Ajzen et al., 1980), and its expanded version, the Theory of Planned Behaviour (Ajzen, 1991). Both approaches intend to explain the behaviour conducted by consumers and explore the acceptance of technology taking into consideration an approach based on beliefs. In the case of the Theory of Reasoned Action, this perspective states that “(...) people’s attitudes follow spontaneously and consistently from beliefs accessible in memory and then guide corresponding behaviour. The number and types of beliefs that are accessible vary with motivation and ability to process attitude-relevant information and with the context.” (Ajzen et al., 1980, p. 2). Moreover, the Theory of Planned Behaviour is an entrenched general theory concerning social psychology, which defends that the behavioural, normative and control beliefs, are responsible for influencing the behaviour perceptions and ultimately the actual behaviour demonstrated (Ajzen, 1991). Also, “Another important contribution of this research is the placement of fundamentally important variables – perceived behavioural control, trust, and perceived risk – as determinants of B2C ecommerce adoption, drawing from a well-established model of social psychology (TPB).” (Pavlou, 2002, p. 5). Ultimately, there is the UTAUT (Annex A, Figure A1) (Venkatesh et al., 2003) that has its

foundations on TAM as well and tries to extend it by integrating the eight most common and widely accepted models in technology acceptance research into one parsimonious model.

In sum, “A number of models and frameworks have been developed to explain user adoption of new technologies and these models introduce factors that can affect the user acceptance such as Technology Acceptance Model, Theory of Planned Behaviour and Diffusion of Innovation theory, Theory of Reasoned Action, Model of PC Utilization, Motivational Model, Unified Theory of Acceptance and Use of Technology and Social Cognitive Theory.” (Taherdoost, 2018, p. 961). The study of technology acceptance has extreme importance, since user acceptance and confidence are both keys to the advancement of new technologies (Taherdoost, 2018). These adoption intentions are mainly influenced by perceived usefulness and ease of use, which in turn are the result of relative advantage, compatibility, complexity, observability, and social influence (Min et al., 2018). Additionally, it is important to mention that technological, organizational and environmental contexts also influence technology acceptance (Dube et al., 2020), however the factors that affect e-commerce adoption are constantly evolving (Harianty et al., 2020).

Therefore, “(...) understanding user acceptance, adoption, and actual usage of modern technology is one of the richest streams of research, with a high priority for researchers and practitioners in the field.” (Granić, 2023, p. 1). The Figure A2 in Annex A “(...) shows a chronological presentation and illustrative overview of relational linkages among the most influential technologic acceptance and adoption theories and models (...)” (Granić, 2023, p. 2). Taking this into consideration, for this study on e-commerce adoption and consumer behaviour, UTAUT will be the framework considered.

2.2. UTAUT

Early studies about technology acceptance topic mention that when consumers have a perception that a technological feature is easy to use (higher effort expectancy), they tend to think that this specific feature has an increased usefulness (higher performance expectancy); and this higher performance expectancy results in larger intentions of use (Davis et al., 1989). Consequently, the Unified Theory of Acceptance and Use of Technology (UTAUT) started taking shape when the TAM2 (Figure A3, Annex A) (Venkatesh et al., 2000) was first introduced. This updated version of the TAM theory consisted of “(...) refining the models of the determinants of perceived usefulness and perceived ease of use, should address the role of other direct determinants of usage

intentions and behaviour and continue to map out the major contingency factors moderating the effects of perceived usefulness, perceived ease of use, subjective norm, and other constructs on intention.” (Venkatesh et al., 2000, p. 200). Afterwards, further investigation, resulted on the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003), considered one of the most well-known and highly accepted theories about user acceptance regarding technology (Venkatesh et al., 2003; see also Al-Saedi et al., 2019; Giua et al., 2020; Lim et al., 2019). It is composed by eight well known information system and technology such as the theory of reasoned action (Fishbein et al., 1975), the technology acceptance model (Davis, 1989), the motivational model (Davis et al., 1992), the theory of planned behaviour (Ajzen, 1991), a combined theory of planned behaviour and technology acceptance model (Taylor et al., 1995), a model of personal computer use (Thompson et al., 1991), the diffusion of innovations theory (Moor et al., 1991), and the social cognitive theory (Compeau et al., 1995).

Regarding the key constructs that influence behavioural intention in the UTAUT, the performance expectancy is related to what extent the use of technology assists consumers to carry out certain actions; effort expectancy is how efficiently and effortlessly the consumers use technology; social influence is the level of importance given by consumers to what others think regarding the use of a specific technology; and facilitating conditions consists on what is perceived by consumers when it comes to the assets and support available to conduct a given activity which later result in behavioural intention and consequently, user behaviour (Venkatesh et al., 2003).

Subsequently, and building on the existing research, a new version of the UTAUT (Figure A4, Annex A) was introduced with the goal of highly considering the consumer use context. “In summary, UTAUT2 incorporates not only the main relationships from UTAUT, but also new constructs and relationships that extend the applicability of UTAUT to the consumer context.” (Venkatesh et al., 2012, p. 172). This expanded version of the UTAUT “(...) confirmed the important roles of hedonic motivation, price value, and habit in influencing technology use and in UTAUT2, which is tailored to the context of consumer acceptance and use of technology.” (Venkatesh et al., 2012, p. 174). The hedonic motivation is described as the joy obtained by using a technology, while the price value encompasses the trade-off between the cost of acquiring and using the technology and the perceived benefits and value derived from its use (Venkatesh et al., 2012). Lastly, the habit is the tendency that people present in performing behaviours automatically because of previous learnings (Limayem et al., 2007). It was also introduced the idea that “(...)

various individual characteristics, namely gender, age, and experience, jointly moderate the effect of hedonic motivation on behavioural intention” (Venkatesh et al., 2012, p. 171). Subsequently (Sim et al., 2018; see also Al-Saedi et al., 2019; Chen et al., 2021; Liu et al., 2020) tried to extend the theory by including perceived effectiveness of e-commerce institutional mechanisms and trust in vendors as two additional variables that would impact e-commerce adoption.

Recently, it has been discussed that a “(...) key element missing from the UTAUT model is the “individual” engaging in the behaviour—i.e., individual characteristics that describe the dispositions of the users may be influential in explaining their behaviours.” (Dwivedi et al., 2019, p. 721), given that it was “(...) found that attitude played a central role in acceptance and use of IS/IT innovations.” (Dwivedi et al., 2019, p. 727). On another hand, a different study mentions that trust is a variable that is already inherent to the acceptance of technology and therefore e-commerce (Harianty et al., 2020). In addition, and transitioning to e-commerce “The suitability of the user interface and user experience is one of the reasons for reusing systems and tools for e-commerce in asserting their identity and characteristics.” (Harianty et al., 2020, p. 98)

2.3. Trust and Security in e-commerce

Trust is complex and can be defined “(...) as a set of beliefs that other people would fulfil their expected favorable commitments.” (Gefen, 2000, p. 727). A more recent definition is “(...) the willingness of a person to be vulnerable, a person's expectation, and a subjective belief, reliance on parties other than oneself or a subjective likelihood.” (Khan, 2019, p. 1200). Additionally, “since in many cases prior experience is the basis of trust, familiarity can both create trust, when the experience was favourable, or ruin trust, when not.” (Gefen, 2000, p. 728). Trust can also have different types with a variety of implications for consumer behaviour (Figure A5 and A6, Annex A) (McKnight et al., 2002). Some of the main concerns that affect consumers’ intentions when it comes to shopping online are their perception of risk and security, therefore trust plays a crucial role in the adoption and continued use of e-commerce as well as customer satisfaction (Gefen et al., 2003; see also Bylok, 2021; Falahat et al., 2019; Fernández-Bonilla et al., 2022; Girsang et al., 2020; 2000; Imtiaz et al., 2020; Kim et al., 2008; Kollock, 1999; McKnight et al., 2002; Tandon et al., 2017). These risks can be translated in aspects like payment security, unfair pricing, reliability of companies, violations of personal information privacy (Gefen, 2000; see also Cao et al., 2018; Falahat et al., 2019; Imtiaz et al., 2020; Jamra et al., 2020; Kim et al., 2008; McKnight

et al., 2002; Ribadu et al., 2019; Soleimani, 2021; Tandon et al., 2017). Furthermore, online trust is built by “(1) a belief that the vendor has nothing to gain by cheating, (2) a belief that there are safety mechanisms built into the Web site, and (3) by having a typical interface, (4) one that is, moreover, easy to use.” (Gefen et al., 2003, p. 51). Taking this into consideration, it is important to mention that, especially for inexperienced online consumers, “(...) a high-quality Web site creates consumer beliefs that the vendor is not only competent, but also honest and benevolent.” (McKnight et al., 2002, p. 354) since “On the other hand, when the Web site has a suspicious interface and requires customers to go through an unexpected procedure or provide atypical information, consumers will understandably be more inclined not to trust the e-vendor.” (Gefen et al., 2003, p. 65). Due to its importance, website quality is something that should be taken into special consideration by companies as it is mainly under their responsibility, the power to influence customer trust (Gefen et al., 2003; Jamra et al., 2020) and consequently customer loyalty (Aslam et al., 2019; Choi et al., 2018). This can be done by having a well-designed, user-friendly and secure website (Aslam et al., 2019) which handles privacy preferences perfectly with data protective measures (Girsang et al., 2020; Fernández-Bonilla et al., 2022). Additional research also reveals that other aspects such as “(...) brand recognition, service quality, security, and WOM communication positively affect consumer trust in e-commerce” (Falahat et al., 2019, p. 104) and “(...) e-commerce vendors should set their strategies right to enhance consumer trust and attract more consumers for online purchases.” (Falahat et al., 2019, p. 104).

In sum, a customer’s trust is also developed with time and repeated purchase (Imtiaz et al., 2020), but in order “To increase the number of sales and decrease the intensity of risk, companies must increase the level of trust, which mitigates risk and increases customer bonding with companies.” (Qalati et al., 2021, p. 7) given that ““Trust significantly mediates the relationship between perceived service quality, website quality reputation, and online purchase intention.” (Qalati et al., 2021, p. 9). To achieve this “Integrity, privacy, non-repudiation, and confidentiality are significant security dimensions to secure transactions of e-commerce against security threats.” (Jamra et al., 2020, p. 4), but also “(...), reliability, coherence, visual appearance, and website qualities that are likely to affect customers' trust in e-commerce could be enhanced. (...) Also, practitioners need to consider online seals, encryption certificates, assurance, and guarantees in the process of trust.” (Soleimani, 2021, p. 19)

2.4. Website Design and Quality

The concept of website design is relatively new and is composed by many different elements, however it significantly affects the perceptions and attitudes of consumers towards organizations (Zhang et al., 2001). The features that compose website design “(...) can be categorized into three quality types that meet the three quality needs: basic, performance, and exciting.” (Zhang et al., 2001, p. 14). Additional findings suggest that the perceptions of an interface aesthetics are strongly connected with usability, and consequently, purchase intentions (Tractinsky et al., 2000; Dianat et al., 2019). The International Standardized Organized provides a definition of usability by being the degree a user can achieve desired tasks with effectiveness and satisfaction, nonetheless, different industries have different objectives while designing their websites (Petre et al., 2006). Regarding this aspect, studies show that users give special importance to “ease of navigation, access, and loading time (technical quality); content usefulness, competence, clarity, and accuracy (general content quality); and attractiveness, organization, and readability (appearance quality)” (Al-Qeisi et al., 2014, p. 2287).

Nowadays, it is crucial for a website to have proper design since this is what will enhance engagement by users (Al-Qeisi et al., 2014) as defectively designed websites can cause frustration on consumers leading to high bounce rate, meaning that users will visit the entrance page of a website but won't feel motivated to explore further (Garett et al., 2016; Pee et al., 2018). A proper website design and usability have proven to influence degree of acceptance, intentions of use and ultimately customer satisfaction (Alcántara-Pilar et al., 2018; see also Dianat et al., 2019; Gonçalves et al., 2017; Ilmudeen et al., 2018). This last one, is particularly important for companies that pretend to build long and successful relationships with consumers (Alcántara-Pilar et al., 2018), for that reason, online vendors try to ensure good website usability given that this is one of the most important points of contact to online users (Pee et al., 2018) and can also be seen as tool to boost impulsive buying (Akram et al., 2018).

However, building high usability, quality and distinguishably websites that can truly engage users is particularly challenging (Al-Qallaf et al., 2018), especially taking into consideration that e-commerce is becoming the norm and online consumers have become much more experienced (Pee et al., 2018). With this goal in mind, a company needs their design “(...) to focus on Internet users' needs and organize browsing to make the online shopping experience easier. Therefore, highly usable destination websites provide a positive browsing experience to users through

appropriate content organization, clear and concise information on the products and services at the destination, easy browsing, and so on.” (Alcántara-Pilar et al., 2018, p. 2). Furthermore, “The design of websites and users’ needs go beyond pure usability, as increased engagement and pleasure experienced during interactions with websites can be more important predictors of website preference than usability.” (Allison et al., 2019, p. 2). This is particularly the case nowadays, where the business environment is increasingly more competitive and websites are more advanced, thus in order to attract and retain customers, the focus should be turned to the quality of the websites.

2.5. Impact of Online Customer Reviews

The continuous expansion of the internet has widened consumers’ options when it comes to obtaining unbiased product information provided by other consumers who now play an increasingly important role in consumption related advice through electronic word-of-mouth (eWOM) (Hennig-Thurau et al., 2004; see also Chevalier et al., 2006; Li et al., 2019; Wang et al., 2018; Wu et al., 2020). The electronic word-of-mouth consists of “(...) any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet.” (Hennig-Thurau et al., 2004, p. 39). The eWOM can be either positive or negative. One example of the latter is, for example, a consumer referring to his negative experience of a product or a service purchased, to save other consumers from those same negative circumstances. For that reason, “Given the great number of potential receivers of eWOM communication, the long-term availability of the comments, and their accessibility by companies, a consumer’s individual articulation of a consumption problem can contribute to the *exertion of (collective) power over companies*. Since negative consumer comments can influence the way a company and its image are perceived (...)” (Hennig-Thurau et al., 2004, p. 42).

