Ana Beatriz Ferreira da Costa

Benefits and Barriers of E-commerce in the context of a Pandemic Health Crisis – COVID-19

april of 2021

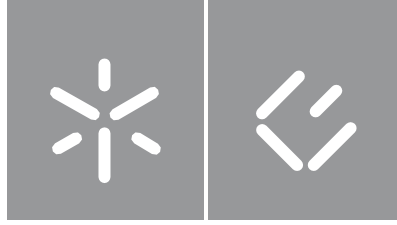Ana Beatriz Ferreira da Costa

Benefits and Barriers of E-commerce in the context of a Pandemic Health Crisis – COVID-19

Master's Dissertation
Master's in Marketing and Strategy

Supervisor
Professor Dr. José Carlos Pinho

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RESUMO

'Benefícios e Barreiras do *E-commerce* num contexto de Crise de Saúde Pandémica - COVID-19'

A pandemia COVID-19 mudou a maneira como vivemos: a quarentena ditou o encerramento das lojas físicas e confinou milhares às suas casas numa tentativa de diminuir os contactos em pessoa e reduzir a propagação do vírus. Este cenário consistiu num contexto ótimo para a adoção do *E-commerce* dado que permite aos consumidores fazerem compras a qualquer hora, em qualquer lugar, sem qualquer tipo de contacto. Há, por isso, uma necessidade urgente de as empresas se adaptarem a esta tendência para garantirem a sua sobrevivência. Contudo, visto que esta pandemia não é como as outras crises até agora experienciadas, não há uma lente apropriada para analisar as alterações no comportamento de compra do consumidor nem para fornecer os *insights* necessários no que toca aos aspetos do comércio *online* mais valorizados pelos clientes ou a como a sua experiência de compra poderia ser melhorada.

Desta forma, este estudo pretende, primeiramente, identificar as principais barreiras e benefícios para a adoção do *E-commerce*; segundamente, analisar como estas influenciam o comportamento de compra dos consumidores; e por último, analisar se a perceção dos benefícios e obstáculos varia de acordo com as categorias de produto/serviço da Matriz FCB e com o perfil sociodemográfico dos clientes.

Foi adotada uma metodologia de pesquisa descritiva e um método de recolha de dados quantitativo, nomeadamente um questionário online. Os resultados obtidos sugerem que os benefícios do comércio *online* mais valorizados estão relacionados com os diversos tipos de conveniência e com a segurança. Já as barreiras mais importantes dizem respeito aos riscos de produto, entrega e financeiro. Outra conclusão da pesquisa diz respeito às correlações do modelo conceptual: há uma correlação positiva entre as variáveis 'Confiança' e 'Benefícios Percebidos' e entre esta última e a 'Frequência de Compra'. Foram, também, identificadas relações negativas entre as 'Barreiras Percebidas', a 'Quantia Gasta' e a 'Frequência de Compra'. Os testes de diferença ofereceram, também, uma contribuição importante, visto que demonstraram que as mulheres e os consumidores mais jovens têm uma perceção mais elevada da importância dos obstáculos do *E-commerce*.

Esta dissertação oferece sugestões e direções para pesquisas futuras acerca deste tópico, bem como, elucida os *managers* de *Marketing* e de *E-commerce* relativamente a formas de melhorar e de adaptar as plataformas de compras online a contextos de crise de saúde de forma a reter clientes.

Palavras-Chave: Barreiras Percebidas, Benefícios Percebidos, Comportamento de Compra, Confiança, COVID-19, E-commerce, Matriz FCB, Perfil Sociodemográfico

ABSTRACT

'Benefits and Barriers of E-commerce in the context of a Pandemic Health Crisis - COVID-19'

The COVID-19 health crisis has changed the way we live: lockdowns have forced brick-and-mortar stores to close and confined millions to their homes in an attempt to diminish in-person contact and reduce virus spread. This scenario has proved to be an optimal context for the adoption of E-commerce as it allows consumers to shop anywhere at any time without any kind of physical contact. There is, accordingly, a sense of urgency for businesses to adapt to this trend to assure their survival. Yet, because this health crisis is unprecedented, there is no adequate lens through which to analyse the changes in customers' shopping behaviour or provide insight into what aspects of online commerce shoppers value the most or how their online experience could be improved.

Hence, this study intends firstly to identify the main barriers and benefits for the adoption of E-commerce and, secondly, to analyse how they influence consumers' shopping behaviour. The study also investigates if the perception of benefits and obstacles varies according to the FCB Matrix product/service categories and the sociodemographic profile of e-buyers.

A descriptive research methodology with quantitative data collection, more specifically an online questionnaire, was used. Evidence suggests that the most relevant benefits to customers are related to the different types of E-commerce's convenience and security. Moreover, product, delivery and financial risks were deemed the most important barriers. Another relevant result relates to the analysis of the conceptual model, in that this study identified a positive correlation between 'Trust' and 'Perceived Benefits', and between the latter and 'Shopping frequency'. In contrast, negative relationships were found between 'Perceived Barriers' and both 'Amount Spent' and 'Shopping Frequency'. The tests of difference also delivered promising findings as they demonstrated that females have a higher perception of the obstacles of E-commerce, while young shoppers were found to be more concerned about the barriers than their older counterparts.

Additionally, this dissertation provides academia with suggestions and directions for conducting future research on this topic in addition to informing Marketing and E-commerce managers of ways to improve and adapt online shopping platforms while retaining customers in the context of a health crisis.

Key-Words: COVID-19, E-commerce, FCB Matrix, Perceived Barriers, Perceived Benefits, Shopping Behaviour, Sociodemographic Profile, Trust.

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LIST OF ABREVIATIONS

FCB   Foote, Cone and Belding

SPSS   Statistical Package for the Social Sciences

MERS   Middle East Respiratory Syndrome

1. INTRODUCTION

This chapter introduces the dissertation's content. Section 1.1. outlines the topic's background and the framing for the research project, as well as the motivations for the study. In section 1.2. research goals and questions are explained. Section 1.3. features a summary of the methodology. In the final section, a global view of the structure of the dissertation is given.

1.1. Framing and Justification for the chosen topic

There is no consensual definition of E-commerce. The various constructs that can be found in the literature highlight different aspects of this practice, such as the commercial interaction (Escobar-Rodríguez & Bonsón-Fernández, 2016) or the monetary transaction (Chakraborty et al., 2016). Over the last few years, online commerce has proved to be more than a passing trend. Its importance has been demonstrated both by the large number of firms that have adopted E-selling and by the growing number of online shoppers. As Figure 1 illustrates, the number of European e-shoppers was projected to grow 40% in a 7-year timespan: from 394.8 million in 2017 to 554.2 million in 2024 (Statista, 2020).
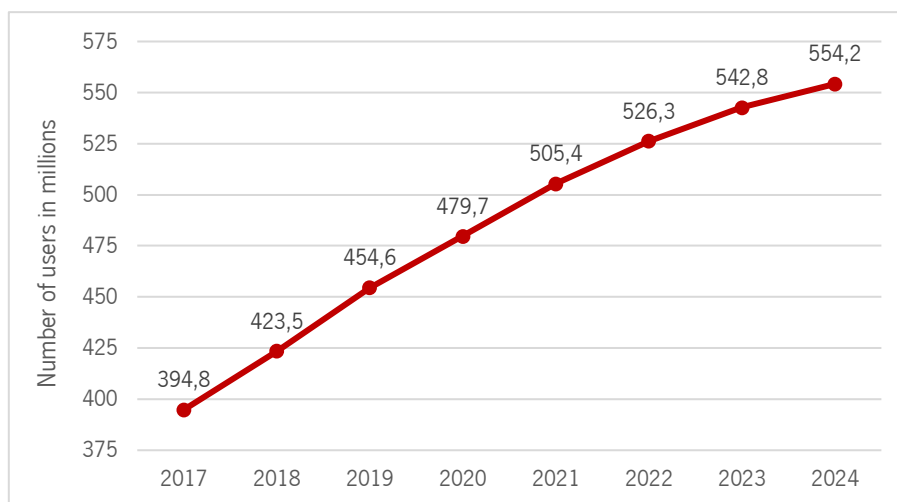
Figure 1| *Evolution of European E-commerce users*

Source: Author adapted from Statista

This growth is now likely to increase even more due to the particular circumstances brought about by the COVID-19 pandemic. Health crises are nothing like the other crises the world is used to experiencing and entail not only direct medical costs, restrictions on the transportation of people and

goods and an impact on outputs and exports but also affect growth and investment and lead to a disruption in traditional retail (Jung et al., 2016).

Firms have to adapt quickly to this new scenario if they are to survive and maintain their business (Ahn, Mortara & Minshall et al., 2017; Cortez & Johnston, 2020). Of extreme importance during the COVID-19 health crisis have been the crisis management strategies that have led to innovative ways of fostering resilience and fighting uncertainty (Kuckertz et al., 2020).

The pandemic has provided an optimal context for businesses and customers to start using E-commerce platforms (Cortez & Johnston, 2020), especially with regard to the quarantines that were imposed, the spread of remote working and the increased use of digital technologies (Hartmann & Lussier, 2020). With the lockdowns and the reduction of in-person contacts, not only were firms forced to close but customers had to adapt their shopping behaviour since they were prevented from shopping at physical stores. E-commerce not only provides businesses with a new channel to reach customers (Ratten, 2020) and new revenue streams (Barnes, 2020) but it also allows consumers to shop without having to leave their homes. Comparing the volume of E-commerce orders, it is clear that, even though the numbers were always higher in 2020 than in 2019, there was an almost 20% increase in volume in a period of just a couple of weeks following the declaration of a global pandemic (Figure 2).
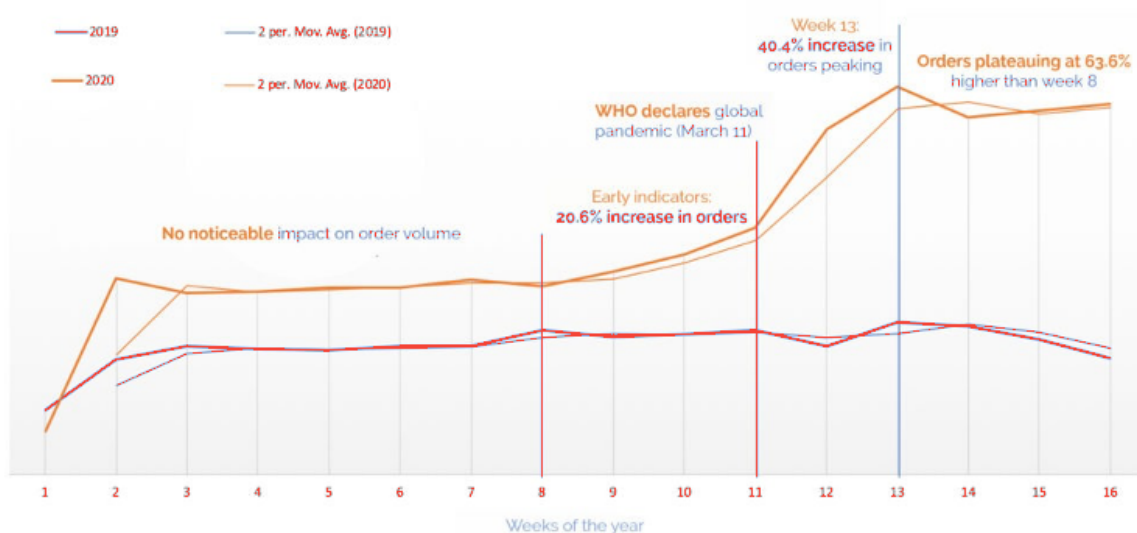
Figure 2| *Impact of COVID-19 on E-commerce*

Source: SAP Commerce Cloud Customers Systems Insights

This topic has been chosen in line with three fundamental aspects. The first two emerge from the particular context of a health pandemic: on the one hand, the urgent need to analyse the changes in consumers' shopping behaviour caused by the pandemic, as suggested by Hartmann and Lussier (2020);

and on the other, to close the gap in the literature regarding E-commerce as a tool for facing the unique challenges posed by health crises of this scale. More than ever, it is vital for firms to understand which factors e-shoppers value and which may constitute a barrier to the utilization of a certain shopping platform, as well as to analyse how these aspects influence the way consumers shop online when resorting to E-commerce as a crisis management tool.

In response to the mobility restrictions, many customers are turning to online shopping. However, firms' window of opportunity is short and unless online commerce has a positive impact on customers' routines, they might return to traditional stores (Sheth, 2020). The last aspect is, therefore, related to the need for E-commerce to offer consumers a positive shopping experience. Because there has been only limited research into the extent to which barriers and benefits change depending on the type of product/service or the shoppers' sociodemographic profiles, it is important to look more deeply into these aspects, not only to contribute to the literature but also to offer a better and more personalised experience to retain customers post-crisis.

1.2. Objectives and Research Questions

In this research, two different types of objective can be distinguished: general goals and specific goals. The general goals both mirror the research questions and also intend to contribute to the development of the literature by identifying the major drivers and obstacles for the adoption of online shopping, according to product/service type, in the context of the COVID-19 health crisis. Hence:

'What are the major benefits associated with E-commerce in a pandemic health crisis context? Do they vary by type of product/service?'

'What are the major barriers associated with E-commerce in a pandemic health crisis context? Do they vary by type of product/service?'

Eight specific research goals were developed, not only to answer the research questions and meet the general goals but also in order to analyse whether these benefits and barriers influence the way customers shop online and if the sociodemographic profile of the respondents influences their relevance. Hence this research aims to:

i. Identify the most relevant barriers and benefits of E-commerce in the pandemic context according to product type;

ii. Analyse customers' predisposition to trust online shopping platforms;

iii. Analyse the extent to which customers' predisposition to trust online shopping platforms influences their perceptions of the barriers and benefits of E-commerce;

iv. Analyse customers' profiles and online shopping behaviour (amount spent and shopping frequency);

v. Analyse the extent to which customers' profiles influence their perceptions of the barriers and benefits of E-commerce;

vi. Analyse the extent to which customers' perceptions of the barriers and benefits of E-commerce influence their online shopping behaviour.

1.3. Research Methodology

In this study, a quantitative approach was adopted. An online survey was developed using relevant scales from the literature in order to collect relevant data to analyse the conceptual model variables — "Trust", "Perceived Benefits", "Perceived Barriers", "Amount Spent" and "Shopping Frequency" — and test the different hypotheses. After the pre-test, the survey was shared with the broad population. The questionnaire was shared on Instagram and Facebook and via the University of Minho E-mail list. The elements of the sample have been selected using judgement sampling, with the aid of security questions. The data collected was analysed using the software SPSS (Statistical Package for the Social Sciences).

1.4. Structure

This paper is divided into **five** different yet fundamental chapters, from the formulation of the research through to the achievement of all the proposed goals.

The **first chapter** starts with an introduction, which is followed by the framing and justification for the chosen theme. After the research's relevance is presented, the research questions and objectives established for this study are introduced. The Research Methodology is then briefly approached and the chapter ends with a description of the dissertation's structure.

In the **second chapter**, the Literature Review of all the relevant topics is presented in order to clarify the constructs later included in the conceptual model and research hypothesis. The chapter is

divided into two main sections: "Crisis" and "E-commerce". The "E-commerce" section is further divided into sub-sections regarding the benefits and barriers of online shopping, product/service categorization and, lastly, the benefits and barriers of E-commerce according to product/service type.

The **third chapter** explains the Research Methodology beginning with the research paradigm, followed by the research questions and goals, the conceptual model and the hypotheses. Then the Operationalization of Variables and the Data Collection Method, which includes sub-sections on the Sampling Method and the Survey Design, are presented. The chapter ends with a section about the Data Treatment.

In **chapter four**, the analysis and treatment of data is carried out. Initially, a sociodemographic characterization of the sample is presented. Then the division of the questionnaire's products and services according to the FCB Matrix is given, along with the characterization of the buyers of each category. Next comes a section regarding the hypothesis testing, which starts with the analysis of the conceptual model followed by the internal consistency testing, the descriptive statistical analysis and the correlation tests. The same section also includes the tests of difference and ends with a summary of the results.

Lastly, in the **fifth chapter**, the most relevant conclusions are presented alongside the contributions of this study. In this chapter, the limitations that were found throughout the development of this research are also revealed alongside future directions for the literature to follow in order to broaden the knowledge and close continuing gaps.

2. LITERATURE REVIEW

Chapter 2 begins the Literature Review by exploring the theoretical framework that will be the foundation of the development of this research. In section 2.1. the construct of crisis is presented. Section 2.2. introduces the subject of E-commerce. 2.2.1. is dedicated to the benefits of online shopping. Section 2.2.2. encompasses the barriers of electronic commerce. In section 2.3., the FCB product/service categorization is explained and, in the final section, the benefits and barriers are associated with each product/service typology.

2.1. Crisis

A precise definition of "crisis" has proven elusive, and, throughout the years, many authors have come up with widely varying constructs, adding to the understanding of this phenomenon (Doern, Williams & Vorley, 2018). Both Bundy et al. (2016) and Doern et al.'s (2018) definitions highlight the unpredictability of a crisis. However, while Bundy et al. (2016) emphasize the disruptions that a crisis causes, Doern et al. (2018) focus on its challenging aspect. Because there is a certain degree of uncertainty regarding this terminology, the most adopted description, by Pearson and Clair (1998), regards the construct of Organizational Crisis, which they define as a "low-probability, high-impact event that threatens the viability of the organization and is characterized by ambiguity of cause, effect, and means of resolution, as well as by a belief that decisions must be made swiftly".