In addition, it is important to understand that online reviews can have a strong influence on the behaviour demonstrated by the consumers and due to that, they can also impact the future sales of companies (Dellarocas et al., 2007). Nevertheless, they represent “(...) a potentially valuable tool for firms, who can use them to monitor consumer attitudes toward their products in real time, and adapt their manufacturing, distribution, and marketing strategies accordingly.” (Dellarocas et al., 2007, p. 24). Currently, consumers check online reviews published by others who have acquired products or services in order to form an initial idea of what was their experience and reduce

uncertainty, meaning that as result, they have a large impact on the shaping consumers' preferences (Kim et al., 2018; see also Burtch et al., 2018; Li et al., 2019; Thakur, 2018; Zhang et al., 2018). These processes can also foster customer engagement which can consequently lead to impulsive buying behaviour (Zhang et al., 2018) repurchasing intentions, as well as trust and customer loyalty (Thakur, 2018).

The effect that reviews have on sales depends mainly on the relationship between the user and a website (Kim et al., 2018), the strength of a brand, the reviewers' notoriety, their location, and ultimately the text itself and the rating (Li et al., 2019). This means that, overall, the reviews which underline the great aspect of a product and have the potential to increase sales, however, they cannot be limited to a plain five-star rating (Li et al., 2019). On the other hand, studies show that the impact of one-star reviews is more preponderant the impact from five-star reviews and that consumers look forward to reading and respond to written reviews when shopping and not just simply pay attention to the average star ranking summary statistic that is shown on websites (Chevalier et al., 2006; Li et al., 2019). Given its importance "many retailers employ strategies intended to boost the volume and length of reviews, most commonly by offering consumers a small financial incentive in exchange for a review" (Burtch et al., 2018, p. 1), although this can have some drawbacks, like low-effort, short, biased and uninformative reviews considering the inexistence of intrinsic motivation to write down a proper critique.

In sum, at the same time the importance of online reviews increases when it comes to grow purchase intentions of consumers due to it being more persuasive than marketing efforts (Thakur, 2018), so do the concerns related to its credibility (Kim et al., 2018; Thomas et al., 2019) and the widespread presence of fake online reviews (Wu et al., 2020). These fake reviews tend to have a complex structure in order to seem as reliable as possible (Wu et al., 2020). Nevertheless, the general credibility of the reviews is based on "(...) factors based on argument quality, including accuracy, completeness and quantity of online reviews, as well as peripheral cues, including reviewer expertise, product/service rating and website reputation, both significantly impact online review credibility, which in turn positively influences consumers' purchase intentions." (Thomas et al., 2019, p. 1).

2.6. Personalization in e-commerce

Personalization is defined by the action of deducing consumers' preferences based on data namely past purchases or demographics, and then recommending specific content, products or offers to these same online users with the objective of increasing e-commerce goals, which can be linked to revenue, engagement or user satisfaction (Figure A7, Annex A) (Li et al., 2015; see also Ajzen et al., 1980; Alamdari et al., 2020; Fernandez-Lanvin et al., 2018; Liao et al., 2021; Vavliakis et al., 2019). One of its forms are online Recommender Systems (RS) of products. The premise behind the majority of RS, is that they are a great option when it comes to identifying consumers' similar interests by combining information and through filtering algorithms suggest products that have interested to like-minded people (Goldberg et al., 1992; Resnick et al., 1997). It is also important to mention that personalization is one of the most powerful aspects of e-commerce as it has shown that it can increase revenues (Allenby et al., 1998; see also Dzulfikar et al., 2018; Fernandez-Lanvin et al., 2018).

On another note, users express high levels of satisfaction concerning online recommendation systems as "(...) Recommended items were often "new" and "unexpected", while the items recommended by friends mostly served as reminders of previously identified interests." (Sinha et al., 2001, p. 1). Additionally, "(...) users did not mind providing more input to the system in order to get better recommendations." (Sinha et al., 2001, p. 2). Furthermore, building upon the TAM and TRA theories, research shows that recommendations expand consumers' perceived usefulness (Chau et al., 2003; Song et al., 2021), perceived benefits (Chau et al., 2008) and positive attitude towards the system (Chau et al., 2003; see also Chau et al., 2008; Xu et al., 2016). In addition, (Tam et al., 2006) found that offers and content recommendations affect consumers' perceptions in all the purchasing decision stages: attention, cognitive processing, decision and evaluation. However, there are three major stages regarding the process of recommendations: understanding consumers by collecting their information, delivering recommendations and understanding the impact of the RS making adjustment if needed. This collection of data can happen explicitly by asking to consumers directly what their preferences are, or implicitly by inferring these preferences through the observation of their behaviours (Li et al., 2015). Consumers are open to "(...) Trade away privacy concerns for the personalization benefits that come from using these systems." (Li et al., 2015, p. 72). For this to happen, it is necessary to have a fine interface design, because if that is not the case "(...) Consumers may ignore the personalized recommendations, take a lot of time

to understand what was offered, or not perceive them as personalized recommendations at all.” (Li et al., 2015, p. 72).

Nowadays, RSs are the solution to the challenging of surpassing the overabundance of information and improve customers’ satisfaction by recommending the right products (Alamdari et al., 2020; Chen, 2018). Additionally, as customers have higher expectations regarding e-commerce and the way it satisfies its preferences and necessities, the capacity to offer tailored and personalized experiences proves to be vital by “(...) changing the interface, functionality, and content to meet the relevant user needs.” (Dzulfikar et al., 2018, p. 220). These days, this is made possible through the gathering of real-time data either by web cookies, transactional data or browsing history, for example (Dzulfikar et al., 2018; Song et al., 2021). Consequently, as “81% of consumers shift their loyalty to platforms that offer better personalized services.” (Dzulfikar et al., 2018, p. 220), personalization plays a significant role in boosting purchase intentions, conversion rates, marketing efficiency and ultimately, revenue. On the other hand, it is important to understand that “(...) effectively applying personalization in real life is a challenging task, since the proper mixture of technology, data and content is complex and differs between companies” (Vavliakis et al., 2019, p. 1128), making it unclear if it is properly used in e-commerce website beyond enormous ones such as Amazon or eBay. In sum, considering the e-commerce context, it should be noted that consumers pursue personalization and offerings of products that are tailored to their preferences (Liao et al., 2021). However, its level of efficacy relies essentially on the relevance (Brinson et al., 2018), usefulness, accuracy of the recommendations as well as the privacy concerns displayed by consumers, since users may feel unsafe if they feel like they have disclosed an exaggerated amount of personal information (Song et al., 2021; see also Martin et al., 2020; Weinberger et al., 2018).

2.7. Literature Review Summary

In the Table 2.1 below, it is possible to observe a summary of the literature review.

Table 2.1 – Literature Review Summary

Author, Year	Main Topics (Actual Research)	Main Issues (Future Research)
Venkatesh et al., 2003	The article delves into the concept of user acceptance of information technology and	Future research ought to explore alternative metrics for intention and conduct, whether

	provides a unified perspective on the factors influencing user acceptance and adoption of IT systems.	it's for revalidating or expanding upon the findings of this study within different contexts.
Gefen, 2000	This article explores the crucial roles of familiarity and trust in the dynamics of e-commerce, specifically its impact and implications.	Understanding familiarity in e-commerce, for example in vendor familiarity and procedures. Additionally, investigate methods for enhancing trust on websites.
Gefen et al., 2003	This article delves into the concept of trust in the realm of online shopping.	Future research aims to investigate how well the model applies to diverse online industries, studying on why and when consumers choose to make purchases from online shops.
Alcántara-Pilar et al., 2018	The focus of this article is to explore how website usability, along with online satisfaction and perceived risk, shapes individuals' attitudes towards online purchases.	A deeper understanding how perceived usability, online satisfaction, and perceived risk impact purchase intentions and online consumer behaviour.
Pee et al., 2018	This study investigates deeper into the impact of website usability on customers' intentions to repurchase.	Future research should include different samples as well as digital products, given that in this study only websites that sell physical products were considered.
Hennig-Thurau et al., 2004	This article explores the motivations that drive consumers to engage in electronic word-of-mouth, specifically consumer-opinion reviews.	Future research should focus on refining measures used in this study and replicating findings in diverse cultural contexts.
Kim et al., 2018	This article explores the impact of electronic Word-of-Mouth within the framework of online social networks.	Future studies should include diverse user samples and compare review website usage across demographics.
Song et al., 2021	This article investigates e-commerce personalization for privacy-conscious consumers.	There are several other variables besides personalization that can affect consumers' purchase intentions.

CHAPTER 3

RESEARCH FRAMEWORK

3.1. Theoretical Model

As previously described, there are four dimensions that strongly influence the usage behaviour of technologies (Venkatesh et al., 2003). However, the goal is to expand this theory even further and apply it to the specific context of e-commerce, by including dimensions that are believed to be also relevant such as trust and security, website design and quality, online customer reviews and personalization. Therefore, in addition to present an extended, and more complete version of the UTAUT, this study also serves the purpose of applying to the Portuguese context, to hence to have a better understanding about this topic and contribute to the already existing knowledge on this matter. The theoretical model presented below, has the goal to determine if the variables mentioned have an impactful effect on the consumer behaviour in online retailers' websites in Portugal.

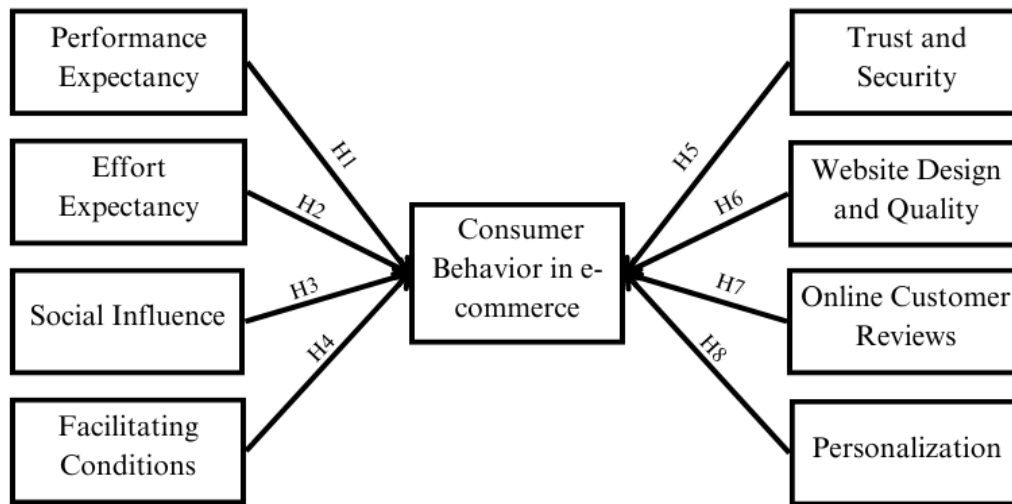


Figure 3.1 – Research Framework

Source: Author's elaboration

3.2. Formulation of Hypothesis

Drawing from the previously established framework model, formulating hypotheses holds significance in assessing both the significance and influence that the different dimensions stated can have on the consumer behaviour in the e-commerce context.

Given this perspective, it is vital to construct hypotheses that contribute to a deeper comprehension and effective measurement of what is the perception when it comes to the factors that influence consumer behaviour online, which can consequently influence purchase intentions. In order to evaluate which dimensions affected consumer behaviour positively, the following hypothesis were created.

H1: Performance Expectancy has a positive effect on consumer behaviour in e-commerce.

In the realm of e-commerce, the positive influence of performance expectancy on consumer behaviour is a critical aspect. In other words, it seeks to explore how consumer expectations of seamless and effective online shopping experiences correlate with their subsequent actions and choices online. This hypothesis (H1) asserts that the level of consumer anticipation regarding the performance of online shopping processes significantly impacts their actual behaviour.

H2: Effort Expectancy has a positive effect on consumer behaviour in e-commerce.

Anticipated ease of use plays a pivotal role in shaping consumers' online shopping behaviour as this delves into the impact of perceived effortlessness on consumer actions online. Therefore, Hypothesis 2 (H2) suggests that the more effortless consumers perceive the e-commerce process, the more likely they are to engage in favorable behaviours.

H3: Social Influence has a positive effect on consumer behaviour in e-commerce.

The power of social influence in shaping consumer decisions within the e-commerce landscape is a critical aspect often underestimated. Consequently, hypothesis 3 (H3) aims to explore the extent to which the opinions and behaviours of others impact consumers' choices in online shopping.

H4: Facilitating Conditions have a positive effect on consumer behaviour in e-commerce.

Research states that enabling factors play a significantly important role in shaping consumers' interactions and engagement within the realm of online commerce. Therefore, hypothesis 4 (H4) explores how the presence of facilitating conditions, such as accessible technology and resources for example, can impact and enhance consumer behaviour online.

H5: Trust and security have a positive effect on consumer behaviour in e-commerce.

The sense of trust and security demonstrated by consumers is still one of the major explaining factors for their decision-making in e-commerce. This is a sensitive aspect of online shopping and one that is frequently overlooked by its sellers. Thus, hypothesis 5 (H5) was formulated in order to understand how impactful the sense of trust and security are for consumers in e-commerce.

H6: Website design and quality have a positive effect on consumer behaviour in e-commerce.

In the dynamic world of e-commerce, the virtual storefront takes the form of a website. Its design and quality hold a significant sway over consumer behaviour, functioning as the digital gateway between businesses and their potential customers. A user-friendly interface, appealing visuals, and seamless navigation have the potential to enhance the overall consumer experience. Thus, hypothesis 6 (H6) sets out to investigate how the design and quality of a website wield their influence in shaping consumer behaviour online.

H7: Online Customer Reviews have a positive effect on consumer behaviour in e-commerce.

In the digital landscape of e-commerce, the influence of online customer reviews has become a defining factor in shaping consumer behaviour. The power of peer feedback, opinions, and experiences shared through reviews plays a substantial role in guiding purchasing decisions. Therefore, hypothesis 7 (H7) aims to delve into the extent to which online customer reviews impact and drive consumer behaviour within the realm of e-commerce.

H8: Personalization has a positive effect on consumer behaviour in e-commerce.

As privacy concerns continue to grow, so do the tools utilized by companies worldwide that serve the purpose of offering a more personalized experience to the visitors of their website. Therefore, the purpose of hypothesis 8 (H8) is to better understand the tradeoff that consumers go through concerning privacy and personalization.

Table 3.1 – Hypothesis description

Hypothesis	Description	Based on
H1	Performance Expectancy has a positive effect on consumer behaviour in e-commerce	Venkatesh et al., 2003
H2	Effort Expectancy has a positive effect on consumer behaviour in e-commerce	Venkatesh et al., 2003

Hypothesis (cont.)	Description	Based on
H3	Social Influence has a positive effect on consumer behaviour in e-commerce	Venkatesh et al., 2003
H4	Facilitating Conditions have a positive effect on consumer behaviour in e-commerce	Venkatesh et al., 2003
H5	Trust and security have a positive effect on consumer behaviour in e-commerce;	Gefen, 2000; Gefen et al., 2003
H6	Website design and quality have a positive effect on consumer behaviour in e-commerce;	Alcántara-Pilar et al., 2018; Pee et al., 2018
H7	Online Customer Reviews have a positive effect on consumer behaviour in e-commerce	Hennig-Thurau et al., 2004; Kim et al., 2018
H8	Personalization has a positive effect on consumer behaviour in e-commerce	Song et al., 2021

Source: Author's elaboration

CHAPTER 4

METHODOLOGY

4.1. Research Design

Taking into consideration that the goal of this study is to quantify the impact that the dimensions previously mentioned can have on the behaviour of e-commerce consumers and consequently in their purchase intentions, descriptive research was conducted. This type of research will be the one selected given that is the one which better enables the measurement of relationship between the variables present in the study, as well as proceeding with a behaviour description. Additionally, this research will derive from the empirical approach, meaning that the totality of the conclusions will be drawn from the data collected.

4.1.1. Population

A population can be characterized as a group of individuals in which it is of relevance to make judgements (Mooi et al., 2018). In that instance, the population considered for this research is people living in Portugal, ultimately due to a matter of convenience. However, given the levels of utilization of e-commerce worldwide, with a special focus on more developed countries, it is possible to state the level of contact of the population in question has with online shopping is significantly high. Nevertheless, the minimum requirement to be part of the sample is for each individual to be over eighteen years old and to have shopped online at least once, at any point in time before answering the questionnaire.

4.1.2. Data Collection

Taking into account that the data collected possesses a specific purpose, the data gathered is classified as primary data (Mooi et al., 2017). For this, an online questionnaire, therefore quantitative research, was developed (full questionnaire available on Annex B). It was created on Google Forms and was written fully in Portuguese, considering that it is the mother tongue of all the attainable participants and to ensure that the questions were, clear, direct and perfectly understood. This questionnaire was able to reach the participants due to its disclosure on the main

social networks, for example: WhatsApp, Instagram, LinkedIn and Facebook. The sampling method used was a non-probability type accompanied by a convenience approach, since they were selected randomly. This type of sampling is a technique often utilized by students given that it does not have any interrelated expenses and is a simpler option when compared to the remaining sampling techniques (Taherdoost, 2016). In relation to the size of the sample, Gorsuch states that the minimum required to proceed with any analysis are 100 valid samples. This minimum requirement will allow us to correctly analyze and describe the motivational disparities within the individuals (Gorsuch, 1990).

4.1.3. Questionnaire Construction

The construction of the questionnaire was based on the existing literature, but also included a special effort in order to make it clear, relatable and intuitive to all the participants. A pre-test was conducted to a sample of seven people of different ages, lifestyles and academic qualifications, before it was ultimately concluded and disclosed. The main goal of the pre-test was to comprehend which modifications were essential for a complete understanding when it came to the final version of the survey (Mooi, Sarstedt & Mooi-Reci, 2018). For that case, the pre-test proved to be of major importance considering that a few improvements were made as a result of the feedback gathered.

Concerning the construction of the questionnaire, it starts with a short introduction mentioning the object of the survey. Then, it is composed of two main parts. The first one concerns mainly demographic aspects for a more detailed characterization of the participants. Additionally, at the end of this part, there are two questions that attempt to characterize participants more specifically to the context of e-commerce and understand how often they visit and make purchases from online shopping websites. In addition, this last question of the first part “How often do you effectively make purchases online?”, served as the qualifying question for respondents to proceed to the remaining questions. This is highly relevant, since for the sake of the research only the insights belonging to consumers that have shopped online before are considered adequate and valuable. Furthermore, this is justified due to the fact that if a person has never consummated an online purchase before, it would be difficult for this respondent to have an idea about which dimensions of this study, have influenced the conducted behaviour in past experiences.

The second part presents a set of questions, based on the previously illustrated literature, built in an adapted way that is possible to calculate if there is a positive influence from the different

dimensions regarding consumer behaviour in e-commerce, and if that is the case, expressing the objective of each hypothesis, thus confirming its validity. Its purpose is also to gather diverse viewpoints on the factors that drive individuals to behave in a certain way while visiting online shopping websites and the adaptation of the questions was mainly done to ensure that they are totally related to the context of the study. The Likert scale, a commonly used response scale, was utilized for this part and enabled participants to express their degree of agreement with statements (Mooi, Sarstedt & Mooi-Reci, 2018). For this segment, a five-point Likert scale was employed, allowing participants to rate statements on a spectrum from one (indicating strong disagreement) to five (indicating strong agreement). This section comprises a total of twenty-six questions and the utilization of the Likert scale in this segment was deliberate, as it not only contributes to reducing the questionnaire's length but also facilitates ease of response.

The construction of the questionnaire can be found in the Table below (Table 3).

Table 4.1 – Constructs and Items

Construct	Item	Adapted from
Performance Expectancy	A1. I believe that shopping online improves my shopping experience, by being easier and requiring less effort. A2. The websites enhance my efficiency and effectiveness in finding products and/or services. A3. E-commerce facilitates my ability to make informed purchase decisions.	Venkatesh et al., (2003); Author's Elaboration
Effort Expectancy	B1. Generally, I find online shopping websites easy to use. B2. Online shopping websites require very little mental effort when it comes to understanding how they work. B3. I prefer to shop at websites require a small amount of steps to complete a purchase.	
Social Influence	C1. People around me shop online regularly. C2. Recommendations from friends and family strongly influence my decision to shop online. C3. I am more likely to shop online if people around me do it too.	
Facilitating Conditions	D1. I have access to the necessary resources and technology to shop online comfortably. D2. The availability of various payment options makes me more likely to make an online purchase.	

	D3. I value having the chance of being assisted (for example, by a bot) when shopping online.	
Trust and Security	E1. I feel more comfortable purchasing from websites I am familiar with. E2. Trusting the security measures of a websites positively affects my willingness to shop there. E3. The presence of trust badges and security certifications enhances my trust perception of a website. E4. I trust online shopping websites that are transparent about their privacy policies and data protection practices.	Gefen, 2000; Gefen et al., 2003; Author's Elaboration
Website Design and Quality	F1. I consider the websites' overall appearance, a key factor that influence my purchase decisions. F2. Generally, websites are easy to use even when it is my first time visiting them. F3. The way in which the content on the websites is presented improves my capability of understanding where to find what I am looking for.	Alcántara-Pilar et al., 2018; Pee et al., 2018; Author's Elaboration
Online Customer Reviews	G1. Online customer reviews play a significant role in my purchasing decisions. G2. I rely on the opinions of other online shoppers when considering products/services. G3. I believe that positive online reviews are a good indicator of product/service quality. G4. I consider both positive and negative online reviews before making an online purchase.	Kim et al., 2018; Author's Elaboration
Personalization	H1. I value personalized online recommendations made by websites. H2. I am willing to sacrifice my privacy in exchange for better personalized online recommendations. H3. I will use personalized online recommendations more if I have a clear control over the data being shared and its usage.	Song et al., 2021; Author's Elaboration
Consumer Behaviour	I1. I intend to continue visiting e-commerce websites. I2. Whenever possible, I will choose to make my purchases online instead of doing it in a physical store. I3. I will continue to make purchases online.	Author's Elaboration

Source: Author's elaboration

CHAPTER 5

RESULTS AND DISCUSSION

5.1. Procedure

After closing the questionnaire on Google Forms, 167 total responses were extracted and submitted into the IBM SPSS Statistics 29 program. Consequently, after all the information was transferred, an assessment was conducted in order to remove any invalid information that was not needed. Taking that into consideration, a filter was used to negate any respondents who did not live in Portugal or that have never made any purchases online. As a result, out of the 167 answers initially extracted, this amount was reduced to 158 valid responses, which is a fair amount to conduct any type of analyses as well as gather insights.

The analysis part starts with the characterization of the sample, which includes a summary regarding the distribution of the information generated by the questionnaire as well as the characterization of responses considered valid. This is particularly important, as not only contributes to a more accurate characterization of the sample, but it also provides some insights regarding how often the participants shop online. After that, in order to establish the reliability and internal consistency of the Likert scale utilized, Cronbach's alpha, the Kaiser-Meyer-Olkin (KMO) and the Bartlett's sphericity tests are performed. Afterwards, the Descriptive Statistics of the different constructs is presented with the aid of the previously mentioned SPSS version, with the purpose of providing a clear picture of the data's main characteristics. In this case, attention is paid to the mean and standard deviation which indicate central tendency and variability, but also to skewness and kurtosis that provide insights related to the data distribution. Lastly, in the hypothesis testing part, it will be conducted a multiple linear regression to evaluate the relationships between the independent variables and the dependent variable, in this case consumer behaviour, enabling prediction and inference as well as multicollinearity in order to check among independent variables.

5.2. Data Analysis

5.2.1. Characterization of Sample

In order to have a better understanding regarding the profile of the respondents, the following analyzes are followed with the characterization of this research's sample, which is composed by 158 people. In addition, it is known that all the answers belong to people who live in Portugal and that are at least 18 years old, given the filters utilized and mentioned previously.

Table 5.1 – Sample Characterization

Variable	Variable Classification	Absolute Frequency	Relative Frequency (%)
Age	18-24	27	17.09
	25-34	41	25.95
	35-44	30	18.99
	45-54	35	22.15
	55-64	19	12.03
	65 or more	6	3.80
Gender	Female	88	55.70
	Male	70	44.30
	Prefer not to say	0	0
Education Level	Basic School	5	3.16
	High School	39	24.68
	Technical Course	2	1.27
	Bachelor's Degree	60	37.97
	Postgraduate	15	9.49
	Master's Degree	37	23.42
	PhD's Degree	0	0
Gross Monthly Household Income	Less than 1000€	4	2.53
	From 1001€ to 1500€	20	12.66
	From 1501€ to 2000€	21	13.29
	From 2001€ to 2500€	25	15.82
	From 2501€ to 3000€	25	15.82
	3001€ or more	52	32.91
	Don't know / Prefer not to answer	11	6.96

Source: Author's elaboration

Taking into consideration that age, gender, education level and total gross household income are the most relevant variables, these were the only ones analyzed (it is possible to find the complete

sample characterization on Table C1, Annex C). Regarding age, it was asked through an interval with the aim of facilitating the determination of belonging to a specific age group. The most noticeable age group, representing 25.97% of the respondents is the age group from 25 to 34 (N=41) years old. Furthermore, there are 22.15% (N=35) of respondents who are between 45 to 54 years old, 18.99% (N= 30) who are between 35 to 44 years old, and a smaller number of participants who belong to the age groups of 18 to 24 (N=27), 55 to 64 (N=19) and 65 or more (N=6) years old. These have the lowest representation in the sample of 17.09%, 12.03% and 3.80%, respectively. Concerning gender, it is somewhat even since 55.70% of the respondents are females (N=88), while 44.30% are males (N=70). The educational level is relatively high given that, 37.97% of respondents have a bachelor's degree (N=60), 24.68% have a High School degree (N=39), and 23.42% possess a master's degree (N=35). Additionally, participants with postgraduate (N=15), basic school (N=5) and technical courses (N=2) degrees have a lower representation of 9.49%, 3.16% and 1.27%, in this order. It is plausible to have these levels of education taking into consideration the age of the participants. Finally, concerning total gross household income, it was also asked through an interval with the purpose of facilitating the interpretation of data. There is a clear emphasis in the number of participants belonging to the 3001€ or more (N=52) group with 32.91% of representation. In addition, there is some evenness on some of the remaining groups with from 2501€ to 3000€ (N=25), from 2001€ to 2500€ (N=25), from 1501€ to 2000€ (N=21), and from 1001€ to 1500€ (N=20), representing 15.82%, 15.82%, 13.29% and 12.66% respectively. With a lower level of representation, there are the participants that do not know or prefer not to answer (N=11) with 6.96% and the ones with a total gross household income of less than 1000€ (N=4) with 2.53%.

5.2.2. Engagement and Purchase Frequency

Besides that, there were two more questions which helped create a more detailed profile of the participants. These questions were related to how often the respondents visit e-commerce websites with the goal of acquiring products or services, and consequently, how often purchases are actually done.

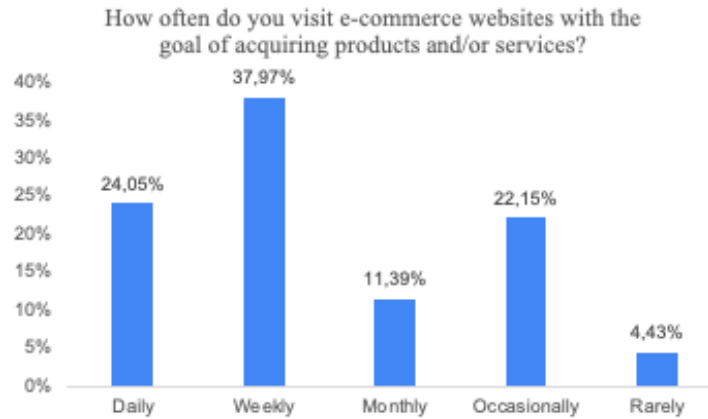


Figure 5.1 – Frequency of e-commerce websites' visits

Source: Author's elaboration



Figure 5.2 – Frequency of e-commerce websites' purchases

Source: Author's elaboration

As it can be observed on Graph X, about 37.97% of the participants visit e-commerce websites on the weekly basis, while 24.05% do it daily and 22.15% prefer to do it occasionally. This suggests that, nowadays, e-commerce websites are well rooted in the life of many people which access them very often. Regarding the frequency of when people make purchases from these websites, the behaviour is slightly different. About 36.71% of the respondents do it on a monthly basis, while 32.91% makes a purchase at least every week. Additionally, a significant part of the people that answered the questionnaire, around 21.52%, refer that rarely end up acquiring products or services online. This indicates that, in most cases, several visits to any e-commerce websites are necessary

before ending up making a purchase. Furthermore, this also implies that although people seem to enjoy navigating through these types of websites quite often, there are other factors that may influence behaviour and ultimately, purchase intentions.