This vagueness surrounding the term is amplified by the new COVID-19 pandemic crisis since, due to its global scope and abruptness, the challenges it has inflicted are very different from the financial or environmental crises we have previously experienced (Kuckertz et al., 2020) and are quickly leaving a trail of destruction that will linger over the coming years (Zahra, 2020).

In this scenario, characterised by uncertainty (Cortez & Johnston, 2020), governments have a major role in developing the necessary countermeasures to protect the economy (Cortez & Johnston, 2020; Kuckertz et al., 2020; Owen et al., 2016), yet the measures implemented have greatly harmed the economy and have radically transformed society. The "new normal" consists of mandatory self-distancing rules and a higher importance given to personal hygiene (Ratten, 2020). Moreover, with lockdowns, businesses from various industries, such as hospitality or retail, were forced to close down all over the world, which aggravated the disturbances caused by the pandemic (Papadopoulos, Baltas & Balta, 2020). The International Monetary Fund (IMF) considers that this has led to a crisis similar to or worse than the 2008-2009 financial crisis (as cited in Cortez & Johnston, 2020).

This being the case, firms' activities during a crisis cannot be defined as "business as usual"; a different way of operating is required (Doern et al., 2018). Few firms would have been prepared for the COVID-19's challenges and even those that have been thriving in this context, like supermarkets or technology companies, have also faced difficulties (Ratten, 2020). The main issue at the forefront of popular discourse was the fragility of the supply chain caused by the spread of the virus. Global supply chains were disrupted and the lack of operational agility became obvious as essential food items were being held at national borders (Sarkis, 2020). In order to survive, firms need to adapt their capabilities to the new environment (Ahn et al., 2017; Cortez & Johnston, 2020).

Crisis management emerges in this scenario as an attempt to contain the threat and assure the continuing functioning of normal operations (Ansell & Boin, 2017; Parnell, 2015; Williams et al., 2017). The management of a crisis is complex (Owen et al., 2016), entails adequate preparation (Kuckertz et al., 2020, Parnell, 2015) and good timing (Williams et al., 2017). There are diverse approaches to crisis management: Kuckertz et al. (2020) emphasize the role of the government as the macro-level crisis manager; while Ansel and Boin (2017) defend a pragmatic approach that "respects the complexity, instability, and uncertainty of crisis situations and offers a constructive perspective on how to proceed."

Kuckertz and al. (2020) have suggested one approach to facing COVID-19's challenges is by combining crisis management with resilience so as to deal with adversity and to allow a better comprehension of the organization - adversity connection (Williams et al, 2017). Resilience can be looked at as both an outcome—a result of the crisis—and a process, which situates it earlier in the crisis management context (Williams et al., 2017). As there is no unanimously accepted definition of resilience, several constructs from various fields are adopted (Conz & Magnani, 2019). For example, Williams et al. (2017) define it as "an interactive process of relational adaptation (that) has to do with understanding, responding to, and absorbing variations; maintaining, gaining back, and/or building new resources." This construct demonstrates the dynamism of the process, which Mansour et al. (2019) consider vital since the greater this dynamism is the greater the ability of the firm to adapt to the circumstances and reshape resources.

On the other hand, resilience is said to be a precondition to being innovative (Kuckertz et al., 2020). Taking advantage of dynamic capabilities in order to adapt may lead to a decrease in the threat of uncertainties (Ahn et al., 2017). In a health crisis such as COVID-19, firms' capacity to innovate might be negatively affected but it can also lead to bigger opportunities (Kuckertz et al., 2020). Zahra (2020) considers that one of the biggest changes that this health crisis has enabled has been the growing utilization of digital technology. Many businesses have had to adopt an online model in order to access

consumers (Ratten, 2020) and maintain a revenue stream (Barnes, 2020). COVID-19 has enabled an optimal context both for customers and firms to start using E-commerce platforms (Cortez & Johnston, 2020). This is supported by Jung et al. (2016) whose findings show that customers, during the Middle East Respiratory Syndrome (MERS) outbreak in South Korea, reduced their expenses at department stores by 18%, increasing instead their E-commerce spending by 5.24%.

2.2. E-commerce

Despite its common usage, the definition of E-commerce changes depending on which scope is being studied. While Escobar-Rodríguez and Bonsón-Fernández (2016) focus on the commercial interaction that happens when shopping on the Internet, involving an online relationship and a consequent exchange of value, Chakraborty et al. (2016) highlight the monetary transaction that takes place while acquiring something online by "using an electronic payment method like a debit/credit card."

E-commerce is now far from being a mere trend and is, rather, an important tool both for companies and customers, who benefit from the opportunities it creates (Escobar-Rodríguez & Bonsón-Fernández, 2016). Its importance is also associated not only with the large number of those who shop online (Escobar-Rodríguez & Bonsón-Fernández, 2016; Vaitkevicius et al., 2019) but also with the fact that, as reported by Falk and Hagsten (2015), over half of the European firms engage in either an e-selling or an e-buying activity or both.

Even though E-commerce has always allowed firms to interact with consumers and enter new markets by using different channels (Falk & Hagsten, 2015), the "stay at home" consequence of COVID-19 has cast a spotlight on the socio-economic benefits brought about by the growth in digitization (Dannenberg et al., 2020). Yet, there are some adverse consequences—while the pandemic outburst has led to an increase in the adoption of online commerce (Dannenberg et al., 2020; Tran, 2021), it has affected consumer purchasing behaviour in the long-term (Hartmann & Lussier, 2020; Koch, Frommeyer & Schewe, 2020). Companies must, then, thoroughly understand consumer behaviour patterns and the changes in demand during this time so as to improvise and become more resilient in order to manage the effects of COVID-19, (Sheth, 2020).

2.2.1. Benefits of E-commerce

Consumers balance the benefits against the costs of E-commerce to form a value assessment (Chakraborty et al., 2016). In line with Guzzo, Ferri and Grifoni (2016) and Indiani and Fahik (2020), consumers think that the benefits of online shopping outweigh the risks.

Pappas et al. (2017) declare that shopping motivations are fundamental to understanding purchasing behaviour and, although some may be more important than others, identifying all the "complex combinations" is pivotal to a better understanding of customers. According to Chaparro-Peláez, Agudo-Peregrina & Pascual-Miguel's (2016) findings, a single motivation is not sufficient to influence shopping intentions.

When deciding whether to shop online, multiple factors are important to customers. Convenience is considered to be a major motivation that encourages consumers to adopt E-commerce (Chaparro-Peláez et al., 2016; Indiani & Fahik, 2020). When shopping, customers have to perform common tasks such as "searching for product information, locating the product they wish to buy, comparison shopping, and completing the checkout process" (Beauchamp & Ponder, 2010). Convenience can, then, be defined as the customer's time and effort costs when executing these tasks (Duarte, Silva & Ferreira, 2018). According to Beauchamp and Ponder (2010), customers seek convenience in various settings, which is why consumers' convenience perceptions tend to vary (Jiang, Yang & Jun, 2013) and why the literature on it tends to cover multiple dimensions (Duarte et al., 2018).

Nowadays, shoppers are "more time-starved than ever", and so the benefits associated with the convenience of E-commerce are of extreme relevance (Beauchamp & Ponder, 2010; Duarte et al., 2018), especially when it comes to time-saving, considered by many one of the most important benefits (Escobar-Rodríguez & Bonsón-Fernández, 2016; Vasic, Kilibarda, & Kaurin, 2019). Customers are progressively switching to online retailing as an alternative to brick-and-mortar stores in order to save time by avoiding crowds or reducing waiting time (Jiang et al., 2013). Online shops not only allow customers to buy anything at any time according to their own schedule (To, Liao & Lin 2007; Vasic et al., 2019) since they are open 24/7 but also to make purchases from anywhere in the world without having to physically go to the shops (Jiang et al., 2013). Moreover, most websites provide filters to allow consumers to quickly find what they are looking for without having to stumble upon the marketing distractions of the brick-and-mortar stores (Escobar-Rodríguez & Bonsón-Fernández, 2016). Beauchamp and Ponder (2010), Jiang et al. (2013) and Duarte et al. (2018), all attest to the importance of detailed, yet easy-to-understand product descriptions in order to compare different products and make a quick purchase.

Price is said to deeply influence most online customers' shopping behaviour (Nisar & Prabhakar, 2017). Nonetheless, the literature has contradictory findings: Cardona, Dutch-Brown and Martens (2015) state that price differences are not the main driver for consumers; but, on the other hand, Faqih (2016) claims that price is, in fact, the biggest priority for consumers when shopping online. In line with To et al's work (2007), buyers' purchase intention is higher online because online stores offer lower prices than traditional shops. Additionally, since consumers have readily available information and prices from multiple websites, another benefit of E-commerce is the possibility it provides of easily comparing prices and finding the best deal on a product (Vasic et al., 2019).

According to To et al. (2007), online stores can provide a larger range of products given that, unlike traditional retailers, they are not restricted by shelf space (Papadopoulos et al., 2020). In turn, this bigger product offering contributes to E-commerce adoption (Chaparro-Peláez et al., 2016).

A health pandemic crisis such as the COVID-19 has brought a new type of risk to our attention—the risk of contagion. Jung et al. (2016) have proven that during the MERS outbreak in South Korea, the fear of infection was significant enough to affect consumer feeling and cause a disruption of consumption in physical stores. With the lockdown and the requirements to reduce in-person contacts, consumers had to learn to adapt since they were unable to visit traditional retail stores (Sheth, 2020). Both Dannenberg et al. (2020), who, while studying online food retail during the crisis, stated that 20% of customers indicated that fear of contagion was an important motive for buying groceries online and Tran (2021), whose work highlights "the need for online transactions to protect sellers and buyers from infection", supports the extreme relevance of the fear of contagion when it comes to the adoption of online commerce. It is likely then that greater security in terms of avoiding in-person contact and consequently preventing the spread of the virus is seen as an important benefit of E-shopping.

It is noteworthy that the perceived benefits have a positive impact both on shopping frequency and the amount of money spent online, as determinants of the customer's online shopping behaviour (Forsythe et al., 2006). Nevertheless, the way consumers perceive the benefits of E-commerce is positively influenced by the buyers' trust in the E-commerce platform (Silva et al., 2019). Trust is defined by Martin, Mortimer and Andrews (2015) as the customers' feelings of vulnerability which are strongly affected by the "remote nature of the relationship with the e-retailer". It is a particularly important concept since, in the unique environment of online trading, customers cannot see the products in real life before buying them (Escobar-Rodríguez & Bonsón-Fernández, 2016; Vaitkevicius et al., 2019) so consumers care more about the trustworthiness of the vendor in an online shopping context than they do in traditional shops (Vaitkevicius et al., 2019).

Several aspects help build trust in e-retailers and, consequently, increase the perceived benefits. Since consumers set expectations for future interactions based on past experiences, as maintained by Dyke, Midha and Nemati (2007), familiarity with the e-retailer increases trust. Word-of-mouth also positively influences trust in the seller (Lee et al., 2018). Kim, Ferrin and Rao (2008) found that the accuracy of a website's information regarding products and transactions has a positive effect on trust in the retailer. Having previous experience with the E-commerce platform is also related to higher perceived trustworthiness (Chen & Dhillon, 2003). If the vendor has a physical store as well as a web presence, this is found to boost trust in the E-commerce platform (Jarvenpaa, Tractinsky & Vitale 2000). According to Oliveira et al. (2017), benevolence (the belief that the seller cares about the buyer's interests) and integrity (the belief that the vendor will keep their promises) are attributes that have a positive influence on overall consumer trust.

In addition, the perceived benefits are also influenced by the different demographic characteristics of each user. For example, when it comes to age, according to Fang et al. (2016), information availability matters most to younger consumers. When analysing the motivations for mature customers to shop online, Kwon and Noh's (2010) findings suggest that even though the variety of products and price options have the most impact on mature consumers' purchase intentions, the perceptions of these benefits decrease as customers age. Due to gender differences, e-shoppers may react to the same benefits differently (Fang et al., 2016). Huang and Yi-Chung (2010) say that men are more motivated by functional aspects than women, citing evidence from their research that suggested convenience and cost-saving were the most important benefits of E-commerce for males, while females placed greater value on availability of information, convenience and choice. The benefits associated with income and education have not been as widely studied in the literature. In line with Lightner's (2003) work, as income rises the importance of price and information lessens. Their research also suggests that security, information and price are mainly important for customers with a college degree and less so for those who have a graduate degree.

2.2.2. Barriers of E-commerce

Chaparro-Peláez et al. (2016) have identified risk as the only barrier that deters people from shopping online. Martin et al. (2015) define risk as the extent to which using the Web to make purchases is perceived as risky in terms of credit card fraud, security of personal information and general uncertainty about the "Internet environment". They add that the perceived risk can either be related to the security

of the "Internet infrastructure" or to the characteristics of the online environment, such as "spatial and temporal separation between the retailer and the customer."

However we categorize or distinguish them, we can agree there are many types of risk. Privacy risks are especially important, given that, when online shopping, customers rarely get to choose what information they wish to share with the e-retailer (Chakraborty et al., 2016) as most websites require personal information such as the customer's name, e-mail, telephone number, mailing address and credit card details (Indiani & Fahik, 2020). Chakraborty et al. (2016) declare that there is a high chance of details like mailing addresses being misused. They add that if customers feel that there is a significant risk of hackers gaining access to their personal information, putting it at risk, they will engage less with that website.

Equally concerning for customers are the financial security risks. Worries about data misuse or payment card details being stolen seem to be a serious obstacle to online shopping (Cardona et al., 2015) and one which has been aggravated by the recent spread of remote working and increased use of digital technologies triggered by COVID-19 (Hartmann & Lussier, 2020). In a survey conducted by Lee (2002), consumers considered that the biggest threats of E-commerce to be three-fold: firstly, the risk of credit card details being stolen, followed by the risk of transacting with a fake company and losing money, and thirdly the risk of inaccurate billings. Additionally, in line with Park, Gunn and Han's (2012) work, if the retailer does not commit to the transaction agreement, customers will regard the online environment as riskier, since the integrity of the seller also influences the consumers' decision to shop online. The literature, however, does not always support the importance of online transaction security. Escobar-Rodríguez and Bonsón-Fernández (2016) consider that there is uncertainty as to whether large investments in security technologies have an influence on online customers' perceptions about privacy and security risks. Additionally, Indiani and Fahik's (2020) findings suggest that perceived transaction security has no significant effect on actual purchases.

Product-related risks are also noteworthy. Since online consumers cannot see or feel the actual products they are thinking of purchasing, there is a good deal of uncertainty about whether the product that will eventually be delivered will match the one that was picked out from the E-commerce platform (Vasic et al., 2019). Customers form expectations of what they have ordered based on the pictures and descriptions featured on the website (Holloway & Beatty, 2008) and, in a "post-consumption experience", they compare both the expected and the perceived quality of the product (Nisar & Prabhakar, 2017). As the products received often do not match the quality that was expected, Holloway and Beatty (2008) declare that the quality of the merchandise is one of the most frequent causes of dissatisfaction

associated with online shopping. They add that consumers are also concerned with delivery-related issues. Vasic et al. (2019) observe that e-shoppers expect a quick, correct and reliable delivery when placing an order online, yet deliveries are often late or do not match the customers' expectations. Masoud (2013) says that the fear of non-delivery, alongside the worry that the products could be damaged or mishandled during transportation, negatively influence the attitude towards E-commerce. Common problems with deliveries relate to issues surrounding the return of unwanted products (Jiang et al., 2013). As reported by Duarte et al. (2018), Portuguese online customers find difficulties with the return procedures and problems with getting their money refunded extremely concerning. No law compels e-retailers to have a specific returns policy, so if a customer buys from a company that does not allow product returns, they will be faced with the risk of having to keep unwanted items (Chen & Grewal, 2013). Additionally, if the shoppers have to pay a return fee, it can be seen as part of the cost of placing an order and lead consumers to buy less valuable items due to risk aversion (Lantz & Hjort, 2013).

Even though customers might adopt E-commerce as a way of avoiding exposure to the virus in physical stores, Gao et al. (2020) emphasize that this decision to shop online might also be negatively impacted by the fact that consumers do not know who has handled the product or if the delivery staff is infected.

While on the one hand, perceived risks are said to have a negative impact on the determinants of the customer's online shopping behaviour - shopping frequency and amount of money spent online (Forsythe et al., 2006) - on the other they are negatively influenced by trust which, according to Jarvenpaa et al. (2000), reduces the perceptions of risk. In the last section, several aspects that increase trust were mentioned. However, as opposed to their effect on the perceived benefits, they lead to a decrease in the importance costumers attribute to risk. In addition to those aspects, factors like the reputation of the seller and the presence of third-party seals, as stated in Wu, Huang and Fu (2011) and Kim et al. (2008) respectively do not influence the trust directly but do reduce the perception of risk.

Moreover, the importance of perceived risks - just as with perceived benefits - also differs according to the different demographic characteristics of the customers. According to Forsythe and Shi's (2003) research, financial risk is only relevant to shoppers older than 20 years old and the importance of product risk reaches its peak to shoppers aged 20 to 25 then decreases with age. The authors also state that the values of psychological and time/convenience risks both increase and decrease with age respectively. The authors further analysed the impact of gender on the same risks and found that females care more about financial and product risks while males worry more about psychological and time/convenience risks. Liebermann and Stashevsky (2002) add that women perceive there to be higher

risks in internet shopping than men. Regarding income, the higher it is, the lower the implicit risks of online shopping will be perceived due to the increased ability to withstand possible financial losses (Hernández, Jiménez & Martín, 2011). When it comes to education, Sharma and Kurien (2017) found that customers with the education levels of high school and below perceived more financial, privacy and performance risks; graduates perceived performance, financial, privacy and time risks; and postgraduates perceived more time, financial and performance risks.

However, not all authors share the belief that risk could deter people from shopping online. Cardona et al. (2015) declare that even though perceived risk plays an important role in the decision to shop online, it still is not completely clear how consumers' perceptions of risk may be a barrier to E-commerce shopping.

It should also be acknowledged that companies' window of opportunity is not large. The current crisis is time-limited in nature and, as the risk of infection lessens, so will customers' concerns about the hygiene aspect of shopping, which may lead them to return to physical stores where online barriers do not influence their experience (Dannenberg et al., 2020). Even though customers have now found an alternative that is more convenient, affordable and accessible given the health crisis context, unless E-commerce has a big impact on their daily lives, they might go back to traditional shopping once the pandemic is over (Sheth, 2020).

2.3. Product/service categorisation

In this study, it is our goal to analyse whether the benefits and barriers associated with electronic commerce vary according to product/service type. The literature emphasizes product categorisations such as Hedonic vs Utilitarian products (e.g. Voss, Spangenberg & Grohmann, 2003; Motoki, Sugiura & Kawashima, 2019), High vs Low Involvement products (e.g. Zaichkowsky, 1985; Liao et al., 2016), Digital vs Non-digital products (e.g. Pascual-Miguel, Agudo-Peregrina & Chaparro-Peláez, 2015) and Search vs Experience vs Credence products (e.g. Vazquez, 2020).

Considering the heterogeneous nature of the products/services included in the research, the Foote, Cone and Belding (FCB) Matrix (Figure 3) was chosen for this study because it allows a uniform distribution of the goods/services across the different categories. Vaughn (1980) developed the FCB Matrix to classify products and services in order to create a unified theory for advertising effectiveness by combining both traditional theories and the learn-feel-do hierarchy in a matrix with two axes: the low/high involvement axis and the think/feel axis.

	Thinking	Feeling
High Involvement	**1** Informative.	**2** Affective.
Low Involvement	**3** Habitual.	**4** Satisfaction.
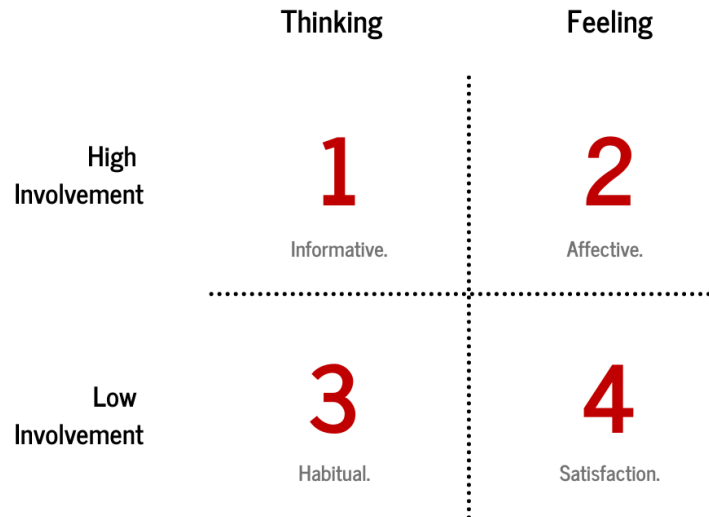
Figure 3| *FCB Matrix*

Source: Author adapted from Vaughn (1980)

The vertical axis refers to the involvement of the consumer. The concept of product involvement has been widely used in the literature to study online consumer behaviour (Liao et al., 2016) and refers to the perceived relevance of an object based on the inherent needs, values, and interests of a person (Zaichkowsky, 1985). Consumers with high product involvement actively search for information about the product (Zaichkowsky, 1985; Liao et al., 2016) and, based on this information, they analyse and compare the alternatives before making a decision (Zaichkowsky, 1985). In line with Liao et al.'s (2016) findings, more expensive goods, such as cars or computers, on which consumers do a lot of research and evaluation, tend to have a higher product involvement. Conversely, when it comes to low involvement products, not only do consumers not seek as much information but they also carry out little comparison between alternatives (Zaichkowsky, 1985).

The dichotomy of Hedonic vs Utilitarian products is expressed by the think/feel horizontal axis. According to Ratchford (1987), "think implies the existence of a utilitarian motive and consequent cognitive information processing" while feel relates to "ego gratification, social acceptance, or sensory pleasure motives and consequent affective information processing." Therefore, utilitarian products, like microwaves or computers, are bought mainly for their instrumentality and functionality (Voss et al., 2003; Liao et al., 2016; Motoki et al., 2019) and not for their affective features. On the other hand, hedonic goods, such as sports cars or luxury items, are goods that people buy to acquire emotional experiences, such as joy or excitement (Voss et al., 2003; Liao et al., 2016; Motoki et al., 2019).

The combination of the two axes forms four different quadrants that Vaughn (1980) and Ratchford (1987) describe as:

- **Quadrant 1: Informative -** The products/services in this category are characterized by a large level of involvement and rational thinking. These products are major purchases such as appliances.

- **Quadrant 2: Affective -** Characterized by a high level of involvement and affective decision criteria, meaning that a holistic feeling is more important than specific information. Some examples are perfume or fine clothing.

- **Quadrant 3: Habitual -** Low level of involvement and not much affect. These products/services, such as cleaning products, are bought as a routinized behaviour, a habit. Over time, many products may descend into this category.

- **Quadrant 4: Satisfaction -** These products/services satisfy personal tastes and are characterized by a low level of involvement and affective decision criteria. Examples include beer or a fast-food meal.

2.4. Benefits and barriers of E-commerce according to product/service type

In the extant literature on the benefits and barriers of E-commerce, a general perspective tends to predominate as only a few studies associate the benefits and barriers with specific product/service categories (e.g. Molesworth & Suortti, 2002, Lissitsa & Kol, 2016) and none of them use the FCB Matrix's typologies. Despite this gap in the literature, there are some, even though scarce, works that include the dichotomies High vs Low Involvement and Hedonic vs Utilitarian products that are represented by the two axes of the Matrix and associate them with E-commerce. Below are the most relevant results of those studies.

When looking at which benefits and barriers are associated with high involvement products, Molesworth and Suortti (2002) find that customers expect E-commerce platforms to offer lower prices than brick-and-mortar stores and to save time and physical effort; additionally, they value the integrity and benevolence of the e-retailer and the ability to research information and prices in order to compare them. Yet, consumers have concerns when it comes to using their credit cards on the internet (Molesworth & Suortti, 2002). Han and Kim (2017) further add that e-shoppers worry about both product and performance risks. So, customers who buy high involvement products (Informative and Affective products)

are expected to value benefits such as time and money-saving, the possibility to compare prices and products and the fact that companies care about their customers. On the other hand, they are also likely to be concerned about barriers such as the product arriving damaged or not corresponding to their expectations, losing money, or the value being charged more than once.

With respect to low involvement products (Habitual and Satisfaction), the literature only identifies the obstacles of E-commerce. According to Han and Kim (2017), consumers' shopping intention is influenced by financial and product risk. The barriers that could be associated with these product/services are the fear of losing money, the value being charged more than once and the product arriving damaged or not corresponding to their expectations. It is noteworthy that, according to Pires, Stanton and Eckford (2004), perceived risk was found to be higher for high-involvement products than for low-involvement.

The main aspects that influence customers' online shopping experience for hedonic products were related to convenience, variety (Christodoulides & Michaelidou, 2010; Haridasan & Fernando, 2018), affordability, transaction safety and packaging (Haridasan & Fernando, 2018). Regarding Affective and Satisfaction products/services, benefits like 24/7 availability, shopping and delivery convenience, money-saving and access to products not available in physical stores are probably the most important drivers for customers. Furthermore, the risk of the product arriving damaged, not being able to return it, having to pay for returns, having to provide personal data, the data being used for other purposes, losing money and the value being charged more than once are the barriers that are most likely to be associated with hedonic products.

Those who shop for utilitarian products/services care about the affordability and convenience aspects (Haridasan & Fernando, 2018), as well as the availability of information about the products (Cheema & Papatla, 2008). In this case, the consumers that purchase Informative and Habitual goods/services may tend to focus on benefits such as 24/7 availability, shopping and delivery convenience, money-saving and the ability to compare products and prices, and on barriers such as not being able to return the product or having to pay for the return.

Table 1 compiles all the benefits and barriers which are likely to be expected when purchasing products/services from the different FCB Matrix's categories.

Table 1| *Benefits and Barriers of E-commerce according to product/service type*

	Benefits	Barriers
Informative	-Shopping convenience; -Time saving; -Money saving; -Companies care about their customers; -Availability 24/7; -Delivery convenience; -Ability to compare products; -Ability to compare prices.	-Product arriving damaged; -Product not corresponding to customer's expectations; -Not being able to return the product; -Having to pay for returns; -Losing money; -Value being charged more than once.
Affective	-Shopping convenience; -Time saving; -Money saving; -Ability to compare products; -Ability to compare prices; -Companies care about their customers; -Availability 24/7; -Delivery convenience; -Access to products not available in physical shops.	-Product arriving damaged; -Product not corresponding to customer's expectations; -Not being able to return the product; -Having to pay for returns; -Having to provide personal data; -The data being used for other purposes; -Losing money; -Value being charged more than once.
Habitual	Availability 24/7; -Shopping convenience; -Delivery convenience; -Money saving; -Ability to compare products; -Ability to compare prices.	-Fear of losing money; -Value being charged more than once; -Product arriving damaged; -Product not corresponding to customer's expectations; -Not being able to return the product; -Having to pay for returns.
Satisfaction	-Availability 24/7; -Shopping convenience; -Delivery convenience; -Money saving; -Access to products not available in physical shops.	-Fear of losing money; -Value being charged more than once; -Product arriving damaged; -Product not corresponding to customer's expectations; -Not being able to return the product; -Having to pay for returns; -Having to provide personal data; -The data being used for other purposes.

Source: Author based on the literature

3. METHODOLOGY

Deciding on methodology is a vital stage in the development of any kind of research, as it influences how the data collection and analysis will be set up. This chapter is structured as follows: Section 3.1. features an in-depth explanation of the research paradigm; Section 3.2. explains the research goals; 3.3 presents the conceptual model and hypotheses; Section 3.4 addresses the operationalization of variables; and in the last section, the data collection and data treatment method are presented.

3.1. Research Paradigm

Given that there are multiple major philosophies in the marketing field, it is important to clarify which was the chosen approach for this study as it affects the research design.

This paper will closely follow the critical realism paradigm which combines the positivist's search for evidence of a reality external to human awareness with the belief that our sense of that reality is socially constructed (Oliver, 2011). Critical Realism focuses on explaining this external and objective reality by looking at the underlying causes and structures that shape it (Saunders, Lewis & Thornhill, 2019). Syed, Mingers and Murray (2010) state that it is the interaction between these structures, procedures and processes that generate the events and occurrences of the world. They add that only a portion of these events are observed and the goal of science should be to explain these empirical observations in terms of their underlying generative mechanisms and structures.

Critical realists claim that what we experience are not the actual things, but sensations or images of the things in the real world (Saunders et al., 2019). Thus, reality can never be known for sure, but it can progressively be described in a better or truer manner as knowledge develops. Since we can never escape our own perspective, the gap between the real world and our knowledge of it can never be closed (Oliver, 2011).

According to this paradigm, knowledge is never neutral, as it is socially constructed which can often lead to distortions from subjectivity (Van de Ven, 2007). Knowledge should, then, be seen as tentative and fallible (Oliver, 2011). If research happens to identify social structures or institutions that are maintaining false beliefs, its purpose is to eliminate them (Syed et al, 2010). Critical realism describes a social world where many opportunities for intervention and change prevail (Oliver, 2011).

The aim of the researcher is always to be as objective as possible and to minimize all bias by adopting an abductive approach and creating a conceptual framework with the identified themes and patterns from the data collected (Saunders et al., 2019). The researcher must search for the scenario

that gets closest to explaining what is real (Oliver, 2011), even if our grasp of organizational reality is fragmented (Mir & Watson, 2001).

Critical Realism also allows the use of mixed methods: both quantitative and qualitative (Henderson, 2011). However, the object of the study should determine which method to choose. Due to the nature of this study, a quantitative approach, as defined by Malhotra, Nunan and Birks (2017) as a way to conclusively "answer specific hypotheses or research questions using descriptive or experimental techniques" is adopted.

3.2. Research Questions and Goals

According to Saunders et al. (2019), the theoretical framework should not only guide the definition of research questions and objectives, but also the approach to research design. In the last chapter, a thorough review of the pertinent literature for this study's subject was conducted in order to clarify constructs and understand their relevance. Based on the literature review, research questions were defined and it is now crucial to establish the right research methodology for answering the following questions:

'What are the major benefits associated with E-commerce in a pandemic health crisis context? Do they vary by type of product/service?'

'What are the major barriers associated with E-commerce in a pandemic health crisis context? Do they vary by type of product/service?'

The context of COVID-19 is fairly recent and the literature that combines both the topics of health crises and E-commerce is scarce. Hence, the **general goals** of this study not only mirror the research questions, but they also aim to contribute to the development of the literature, as we intend to identify the most valuable benefits and barriers of E-commerce in this specific context of a pandemic outbreak and whether they vary depending on the type of product/service. Additionally, it is also our goal to analyse to which extent the benefits and obstacles change according to the demographic profile of the consumers and whether they influence the customers' online shopping behaviour.

The focus of this study is on consumer insight, given that we intend to analyse customers' perceptions and behaviours regarding E-commerce. Since the Portuguese population was confined to

their houses during the State of Emergency caused by COVID-19, a quantitative data collection method—more specifically an online survey—seemed to be the most logical data-collection method in these circumstances. Descriptive research will then be conducted with the purpose of shedding light on possible associations or relationships between different variables (McDaniel & Gates, 2015).

To provide answers to the research questions, the **specific goals** of this study are:

i. Identify the most relevant barriers and benefits of E-commerce in the pandemic context according to product type;

ii. Analyse customers' predisposition to trust online shopping platforms;

iii. Analyse the extent to which customers' predisposition to trust online shopping platforms influences their perceptions of the barriers and benefits of E-commerce;

iv. Analyse customers' profiles and online shopping behaviour (amount spent and shopping frequency);

v. Analyse the extent to which customers' profiles influence their perceptions of the barriers and benefits of E-commerce;

vi. Analyse the extent to which customers' perceptions of the barriers and benefits of E-commerce influence their online shopping behaviour.

We also intend to verify empirically the statistical suitableness of the proposed conceptual model, as explained in the section below.

3.3. Conceptual Model and Hypotheses

Based on the research questions, hypotheses were developed and variables were identified in order to meet the research goals. The connections found between the variables have resulted in the following conceptual model (Figure 4).
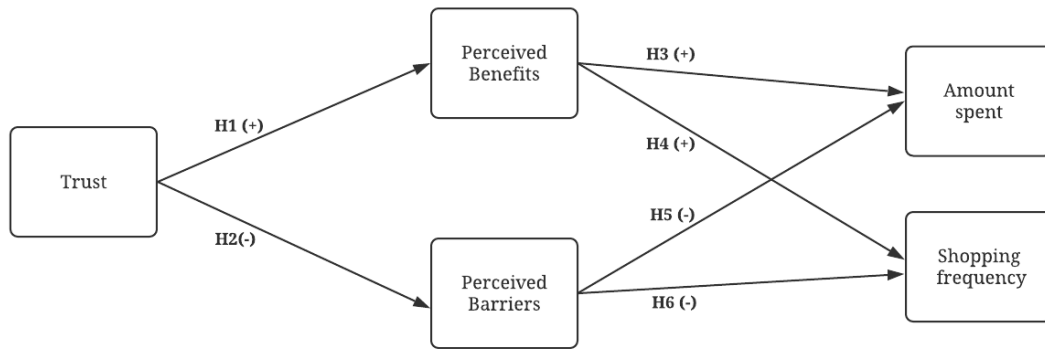
Figure 4| *Conceptual Model*

Source: Author

In this study, it is assumed that 'Trust' influences the 'Perceived Benefits' and the 'Perceived Barriers', which in turn affect the 'Amount Spent' and 'Shopping Frequency' in such a manner that:

- **Hypothesis 1 (H1):** There is a positive association between 'Trust' in the e-platform and certain 'Perceived Benefits' of E-commerce;

- **Hypothesis 2 (H2):** There is a negative association between 'Trust' in the e-platform and certain 'Perceived Barriers' of E-commerce;

- **Hypothesis 3 (H3):** There is a positive association between certain 'Perceived Benefits' of E-commerce and the 'Amount Spent' online;

- **Hypothesis 4 (H4):** There is a positive association between certain 'Perceived Benefits' of E-commerce and 'Shopping Frequency';

- **Hypothesis 5 (H5):** There is a negative association between certain 'Perceived Barriers' of E-commerce and the 'Amount Spent' online;

- **Hypothesis 6 (H6):** There is a negative association between certain 'Perceived Barriers' of E-commerce and 'Shopping Frequency'.