5.2.3. Descriptive Analysis

This section entails an analysis of the responses collected through the questionnaire, with a focus on each individual item. This analysis adopts a descriptive approach and utilizes SPSS 29 for its computation. The objective of this analysis is to have a deeper understanding of the dataset, employing statistical techniques to provide a comprehensive summary. To enhance our comprehension of these constructs, we scrutinize all items by calculating their Mean, Standard Deviation, Skewness and Kurtosis measurements.

a. Performance Expectancy

The first construct analysed is Performance Expectancy, and its mean it is composed by 3 questions – A1, A2 and A3. Taking into consideration the three questions observed, the construct of Performance Expectancy has a mean of 3.96, with a standard deviation of 0.85. Considering the scale utilized in the questionnaire, this means that participants tend to have a positive attitude towards Performance Expectancy. Moreover, the item A2 – “The websites enhance my efficiency and effectiveness in finding products and/or services” has the highest mean of 4.04 whereas item A1 – “I believe that shopping online improves my shopping experience, by being easier and requiring less effort” has the lowest mean of 3.91. Additionally, this construct has a Skewness of -1.468 and Kurtosis of 2.762. As suggested by Kline (2011), if skewness is 3 and kurtosis below 10 there are no issues stemming from this construct.

Table 5.2 – Performance Expectancy – Descriptive Statistics

	Descriptive Statistics						
	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
I believe that shopping online improves my shopping experience, by being easier and requiring less effort.	158	3.91	.963	-1.238	.193	1.668	.384
The websites enhance my efficiency and effectiveness in finding products and/or services.	158	4.04	.953	-1.340	.193	1.983	.384
E-commerce facilitates my ability to make informed purchase decisions.	158	3.94	.982	-1.017	.193	.805	.384
Performance Expectancy	158	3.9620	.85542	-1.468	.193	2.762	.384

Source: IBM SPSS Statistics 29

b. Effort Expectancy

Next, there is the Effort Expectancy construct, composed by 3 items – B1, B2 and B3. It has a mean of 3.91 and a standard deviation of 0.69. Therefore, it is possible to assume that respondents tend to have a positive attitude towards Effort Expectancy. In addition, the item B1 – “Generally, I find online shopping websites easy to use” has the highest mean of 4.01 and the item B2 – “Online shopping websites require very little mental effort when it comes to understanding how they work” presents the lowest mean of 3.80. The values of the skewness (-1.280) and the kurtosis (2.966) are within the values accepted Kline (2011).

Table 5.3 – Effort Expectancy – Descriptive Statistics

	Descriptive Statistics						
	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Generally, I find online shopping websites easy to use.	158	4.01	.794	-1.480	.193	3.631	.384
Online shopping websites require very little mental effort when it comes to understanding how they work.	158	3.80	.920	-1.189	.193	1.331	.384
I prefer to shop at websites require a small amount of steps to complete a purchase.	158	3.95	.909	-.622	.193	-.092	.384
Effort Expectancy	158	3.9198	.69109	-1.280	.193	2.966	.384

Source: IBM SPSS Statistics 29

c. Social Influence

Moving on with the analysis, the Social Influence construct encompasses 3 items - C1, C2, and C3. This construct reveals a mean score of 4.05, accompanied by a standard deviation of 0.68. Consequently, it can be inferred that respondents generally hold a positive attitude towards Social Influence. Notably, among these items, C3 - "I am more likely to shop online if people around me do it too," garners the highest mean of 4.23, while C1 - "People around me shop online regularly," records the lowest mean of 3.89. Moreover, it's worth noting that both skewness (-1.462) and kurtosis (2.321) values fall within the acceptable range as outlined by Kline (2011).

Table 5.4 – Social Influence – Descriptive Statistics

	Descriptive Statistics						
	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
People around me shop online regularly.	158	3.89	.921	-1.122	.193	1.644	.384
Recommendations from friends and family strongly influence my decision to shop online.	158	4.04	.829	-.820	.193	.453	.384
I am more likely to shop online if people around me do it too.	158	4.23	.838	-1.057	.193	1.024	.384
Social Influence	158	4.0549	.68846	-1.462	.193	2.321	.384

Source: IBM SPSS Statistics 29

d. Facilitating Conditions

Continuing the analysis, the Facilitating Conditions construct comprises 3 items: D1, D2, and D3. This construct has a mean of 4.07, with a corresponding standard deviation of 0.63. Consequently, it can be deduced that respondents generally maintain a positive attitude towards Facilitating Conditions. Notably, among these items, D1 - "I have access to the necessary resources and technology to shop online comfortably," has highest mean of 4.60, while D3 - "I value having the chance of being assisted (for example, by a bot) when shopping online," records the lowest mean of 3.42. Moreover, it's worth noting that both skewness (-1.345) and kurtosis (3.745) values fall within the acceptable range as outlined by Kline (2011).

Table 5.5 – Facilitating Conditions – Descriptive Statistics

	Descriptive Statistics						
	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
I have access to the necessary resources and technology to shop online comfortably.	158	4.60	.658	-2.219	.193	7.148	.384
The availability of various payment options makes me more likely to make an online purchase.	158	4.21	.853	-1.353	.193	2.296	.384
I value having the chance of being assisted (for example, by a bot) when shopping online.	158	3.42	1.084	-.409	.193	-.388	.384
Facilitating Conditions	158	4.0759	.63167	-1.345	.193	3.745	.384

Source: IBM SPSS Statistics 29

e. Trust and Security

Regarding the construct of Trust and Security, composed by 4 items – E1, E2, E3 and E4. It presents a mean of 4.15 and a standard deviation of 0.75. Therefore, participants tend to have a positive attitude towards Trust and Security. In addition, the item E2 – “Trusting the security measures of a website positively affects my willingness to shop there” has the highest mean of 4.28 and the item E4 – “I trust online shopping websites that are transparent about their privacy policies and data protection practices” has the lowest mean of 4.03. The values presented for the skewness (-2.017) and the kurtosis (5.439) are acceptable (Kline, 2011).

Table 5.6 – Trust and Security – Descriptive Statistics

	Descriptive Statistics						
	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
I feel more comfortable purchasing from websites I am familiar with.	158	4.23	.838	-1.517	.193	3.320	.384
Trusting the security measures of a website positively affects my willingness to shop there.	158	4.28	.881	-1.541	.193	2.820	.384
The presence of trust badges and security certifications enhances my trust perception of a website.	158	4.08	.994	-1.376	.193	1.894	.384
I trust online shopping websites that are transparent about their privacy policies and data protection practices.	158	4.03	.906	-1.260	.193	2.274	.384
Trust and Security	158	4.1551	.75535	-2.017	.193	5.439	.384

Source: IBM SPSS Statistics 29

f. Website Design and Quality

Regarding the Website Design and Quality construct, composed by 3 items – F1, F2 and F3. It has a mean of 3.97 and a standard deviation of 0.68. As a result, it is plausible to assume that respondents tend to have a positive attitude towards Website Design and Quality. In addition, the item F3 – “The way in which the content on the websites is presented improves my capability of understanding where to find what I am looking for” has the highest mean of 4.01 and the item F2 – “Generally, websites are easy to use even when it is my first time visiting them” presents the lowest mean of 3.80. In this case, the values of the skewness (-1.225) and the kurtosis (2.454) are also accepted by Kline (2011).

Table 5.7 – Website Design and Quality – Descriptive Statistics

	Descriptive Statistics						
	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
I consider the websites' overall appearance, a key factor that influence my purchase decisions.	158	3.93	.853	-.988	.193	1.307	.384
Generally, websites are easy to use even when it is my first time visiting them.	158	3.87	.807	-1.079	.193	1.804	.384
The way in which the content on the websites is presented improves my capability of understanding where to find what I am looking for.	158	4.13	.715	-1.049	.193	2.672	.384
Website Design and Quality	158	3.9768	.68356	-1.225	.193	2.454	.384

Source: IBM SPSS Statistics 29

g. Online Customer Reviews

Furthermore, there is the Online Customer Reviews construct, composed by 4 items – G1, G2, G3 and G4. It has a mean of 3.87 and a standard deviation of 0.80. Consequently, it understood that respondents tend to have a positive attitude towards Online Customer Reviews. In addition, the item E4 – “I consider both positive and negative online reviews before making an online purchase” has the highest mean of 3.99 and the item E2 – “I rely on the opinions of other online shoppers when considering products/services” presents the lowest mean of 3.66. Again, the values of the skewness (-1.445) and the kurtosis (2.795) are considered acceptable (Kline, 2011).

Table 5.8 – Online Customer Reviews – Descriptive Statistics

	Descriptive Statistics						
	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
Online customer reviews play a significant role in my purchasing decisions.	158	3.94	.919	-1.184	.193	1.644	.384
I rely on the opinions of other online shoppers when considering products/services.	158	3.66	.887	-.878	.193	.868	.384
I believe that positive online reviews are a good indicator of product/service quality.	158	3.89	.907	-1.133	.193	1.572	.384
I consider both positive and negative online reviews before making an online purchase.	158	3.99	.910	-1.208	.193	1.835	.384
Online Customer Reviews	158	3.8703	.80836	-1.445	.193	2.795	.384

Source: IBM SPSS Statistics 29

h. Personalization

Lastly, there is the Personalization construct, composed by 3 items – H1, H2 and H3. It has a mean of 3.07 and a standard deviation of 0.79. Therefore, it is possible to say that the participants tend to have an indifferent attitude towards Personalization. Furthermore, the item H3 – “I will use personalized online recommendations more if I have a clear control over the data being shared and its usage” has the highest mean of 3.48, which is still indifferent but closer to positive, and the item H2 – “I am willing to sacrifice my privacy in exchange for better personalized online recommendations” presents the lowest mean of 2.37, which indicates a negative attitude by respondents regarding this item. Once again, the values of the skewness (-0.300) and the kurtosis (-0.178) are considered acceptable (Kline, 2011).

Table 5.9 – Personalization – Descriptive Statistics

	Descriptive Statistics						
	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
I value personalized online recommendations made by websites.	158	3.37	.891	-.466	.193	-.065	.384
I am willing to sacrifice my privacy in exchange for better personalized online recommendations.	158	2.37	1.131	.469	.193	-.829	.384
I will use personalized online recommendations more if I have a clear control over the data being shared and its usage.	158	3.48	1.121	-.734	.193	-.212	.384
Personalization	158	3.0717	.79216	-.300	.193	-.178	.384

Source: IBM SPSS Statistics 29

5.3. Reliability and Validity Analysis

Given that this research is composed of multiple constructs, which include several items that are quantified through the use of a Likert scale, it is extremely important to conduct a scale reliability analysis to determine the internal validity of referred scale. In other words, for the hypotheses to be tested, it is necessary to first analyse the consistency and quality of the data measured by the scales used. For this, the reliability analysis to be used in this case will be the Cronbach's alpha coefficient. The test results can range from 0 to 1. Additionally, it is recommended to perceive a Cronbach's Alpha value above 0,8 as great evidence, while values above 0,7 are deemed as recommended and above 0,6 as acceptable (Hair et al., 2011). Moreover, good practices regarding the consistency in the wording of the questions, positive in this case, were followed, which ensured that respondents interpret those same questions consistently and therefore reduce the risk of response bias, making data more reliable.

After carefully reviewing the Cronbach's alpha values for each construct, it was found that only one construct needed to be adapted: Facilitating Conditions. Since SPSS provides the Cronbach's alpha value for each question if it is deleted, it was concluded that this construct had a value of 0.525 if all questions were considered, however the value increased to 0.663 if item D3 was not included in the analysis. Consequently, taking this into consideration it was decided to remove the item D3 "I value having the chance of being assisted (for example, by a bot) when shopping online" from further analyses in order to not compromise the reliability of the Likert scale utilized.

Table 5.10 –Cronbach's Alpha of Facilitating Conditions if Item Deleted

Construct	Cronbach Alpha	Item	Cronbach Alpha if Item deleted
Facilitating Conditions	0.525	D1	0.457
		D2	0.138
		D3	0.663

Source: Author's elaboration, assisted by IBM SPSS Statistics 29

After the tests were completed, it can be asserted that all the values are higher the required minimum, as it can be observed on Table 4.

Table 5.11 – Reliability Analysis – Cronbach’s Alpha

Cronbach’s Alpha Analysis			
Initials	Construct	# of Items	Cronbach’s Alpha
A	Performance Expectancy	3	0.862
B	Effort Expectancy	3	0.696
C	Social Influence	3	0.713
D	Facilitating Conditions	3	0.663
E	Trust and Security	4	0.853
F	Website Design and Quality	3	0.826
G	Online Customer Reviews	4	0.915
H	Personalization	3	0.615

Source: Author’s elaboration, assisted by IBM SPSS Statistics 29

As it can be visualized in the table above, as well as in the Annex D, while there are slight modifications that could enhance the Cronbach's Alpha for most constructs, these adjustments would not significantly raise its value. Additionally, all the constructs maintain at least an acceptable level of reliability, so no further alterations were deemed necessary.

Concerning the validity aspect, an exploratory factor analysis was carried out with the goal verifying the validity of the questionnaire structure. In order to do this, two tests were necessary, which are the Kaiser-Meyer-Olkin (KMO) and the Bartlett Spherical tests. Regarding the first one, KMO, it is utilized to measure the proportion of the sample variance. The range of values this test can achieve is between 0 and 1, nevertheless, only values above 0.6 or higher are considered an acceptable indicator (Pallant, 2013). In the case of the Bartlett Spherical test, it is employed with the aim of verifying the existence of a correlation between the variables. Moreover, the value of this test must be less than the level of significance ($p > 0.05$).

Table 5.12 – Kaiser-Meyer-Olkin and Bartlett’s test of Sphericity results

KMO and Bartlett's Test		
Kaiser–Meyer–Olkin Measure of Sampling Adequacy.		.894
Bartlett's Test of Sphericity	Approx. Chi-Square	2725.882
	df	378
	Sig.	<.001

Source: IBM SPSS Statistics 29

As it can be seen in the Table 15 above, the value of the Kaiser-Meyer-Olkin (KMO) test 0.894, which represent a good level of adequacy regarding the sample of the questionnaire. Concerning the Bartlett's test of Sphericity, the significance level is lower than 0.001, which is lower than 0.05 and therefore deemed as acceptable. This rejects the null hypothesis that there is no correlation between variables. Since both test results fall within the acceptable range, it is now appropriate to conduct a factorial analysis.

5.4. Multiple Regression

5.4.1. Hypothesis Testing

With all necessary assumptions verified, the research model can be validated and initiate the final analysis. To test the hypotheses outlined in the conceptual framework of this research, a multiple linear regression analysis was conducted with the studied dimensions as the independent variables (Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Trust and Security, Website Design and Quality, Online Customer Reviews, Personalization), while Consumer Behaviour in e-commerce served as the dependent variable. The method of least squares, the standard approach of regression analysis, was employed in order to estimate the coefficients of the theoretical model, as presented:

$$\text{Consumer Behaviour in e-commerce} = \beta_0 + \beta_1 * \text{Performance Expectancy} + \beta_2 * \text{Effort Expectancy} + \beta_3 * \text{Social Influence} + \beta_4 * \text{Facilitating Conditions} + \beta_5 * \text{Trust and Security} + \beta_6 * \text{Website Design and Quality} + \beta_7 * \text{Online Customer Reviews} + \beta_8 * \text{Personalization} + \varepsilon \quad (1)$$

(1) Multiple Linear Regression Equation

Table 5.13 – Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.383 ^a	.147	.101	.85983

a. Predictors: (Constant), Personalization, Social Influence, Website Design and Quality, Facilitating Conditions, Trust and Security, Online Customer Reviews, Effort Expectancy, Performance Expectancy

Source: IBM SPSS Statistics 29

Table 16 presents the model's summary. Analysing the R² value reveals that approximately 14.7% of the variance in Consumer Behaviour in e-commerce can be attributed to expanded version of the UTAUT presented along this study as the set of independent variables in the model. Moreover, considering the Adjusted R² value (10.1%) may provide a more precise estimate of the variance explained by the model, as it considers factors such as the "loss of predictive power or shrinkage in regression" (Field, 2009). Despite these considerations, both values remain relatively low, suggesting that not all of the independent variables contribute significantly to explaining the variance in the dependent variable.

Table 5.14 – ANOVA test

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.915	8	2.364	3.198	.002 ^b
	Residual	110.158	149	.739		
	Total	129.072	157			

a. Dependent Variable: Consumer Behavior in e-commerce

b. Predictors: (Constant), Personalization, Social Influence, Website Design and Quality, Facilitating Conditions, Trust and Security, Online Customer Reviews, Effort Expectancy, Performance Expectancy

Source: IBM SPSS Statistics 29

Subsequently, we must check the validity of the model. This can be done by analyzing Table 17, which represents the ANOVA test. The results, as indicated by [F (8, 149) = 3.198, p = 0.002], decisively reject the null hypothesis, affirming the model's validity. This implies that a linear association does indeed exist between the dependent variable and the independent variables. For an in-depth exploration of how each independent variable influences Consumer Behaviour in e-commerce, attention should be directed to Table Y, which portrays the outcomes of the multiple regression analysis.

Additionally, the absence of multicollinearity between variables was tested, meaning the independent variables should not correlate too highly (Field, 2009). To verify this assumption, it was necessary to check the independent variables' values for Tolerance (TOL), which should generally be higher than 0.1 (Field, 2009) and all values for Variance Inflation Factor (VIF) should, in most cases, be below 10 (Myers, 1990). Since all these conditions were met (Table Z), it is possible to assume that there is no multicollinearity.

Table 5.15 – Multiple Linear Regression

		Coefficients ^a					Collinearity Statistics	
Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Tolerance	VIF
1	(Constant)	3.493	.555		6.297	<.001		
	Performance Expectancy	.485	.131	.457	3.695	<.001	.374	2.672
	Effort Expectancy	-.266	.158	-.203	-1.677	.096	.393	2.545
	Social Influence	-.214	.121	-.162	-1.762	.080	.674	1.484
	Facilitating Conditions	.379	.152	.275	2.498	.014	.472	2.118
	Trust and Security	-.138	.132	-.115	-1.050	.295	.477	2.097
	Website Design and Quality	-.201	.162	-.152	-1.241	.217	.382	2.615
	Online Customer Reviews	.003	.127	.003	.025	.980	.449	2.226
	Personalization	.046	.096	.040	.482	.631	.816	1.225

a. Dependent Variable: Consumer Behavior in e-commerce

Source: IBM SPSS Statistics 29

Finally, as shown in Table 18, the only variable demonstrating statistically significant outcomes in the study is Performance Expectancy ($\beta = 0.485$, $t = 3.695$, $p < 0.001$), affirming a positive association ($\beta > 0$) and confirming the validation of H1. Conversely, the results for the other variables investigated lack statistical significance. Specifically, Effort Expectancy ($\beta = -0.266$, $t = -1.677$, $p = 0.096$), Social Influence ($\beta = -0.214$, $t = -1.762$, $p = 0.080$), Trust and Security ($\beta = -0.138$, $t = -1.050$, $p = 0.295$), and Website Design and Quality ($\beta = -0.201$, $t = -1.241$, $p = 0.217$) display negative relationships ($\beta < 0$), but these are not statistically significant ($p > 0.05$). Similarly, Facilitating Conditions ($\beta = 0.379$, $t = 2.498$, $p = 0.014$), Online Customer Reviews ($\beta = 0.003$, $t = 0.025$, $p = 0.980$), and Personalization ($\beta = 0.046$, $t = 0.482$, $p = 0.816$) indicate positive relationships ($\beta > 0$), but these relationships are also not statistically significant ($p > 0.05$). Consequently, H2, H3, H4, H5, H6, H7, and H8 cannot be validated. Table 19 provides a comprehensive overview of hypothesis validation based on the study's conceptual model.

Table 5.16 – Validation of Hypothesis

Hypothesis	Description	Validation
H1	Performance Expectancy has a positive effect on consumer behaviour in e-commerce	Validated
H2	Effort Expectancy has a positive effect on consumer behaviour in e-commerce	Non validated
H3	Social Influence has a positive effect on consumer behaviour in e-commerce	Non validated

Hypothesis (Cont.)	Description	Validation
H4	Facilitating Conditions have a positive effect on consumer behaviour in e-commerce	Non validated
H5	Trust and security have a positive effect on consumer behaviour in e-commerce;	Non validated
H6	Website design and quality have a positive effect on consumer behaviour in e-commerce;	Non validated
H7	Online Customer Reviews have a positive effect on consumer behaviour in e-commerce	Non validated
H8	Personalization has a positive effect on consumer behaviour in e-commerce	Non validated

Source: Author's elaboration, assisted by IBM SPSS Statistics 29

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1. Discussion

The goal of this study was to understand to which extent the dimensions of the UTAUT theory (Venkatesh et al., 2003), as well as its attempt of expansion presented, were able to impact consumer behaviour in e-commerce, specifically in the Portuguese context. In order to do this, a questionnaire was conducted with a sample of 158 valid respondents, which ultimately served the purpose of characterizing not only the behaviour of consumers when asked about the different dimension of the research framework mentioned before, as well understanding frequency with which the participants engaged with e-commerce websites.

Furthermore, when testing the hypothesis built in the conceptual model of the study through a multiple regression analysis, the only hypothesis validated was H1 - Performance Expectancy, which demonstrated statistical significance as well as a notable positive influence on Consumer Behaviour in e-commerce. The findings were not only interesting, but also surprising given and emphasized the importance of Performance Expectancy, suggesting that consumers' perceptions of how engaging in online shopping aligns with their expected outcomes can significantly impact their behaviour. This is directly related with the fundamental principles of the UTAUT theory (Venkatesh et al., 2003), where Performance Expectancy represents a key determinant construct in understanding technology adoption and behavioural intention in general. Therefore, the positive relationship between Performance Expectancy and online consumer behaviour reaffirms the theory's applicability in the e-commerce context.

6.2. Theoretical Contributions

However, the study also suggests that the other constructs in the extended UTAUT model may not be as important as performance expectancy in influencing users' adoption and use of e-commerce websites. This finding suggests that future research should focus on developing and testing models that are specifically tailored to the context of e-commerce. In other words, the remaining constructs, which included Effort Expectancy, Social Influence, Facilitating Conditions,

Trust and Security, Website Design and Quality, Online Customer Reviews, and Personalization, did not exhibit statistically significant relationships with Consumer Behaviour in e-commerce in this study. Concerning the first three mentioned, these constructs have been influential in various technology adoption contexts, their limited impact in the online shopping domain as indicated by our study raises intriguing questions. Additionally, nowadays, given the importance given by consumers to the dimensions added in this research to the original UTAUT model, it is unexpected that none of them happened to be statistically significant, specially “Trust and Security”, since data suggested that this was a topic considered extremely important by the questionnaire’s participants.

These findings challenge not only the conventional application of the UTAUT theory (Venkatesh et al., 2003) in e-commerce, but also its attempted expansion along this research, which underscore the need for a more nuanced understanding of consumer behaviour within this specific context. The research suggests that factors beyond those considered in the conceptual framework may play a more substantial role in shaping online shopping behaviour. As a result, this opens the door to future exploration and theoretical development.

6.3. Managerial Implications

The findings of this study have a number of implications for managers of e-commerce websites. First, the results suggest that performance expectancy is the most important factor influencing users' adoption and use of e-commerce websites. This means that managers should focus on designing and developing websites that are easy to use, require low mental effort and that are able to offer an optimal overall experience, which can include aspects such as searching for products or making informed purchase decisions. As a result, that will allow users to achieve their goals quickly and efficiently, as the customers expect to happen. Secondly, the results suggest that the other constructs of this expanded UTAUT model, including effort expectancy, social influence, facilitating conditions, trust and security, website design and quality, online customer reviews, and personalization, are not as important as performance expectancy in influencing users' adoption and use of e-commerce websites. However, this does not mean that these constructs are not important at all. Managers should still strive to create and maintain websites that are user-friendly, trustworthy, and engaging while also carefully considering who are the target users. Some specific actions can include using a consistent design throughout the website, provide a secure shopping experience or provide clear and concise instructions for completing tasks.

Lastly, the questionnaire's findings suggest that Personalization in e-commerce, specifically when consumers are visiting an online store is considered indifferent by the latter. This is particularly interesting given that companies worldwide have demonstrated an increased effort to understand customer's preferences in order to offer the most personalized experience. As a result, these businesses should shift their focus to improving other components of their online stores, such as the ones previously mentioned.

6.4. Limitations and Future Research

At the end of this study about consumer behaviour in-e-commerce and the expansion of the UTAUT theory, it is important to acknowledge several limitations that may have influenced the findings and interpretations. Addressing these limitations is essential for understanding the scope of this research and for guiding future investigations in this field. One of them, is related to the sample size and its generalizability given that one of the primary limitations of this study is the relatively small sample size. Therefore, the data collected might not be representative of the whole population of Portugal, especially since most of the respondents that lived either in the Lisbon or Porto areas. Another aspect related to this, is the fact that the population of Portugal, although considered to be pro technology, might not represent the same levels of e-commerce engagement as some other European, Asian or northern American countries, for example. Consequently, the results may lack generalizability to a larger and more diverse population. Considering this, expanding the participant pool to include a more diverse range of demographics and backgrounds could enhance the generalizability of results. Additionally, comparative studies across different regions or cultures may reveal valuable insights.

Other potential limitation is the reliance on self-reported data given that participants in the study provided responses to a survey which could be influenced by social desirability bias or recall inaccuracies. While there was an attempt to minimize this bias through anonymity and clear instructions, some degree of subjectivity may still exist. Future research should consider conduct open-ended questions, which can provide deeper insights and balance the limitations of scaled questions. Aligned with this, it is the fact that the research employed a cross-sectional design, capturing data at a single point in time, which restricts the ability to establish causality or track changes over time. Future research could benefit from longitudinal or experimental approaches to explore causal relationships more rigorously.

Moreover, the Likert scale used to measure the different variables, relies on participants' subjective perceptions. Although Likert scales are commonly used in social sciences, they are not immune to response bias or misinterpretation of scale points. Taking this into account, special attention was paid to construct validity and reliability, however, future studies could explore alternative measurement methods but also different questions or research methods. As a conclusion, there is a noticeable scarcity of studies applying or possibly extending the UTAUT theory within the scope of consumer behaviour in e-commerce. As a result, there is a significant gap in the body of research of these two domains together. In order to address this void, researchers should prioritize conducting comprehensive investigations, with an emphasis on both these specific areas, concurrently.