One of the main goals of this study is to contribute to the literature that regards benefits and barriers of E-commerce according to a specific product/service categorisation. Given that there are no studies that include the FCB Matrix, this research intends to associate benefits and barriers of E-commerce with the Informative, Affective, Habitual and Satisfaction categories in such a manner that:

- **Hypothesis 7 (H7):** The relevance of certain 'Perceived Benefits' differs between the shoppers of the Informative category and the shoppers of other categories;

- **Hypothesis 8 (H8):** The relevance of certain 'Perceived Benefits' differs between the shoppers of the Affective category and the shoppers of other categories;

- **Hypothesis 9 (H9):** The relevance of certain 'Perceived Benefits' differs between the shoppers of the Habitual category and the shoppers of other categories;

- **Hypothesis 10 (H10):** The relevance of certain 'Perceived Benefits' differs between the shoppers of the Satisfaction category and the shoppers of other categories;

- **Hypothesis 11 (H11):** The relevance of certain 'Perceived Barriers' differs between the shoppers of the Informative category and the shoppers of other categories;

- **Hypothesis 12 (H12):** The relevance of certain 'Perceived Barriers' differs between the shoppers of the Affective category and the shoppers of other categories;

- **Hypothesis 13 (13):** The relevance of certain 'Perceived Barriers' differs between the shoppers of the Habitual category and the shoppers of other categories;

- **Hypothesis 14 (H14):** The relevance of certain 'Perceived Barriers' differs between the shoppers of the Satisfaction category and the shoppers of other categories.

Moreover, it is also the aim of this research to analyse the impact that demographic characteristics of the sample—such as age, gender, income and educational level—have on the importance of certain benefits and barriers of E-commerce. Hence:

- **Hypothesis 15 (H15):** The relevance of certain 'Perceived Benefits' differs from male to female shoppers;

- **Hypothesis 16 (H16):** The relevance of certain 'Perceived Benefits' differs from young to old shoppers;

- **Hypothesis 17 (H17):** The relevance of certain 'Perceived Benefits' differs from high to low-educated shoppers;

- **Hypothesis 18 (H18):** The relevance of certain 'Perceived Benefits' differs from high to low-income shoppers;

- **Hypothesis 19 (H19):** The relevance of certain 'Perceived Barriers' differs from male to female shoppers;

- **Hypothesis 20 (H20):** The relevance of certain 'Perceived Barriers' differs from young to old shoppers;

- **Hypothesis 21 (H21):** The relevance of certain 'Perceived Barriers' differs from high to low-educated shoppers;

- **Hypothesis 22 (H22):** The relevance of certain 'Perceived Barriers' differs from high to low-income shoppers.

3.4. Operationalization of Variables

Now that all the variables have been identified, they must be operationalized according to scales defined by previous literature. Keeping in mind that the chosen method of data collection was a questionnaire (detailed explanation in the research design section), the most appropriate measurement scales and items were adopted in order to obtain the most relevant results from all sampling elements.

Next, the operationalization of each variable is presented. It is important to note that the questionnaire was conducted in Portuguese, so the following items were translated.

3.4.1. 'Trust' Variable

In order to evaluate this variable, Question 12 of the questionnaire consists of a 7-point Likert scale that ranges between 1 (Not Important at all) and 7 (Very Important). The scale consists of five different statements adapted from Kim et al. (2008) concerning the Site Reputation, Familiarity with the Website, Presence of Third-Party Seals and Information Quality, as well as three items developed by the author based on their importance in the theoretical framework and as a result of the survey pre-test. Table 2 illustrates the scale.

Table 2| *'Trust' Scale*

Items	Sources
1- Seller's reputation	Kim et al. (2008)
2- Familiarity with the seller (if known)	
3- Have already shopped on the website	
4- The seller also having a physical store	Author
5- My friends/acquaintances/family recommending shopping on a certain website	
6- The website having quality certificates	Kim et al. (2008)
7- The website providing detailed information about the transaction's conditions	
8- The website having contacts in Portugal	Author

Source: Author

3.4.2. 'Perceived Benefits' Variable

Regarding the 'Perceived Benefits' variable, in Question 10, a 7-point Likert scale, with 1 being Not Important at all and 7 Very Important, is used to evaluate six different items defined according to Kim et al.'s (2008) constructs of Trust and Perceived Benefits as well as three items regarding Shopping Convenience and Product Selection from Forsythe et al.'s work (2006) and two items adopted from Chaparro-Peláez et al. (2016) related to Comparison Shopping. An item developed by the author regarding Contagion Risk was added given the pandemic crisis context of the research. Table 3 compiles these items.

Table 3 | *'Perceived Benefits' Scale*

Items	Sources
1- Shopping Convenience	Kim et al. (2008)
2- Time Saving	
3- Money Saving	
4- More Security (Avoids the contact with others)	Author
5- Easy product comparison	Chaparro-Peláez et al. (2016)
6- Easy price comparison	
7- Increasing my productivity	Kim et al. (2008)
8- Online shopping companies always keeping their promises	
9- Online shopping companies caring about my interests as a customer	
10- Accessing products that are not available in physical stores	Forsythe et al. (2006)
11- Convenience on the delivery of products/services	
12- Availability 24 hours / 7 days a week	

Source: Author

3.4.3. 'Perceived Barriers' Variable

In order to measure the 'Perceived Barriers' of E-commerce, Question 11 includes a scale composed of eight items adopted from Han and Kim (2017) regarding Economic Risk, Product Risk, Time Risk, Privacy Risk and Trust; an item from Lee (2002) concerning security and integrity issues related to online transactions; an item regarding Contagion Risk, given the pandemic crisis context of research, developed by the author; and another item based on its importance in the theoretical framework and as a result of the survey pre-test (see Table 4). The scale is a Likert scale with 7 points that range between 1- Not Important at all and 7-Very Important.

Table 4| *'Perceived Barriers' Scale*

Items	Sources
1- The product/service not being delivered	
2- The product/service arriving damaged	Han & Kim (2017)
3- The product/service not matching the picture that was advertised	
4- The product being contaminated	Author
5- Not being able to return the product/service	
6- Online companies not keeping their promises	Han & Kim (2017)
7- Losing the money	
8- Having to pay to return the product/service	Author
9- The monetary value of the product/service being charged more than once	Lee (2002)
10- Having to provide personal data	
11- Someone using my personal/banking data for other purposes without my consent	Han & Kim (2017)

Source: Author

3.4.4. 'Shopping Frequency' Variable

The measurement of this variable is made in Question 6, resorting to an ordinal multiple-choice question with six different options based on the researcher's evaluation of a reasonable interval (see Table 5).

Table 5 | *'Shopping Frequency' Scale*

Taking this period as reference (State of Emergency) how many times have you shopped online?
1- None
2- Less than 2 times
3- Between 2 to 5 times
4- Between 6 and 10 times
5- Between 11 and 20 times
6- More than 20 times

Source: Author

3.4.5. 'Amount Spent' Variable

The 'Amount Spent' is measured in Question 7, using an ordinal multiple-choice question with five different options based on the researcher's evaluation of a reasonable interval (see table 6).

Table 6 | *'Amount Spent' Scale*

What was the maximum amount you spent, during this period (State of Emergency), on a purchase of a product/service on the Internet?
1- Less than 25€
2- Between 51€ and 100€
3- Between 100€ and 200€
4- Between 101€ and 200€
5- More than 200€

Source: Author

3.5. Data Collection Method

The chosen quantitative method of data collection for this research, as mentioned previously, was a survey. Surveys are the most common approach for primary data collection in the marketing field and they consist of the use of a questionnaire to gather information on the behaviour, intentions, and attitudes among other characteristics of the sample elements (Malhotra et al., 2017). A single cross-sectional design is followed as the data is collected from the sample population only once.

3.5.1. Sampling Method

According to McDaniel and Gates (2015), defining the population of interest is the most important step in the sampling process. In this research, in order to meet the study goals, the target population consists of individuals from Portugal who have shopped online during the COVID-19 outbreak, taking as reference the State of Emergency imposed on March 18th 2020.

The questionnaire was first shared with the broad population as no source identifies those who have shopped online during this particular timespan. Since it is not viable to cover the entire population due to its size, in order to define a sampling frame, the questionnaire was shared on Instagram and Facebook and via the University of Minho E-mail list, under the assumption individuals that have a presence on the Internet are more likely to shop online than those who do not. However, the elements of the sample have not been selected at random; instead, a non-probability sampling method was followed— specifically, judgemental sampling, defined by Malhotra et al., (2017) as "a form of convenience sampling in which the population elements are selected based on the judgement of the researcher". In this case, security questions were applied to identify the target population and only those who answered that they had shopped online in the specified period were able to proceed to answer the remaining questions, complete the questionnaire and, consequently, if valid, be considered in the final sample.

3.5.2. Survey Design

Because of the quarantine that was established and the need for the data collection to be completed in a short timeframe, an online survey seemed the most adequate method, due to its convenience. The questionnaire was developed on the Qualtrics online platform, a widely used and highly customizable tool for survey design, with the purpose of collecting data in order to test the conceptual model and the hypotheses that were proposed and to answer the research questions. From the start, the anonymity of the survey was ensured as well as its compatibility with mobile devices.

Two major question types were used in the data-collection process: Closed-Ended and Scaled-Response questions. The use of Closed-Ended and more specifically Multiple-Choice questions in the survey allowed respondents to be segmented based on their answers. To address the different variables, Scaled-Response questions provided an adequate tool for measuring the intensity of the answers and to compare the different items of the questions. Most scales used, as already mentioned, were Likert scales with 7 points. Open-Ended questions were also applied in questions regarding the respondents' demographic characteristics.

Based on McDaniel and Gates's (2015) questionnaire layout, the questionnaire starts with warm-up questions to demonstrate the simplicity of it, followed by a qualifying question to identify the target respondents. If the person answers negatively, the questionnaire does not proceed since the respondent does not qualify to enter the sample of the research. Next are the transition questions, more related to the subject of the study, that require more effort, and then the difficult and more complicated questions. The questionnaire ends with classifying and demographic questions.

Even though Malhotra et al. (2017) state that online surveys can take up to 20 minutes to complete, this questionnaire had an approximate duration of 7 minutes so as to not become too onerous.

Before sharing the questionnaire, a pre-test was carried out with six individuals with similar characteristics to the target sample in order to validate the adequacy of the questions, to understand if their formulation was the most suitable for collecting the data required for the research and to test the correct functioning of the questionnaire. These answers were not considered in the final data analysis.

The questionnaire layout is available in Portuguese in Appendix I, and in English in Appendix II.

3.6. Data Treatment

The data was analysed using SPSS, a statistics software that allows in-depth data analysis, management and treatment. Only the data considered valid was included in the final sample. The software has been chosen in line with the need to process, code and analyse the data, to test the hypotheses, to understand the relationships that are established between the variables and to answer the research questions.

By using univariate data analysis, SPSS not only enabled us to create a profile of the respondents, but also to identify which are the most relevant drivers and barriers of E-commerce for them. Bivariate data analysis, on the other hand, was applied in order to determine the relationships that are established among the variables of the research's conceptual model. Additionally, the software allows appropriate techniques—such as descriptive statistics like measures of central tendency and absolute frequency methods—to be applied to the collected data, as well as correlation techniques in order to test all the proposed hypotheses.

4. RESULTS

The goal of this chapter is to present the statistical analysis of the data gathered from the questionnaire in order to test the hypotheses and answer the research questions. Section 4.1. looks into the sample's sociodemographic profile. Section 4.2 presents the characteristics of the buyers of each FCB product/service category. Sections 4.3 through to 4.7 present the results of the different analyses conducted.

4.1. Sample's Sociodemographic Profile

In this section, the respondents are characterized according to their gender, age, the area of residence, educational level and income. The research sample consists of 120 individuals. Some respondents failed to provide an answer to every single question but, since we considered these occurrences as residual, the rest of their answers remained valid.

Regarding the gender (Figure 5), 72 respondents are female (60%), while 48 are male (40%). There is, therefore, a small disparity when it comes to the sample's gender structure.
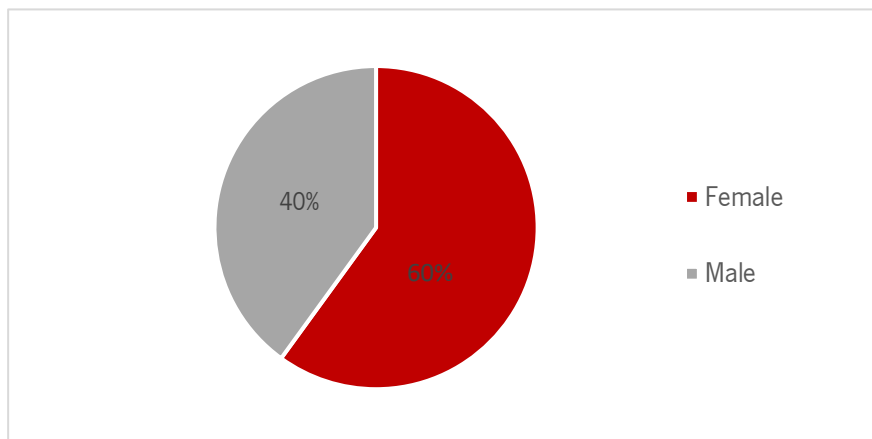

Figure 5| *Distribution of the respondents according to gender*

Source: Author

The sample, as a whole, is very young, the average age of the participants being 29.04 years. 73 individuals (60.8%) have ages equal to or lower than 25 years, which might be a result of the chosen data collection method. There are 30 individuals (25%) aged 26-45 years and 17 individuals (14.2%) aged 46 or older. Figure 6 shows this distribution.
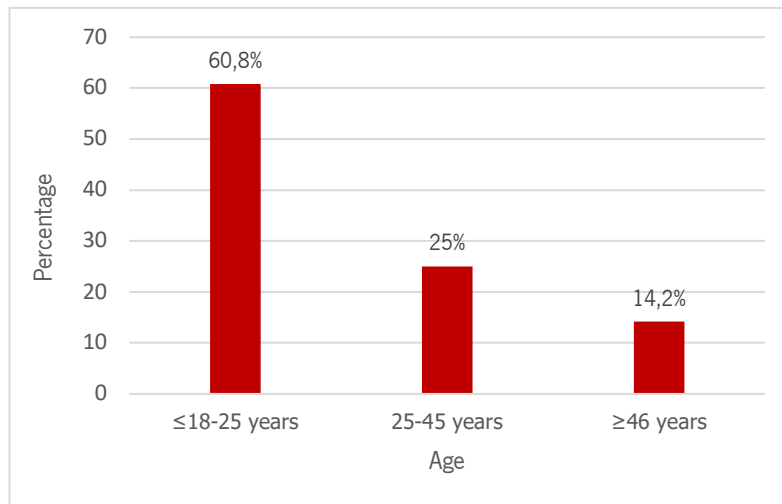
Figure 6| *Distribution of the respondents according to age groups*

Table 7 compiles the data regarding the area of residence

Table 7| *Distribution of the respondents according to area of residence*

District	Frequency	Percentage
Braga	41	34.2%
Porto	27	22.5%
Vila Real	16	13.3%
Lisboa	15	12.5%
Aveiro	5	4.2%
Viana do Castelo	4	3.3%
Bragança	4	3.3%
Setubal	2	1.7%
Guarda	1	0.8%
Santarém	1	0.8%
Leiria	1	0.8%
Madeira	1	0.8%
No Answer	2	1.7%
N	**120**	**100%**

With the data collected, the sample can also be characterized based on their educational level (Figure 7). 46 respondents (38.3%) have a Bachelor Degree. PhD is the second most common educational

level, with 24 individuals (20%), followed by High School with 20 respondents (16.7%), and Master degree/MBA with18 respondents (15%). At the other end of the spectrum, 10 respondents (8.3%) had a technical-vocational qualification, 1 individual (0.8%) a Licentiate degree and 1 (0.8%) a professional specialization.
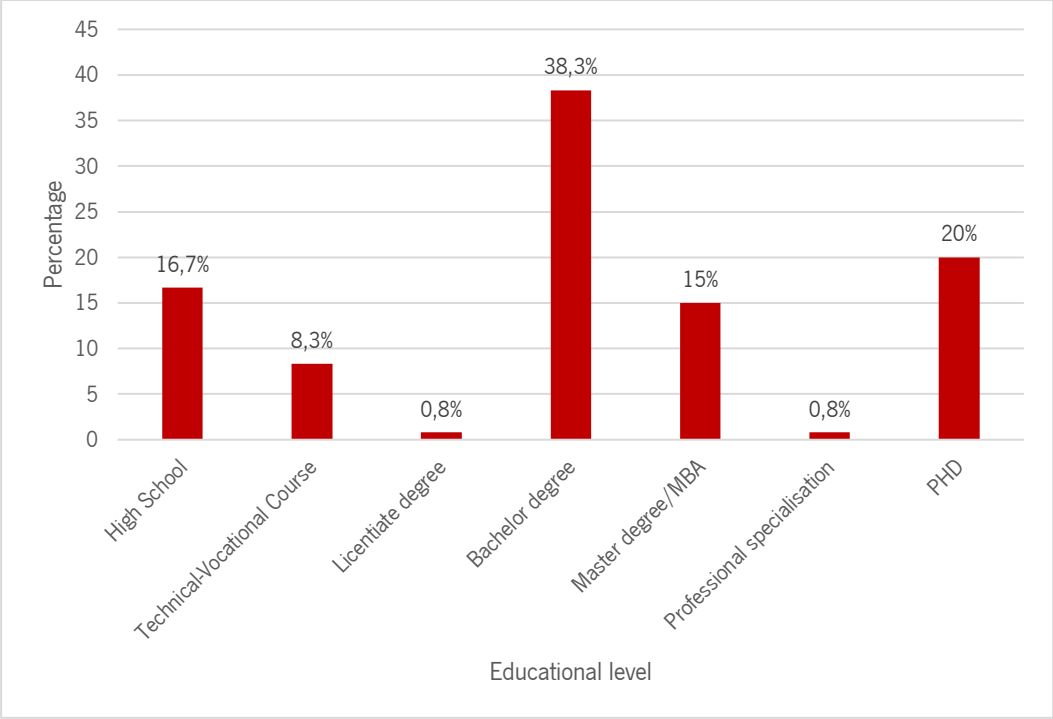

Figure 7| *Distribution of the respondents according to educational level*

Because Income is a potentially sensitive subject, a "Don't know" option was added to the survey, and 21 answers (17.5%) chose this response. For the rest, distribution of income is quite homogeneous. The majority of respondents' - 29 individuals (24.2%) - have a monthly income greater than 3000€, 19 people (15.8%) earn between 1501€ and 2000€ and 18 participants (15%) earn between 1001€ and 1500€ monthly. In both 500€ - 1000€ and 2001€ - 2500€ categories there were 12 people (10%). Lastly, 9 individuals (7.5%) have a monthly income of between 2501€ and 3000€. These results are illustrated in Figure 8.
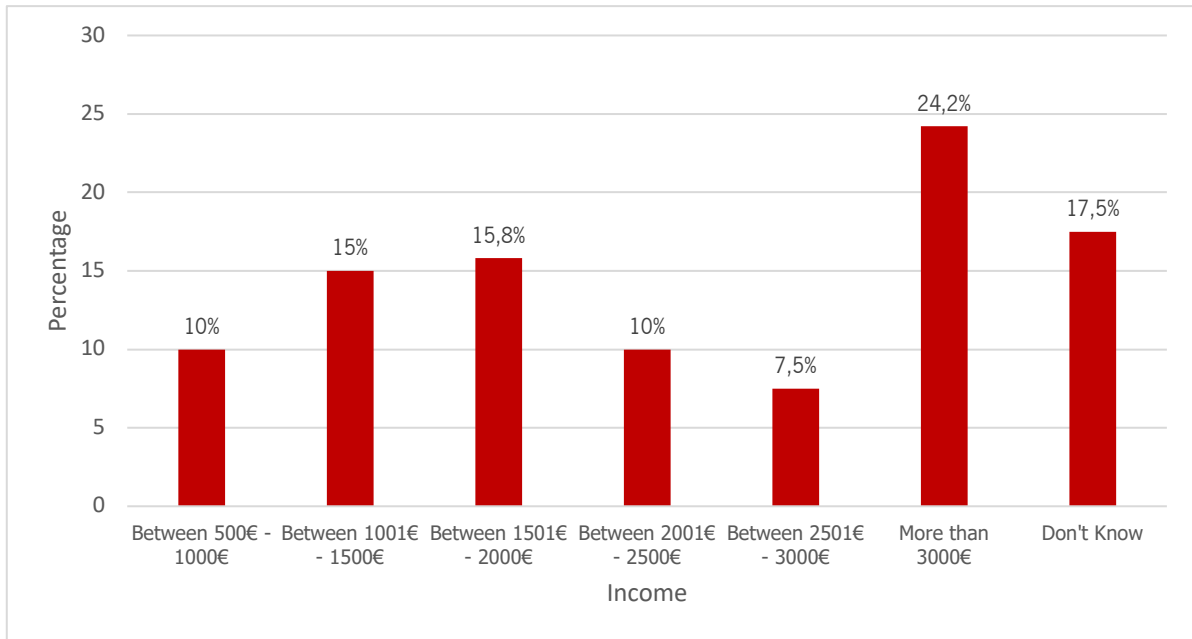
Figure 8| *Distribution of the respondents according to monthly income*

Source: Author

Besides the sociodemographic aspects of the respondents in the survey, they were also asked how much the COVID-19 health crisis was going to affect their financial subsistence (Figure 9). Based on that data, even though most people - 86 individuals (72%) - considered that their financial situation had not been affected by the pandemic, 33 respondents (27%) stated that their situation had already been affected.
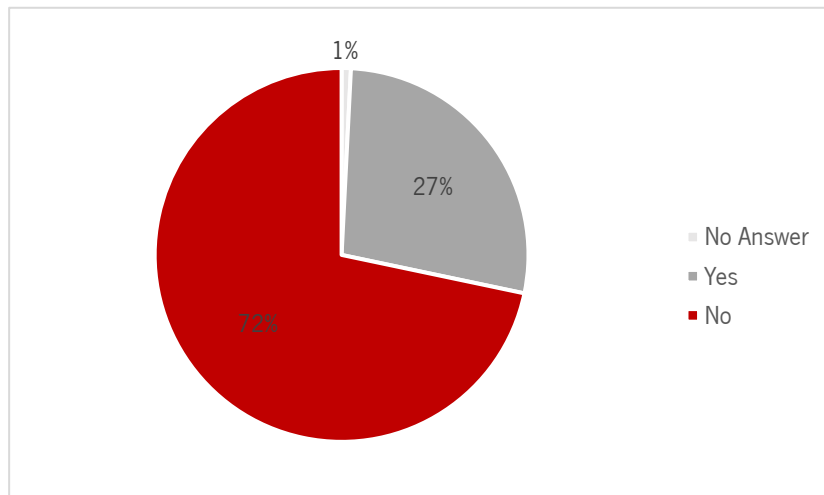

Figure 9| *Distribution of the respondents according to the impact of COVID-19 on their financial subsistence*

Source: Author

Additionally, individuals were asked about their future financial subsistence if the measures imposed by the State of Emergency were to be extended in time (Figure 10). Again, due to the sensitive nature of the question a "Don't know" option was added and had 20 responses (16.7%). 76 individuals (63.3%) considered that they would be able to pay all their normal expenses and 26 participants (19.2%) stated that they would have to reduce their expenses in order to be able to pay them. Only 1 person considered that, if the restrictions imposed by the State of Emergency were to be maintained, they would not be able to pay their expenses.
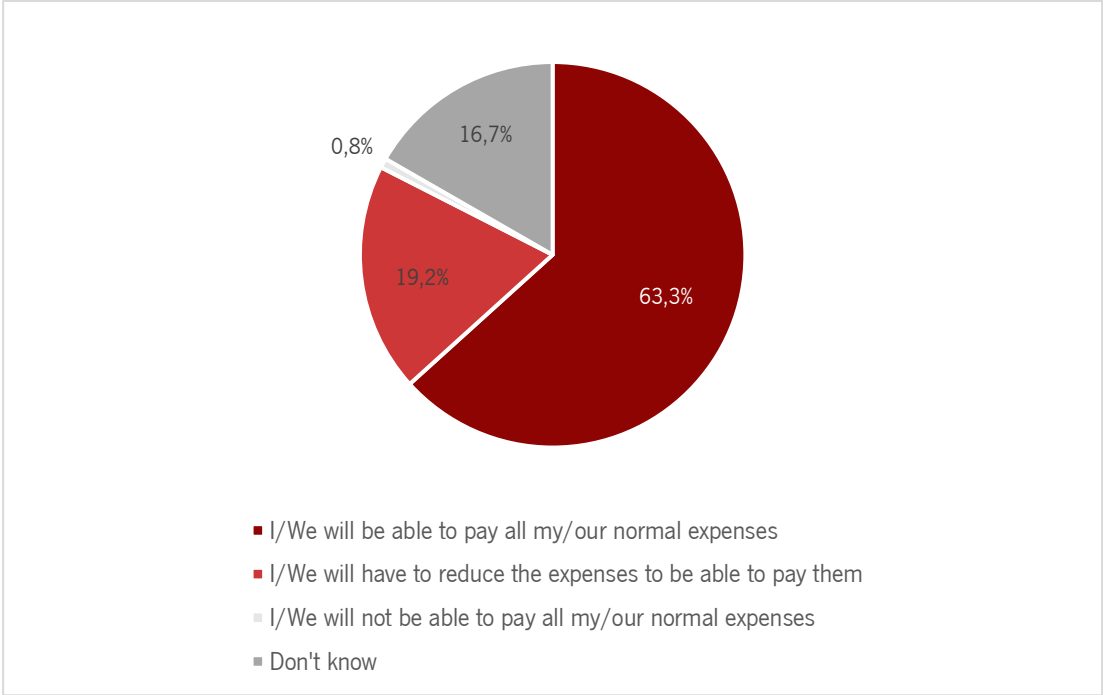

Figure 10| *Distribution of the respondents according to their future financial subsistence*

Source: Author

4.2. FCB Matrix Division and Buyer's Characterization

As previously said, this research relies heavily on the product/service categories of the FCB Matrix. Although in the survey the respondents were asked to choose which singular products or services they acquired online, the data will be analysed considering the Informative, Affective, Habitual and Satisfaction quadrants of the Matrix. In order to do so, the products/services were categorised based on Ratchford's (1987) "Major Study Grid" of 60 common products, as well as considering the author's judgment when certain products were not part of that division.

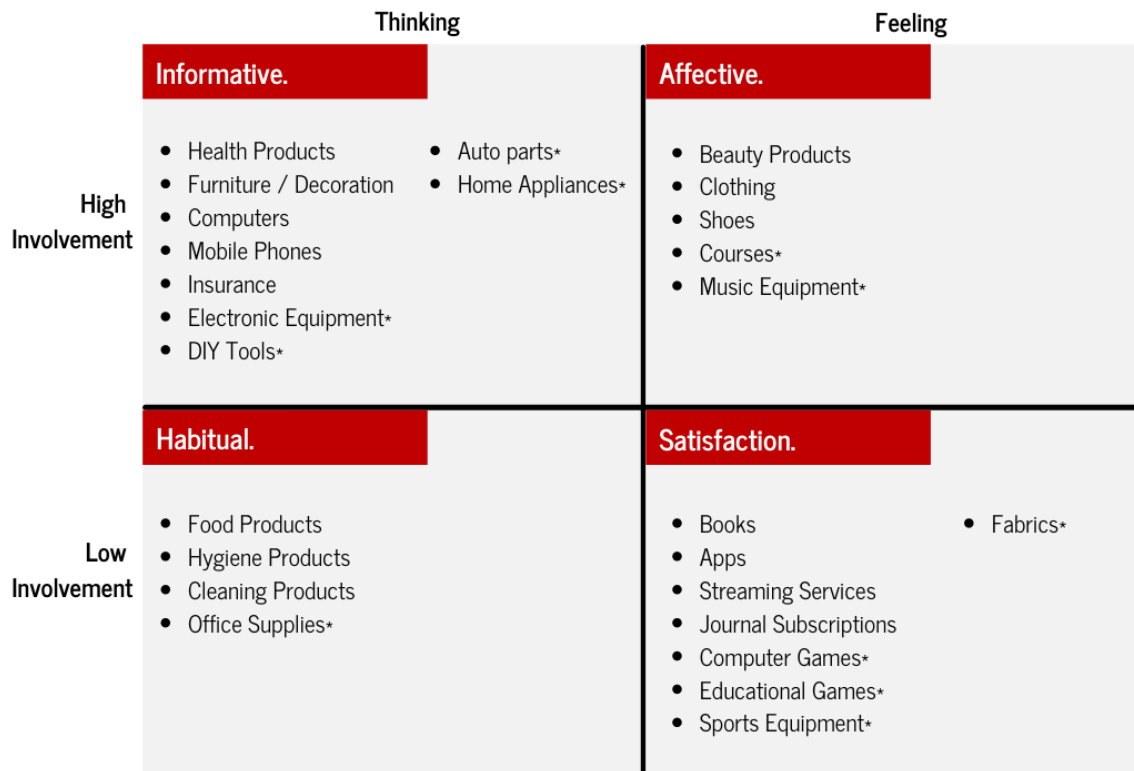Figure 11 illustrates the categories that will be considered in this research.

	Thinking	Feeling

Informative.

High Involvement

- Health Products
- Furniture / Decoration
- Computers
- Mobile Phones
- Insurance
- Electronic Equipment*
- DIY Tools*
- Auto parts*
- Home Appliances*

Affective.

- Beauty Products
- Clothing
- Shoes
- Courses*
- Music Equipment*

Habitual.

Low Involvement

- Food Products
- Hygiene Products
- Cleaning Products
- Office Supplies*

Satisfaction.

- Books
- Apps
- Streaming Services
- Journal Subscriptions
- Computer Games*
- Educational Games*
- Sports Equipment*
- Fabrics*

Figure 11| *Distribution of the products/services according to the FCB Matrix*

Note: The products/services marked with "*" were not initially included in the survey and were added as a result of the data treatment process due to their relevance to the participants of the survey.

Source: Author

When analysing which products people bought the most online (Figure 12), the Feel side of the matrix stands out: 69 of the 120 respondents (57.5%) have bought an Affective product/service while 68 people (56.7%) have acquired a product/service from the Satisfaction category. In regard to the Think quadrants, 54 individuals (45%) said that they had made an Informative purchase, while only 42 respondents (35%) bought a product/service from the Habitual category. It can be concluded that, during a pandemic health crisis, consumers are more likely to buy products/services online for their affective features, probably due to the need to find ways to occupy their extended leisure time, as a consequence of the lockdown and confinement to their living spaces.
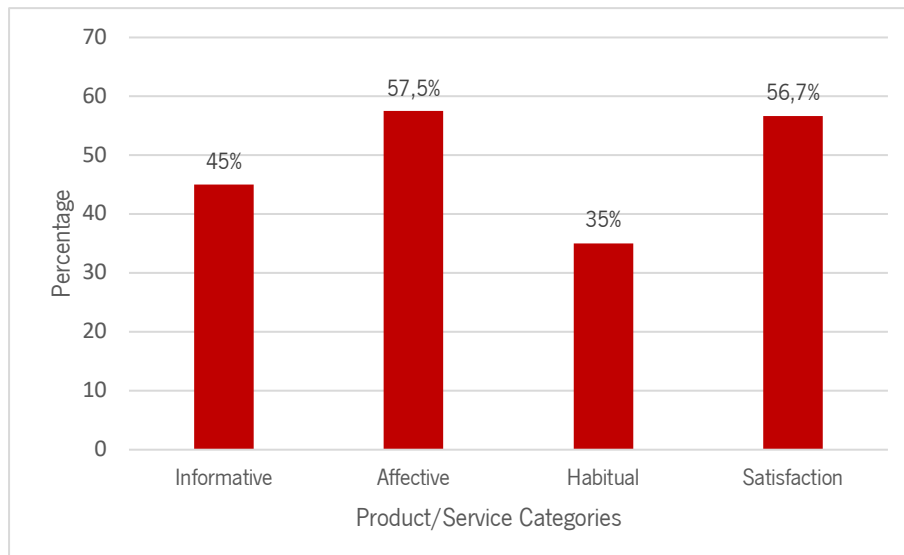
Figure 12| *Types of product/service bought by the respondents*

In Table 8, the sociodemographic profile of the customers of each product/service category is presented. In the Informative and Satisfaction categories, the distribution has no gender bias. However, in the Affective and Habitual groups, most consumers are female (72.5% and 61.9% respectively).

In terms of age, the average shoppers' age in the Informative and Satisfaction product/services category is higher than the average age of the sample (29.04 years), most likely due to the larger number of respondents with an age equal to or higher than 46 years (13% and 16.2%). On the other hand, the average age of consumers of Affective and Habitual Products is lower than the average of the sample (27.14 and 28.52, respectively), as a result of the high percentage of individuals younger than 25 years old in these categories (68.1% and 61.9%).

The educational level distribution of the Informative group matches the general sample's. The Affective category is characterized by a higher frequency of the High School qualification over the PhD. Since many customers of Habitual products/services have completed a Technical-Vocational Course, this class's percentage is higher than High School's. In the Satisfaction category High School and Technical-Vocational Course classes have very similar percentages.

As for Income, while most consumers of the Informative category are from the higher end of the salary spectrum, with monthly incomes equal to or superior to 2001€, the contrary is true for shoppers of Affective products/services, monthly income of most of them being equal to or lower than 2000€. Consumers of the Habitual category are equally distributed between the two halves of the scale, mostly due to none of them having income between 2501€ and 3000€. In the Satisfaction group, there is a

more uniform distribution and little difference between the income classes, despite the bigger significance of the 'More than 3000€' class.

Table 8| *Sociodemographic profile of the respondents according to product/service bought*

Variable	Class/Value	Frequency			
		Informative	**Affective**	**Habitual**	**Satisfaction**
Gender	Female	48.1%	72.5%	61.9%	54.4%
	Male	51.9%	27.5%	38.1%	45.6%
Age	≤18-25 years	50%	68.1%	61.9%	61.8%
	25-45 years	37%	23.2%	28.6%	22.1%
	≥46 Years	13%	8.7%	9.5%	16.2%
	Average Age	29.91	27.14	28.52	29.09
Educational Level	High School	18.5%	17.4%	4.8%	14.7%
	Technical-Vocational Course	9.3%	7.2%	9.5%	13.2%
	Licentiate degree	0%	1.4%	0%	0%
	Bachelor degree	33.3%	47.8%	45.2%	36.8%
	Master degree/MBA	14.8%	11.6%	14.3%	16.2%
	Professional specialisation	0%	1.4%	0%	0%
	PhD	24.1%	13%	26.2%	19.1%
Income	Between 500€ - 1000€	7.4%	14.5%	7.1%	11.8%
	Between 1001€ - 1500€	16.7%	15.9%	14.3%	11.8%
	Between 1501€ - 2000€	11.1%	13%	16.7%	14.7%
	Between 2001€ - 2500€	5.6%	10.1%	4.8%	10.3%
	Between 2501€ - 3000€	5.6%	5.8%	0%	10.3%
	More than 3000€	33.3%	21.7%	33.3%	23.5%
	Don't Know	20.4%	18.8%	23.8%	17.6%
	N	54	69	42	68

Source: Author

4.3. Research Hypotheses Testing

This section consists of the analysis of the Conceptual Model, which is further subdivided into two sub-sections. one regarding the testing of the internal consistency of the Likert scales, the descriptive analysis and the correlation analysis, and another concerning the Tests of Difference which entail the analysis of the variation of the importance of Perceived Benefits and Barriers according to both product/service categories and demographics.