LIST OF REFERENCES

- Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behaviour* (1st ed.). Pearson.
- Ajzen, I., & Fishbein, M. (2000). Attitudes and the Attitude-Behaviour Relation: Reasoned and Automatic Processes. *European Review of Social Psychology*, *11*(1), 1–33. <https://doi.org/10.1080/14792779943000116>
- Akram, U., Peng, H., Khan, M. K., Tanveer, Y., Mehmood, K., & Ahmad, W. (2018). How website quality affects online impulse buying. *Asia Pacific Journal of Marketing and Logistics*, *30*(1), 235–256. <https://doi.org/10.1108/apjml-04-2017-0073>
- Alamdari, P. M., Navimipour, N. J., Hosseinzadeh, M., Safaei, A., & Darwesh, A. M. (2020). A systematic study on the recommender systems in the E-Commerce. *IEEE Access*, *8*, 115694–115716. <https://doi.org/10.1109/access.2020.3002803>
- Allison, R., Hayes, C., McNulty, C., & Young, V. (2019). A Comprehensive Framework to Evaluate Websites: Literature review and development of GoodWeb. *JMIR Formative Research*, *3*(4), e14372. <https://doi.org/10.2196/14372>
- Al-Qallaf, C. L., & Ridha, A. (2018). A comprehensive analysis of academic library websites: design, navigation, content, services, and Web 2.0 tools. *International Information & Library Review*, *51*(2), 93–106. <https://doi.org/10.1080/10572317.2018.1467166>
- Allenby, G. M., & Rossi, P. H. (1998). Marketing models of consumer heterogeneity. *Journal of Econometrics*, *89*(1–2), 57–78. [https://doi.org/10.1016/s0304-4076\(98\)00055-4](https://doi.org/10.1016/s0304-4076(98)00055-4)
- Al-Qeisi, K., Dennis, C., Alamanos, E., & Jayawardhena, C. (2014). Website design quality and usage behaviour: Unified Theory of Acceptance and Use of Technology. *Journal of Business Research*, *67*(11), 2282–2290. <https://doi.org/10.1016/j.jbusres.2014.06.016>
- Al-Saedi, K., Al-Emran, M., Abusham, E., & Rahman, S. a. E. (2019). Mobile Payment Adoption: A Systematic Review of the UTAUT Model. *2019 International Conference on Fourth Industrial Revolution (ICFIR)*. <https://doi.org/10.1109/icfir.2019.8894794>
- Alcántara-Pilar, J. M., Blanco-Encomienda, F. J., Armenski, T., & Del Barrio-García, S. (2018). The antecedent role of online satisfaction, perceived risk online, and perceived website usability on the affect towards travel destinations. *Journal of Destination Marketing and Management*, *9*, 20–35. <https://doi.org/10.1016/j.jdmm.2017.09.005>
- Aslam, W., Hussain, A., Farhat, K., & Arif, I. (2019). Underlying factors influencing consumers' trust and loyalty in e-commerce. *Business Perspectives and Research*, *8*(2), 186–204. <https://doi.org/10.1177/2278533719887451>
- Brinson, N. H., Eastin, M. S., & Cicchirillo, V. (2018). Reactance to personalization: Understanding the drivers behind the growth of ad blocking. *Journal of Interactive Advertising*, *18*(2), 136–147. <https://doi.org/10.1080/15252019.2018.1491350>
- Burtch, G., Hong, Y., Bapna, R., & Griskevicius, V. (2018). Stimulating online reviews by combining financial incentives and social norms. *Management Science*, *64*(5), 2065–2082. <https://doi.org/10.1287/mnsc.2016.2715>
- Bylok, F. (2021). Examining the impact of trust on the e-Commerce purchase intentions of young consumers in Poland. *Journal of Internet Commerce*, *21*(3), 364–391. <https://doi.org/10.1080/15332861.2021.1978194>

- Cao, X., Yu, L., Liu, Z., Gong, M., & Luqman, A. (2018). Understanding mobile payment users' continuance intention: a trust transfer perspective. *Internet Research*, 28(2), 456–476. <https://doi.org/10.1108/intr-11-2016-0359>
- Chau, P. Y. K., & Ho, C. K. Y. (2008). Developing Consumer-Based Service Brand Equity via the Internet: The Role of Personalization and Trialability. *Journal of Organizational Computing and Electronic Commerce*, 18(3), 197–223. <https://doi.org/10.1080/10919390802198956>
- Chau, P. Y. K., & Lai, V. S. (2003). An Empirical Investigation of the Determinants of User Acceptance of Internet Banking. *Journal of Organizational Computing and Electronic Commerce*, 13(2), 123–145. https://doi.org/10.1207/s15327744joce1302_3
- Chen, H. (2018). Personalized recommendation system of e-commerce based on big data analysis. *Journal of Interdisciplinary Mathematics*, 21(5), 1243–1247. <https://doi.org/10.1080/09720502.2018.1495599>
- Chen, L., Rashidin, M. S., Song, F., Yi, W., Javed, S., & Jian, W. (2021). Determinants of consumer's purchase intention on fresh E-Commerce Platform: Perspective of UTAUT model. *SAGE Open*, 11(2), 215824402110278. <https://doi.org/10.1177/21582440211027875>
- Chevalier, J. A., & Mayzlin, D. (2006). The Effect of Word of Mouth on Sales: Online Book Reviews. *Journal of Marketing Research*, 43(3), 345–354. <https://doi.org/10.1509/jmkr.43.3.345>
- Choi, Y., & Mai, D. Q. (2018). The sustainable role of the E-Trust in the B2C E-Commerce of Vietnam. *Sustainability*, 10(1), 291. <https://doi.org/10.3390/su10010291>
- Compeau, D., & Higgins, C. (1995). Computer Self-Efficacy: Development of a Measure and Initial Test. *MIS Quarterly*, 19(2), 189. <https://doi.org/10.2307/249688>
- Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319. <https://doi.org/10.2307/249008>
- Davis, F. D. (1985). *A technology acceptance model for empirically testing new end-user information systems : theory and results*. <http://ci.nii.ac.jp/naid/20001062454>
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, 35(8), 982–1003. <https://doi.org/10.1287/mnsc.35.8.982>
- Dellarocas, C., Zhang, X., & Awad, N. (2007). Exploring the value of online product reviews in forecasting sales: The case of motion pictures. *Journal of Interactive Marketing*, 21(4), 23–45. <https://doi.org/10.1002/dir.20087>
- Dianat, I., Adeli, P., Jafarabadi, M. A., & Karimi, M. (2019). User-centred web design, usability and user satisfaction: The case of online banking websites in Iran. *Applied Ergonomics*, 81, 102892. <https://doi.org/10.1016/j.apergo.2019.102892>
- Dube, T., Van Eck, R., & Zuva, T. (2020). Review of technology adoption models and theories to measure readiness and acceptable use of technology in a business organization. *Journal of Information Technology and Digital World*, 02(04), 207–212. <https://doi.org/10.36548/jitdw.2020.4.003>
- Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. (2019). Re-examining the Unified Theory of Acceptance and Use of Technology (UTAUT): Towards a Revised Theoretical Model. *Information Systems Frontiers*, 21(3), 719–734. <https://doi.org/10.1007/s10796-017-9774-y>
- Dzulfikar, M. F., Purwandari, B., Sensuse, D. I., Lusa, S., Solichah, I., Prima, P., & Wilarso, I. (2018). Personalization features on business-to-consumer e-commerce: Review and future

- directions. *2018 4th IEEE International Conference on Information Management*.
<https://doi.org/10.1109/infoman.2018.8392839>
- Everett M. R. (1983). Diffusion of Innovations. *Social Science Research Network*.
- Falahat, M., Lee, Y., Foo, Y., & Chia, C. (2019). A model for consumer trust in e-commerce. *Asian Academy of Management Journal*, 24(Supp. 2), 93–109.
<https://doi.org/10.21315/aamj2019.24.s2.7>
- Fernández-Bonilla, F., Gijón, C., & De La Vega, B. (2022). E-commerce in Spain: Determining factors and the importance of the e-trust. *Telecommunications Policy*, 46(1), 102280.
<https://doi.org/10.1016/j.telpol.2021.102280>
- Fernandez-Lanvin, D., De Andres-Suarez, J., Gonzalez-Rodriguez, M., & Pariente-Martinez, B. (2018). The dimension of age and gender as user model demographic factors for automatic personalization in e-commerce sites. *Computer Standards & Interfaces*, 59, 1–9.
<https://doi.org/10.1016/j.csi.2018.02.001>
- Field, A. (2009). *Discovering Statistics using SPSS* (3rd ed.). London, England: Sage Publications.
- Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention and Behaviour: An Introduction to Theory and research*. <https://philpapers.org/archive/FISBAI.pdf>
- Garett, R., Chiu, J. L., Zhang, L., & Young, S. D. (2016). A Literature Review: Website Design and User Engagement. *Online Journal of Communication and Media Technologies*, 6(3).
<https://doi.org/10.29333/ojcm/2556>
- Gefen, D. (2000). E-commerce: the role of familiarity and trust. *Omega*, 28(6), 725–737.
[https://doi.org/10.1016/s0305-0483\(00\)00021-9](https://doi.org/10.1016/s0305-0483(00)00021-9)
- Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *Management Information Systems Quarterly*, 27(1), 51.
<https://doi.org/10.2307/30036519>
- Girsang, M. J., Candiwan, C., Hendayani, R., & Ganesan, Y. (2020). Can Information Security, Privacy and Satisfaction Influence The E-Commerce Consumer Trust? *2020 8th International Conference on Information and Communication Technology (ICoICT)*.
<https://doi.org/10.1109/icoict49345.2020.9166247>
- Giua, C., Materia, V. C., & Camanzi, L. (2020). Management information system adoption at the farm level: evidence from the literature. *British Food Journal*, 123(3), 884–909.
<https://doi.org/10.1108/bfj-05-2020-0420>
- Goldberg, D. E., Nichols, D. E., Oki, B. M., & Terry, D. P. (1992). Using collaborative filtering to weave an information tapestry. *Communications of the ACM*, 35(12), 61–70.
<https://doi.org/10.1145/138859.138867>
- Gonçalves, R., Rocha, T., Martins, J., Branco, F., & Au-Yong-Oliveira, M. (2017). Evaluation of e-commerce websites accessibility and usability: an e-commerce platform analysis with the inclusion of blind users. *Universal Access in the Information Society*, 17(3), 567–583.
<https://doi.org/10.1007/s10209-017-0557-5>
- Gorsuch, R. L. (1990). Common Factor Analysis versus Component Analysis: Some Well and Little Known Facts. *Multivariate Behavioural Research*, 25(1), 33–39.
https://doi.org/10.1207/s15327906mbr2501_3
- Granić, A. (2023). Technology adoption at individual level: toward an integrated overview. *Universal Access in the Information Society*. <https://doi.org/10.1007/s10209-023-00974-3>
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: indeed a silver bullet. *The Journal of Marketing Theory and Practice*, 19(2), 139–152. <https://doi.org/10.2753/mtp1069-6679190202>

- Hallikainen, H., & Laukkanen, T. (2018). National culture and consumer trust in e-commerce. *International Journal of Information Management*, 38(1), 97–106. <https://doi.org/10.1016/j.ijinfomgt.2017.07.002>
- Haryanti, T., & Subriadi, A. P. (2020). The Evolution Adoption Technology Theory for E-Commerce. *International Journal of Electronic Commerce Studies*, 11(2), 87–106. <https://doi.org/10.7903/ijecs.1910>
- Hennig-Thurau, T., Gwinner, K. P., Walsh, G., & Gremler, D. D. (2004). Electronic word-of-mouth via consumer-opinion platforms: What motivates consumers to articulate themselves on the Internet? *Journal of Interactive Marketing*, 18(1), 38–52. <https://doi.org/10.1002/dir.10073>
- Ilmudeen, A., & Bao, Y. (2018). What obstruct customer acceptance of internet banking? Security and privacy, risk, trust and website usability and the role of moderators. *The Journal of High Technology Management Research*, 29(1), 109–123. <https://doi.org/10.1016/j.hitech.2018.04.010>
- Imtiaz, S., Ali, S. H., & Kim, D. J. (2020b). E-Commerce growth in Pakistan: privacy, security, and trust as potential issues. *Culinary Science & Hospitality Research*, 26(2), 10–18. <https://doi.org/10.20878/cshr.2020.26.2.002>
- Jamra, R. K., Anggorojati, B., Kautsarina, Sensuse, D. I., & Suryono, R. R. (2020). Systematic Review of Issues and Solutions for Security in E-commerce. *2020 International Conference on Electrical Engineering and Informatics (ICELTICs)*. <https://doi.org/10.1109/iceltics50595.2020.9315437>
- Khan, S. W. (2019). Cyber security issues and challenges in E-Commerce. *Social Science Research Network*. <https://doi.org/10.2139/ssrn.3323741>
- Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, 44(2), 544–564. <https://doi.org/10.1016/j.dss.2007.07.001>
- Kim, S., Kandampully, J., & Bilgihan, A. (2018). The influence of eWOM communications: An application of online social network framework. *Computers in Human Behaviour*, 80, 243–254. <https://doi.org/10.1016/j.chb.2017.11.015>
- Kline, R. B. (2011). *Principles and Practice of Structural Equation Modeling* (5th ed.). The Guildford Press.
- Kollock, P. (1999). The Production of Trust in Online Markets. *Advances in Group Processes*, 16, 99–123. <https://ci.nii.ac.jp/naid/10024249595>
- Kwon, O. B., Kim, C. R., & Lee, E. J. (2002). Impact of website information design factors on consumer ratings of web-based auction sites. *Behaviour & Information Technology*, 21(6), 387–402. <https://doi.org/10.1080/0144929021000050256>
- Li, S., & Karahanna, E. (2015). Online Recommendation Systems in a B2C E-Commerce Context: A Review and Future Directions. *Journal of the Association for Information Systems*, 16(2), 72–107. <https://doi.org/10.17705/1jais.00389>
- Li, X., Wu, C., & Mai, F. (2019). The effect of online reviews on product sales: A joint sentiment-topic analysis. *Information & Management*, 56(2), 172–184. <https://doi.org/10.1016/j.im.2018.04.007>
- Liao, M., & Sundar, S. S. (2021b). When E-Commerce Personalization Systems Show and Tell: Investigating the Relative Persuasive Appeal of Content-Based versus Collaborative Filtering. *Journal of Advertising*, 51(2), 256–267. <https://doi.org/10.1080/00913367.2021.1887013>