It is important to note that, in order to choose the most adequate tests to identify correlations and significant differences between the variables, the data was tested for normality. The Shapiro-Wilk test was used in line with Razali and Wah's (2011) finding that it was "the most powerful test for all types of distribution and sample sizes". The results show that all the *p values* are smaller than 0.05 which leads us to reject the null hypothesis (H0: The data is normally distributed) and assume that the data deviates from a normal distribution.

4.3.1. Conceptual Model Analysis

4.3.1.1. Internal Consistency (Cronbach's Alpha)

The reliability of this study's scales was tested by looking into the Item-Total Correlation scores and the Cronbach's Alpha. Item-Total Correlation is a test that analyses if a certain item in the scale is inconsistent with the averaged behaviour of the others. As recommended by Ferketich (1991), for a good scale, the corrected item-total correlations should range between 0.30 and 0.70.

Considering the 'Perceived Benefits' scale, Item 7 and Item 10 have a Corrected Item-Total Correlation bellow 0.30, for that reason, they will not be considered in the hypotheses testing. The results are compiled in Table 9.

Table 9| *Reliability of the 'Perceived Benefits' Scale according to Item-Total Correlation*

Items	Corrected Item-Total Correlation
1. Shopping Convenience	0,323
2. Time Saving	0,339
3. Money Saving	0,362
4. More Security (Avoids the contact with others)	0,408
5. Easy product comparison	0,343
6. Easy price comparison	0,485
7. Increasing my productivity	0,299
8. Online shopping companies always keeping their promises	0,447
9. Online shopping companies caring about my interests as a customer	0,471
10. Accessing products that are not available in physical stores	0,214
11. Convenience on the delivery of products/services	0,541
12. Availability 24 hours / 7 days a week	0,343

Source: Author

All Items of the 'Perceived Barriers' scale have Corrected Item-Total Correlations higher than 0.30, as it can be seen in Table 10. Consequently, no item will be excluded.

Table 10| *Reliability of the 'Perceived Barriers' Scale according to Item-Total Correlation*

Items	Corrected Item-Total Correlation
1. The product/service not being delivered	0,648
2. The product/service arriving damaged	0,677
3. The product/service not matching the picture that was advertised	0,734
4. The product being contaminated	0,51
5. Not being able to return the product/service	0,618
6. Online companies not keeping their promises	0,743
7. Losing the money	0,789
8. Having to pay to return the product/service	0,699
9. The monetary value of the product/service being charged more than once	0,736
10. Having to provide personal data	0,655
11. Someone using my personal/banking data for other purposes without my consent	0,676

Source: Author

Item 5 of the 'Trust' Scale has a Corrected Item-Total Correlation lower than 0.30, so it will be excluded from further analysis. Table 11 exhibits the results.

Table 11| *Reliability of the 'Trust' Scale according to Item-Total Correlation*

Items	Corrected Item-Total Correlation
1. Seller's reputation	0,303
2. Familiarity with the seller (if known)	0,482
3. Have already shopped on the website	0,413
4. The seller also having a physical store	0,524
5. My friends/acquaintances/family recommending shopping on a certain website	0,264
6. The website having quality certificates	0,509
7. The website providing detailed information about the transaction's conditions	0,479
8. The website having contacts in Portugal	0,602

Source: Author

In order to test the reliability of the scales, Cronbach's Alpha was used, since it is considered the most recommended indicator to evaluate the reliability of the data collected using a 7-point Likert scale (Coutinho, 2011). This method quantifies the internal consistency of the scales or, simply put, it verifies if all items of a scale measure the same construct. The coefficient varies between 0 and 1, and the closer it is to 1, the more reliable the items of the scale. Following Pestana and Gageiro (1998), the internal consistency of scales is evaluated according to the values of Table 12:

Table 12 | *Reliability of a scale according to Cronbach's Alpha*

Scale's Reliability	Alpha's Cronbach
Excellent	$0.9 \leq \alpha$
Good	$0.8 \leq \alpha < 0.9$
Acceptable	$0.7 \leq \alpha < 0.8$
Questionable	$0.6 \leq \alpha < 0.7$
Poor	$0.5 \leq \alpha < 0.6$
Unacceptable	$\alpha < 0.5$

Source: Pestana and Gageiro (1998)

In this study, Likert Scales were applied to collect data regarding the variables 'Perceived Benefits', 'Perceived Barriers' and 'Trust'. The reliability of both the 'Perceived Benefits' and 'Trust' scales is considered acceptable with values between 0.7 and 0.8. On the other hand, the level of reliability of the 'Perceived Barriers' scale is considered Excellent ($0.9 \leq \alpha$). Hence, all the scales have reliability values adequate for statistical analysis. Table 13 compiles these results.

Table 13 | *Cronbach's Alpha of the scales*

Variable	α	Initial Items	Final Items	N
Perceived Benefits	0.739	12	10	
Perceived Barriers	0.918	11	11	120
Trust	0.756	8	7	

Source: Author

4.3.1.2. Descriptive analysis of the variables

On a first analysis, descriptive statistics techniques were applied to the variables that constitute the conceptual model and the basis of the formulated hypotheses.

Each item of the scales corresponds to a statement about a variable which the respondent had to classify according to a 7-point Likert Scale. Due to the small size of the sample and to avoid subsequent dispersion of the data, the 7 points of the Likert Scale were grouped into 3 different categories according to their level of importance: the range of points between 1 to 3 will be considered as 'Low Importance' (1), points between 3 to 5 as 'Moderate Importance' (2) and points between 5 to 7 as 'High Importance' (3). This enabled a better reading of the data. In this section, tables showing the frequency of answer of each level of importance, as well as measures of central tendency, namely the means and corresponding standard deviations, are presented.

Because of issues with the Qualtrics survey platform, some answers were not recorded, which led to missing values regarding the variable 'Perceived Benefits'. Since the missing data was not higher than 15% of all answers, this variable was still considered in the study and the missing values were replaced by the series mean using the statistics program SPSS. According to the descriptive analysis of this variable (Table 14), the majority of respondents have considered the items 1, 2, 4, 6, 11 and 12 to be of 'High Importance' (level 3) with 65%, 42.5%, 77.5%, 55%, 71.7% and 62.5% of responses, respectively. The rest of the Items (3, 5, 8 and 9) have recorded most answers at level 2 ('Moderate Importance')—48.3%, 51,7%, 56.7% and 55% respectively.

However, when it comes to the means, the importance of each item changes slightly. Items 1, 4, 11, 12 all have means close to 3 ('High Importance')—2.58, 2.73, 2.65, and 2.55—which reinforces their high relevance to the consumers, showing that the participants in this research resorted to E-commerce primarily as a means of minimizing the risk of being infected with COVID-19 and reducing in-person contacts while benefiting from its convenience.

The online platforms' time-saving capacity and the ease of comparing products are also somewhat relevant to shoppers as items 2 and 5 exhibit a relatively high importance—2.23 and 2.12. On the other hand, items 3, 8 and 9, while they have a mean closer to a neutral level of importance, they are still relevant - 1.90, 1.90 and 1.85. This suggests that in the context of a health crisis, e-shoppers did not find money-saving or the sellers' benevolence and integrity to be the most valuable benefits of using E-commerce.

Item 6 is the only item with a mean inferior to the middle point of the scale (1.44) which suggests that, in comparison to the other items, the customers considered the easy price comparison offered by E-commerce to be of less relevance.

Table 14| *Descriptive analysis of the results of the variable 'Perceived Benefits'*

Items	Level of Importance (%)			Mean	Standard Deviation
	1 **Low**	**2** **Medium**	**3** **High**		
1. Shopping Convenience	6.7	28.3	65	2.58	0.616
2. Time Saving	19.2	38.3	42.5	2.23	0.753
3. Money Saving	30.8	48.3	20.8	1.90	0.715
4. More Security (Avoids the contact with others)	5	17.5	77.5	2.73	0.549
5. Easy product comparison	18.3	51.7	30	2.12	0.688
6. Easy price comparison	10.8	34.2	55	1.44	0.683
8. Online shopping companies always keeping their promises	26.7	56.7	16.7	1.90	0.653
9. Online shopping companies caring about my interests as a customer	30	55	15	1.85	0.657
11. Convenience on the delivery of products/services	6.7	21.7	71.7	2.65	0.603
12. Availability 24 hours / 7 days a week	7.5	30	62.5	2.55	0.633

Note: In the table level '1' refers to Low Importance, level '2' to Medium Importance and level '3' to High Importance.

Source: Author

Now looking at the descriptive analysis of the variable 'Perceived Barriers' (Table 15), as with the 'Perceived Benefits', most items have recorded answers at level 3 ('High Importance'). Items 1, 2, 3, 5, 7, 8 and 11 had 39.2%, 44.2%, 38.3%, 49.2%, 53.3%, 48.3% and 39.2% of all answers on the highest level. Item 6 had the same number of answers at both level 2 and 3 (35%), which suggests that is a significant barrier of E-commerce adoption. Yet, items 4, 9 and 10 registered most answers (40%, 45.8% and 41.7%) at level 1 ('Low Importance')

Regarding the means, they corroborate the results of the frequency of answers already presented. Items 1, 2, 3, 5, 6, 7, 8 and 11, with means higher than 2 - 2.13, 2.21, 2.09, 2.30, 2.05, 2.33, 2.26 and 2.03 - are relevant obstacles to online shopping that need to be considered as, in the context of a pandemic, most consumers are concerned with delivery and return issues, with the possibility of losing money, their data being misused, the product received not matching the one bought online and online companies not keeping their promises.

Once again, items 4, 9 and 10, exhibit lower means - 1.93, 1.84 and 1.78 - yet, contrary to the findings of the frequencies, they still have substantial importance to online shoppers. The respondents

were not, in fact, too worried that the product would be contaminated, as it was to be expected in a pandemic, nor with being wrongly charged by the e-retailers or having to provide personal data.

Table 15| *Descriptive analysis of the results of the variable 'Perceived Barriers'*

Items	Level of Importance (%)			Mean	Standard Deviation
	1 Low	2 Medium	3 High		
1. The product/service not being delivered	25.8	35	39.2	2.13	0.798
2. The product/service arriving damaged	23.3	32.5	44.2	2.21	0.798
3. The product/service not matching the picture that was advertised	29.2	32.5	38.3	2.09	0.820
4. The product being contaminated	40	27.5	32.5	1.93	0.852
5. Not being able to return the product/service	19.2	31.7	49.2	2.30	0.774
6. Online companies not keeping their promises	30	35	35	2.05	0.808
7. Losing the money	20.8	25.8	53.3	2.33	0.801
8. Having to pay to return the product/service	22.5	29.2	48.3	2.26	0.804
9. The monetary value of the product/service being charged more than once	45.8	24.2	30	1.84	0.860
10. Having to provide personal data	41.7	38.3	20	1.78	0.758
11. Someone using my personal/banking data for other purposes without my consent	35.8	25	39.2	2.03	0.869

Note: In the table level '1' refers to Low Importance, level '2' to Medium Importance and level '3' to High Importance.

Source: Author

When it comes to the 'Trust' variable analysis (Table 16), all items have the highest frequency of answers at level 3 ('High Importance').

Moreover, all items also have high means, superior to 2, leading to the conclusion that respondents consider all items of this scale as relevant aspects when it comes to trusting an online seller.

Table 16| *Descriptive analysis of the results of the variable 'Trust'*

Items	Level of Importance (%)			Mean	Standard Deviation
	1 Low	2 Medium	3 High		
1. Seller's reputation	5	15.8	79.2	2.74	0.542
2. Familiarity with the seller (if known)	12.5	26.7	60.8	2.48	0.710
3. Have already shopped on the website	7.5	19.2	73.3	2.66	0.615
4. The seller also having a physical store	20.8	25	54.2	2.33	0.803
6. The website having quality certificates	20	27.5	52.5	2.33	0.790
7. The website providing detailed information about the transaction's conditions	5	33.3	61.7	2.57	0.590
8. The website having contacts in Portugal	25	34.2	40.8	2.16	0.799

Note: In the table, level '1' refers to Low Importance, level '2' to Medium Importance and level '3' to High Importance.

Source: Author

The variables 'Shopping Frequency' and 'Amount Spent' have been measured using Closed-Ended Multiple-Choice questions.

Regarding the descriptive analysis of 'Shopping Frequency' (Figure 13), most respondents (60%) said that they had shopped online between 2 and 5 times during the State of Emergency period, 20% responded that they had engaged in an E-commerce transaction less than twice, 16.7% have shopped online between 6 and 10 times and only 3.3% have shopped online between 11 and 20 times.
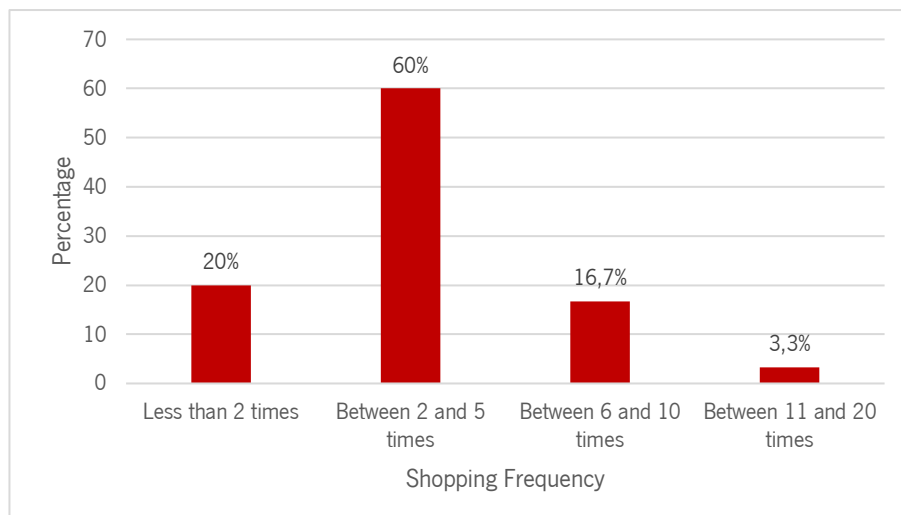
Figure 13| Descriptive analysis of the results of the variable ''Shopping Frequency'

Source: Author

In relation to the variable 'Amount Spent' (Figure 14), the answers are homogenously distributed. 24.2% of the individuals stated they had spent between 51€ and 100€; 23.3% had spent between 26€ and 50€; while 20.8% had spent between 101€ and 200€. At polar opposites, 16.6% of participants said they had spent less than 25€ and 15% of people had spent more than 200€.
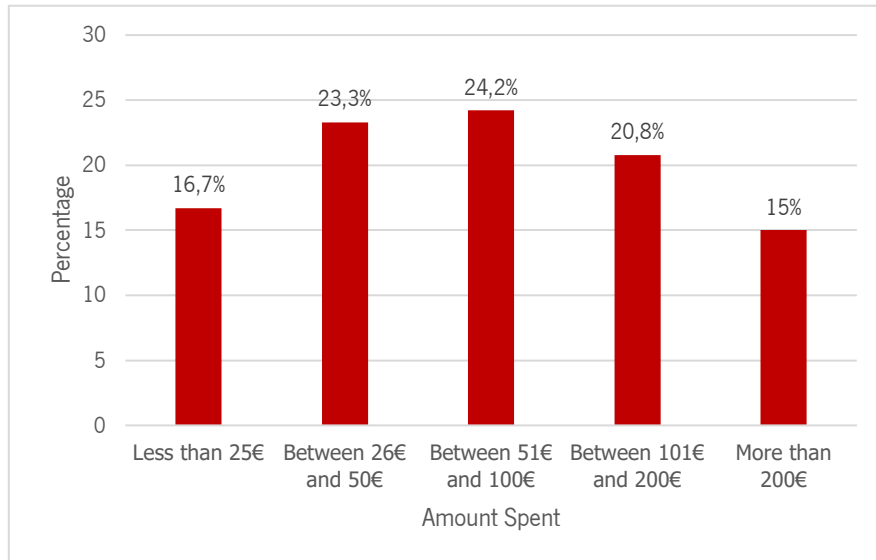
Figure 14| **Descriptive analysis of the results of the variable ''Amount Spent'**

Source: Author

4.3.1.3. Correlation analysis

Because of the non-normality of the data, the non-parametric measure Spearman's rank correlation coefficient, also known as Spearman's rho, was used to test the correlations between the variables of the hypotheses. Since, according to Bryman and Cramer (2004), the interpretation of this method's results is similar to Pearson's *r's* results, given that both coefficients vary between +1 and -1, Table 17 illustrates Cohen and Holliday's levels of correlation (as cited in Bryman & Cramer, 2004).

Table 17| *Levels of Correlation*

Very Low	$0.19 \leq$
Low	0.2 - 0.39
Modest	0.4 - 0.69
High	0.7 - 0.89
Very High	0.9 - 1

Source: Cohen and Holliday (as cited in Bryman & Cramer, 2004)

With the treatment of the collected data, it was possible to identify multiple correlations between the variables in order to test the proposed relationships. If more than 50% of the items of a variable show a statistically significant correlation with the other variable, the hypothesis is accepted; if 20% to 49% of the items establish a relevant relationship, then the hypothesis is partially accepted. Any hypotheses with less than 20% statistically significant correlation are rejected (The 'Total Perceived Benefits' and 'Total Perceived Barriers' are not considered items).