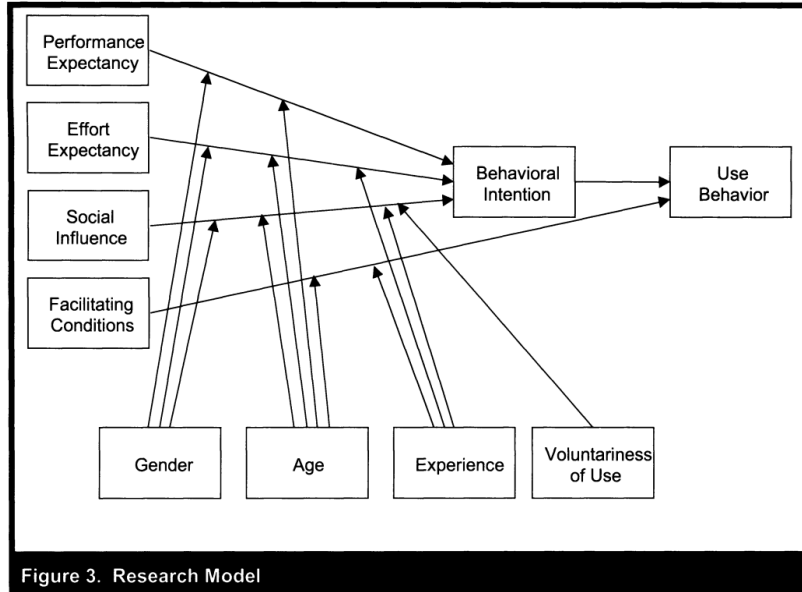
- Lim, W. M., Lim, A. L., & Phang, C. S. C. (2019). Toward a conceptual framework for social media adoption by non-urban communities for non-profit activities: Insights from an integration of grand theories of technology acceptance. *Australasian Journal of Information Systems*, 23. <https://doi.org/10.3127/ajis.v23i0.1835>
- Limayem, M., Hirt, S. G., & Cheung, C. M. K. (2007). How Habit Limits the Predictive Power of Intention: The Case of Information Systems Continuance. *Management Information Systems Quarterly*, 31(4), 705. <https://doi.org/10.2307/25148817>
- Liu, Y., Xiao, L., Zhang, Z., Zhang, G., & Gong, M. (2020). Understanding Consumers online furniture purchase Behaviour: An Updated UTAUT perspective. *Journal of Forest Economics*, 35(4), 267–303. <https://doi.org/10.1561/112.00000516>
- Martin, K. D., & Palmatier, R. W. (2020). Data privacy in retail: Navigating tensions and directing future research. *Journal of Retailing*, 96(4), 449–457. <https://doi.org/10.1016/j.jretai.2020.10.002>
- McKnight, D. H., Choudhury, V., & Kacmar, C. J. (2002). Developing and Validating Trust Measures for e-Commerce: An Integrative Typology. *Information Systems Research*, 13(3), 334–359. <https://doi.org/10.1287/isre.13.3.334.81>
- Min, S., So, K. K. F., & Jeong, M. (2018). Consumer adoption of the Uber mobile application: Insights from diffusion of innovation theory and technology acceptance model. *Journal of Travel & Tourism Marketing*, 36(7), 770–783. <https://doi.org/10.1080/10548408.2018.1507866>
- Mooi, E., Sarstedt, M., & Mooi-Reci, I. (2017). *Market Research: The process, data, and methods using STATA*. <https://lib.ugent.be/en/catalog/ebk01:4340000000223629>
- Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, 2(3), 192–222. <https://doi.org/10.1287/isre.2.3.192>
- Moss, G., Gunn, R., & Heller, J. (2006). Some men like it black, some women like it pink: consumer implications of differences in male and female website design. *Journal of Consumer Behaviour*, 5(4), 328–341. <https://doi.org/10.1002/cb.184>
- Myers, R. H. (1990). *Classical and modern regression with applications* (2nd ed.). Boston, MA: Duxbury
- Pallant, J. (2013). SPSS survival manual: a step by step guide to data analysis using IBM SPSS. *Australian and New Zealand Journal of Public Health*, 37(6), 597–598. <https://doi.org/10.1111/1753-6405.12166>
- Pavlou, P. A. (2002). What drives electronic commerce? A theory of planned behaviour. *Academy of Management Proceedings*, 2002(1), A1–A6. <https://doi.org/10.5465/apbpp.2002.7517579>
- Pee, L. G., Jiang, J. J., & Klein, G. (2018). Signaling effect of website usability on repurchase intention. *International Journal of Information Management*, 39, 228–241. <https://doi.org/10.1016/j.ijinfomgt.2017.12.010>
- Petre, M., Minocha, S., & Roberts, D. (2006). Usability beyond the website: An empirically-grounded e-commerce evaluation instrument for the total customer experience. *Behaviour & Information Technology*, 25(2), 189–203. <https://doi.org/10.1080/01449290500331198>
- Qalati, S. A., Vela, E. G., Li, W., Dakhan, S. A., Thuy, T. T. H., & Merani, S. H. (2021). Effects of perceived service quality, website quality, and reputation on purchase intention: The mediating and moderating roles of trust and perceived risk in online shopping. *Cogent Business & Management*, 8(1). <https://doi.org/10.1080/23311975.2020.1869363>

- Resnick, P., & Varian, H. R. (1997). Recommender systems. *Communications of the ACM*, 40(3), 56–58. <https://doi.org/10.1145/245108.245121>
- Ribadu, M. B., & Rahman, W. N. W. A. (2019). An integrated approach towards Sharia compliance E-commerce trust. *Applied Computing and Informatics*, 15(1), 1–6. <https://doi.org/10.1016/j.aci.2017.09.002>
- Rogers, E. M., & Roger, G. (1983). *DIFFUSION OF INNOVATIONS 3RD E REV.* New York : Free Press ; London : Collier Macmillan.
- Sharma, S., Singh, G., Pratt, S., & Narayan, J. (2021). Exploring consumer behaviour to purchase travel online in Fiji and Solomon Islands? An extension pf the Utaut framework. *International Journal of Culture, Tourism and Hospitality Research*. <https://doi.org/10.1108/IJCTHR-03-2020-0064>
- Sim, J. J., Chia, Z. Y., Chin, Y. L., Lee, M. Q., Chiam, V. T. S., Wong, K. L., Choong, C., Loh, S. H., & Yeap, K. H. (2018). Trust in Vendor and Perceived Effectiveness of E-Commerce Institutional Mechanisms in M-Commerce Adoption: A Revised UTAUT Model. *018 8th IEEE International Conference on Control System, Computing and Engineering (ICCSCE)*. <https://doi.org/10.1109/iccsce.2018.8684964>
- Sinha, R., & Swearingen, K. (2001). Comparing Recommendations Made by Online Systems and Friends. *DELOS , Volume 01/W03 of ERCIM Workshop Proceedings, ERCIM, (2001)*.
- Soleimani, M. (2021). Buyers’ trust and mistrust in e-commerce platforms: a synthesizing literature review. *Information Systems and e-Business Management*, 20(1), 57–78. <https://doi.org/10.1007/s10257-021-00545-0>
- Song, Y., Lim, H. S., & Oh, J. (2021). “We think you may like this”: An investigation of electronic commerce personalization for privacy-conscious consumers. *Psychology & Marketing*, 38(10), 1723–1740. <https://doi.org/10.1002/mar.21501>
- Taherdoost, H. (2016). Sampling methods in research methodology; How to choose a sampling technique for research. *Social Science Research Network*. <https://doi.org/10.2139/ssrn.3205035>
- Taherdoost, H. (2018). A review of technology acceptance and adoption models and theories. *Procedia Manufacturing*, 22, 960–967. <https://doi.org/10.1016/j.promfg.2018.03.137>
- Tandon, U., Kiran, R., & Sah, A. N. (2017). The influence of website functionality, drivers and perceived risk on customer satisfaction in online shopping: an emerging economy case. *Information Systems and E-business Management*, 16(1), 57–91. <https://doi.org/10.1007/s10257-017-0341-3>
- Taylor, S., & Todd, P. (1995). Understanding information Technology Usage: A test of Competing models. *Information Systems Research*, 6(2), 144–176. <https://doi.org/10.1287/isre.6.2.144>
- Thakur, R. (2018). Customer engagement and online reviews. *Journal of Retailing and Consumer Services*, 41, 48–59. <https://doi.org/10.1016/j.jretconser.2017.11.002>
- Thomas, M., Wirtz, B. W., & Weyerer, J. C. (2019). Determinants of online review credibility and its impact on consumers’ purchase intention. *Journal of Electronic Commerce Research*, 20(1), 1.
- Tractinsky, N., Katz, A. S., & Ikar, D. (2000). What is beautiful is usable. *Interacting With Computers*, 13(2), 127–145. [https://doi.org/10.1016/s0953-5438\(00\)00031-x](https://doi.org/10.1016/s0953-5438(00)00031-x)
- Vavliakis, K. N., Katsikopoulos, G., & Symeonidis, A. L. (2019). E-commerce Personalization with Elasticsearch. *Procedia Computer Science*. <https://doi.org/10.1016/j.procs.2019.04.160>

- Venkatesh, V., & Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46(2), 186–204. <https://doi.org/10.1287/mnsc.46.2.186.11926>
- Venkatesh, Morris, Davis, & Davis. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425. <https://doi.org/10.2307/30036540>
- Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *Management Information Systems Quarterly*, 36(1), 157. <https://doi.org/10.2307/41410412>
- Wang, X., L. Peng, F. Xu and L. Xin (2018). Do Incentives in SWOM Communication Matter? A Positive Emotion Perspective. *Journal of Electronic Commerce Research*, Vol. 19, No. 2: 135–153
- Weinberger, M., & Bouhnik, D. (2018). Place Determinants for the Personalization-Privacy Tradeoff among Students. *Issues in Informing Science and Information Technology*, 15, 079–095. <https://doi.org/10.28945/4019>
- Wiranata, A. T., & Hananto, A. (2020). Do Website Quality, Fashion Consciousness, and Sales Promotion Increase Impulse Buying Behaviour of E-Commerce Buyers? *Indonesian Journal of Business and Entrepreneurship*. <https://doi.org/10.17358/ijbe.6.1.74>
- Wu, Y., Ngai, E. W., Wu, P., & Wu, C. (2020). Fake online reviews: Literature review, synthesis, and directions for future research. *Decision Support Systems*, 132, 113280. <https://doi.org/10.1016/j.dss.2020.113280>
- Xu, D. J. (2016). The Influence of Personalization in Affecting Consumer Attitudes toward Mobile Advertising in China. *Journal of Computer Information Systems*, 47(2), 9–19. <https://doi.org/10.1080/08874417.2007.11645949>
- Zhang, K. Z., Xu, H., Zhao, S. J., & Yu, Y. (2018). Online reviews and impulse buying behaviour: the role of browsing and impulsiveness. *Internet Research*, 28(3), 522–543. <https://doi.org/10.1108/intr-12-2016-0377>
- Zhang, P., & Dran, G. (2001). User Expectations and Rankings of Quality Factors in Different Web Site Domains. *International Journal of Electronic Commerce*, 6(2), 9–33. <https://doi.org/10.1080/10864415.2001.11044237>

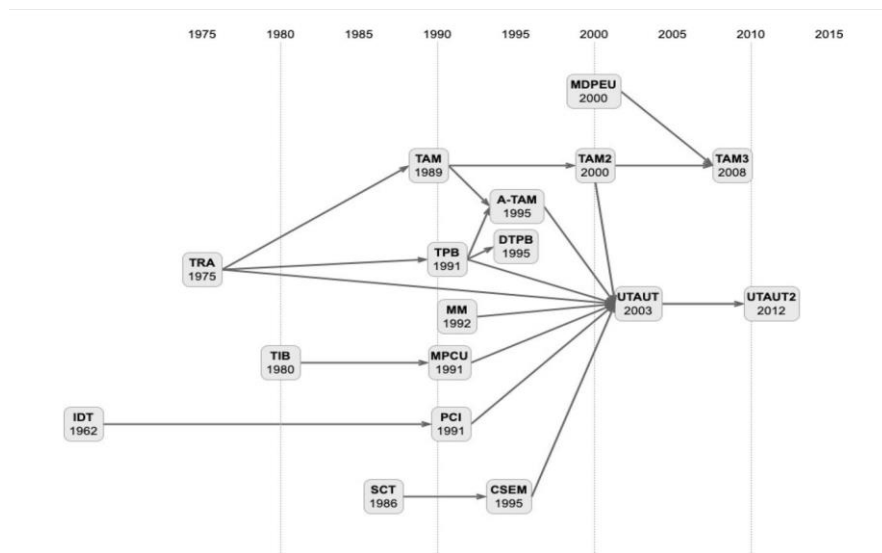
Annex A

Figure A1 – UTAUT



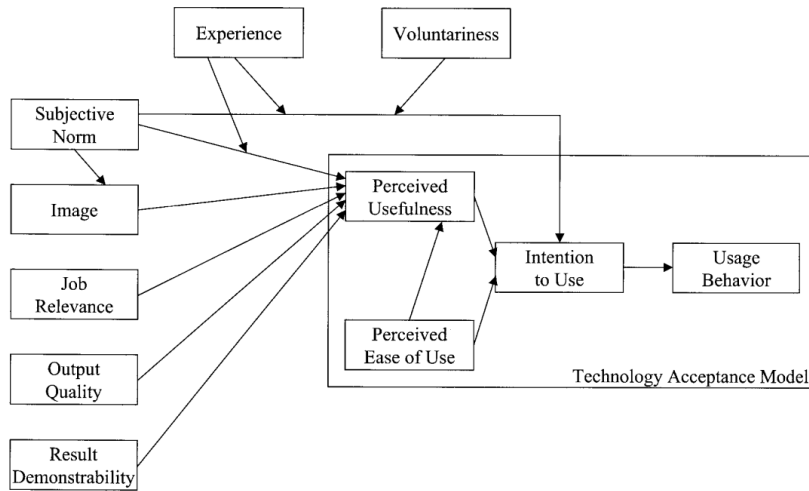
Source: (Venkatesh et al., 2003)

Figure A2 – Chronology of influential technologic acceptance and adoption theories and models



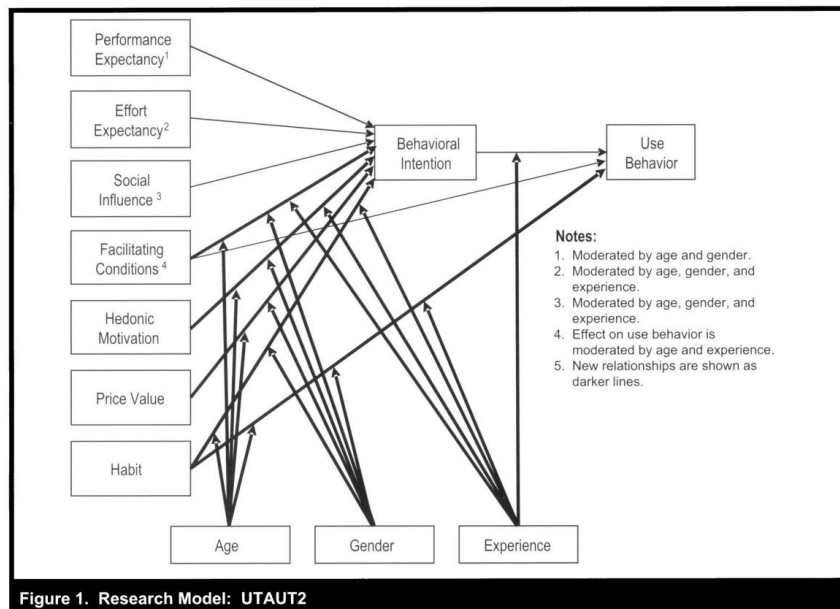
Source: (Granić et al., 2012)