Table 18 compiles the results of Spearman's rho regarding 'Trust' and 'Perceived Benefits', the variables of **H1**, which states that there is a positive correlation between 'Trust' and certain 'Perceived Benefits'. Regarding the significance of the correlations, it can be concluded that the majority of items (6 out of 10) have a statistically significant relationship with the variable 'Trust'. The values of Spearman's rho vary between 0.201 ($p \leq 0.05$) and 0.386 ($p \leq 0.01$), which means that all the correlations are low. On the other hand, the association between 'Trust' and the total Items of the variable 'Perceived Benefits' has a modest correlation ($r = 0.420$; $p \leq 0.01$), which supports Silva et al.'s (2019) findings that 'Trust' has a positive influence on 'Perceived Benefits'. Hence, it can be concluded that, even though the higher the trust the higher the perception of the importance of the benefits of online shopping in general, some benefits are more influenced by this relationship than others: in this case, Trust seems to have an impact only on the relevance of time-saving, security, the benevolence and integrity of the sellers, and the 24/7 availability. Nevertheless, the results **support H1.**

Looking closely at which items of the variable 'Trust' have a bigger impact on the variable 'Perceived Benefits', the Items 'The website having quality certificates', 'The website providing detailed information about the transaction's conditions' and 'The website having contacts in Portugal' have the most statistically significant relationships with the 'Perceived Benefits' Items, with values ranging from r = 0.185; $p \leq 0.05$ to $r = 0.440$; $p \leq 0.01$. The correlations are either low or very low. All the results can be found in Appendix III.

Table 18| *Spearman Correlation between the variables 'Perceived Benefits' and 'Trust'*

Items	Trust
1. Shopping Convenience	0.085
2. Time Saving	0.203*
3. Money Saving	0.125
4. More Security (Avoids the contact with others)	0.386**
5. Easy product comparison	0.201*
6. Easy price comparison	0.051
8. Online shopping companies always keeping their promises	0.245**
9. Online shopping companies caring about my interests as a customer	0.267**
11. Convenience on the delivery of products/services	0.145
12. Availability 24 hours / 7 days a week	0.263**
Total Perceived Benefits Items	0.420**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Source: Author

When looking at the Spearman rho's results of the relationship between 'Trust' and 'Perceived Barriers', 8 out of the 11 items have a statistically relevant value. With the results varying from 0.212 ($p \leq 0.05$) and 0.294 ($p \leq 0.01$), the level of the correlation is low. Likewise, the association between 'Trust' and the total items of the variable 'Perceived Barriers' also has a low correlation ($r = 0.311$; $p \leq 0.01$). Table 19 compiles these results. However, these are positive values, which means that not only Jarvenpaa et al.'s (2000) findings that 'Trust' reduces the perceptions of 'Risk' are not supported, but also that **H2** - "There is a negative association between 'Trust' in the e-platform and certain 'Perceived Barriers' of E-commerce" - **is not accepted** since it entails a negative relationship between the variables. This result can be attributed to the idiosyncrasy of the data, either derived from the data collection method or the small size of the sample, which may influence the accuracy of these results. The conclusion that can be gathered is similar to the one of the previous analysis: the higher the trust, the higher the perception of the importance of the barriers of E-commerce, even though only the importance of issues such as the product/service not being delivered, not being able to return the product/service, online companies not keeping their promises, losing the money, having to pay to return the product/service, the monetary value of the product/service being charged more than once, having to provide personal data and someone using my personal/banking data for other purposes without my consent are affected by 'Trust'.

Taking a closer look at the 'Trust' Items, the Items 'The website having quality certificates', 'The website providing detailed information about the transaction's conditions' and 'The website having contacts in Portugal' have the most statistically significant relationships with the 'Perceived Barriers' Items, with values ranging from $r = 0.181$; $p \le 0.05$ to $r = 0.411$; $p \le 0.01$. The correlations are either very low, low or modest. These results can be found in Appendix IV.

Table 19| *Spearman Correlation between the variables 'Perceived Barriers' and 'Trust'*

Items	Trust
1. The product/service not being delivered	0.283**
2. The product/service arriving damaged	0.105
3. The product/service not matching the picture that was advertised	0.113
4. The product being contaminated	0.171
5. Not being able to return the product/service	0.212*
6. Online companies not keeping their promises	0.208*
7. Losing the money	0.294**
8. Having to pay to return the product/service	0.243**
9. The monetary value of the product/service being charged more than once	0.286**
10. Having to provide personal data	0.255**
11. Someone using my personal/banking data for other purposes without my consent	0.234*
Total Perceived Barriers Items	0.311**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Source: Author

As for **H3**, which maintains that 'Perceived Benefits' positively influence the 'Amount Spent', only one item of the 'Perceived Benefits' Variable ("Convenience on the delivery of products/services") has a statistically significant correlation with the variable 'Amount Spent' ($r = 0.181$; $p \le 0.05$), even if very low. It can then be said that the higher the importance of the Benefit "Convenience on the delivery of products/services", the higher the amount spent on online shopping platforms. Yet, **H3 is rejected** as less than 20% of items have a significant relationship.

On the other hand, **H4,** which states that 'Perceived Benefits' positively influence the 'Shopping Frequency' **is partially accepted**. The 'Perceived Benefits' Items 'Convenience on the delivery of products/services' and 'Availability 24 hours / 7 days a week' have a statistically relevant relationship with the variable 'Shopping Frequency' ($r = 0.192$; $p \le 0.05$ and $r = 0.234$; $p \le 0.05$, respectively). The

correlations are, then, very low and low. Hence the higher the importance of the delivery and availability convenience benefits of online shopping, the more frequently consumers shop online.

Although **H3** does not back Forsythe et al.'s (2006) work, which stated that 'Perceived Benefits' have a positive influence on 'Amount spent', **H4** does support the authors' findings that there is a positive relationship between 'Perceived Benefits' and 'Shopping Frequency'.

With regard to the variables 'Perceived Barriers' and 'Amount Spent', the items that influence how much customers spend online are 'The product/service not matching the picture that was advertised' and 'Losing the money' (r = -0.204; $p \leq 0.05$ and r = -0.222; $p \leq 0.05$, respectively). Both correlation levels are low. Additionally, there is a further statistically relevant relationship between the total items of 'Perceived Barriers' and 'Amount Spent'. With an r of -0.186 ($p \leq 0.05$), the correlation level is very low. Therefore, **H5** - "There is a negative association certain between 'Perceived Barriers' of E-commerce and the 'Amount Spent' online" - **is partially supported,** as only a minority of items significantly and negatively influence the amount e-shoppers spend. Furthermore, it can be concluded that the higher the importance of the barriers, the less money shoppers spend online.

Comparable results can be found in the Spearman Correlation test between the 'Perceived Barriers' and 'Shopping Frequency' variables: just 2 out of the 11 items ('The product/service not being delivered' and 'Having to provide personal data') have a negative statistically relevant relationship with the variable 'Shopping Frequency' (r = -0.267; $p \leq 0.05$ and r = -0.209; $p \leq 0.05$, respectively - low correlation). Moreover, the total items of 'Perceived Barriers' also have a statistically significant correlation with the 'Shopping Frequency' (r = -0.183; $p \leq 0.05$ - very low correlation), hence the higher the importance of the barriers the less frequently buyers shop online. And so **H6**, which maintains that there is a negative correlation between 'Perceived Barriers' and 'Shopping Frequency, **is partially accepted**.

Yet again, the results of the previous tests reinforce the literature, which affirms that perceived risks have a negative impact both on 'Shopping Frequency' and 'Amount Spent' (Forsythe et al., 2006).

After analysing all the correlations between the variables of the conceptual model the following relationships have been determined:

'Trust'	→	'Perceived Benefits'
'Trust'	→	'Perceived Barriers'
'Perceived Benefits'	→	'Shopping Frequency'
'Perceived Barriers'	→	'Amount Spent'
'Perceived Barriers'	→	'Shopping Frequency'
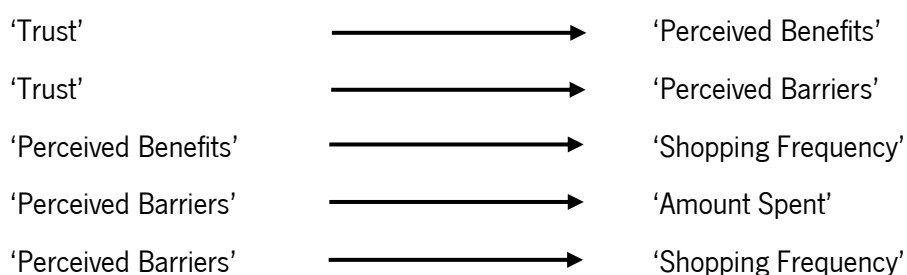
Figure 15 shows the final version of this research's conceptual model, in which the strength of the correlations, based on the Spearman rho's results, between the five variables that constitute the previously formulated hypotheses is highlighted.
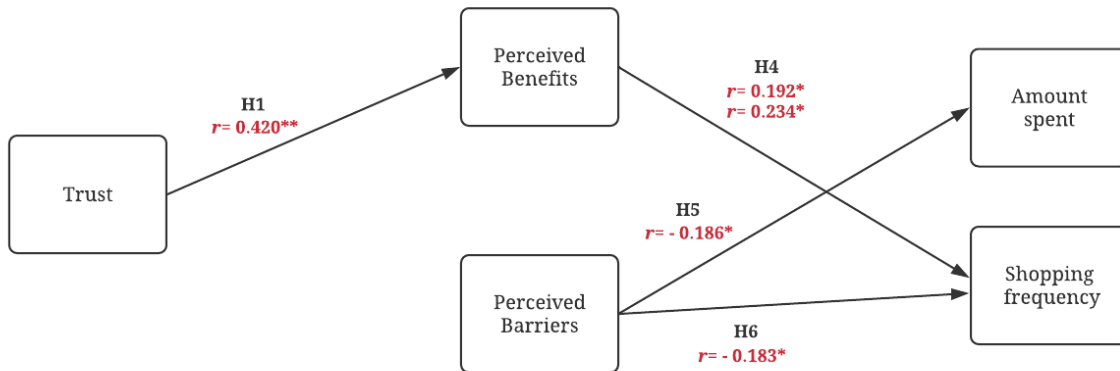
Figure 15| *Final Version of the Conceptual Model*

Note: In the conceptual Model all the values correspond to the correlation between the variables and the Total 'Perceived Benefits' or 'Perceived Barriers' Items, with the exception of H4 which values refer to the 2 items with statistically significant relationships.

Source: Author

4.3.2. Tests of Difference

In order to test H7 onwards, non-parametric tests of differences were applied, given the non-normality of the data and the necessity of verifying whether there were statistically significant differences of a certain variable between 2 or more groups. In these tests, the same logic of the correlation tests was applied: If more than 50% of the items of a variable show a statistically significant difference between the groups, the hypothesis is accepted; if only 20% to 50% of the items show a relevant difference, then the hypothesis is partially accepted. Any hypotheses with less than 20% with a statistically significant difference are rejected.

4.3.2.1. Perceived Benefits and Barriers and Product/service Categories

To test whether there are statistically significant differences in the customers' perceptions of benefits and barriers from one product/service category of the FCB Matrix to another, the Mann-Whitney test was used.

H7, which states that the relevance of 'Perceived Benefits' differs between shoppers of the Informative category and shoppers of the other categories, **is not supported** by the data, as no significant difference was found.

The only item with statistically relevant results regarding the 'Perceived Benefits' and the Affective category was 'Availability 24 hours / 7 days a week' (U=1251; p = 0.002). In Table 20, the 'No' and 'Yes' groups refer to whether the respondent had bought a product/service from the Affective category. Hence, it can be concluded that customers from the Affective category find this benefit more important than the shoppers from other categories, which supports Christodoulides and Michaelidou (2010) and Haridasan and Fernando's (2018) findings that E-commerce's convenience benefits are important for Hedonic purchases. Nevertheless, **H8**, which maintains that buyers from the Affective category perceive the relevance of benefits differently compared with the buyers of other categories, is **not supported,** given that less than 20% of items show significant differences between the groups.

Table 20| *Statistically Significant result between 'Perceived Benefits' and the Affective category*

Items	Groups	N	Mean Rank	Sum of Ranks	Mann-Whitney U	*p* value
12. Availability 24 hours / 7 days a week	No	51	50.53	2577	1251	0.002
	Yes	69	67.87	4683		

Source: Author

Due to there not being any statistically significant differences between the Habitual consumer's perceptions of 'Perceived Benefits' when compared to other categories' shoppers, **H9 is rejected,** as it states that there is a difference in how Habitual shoppers perceive benefits in comparison to the shoppers of other categories.

With regard to **H10** - "The relevance of certain 'Perceived Benefits' differs between the shoppers of the Satisfaction category and the shoppers of other categories"- only 1 item (Convenience on the delivery of products/services) has a statistically relevant result (U=1430; p = 0.023). These results uphold Christodoulides and Michaelidou (2010) and Haridasan and Fernando's (2018) conclusions that convenience is a valuable benefit when buying hedonic product/services online. So, it can be deduced that Satisfaction product/service shoppers value the delivery convenience benefit more than the buyers of other categories, as Table 21 shows. **H10**, however, **is rejected**, as it does not meet the minimum percentage of items to be partially supported.

Table 21| *Statistically Significant result between 'Perceived Benefits' and the Satisfaction category*

Items	Groups	N	Mean Rank	Sum of Ranks	Mann-Whitney U	*p* value
11. Convenience on the delivery of products/services	No	52	54	2808	1430	0.023
	Yes	68	65.47	4452		

Source: Author

As for the differences in the perception of the barriers of E-commerce between the Informative category versus the others, there are no statistically relevant results. Consequently, **H11**, which maintains that the Informative consumers perceive the relevance of the barriers of E-commerce differently compared with consumers of other categories, **is rejected**.

Equally, there are also no statistically significant differences between the Affective category and the others regarding the 'Perceived Barriers'' items. **H12** - "The relevance of certain 'Perceived Barriers' differs between the shoppers of the Affective category and the shoppers of other categories"- **is not supported**.

H13, which states that consumers of the Habitual category attach a different relevance to 'Perceived Barriers' than buyers of other categories, **is not supported,** as only 1 Item ('Having to provide personal data') has recorded statistically relevant differences between the Habitual category versus the others (U=1242; p = 0.019), in such manner that customers of this category tend to find having to provide personal data a less important barrier to online shopping. Table 22 compiles the results. This adds to the literature since, while security risks have been connected to Hedonic purchases (Haridasan & Fernando, 2018), they have yet to be associated with either Utilitarian or Low/High Involvement purchases.

Table 22| *Statistically Significant result between 'Perceived Barriers' and the Habitual category*

Items	Groups	N	Mean Rank	Sum of Ranks	Mann-Whitney U	*p* value
10. Having to provide personal data	No	78	65.58	5115	1242	0.019
	Yes	42	51.07	2145		

Source: Author

There are no significant differences in the perception of barriers between the consumers of Satisfaction products/services and the buyers of other categories. Hence, **H14,** which maintains that the relevance of 'Perceived Barriers' differs from shoppers of the Satisfaction category compared with the shoppers of other categories, **is not supported**.

4.3.2.2. Perceived Benefits and Barriers and Demographics

The Mann-Whitney U test and the Kruskal-Wallis H test were selected to see if the relevance of 'Perceived Benefits' and 'Perceived Barriers' changed according to the different demographic variables. The Mann-Whitney test was used when there were only 2 groups to compare (e.g. gender) and the Kruskal-Wallis test when there were more than 2 groups (e.g. income).

H15, which states that the perception of the benefits of E-commerce varies depending on the gender, **is rejected,** as no item of the 'Perceived Benefits' variable has a statistically significant difference between the 'Female' and 'Male' gender groups (p >0.05). For this analysis, the Mann-Whitney Test was used.

Similarly, **H16** - "The relevance of certain 'Perceived Benefits' differs from young to old shoppers" - is also **not supported** since none of the 'Perceived Benefits'' items, when using the Kruskal-Wallis test, recorded a statistically significant difference between the different age groups.

When looking at the results obtained by using the Kruskal-Wallis test regarding the 'Educational Level' group differences among the various 'Perceived Benefits'' Items, only one benefit has a statistically relevant p value (H=13.384; p = 0.037). **H17**, which maintains that e-shoppers with different educational levels perceive the relevance of benefits differently, **is rejected,** as less than 20% of items recorded a statistically significant difference between the groups. Considering Table 23, the perception of the importance of 'Shopping Convenience' is typically higher for respondents with superior educational levels. The 'Licentiate degree' and 'Professional specialisation' groups seem to contradict this conclusion; however, since there is only 1 answer for each group, this is not statistically relevant. This finding is particularly relevant as there are no studies that compare the difference in perception of E-commerce's benefits according to 'Educational Level'.

Table 23| *Statistically Significant result between 'Perceived Benefits' and the Educational Level of the respondents*

Items	Groups	N	Mean Rank	df	Kruskal-Wallis H	*p* value
1. Shopping Convenience	High School	20	52.1			
	Technical-Vocational Course	10	47.9			
	Licentiate degree	1	4.5			
	Bachelor degree	46	63.24	6	13.384	0.037
	Master degree/MBA	18	58.56			
	Professional specialisation	1	25.5			
	PhD	24	72.75			

Source: Author

Because no 'Perceived Benefits' item has registered a significant difference between 'Income' groups (p >0.05), **H18**, which states that the relevance of 'Perceived Benefits' varies according to Income, is **rejected**. This was tested resorting to the Kruskal-Wallis test.