Figure A3 – TAM2



Source: (Venkatesh et al., 2000)

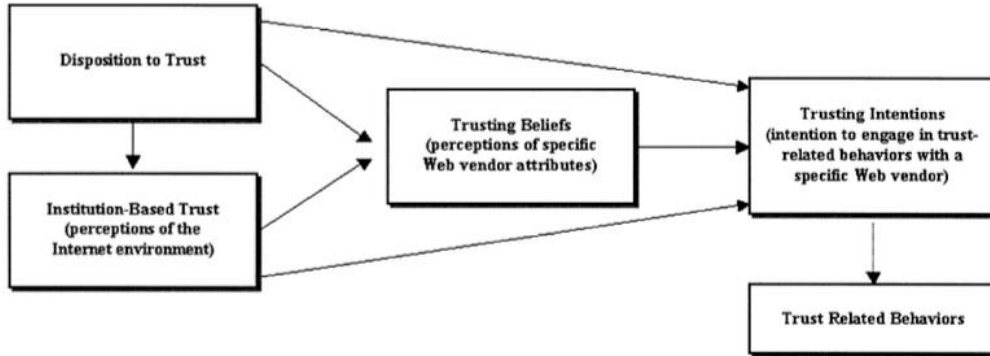
Figure A4 – UTAUT2



Source: (Venkatesh et al., 2012)

Figure A5 - Implications of Trust in Consumer Behaviour

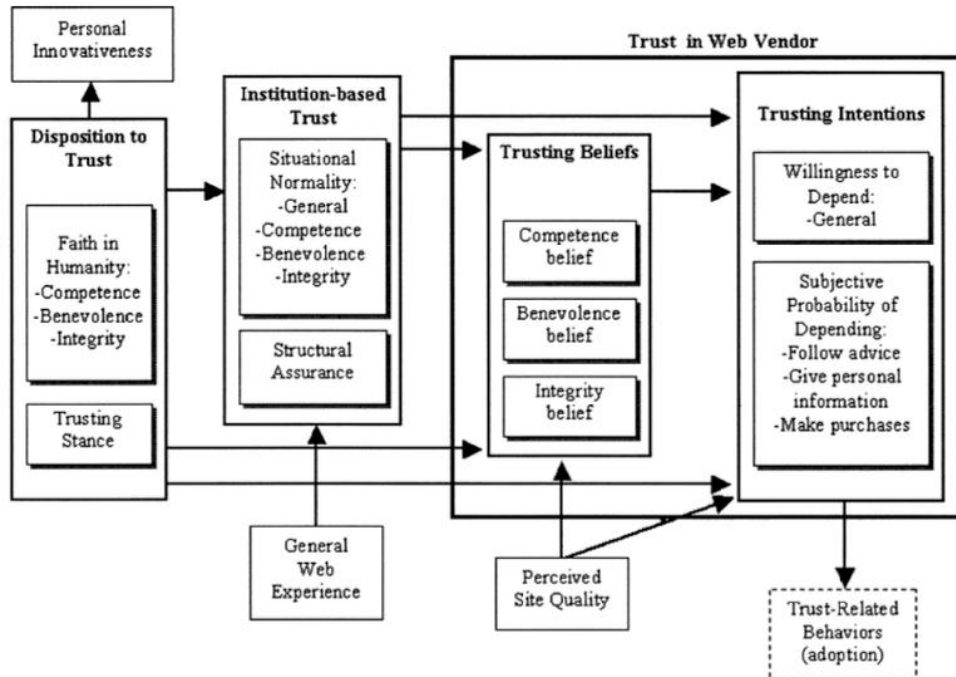
Figure 1 Web Trust Model—Overview



Source: McKnight et al., 2002)

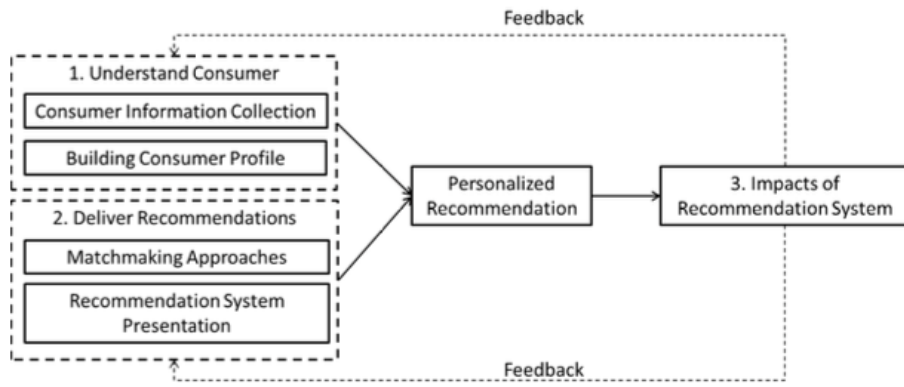
Figure A6 - Implications of Trust in Consumer Behaviour

Figure 2 Web Trust Model—Constructs and Nomological Network



Source: McKnight et al., 2002)

Figure A7 – Personalized Recommendations



Source: (Li et al., 2015)

Annex B

Questionnaire

My name is Pedro Costa, I am a second-year master's student in Management at ISCTE Business School and I am currently developing my master's thesis on the topic of "Analysis of Consumer Behaviour in the Context of E-commerce: Extended Version of the Unified Theory of Acceptance and Use of Technology".

This questionnaire is being conducted as part of my study and its main objective is to understand, within the dimensions of the theory mentioned above, which are the main factors that influence purchase intention in e-commerce as well as their importance.

It takes about 5 minutes to complete.

All data collected is anonymous and will be used exclusively for academic purposes.

I thank you in advance for your collaboration in this study.

Pedro Costa

Part 1

1. What is your age?

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

2. What is your gender?

	Male
	Female
	Prefer not to say

3. In which region do you live?

	North
	Porto metropolitan area
	Center
	Lisbon metropolitan area
	Alentejo
	Algarve
	Autonomous region of Azores
	Autonomous region of Madeira

4. What is your marital status?

	Single
	Non-marital partnership
	Married
	Divorced or separated
	Widower

5. What is your educational level?

	Basic School
	High School
	Technical Course
	Bachelor's Degree
	Postgraduate
	Master's Degree
	PhD's Degree

6. Currently what is your job status?

	Student
	Unemployed
	Employee
	Self-Employed
	Retired

7. How many people does your household have?

	One
	Two
	Three
	Four
	Five or more

8. What is your total gross household income?

	Less than 1000€
	From 1001€ to 1500€
	From 1501€ to 2000€
	From 2001€ to 2500€
	From 2501€ to 3000€
	3001€ or more
	Don't know / Prefer not to answer

9. How often do you visit e-commerce websites with the goal of acquiring products and/or services?

	Daily
	Weekly
	Monthly

	Occasionally
	Rarely
	Never

10. How often do you effectively purchase products and/or services from e-commerce websites?

	Daily
	Weekly
	Monthly
	Occasionally
	Rarely
	Never

Part 2

Rate from 1 to 5 depending on the degree of agreement:

Choose only one answer per line.

Performance Expectancy	1.Strongly Disagree	2.Disagree	3.Indifferent	4.Agree	5.Strongly Agree
I believe that shopping online improves my shopping experience, by being easier and requiring less effort.					
The websites enhance my efficiency and effectiveness in finding products and/or services.					
E-commerce facilitates my ability to make informed purchase decisions.					

Rate from 1 to 5 depending on the degree of agreement:

Choose only one answer per line.

Effort Expenctancy	1.Strongly Disagree	2.Disagree	3.Indifferent	4.Agree	5.Strongly Agree
Generally, I find online shopping websites easy to use.					
Online shopping websites require very little mental effort when it comes to understanding how they work.					
I prefer to shop at websites require a small amount of steps to complete a purchase.					

Rate from 1 to 5 depending on the degree of agreement:

Choose only one answer per line.

Social Influence	1.Strongly Disagree	2.Disagree	3.Indifferent	4.Agree	5.Strongly Agree
People around me shop online regularly.					
Recommendations from friends and family strongly influence my decision to shop online.					
I am more likely to shop online if people around me do it too.					

Rate from 1 to 5 depending on the degree of agreement:

Choose only one answer per line.

Facilitating Conditions	1.Strongly Disagree	2.Disagree	3.Indifferent	4.Agree	5.Strongly Agree
I have access to the necessary resources and technology to shop online comfortably.					
The availability of various payment options makes me more likely to make an online purchase.					
I value having the chance of being assisted (for example, by a bot) when shopping online.					

Rate from 1 to 5 depending on the degree of agreement:

Choose only one answer per line.

Trust and Security	1.Strongly Disagree	2.Disagree	3.Indifferent	4.Agree	5.Strongly Agree
I feel more comfortable purchasing from websites I am familiar with.					
Trusting the security measures of a websites positively affects my willingness to shop there.					
The presence of trust badges and security certifications enhances my trust perception of a website.					

Trust and Security (cont.)	1.Strongly Disagree	2.Disagree	3.Indifferent	4.Agree	5.Strongly Agree
I trust online shopping websites that are transparent about their privacy policies and data protection practices.					

Rate from 1 to 5 depending on the degree of agreement:

Choose only one answer per line.

Website Design and Quality	1.Strongly Disagree	2.Disagree	3.Indifferent	4.Agree	5.Strongly Agree
I consider the websites' overall appearance, a key factor that influence my purchase decisions.					
Generally, websites are easy to use even when it is my first time visiting them.					
The way in which the content on the websites is presented improves my capability of understanding where to find what I am looking for.					

Rate from 1 to 5 depending on the degree of agreement:

Choose only one answer per line.

Online Customer Reviews	1.Strongly Disagree	2.Disagree	3.Indifferent	4.Agree	5.Strongly Agree
Online customer reviews play a					

significant role in my purchasing decisions.					
I rely on the opinions of other online shoppers when considering products/services.					
I believe that positive online reviews are a good indicator of product/service quality.					
I consider both positive and negative online reviews before making an online purchase.					

Rate from 1 to 5 depending on the degree of agreement:

Choose only one answer per line.

Personalization	1.Strongly Disagree	2.Disagree	3.Indifferent	4.Agree	5.Strongly Agree
I value personalized online recommendations made by websites.					
I am willing to sacrifice my privacy in exchange for better personalized online recommendations.					
I will use personalized online recommendations more if I have a clear control over the data being shared and its usage.					

Rate from 1 to 5 depending on the degree of agreement:

Choose only one answer per line.

Consumer Behaviour	1.Strongly Disagree	2.Disagree	3.Indifferent	4.Agree	5.Strongly Agree
I intend to continue visiting e-commerce websites.					
Whenever possible, I will choose to make my purchases online instead of doing it in a physical store.					
I will continue to make purchases online.					

Annex C

Table C1 – Complete Sample Characterization

Variable	Variable Classification	Absolute Frequency	Relative Frequency (%)
Age	18-24	27	17.09
	25-34	41	25.95
	35-44	30	18.99
	45-54	35	22.15
	55-64	19	12.03
	65 or more	6	3.80
Gender	Female	88	55.70
	Male	70	44.30
	Prefer not to say	0	0
Region	Alentejo	2	1.27
	Algarve	9	5.70
	Centro	12	7.59
	Lisboa Metropolitan Area	116	73.41
	Porto Metropolitan Area	19	12.03
Marital Status	Divorced or Separated	16	10.13
	Married	45	28.48
	Non-marital partnership	36	22.78
	Single	60	37.97
	Widower	1	0.63
Education Level	Basic School	5	3.16
	High School	39	24.68
	Technical Course	2	1.27
	Bachelor's Degree	60	37.97
	Postgraduate	15	9.49
	Master's Degree	37	23.42
Employment Status	Employee	121	76.58
	Retired	10	6.33
	Unemployed	1	0.63
	Self-Employed	16	10.13
	Student	10	6.33
Family Household	One	28	17.72
	Two	45	28.48

	Three	43	27.22
	Four	32	20.25
	Five or more	10	6.33
Gross Monthly Household Income	Less than 1000€	4	2.53
	From 1001€ to 1500€	20	12.66
	From 1501€ to 2000€	21	13.29
	From 2001€ to 2500€	25	15.82
	From 2501€ to 3000€	25	15.82
	3001€ or more	52	32.91
	Don't know / Prefer not to answer	11	6.96

Annex D

SPSS Output – Cronbach’s Alpha of Constructs and items if they are deleted

Performance Expectancy

Construct	Cronbach Alpha	Item	Cronbach Alpha if Item deleted
Performance Expectancy	0.862	A1	0.831
		A2	0.739
		A3	0.846

Effort Expectancy

Construct	Cronbach Alpha	Item	Cronbach Alpha if Item deleted
Effort Expectancy	0.696	B1	0.489
		B2	0.529
		B3	0.774

Social Influence

Construct	Cronbach Alpha	Item	Cronbach Alpha if Item deleted
Social Influence	0.713	C1	0.634
		C2	0.622
		C3	0.616

Facilitating Conditions

Construct	Cronbach Alpha	Item	Cronbach Alpha if Item deleted
Facilitating Conditions	0.525	D1	0.457
		D2	0.138
		D3	0.663

Trust and Security

Construct	Cronbach Alpha	Item	Cronbach Alpha if Item deleted
Trust and Security	0.853	E1	0.835
		E2	0.794
		E3	0.812
		E4	0.810

Website Design and Quality

Construct	Cronbach Alpha	Item	Cronbach Alpha if Item deleted
Website Design and Quality	0.826	F1	0.759
		F2	0.751
		F3	0.769

Online Customer Reviews

Construct	Cronbach Alpha	Item	Cronbach Alpha if Item deleted
Online Customer Reviews	0.915	G1	0.878
		G2	0.907
		G3	0.883
		G4	0.889

Personalization

Construct	Cronbach Alpha	Item	Cronbach Alpha if Item deleted
Personalization	0.615	H1	0.446
		H2	0.624
		H3	0.482