On the other hand, all items of 'Perceived Barriers' have statistically significant differences between 'Gender' groups. The values of the Mann Whitney U vary between 905 and 1393, while the p values go from 0.000 to 0.021. Table 24 compiles the results of this test. When analysing the values, it can be concluded that females tend to perceive all barriers of E-commerce as more important obstacles than males, which matches Liebermann and Stashevsky's (2002) conclusion that women perceive higher risks in shopping online than men. **H19** -"The relevance of certain 'Perceived Barriers' differs from male to female shoppers" - **is fully supported**.

Table 24 | *Statistically significant results between 'Perceived Barriers' and the Gender of the respondents*

Items	Groups	N	Mean Rank	Sum of Ranks	Mann-Whitney U	*p* value
1. The product/service not being delivered	Female	72	71.93	5179	905	0.000
	Male	48	43.35	2081		
2. The product/service arriving damaged	Female	72	68.26	5179	1169	0.001
	Male	48	48.85	2081		
3. The product/service not matching the picture that was advertised	Female	72	67.88	4887	1197	0.002
	Male	48	49.44	2373		
4. The product being contaminated	Female	72	66.13	4761	1323	0.021
	Male	48	52.06	2499		
5. Not being able to return the product/service	Female	72	67.40	4853	1231	0.004
	Male	48	50.15	2407		
6. Online companies not keeping their promises	Female	72	67.54	4863	1221	0.004
	Male	48	49.94	2397		
7. Losing the money	Female	72	70.49	5075	1009	0.000
	Male	48	45.52	2185		
8. Having to pay to return the product/service	Female	72	67.17	4836.5	1247.5	0.005
	Male	48	50.49	2423.5		
9. The monetary value of the product/service being charged more than once	Female	72	70.26	5058.5	1025.5	0.000
	Male	48	45.86	2201.5		
10. Having to provide personal data	Female	72	68.25	4914	1170	0.001
	Male	48	48.88	2346		
11. Someone using my personal/banking data for other purposes without my consent	Female	72	67.61	4868	1216	0.003
	Male	48	49.83	2392		
Total Perceived Barriers	Female	72	70,42	5070,00	1014	0.000
	Male	48	45,63	2190,00		

Source: Author

Two 'Perceived Barriers'' Items ('Online companies not keeping their promises' and 'Losing the money') have statistically significant differences between the 'Age' Groups (see Table 25). Because **H20** states that there are differences in the perception of barriers between younger and older shoppers, the hypothesis **is partially supported**. According to pairwise comparison, the difference is statistically

significant between the '≤18-25 years' and the '25-45 years' groups (p =0.015), as the younger group tends to find both obstacles more relevant. The Kruskal-Wallis test was used for this analysis. This adds to the literature because no previous study mentions variations in the importance given to the integrity of the seller according to the age of the buyer and because Forsythe and Shi's (2003) findings regarding financial risk do not mention specific age differences.

Table 25| *Statistically Significant results between 'Perceived Barriers' and the Age of the respondents*

Items	Groups	N	Mean Rank	df	Kruskal-Wallis H	*p* value
6. Online companies not keeping their promises	≤18-25 years	73	62.35	2	6.212	0.045
	25-45 years	30	49.1			
	≥46 years	17	72.68			
7. Losing the money	≤18-25 years	73	66.45	2	7.990	0.018
	25-45 years	30	47.22			
	≥46 years	17	58.41			

Source: Author

The Kruskal-Wallis test was used to analyse **H21** - "The relevance of certain 'Perceived Barriers' differs from high to low educated shoppers". The hypothesis **is rejected** since the Item 'The product/service not matching the picture that was advertised' of the variable 'Perceived Barriers' was the only one to register statistically significant differences between the 'Educational Level' groups (see Table 26). By doing a pairwise comparison of the groups, there is a statistically relevant difference between 'Bachelor degree' and 'PhD' (p = 0.028), which leads us to conclude that the 'PhD' group tends to find this barrier less important than online shoppers with only a bachelor's degree. These findings are still relevant since, in the literature, Sharma and Kurien's (2017) work states that performance risk is equally relevant for both educational levels.

Table 26| *Statistically Significant result between 'Perceived Barriers' and the Educational Level of the respondents*

Items	Groups	N	Mean Rank	df	Kruskal-Wallis H	*p* value
3. The product/service not matching the picture that was advertised	High School	20	64.6			
	Technical-Vocational Course	10	57.75			
	Licentiate degree	1	55			
	Bachelor degree	46	71.54	6	13.741	0.033
	Master degree/MBA	18	52.42			
	Professional specialisation	1	18			
	PhD	24	45.13			

Source: Author

Regarding the 'Income' group differences of the 'Perceived Barriers' Items, none was found to be statistically relevant (p >0.05) so **H22**, which states that shoppers with different incomes attach a different relevance to different 'Perceived Barriers' **is not supported**. This was tested resorting to the Mann-Whitney test.

4.4. Summary of the Results

The results obtained, both from Spearman's correlation between the five variables of the Conceptual Model and the tests of difference, allowed conclusions to be made regarding this study's hypotheses. Table 27 presents a summary of the hypotheses and results.

Table 27 | *Summary of the results of the hypotheses*

Hypothesis	Validation
H1: There is a positive association between 'Trust' in the e-platform and certain 'Perceived Benefits' of E-commerce;	Accepted
H2: There is a negative association between 'Trust' in the e-platform and certain 'Perceived Barriers' of E-commerce	Rejected
H3: There is a positive association between certain 'Perceived Benefits' of E-commerce and the 'Amount Spent' online	Rejected
H4: There is a positive association between certain 'Perceived Benefits' of E-commerce and 'Shopping Frequency'	Partially Accepted
H5: There is a negative association between certain 'Perceived Barriers' of E-commerce and the 'Amount Spent' online	Partially Accepted
H6: There is a negative association between certain 'Perceived Barriers' of E-commerce and 'Shopping Frequency'	Partially Accepted
H7: The relevance of certain 'Perceived Benefits' differs between the shoppers of the Informative category and the shoppers of other categories	Rejected
H8: The relevance of certain 'Perceived Benefits' differs between the shoppers of the Affective category and the shoppers of other categories	Rejected
H9: The relevance of certain 'Perceived Benefits' differs between the shoppers of the Habitual category and the shoppers of other categories	Rejected
H10: The relevance of certain 'Perceived Benefits' differs between the shoppers of the Satisfaction category and the shoppers of other categories	Rejected
H11: The relevance of certain 'Perceived Barriers' differs between the shoppers of the Informative category and the shoppers of other categories	Rejected
H12: The relevance of certain 'Perceived Barriers' differs between the shoppers of the Affective category and the shoppers of other categories	Rejected
H13: The relevance of certain 'Perceived Barriers' differs between the shoppers of the Habitual category and the shoppers of other categories;	Rejected
H14: The relevance of certain 'Perceived Barriers' differs between the shoppers of the Satisfaction category and the shoppers of other categories.	Rejected
H15: The relevance of certain 'Perceived Benefits' differs from male to female shoppers	Rejected
H16: The relevance of certain 'Perceived Benefits' differs from young to old shoppers	Rejected
H17: The relevance of certain 'Perceived Benefits' differs from high to low-educated shoppers	Rejected
H18: The relevance of certain 'Perceived Benefits' differs from high to low-income shoppers	Rejected
H19: The relevance of certain 'Perceived Barriers' differs from male to female shoppers	Accepted
H20: The relevance of certain 'Perceived Barriers' differs from young to old shoppers	Partially Accepted
H21: The relevance of certain 'Perceived Barriers' differs from high to low-educated shoppers	Rejected
H22: The relevance of certain 'Perceived Barriers' differs from high to low-income shoppers	Rejected

Source: Author

Based on the results obtained from the data analysis, the research questions could also be answered.

'What are the major benefits associated with E-commerce in a pandemic health crisis context? Do they vary by type of product/service?'

'What are the major barriers associated with E-commerce in a pandemic health crisis context? Do they vary by type of product/service?'

According to the analyses, the customers that took part in this research find the following items to be significant benefits of online shopping: 'Shopping Convenience', 'More Security (Avoids the contact with others)', 'Convenience on the delivery of products/services' and 'Availability 24 hours / 7 days a week' (See Table 14). Notwithstanding some items recording statistically significant differences between the product categories, empirical data shows that there was not enough evidence to affirm that certain benefits vary according to product/service type (H7, H8, H9 and H10 were rejected).

When it comes to the barriers of E-commerce, respondents considered the following obstacles to be their biggest cause of concern: 'The product/service arriving damaged', 'Not being able to return the product/service', 'Losing the money' and 'Having to pay to return the product/service' (see Table 15). There was no strong evidence to maintain that barriers vary according to the type of product/service, as few items recorded statistically significant differences between the categories (H11, H12, H13 and H14 were not supported).

It must be emphasised that there is a clear relationship between 'Trust' in the e-platform and 'Perceived Benefits', which in turn influences the consumers' 'Shopping Frequency'. The 'Perceived Barriers' have a negative effect on both the 'Shopping Frequency' and 'Amount Spent'. The buyers that value the importance of 'Trust' the most have a higher perception of benefits and consequently shop more frequently online. Customers who attach a higher value to the obstacles of online shopping in turn spend less money and shop less online.

It was considered pertinent to analyse whether demographic factors influenced the benefits and barriers of online shopping. This analysis concluded that the perception of the relevance of certain 'Perceived Barriers' varies according to different gender and age groups: females and young shoppers found the obstacles of E-commerce more important than other respondents.

5. CONCLUSION

This chapter presents the principal conclusions of this research and how they contribute to knowledge in the Marketing Field, both from a practical and a theoretical perspective. Section 5.1. introduces the general conclusions. Sections 5.2. and 5.3 feature, respectively, the contributions of the research and the limitations of the study. Lastly, section 5.4. suggests paths for future research.

5.1. General Conclusions

The COVID-19 pandemic outbreak has spread uncertainty and has materialised the fear of contagion. As has been illustrated throughout this paper, the tight restrictions imposed affected the ordinary routines of citizens and the normal functioning of the economy. This scenario has forced firms to take a new and enhanced approach to their operations in order to adapt to the shifts in consumers' behaviour and habits, brought about by the pandemic. E-commerce has emerged as an optimal tool for facing these unique challenges, as it prevents in-person contacts and consequently reduces the spread of the virus.

Understanding the shifts in customers' demands and quickly adapting to them is essential for retailers to anticipate difficulties, both now and in the future. With this in mind, we tried to identify which are the most relevant 'Perceived Benefits' and 'Perceived Barriers' of online shopping during the COVID-19 pandemic and whether they vary according to product/service type. In addition, we analysed the extent to which perception of these drivers and obstacles influences the buyer's shopping behaviour ('Amount Spent' and 'Shopping Frequency'). We also look into the extent to which a shopper's demographic profile and predisposition to Trust the online retailers may influence their customer perceptions.

First, a literature review was conducted focusing on key constructs in order to understand and investigate what has been studied by other scholars in the field. We looked into the disruptions caused by COVID-19 and how crisis management strategies hold the potential to assure the normal functioning of firms while building resilience as a way of fostering innovation and fighting uncertainty. E-commerce is, then, presented as an innovative tool to fight this adversity. In the following section, we looked more deeply into E-commerce: Perceived Benefits were presented, as well as the influence they have on shopping behaviour and to which extent both 'Trust' and customers' demographic profiles influence the perception of benefits. A similar approach was adopted regarding 'Perceived Barriers'. We then presented the FCB Product/service categorisation and the different benefits and barriers associated with the two axes of the Matrix.

The Literature review led us to establish two research questions, which are presented in the Methodology chapter and from which different variables were identified. 22 hypotheses were drawn up and presented, together with the conceptual model. Then the variables were operationalized and the data-collection method and design defined. Lastly, the sampling and data treatment methods were presented. In order to collect suitable data to meet the research objectives, an online survey was applied.

The data collected was then analysed on SPSS, using univariate and bivariate analysis to answer the research questions and test the hypotheses. In the results chapter, besides the sociodemographic characterization of the overall sample, the respondents are also characterised according to the type of product/service that they purchased. After testing the internal consistency of the scales, descriptive analysis techniques were applied to the items of the variables.

Based on this analysis, significant results were collected. It can be concluded that the benefits most relevant to customers are 'Shopping Convenience', 'More Security (Avoids the contact with others)', 'Convenience on the delivery of products/services' and 'Availability 24 hours / 7 days a week'. In contrast, the barriers that hinder the shoppers' adoption of E-commerce are 'The product/service arriving damaged', 'Not being able to return the product/service', 'Losing the money' and 'Having to pay to return the product/service'.

Another relevant result relates to the analysis of the conceptual model; this study identified a positive correlation between 'Trust' and 'Perceived Benefits' (H1), and between this latter and 'Shopping frequency'(H4). On the other hand, negative relationships were found between 'Perceived Barriers' and both 'Amount Spent' (H5) and 'Shopping Frequency (H6). These results are consistent with relevant literature, particularly with Silva et al.'s (2019) work regarding 'Trust' and 'Perceived Benefits and Forsythe et al.'s (2006) research concerning the relationship between 'Perceived Benefits'' and 'Shopping Frequency' and the correlation of 'Perceived Barriers' with both 'Amount Spent' and 'Shopping Frequency'.

The tests of difference also delivered promising findings as they demonstrate that females do in fact have a higher perception of the obstacles of E-commerce (H19) than males, as had been demonstrated by Liebermann and Stashevsky (2002). Additionally, some obstacles of online shopping have displayed statistically significant differences between age groups, suggesting that young shoppers were more concerned about these barriers than their older counterparts. This finding contributes to the meagre amount of literature on the subject.

Regarding the differences in terms of Product/service: although some items showed relevant differences between the categories, the typology adopted was not robust enough to prove empirically that

the drivers and obstacles vary according to them; hence the following hypotheses - H7, H8, H9, H10, H11, H12, H13, H14 - were rejected.

Similarly, most hypotheses regarding the influence of the sociodemographic characteristics on the perception of the barriers and benefits - H15, H16, H17, H18, H21, H22 - were not supported, which suggests that further studies need to be conducted.

5.2. Contributions to the research

The most relevant contribution of this research is the identification of the most valuable benefits and barriers for online shoppers during the pandemic outbreak. With the results of this study, we hope, on the one hand, to expand the scant literature on this subject and, on the other, to help E-commerce managers and marketing professionals understand which aspects to invest in when using E-commerce as a crisis management tool to minimize the negative effects of a health crisis while stimulating the resilience and innovation of companies and assure their normal operations.

This study differs from existing research not only because of the specific context - COVID-19 - but also because it goes beyond identifying the drivers and barriers of E-commerce and tries to link them to a specific product/service categorization, which contributes to closing the literature gap regarding this topic. Even though some findings were not the anticipated ones, the fact that some items displayed significant differences between the typologies represents a step forward in the analysis as it suggests that, in order to offer a better experience to customers and prevent them going back to brick-and-mortar stores, E-commerce platforms must invest in enhancing specific benefits and reducing the impact of certain obstacles depending on the type of product/service that they are selling.

Our results are in line with the previous literature concerning the correlations between 'Trust' and 'Perceived Benefits', as well as the latter and 'Shopping Frequency'. Similarly, they are also in conformity with works that highlight the negative relationship between 'Perceived Barriers' and both 'Shopping Frequency' and 'Amount Spent'. This reinforces the idea that professionals must cultivate trust in order to improve buyers' perception of online shopping's benefits. Managers should also enhance the benefits offered and minimise barriers in order to promote consumers' favourable behaviour.

The results also provide evidence regarding the influence that the consumers' sociodemographic profile has on their online shopping experience. This research found proof that age and gender influence the importance online buyers attach to certain barriers. It is, then, vital for managers to identify the right target population for their E-commerce platform and prioritize the adoption of benefits that specifically

appeal to a specific gender/age/income or educational level group and avoid the barriers that could possibly hinder this engagement.

In short, E-commerce professionals must adapt their online shopping platforms not only to the type of product/service they offer but also to the characteristics of their buyers. By offering the most valuable benefits and by minimising barriers, they can create a pleasant shopping experience, promote positive shopping behaviour and use E-commerce effectively as a tool to overcome the challenges of COVID-19 and assure their business' survival.

5.3. Limitations of the study

Even though several studies strive to identify important benefits and barriers of E-commerce, the scales we found were rather limited and did not precisely apply to this research. Additionally, the scarcity of existing research regarding pandemic health crises and E-commerce, and more specifically COVID-19, forced us to develop our own scales based on the combination of various items that best fit our context and need. Although the consistency of scales was found to be good, this limitation might have affected the quality of the data.

The data might also be skewed by the fact that it is based on customers' self-reported behaviour and perception of E-commerce. This aspect is an important limitation since there is no way to ensure that the answers they provided were not biased or were an actual representation of the reality.

The sample also has important in-built limitations. First, because the sample derives from a non-probability sampling method, it is not representative. Additionally, the survey was only shared with Portuguese online shoppers and had a low number of respondents - 120. Both these aspects compromise the generalisation of the findings.

5.4. Future research

The study's limitations open the way for future works. Regarding the research, the priority should be the development of scales, as it is an important restriction for empirical work to emerge: only with adequate instruments will it be possible to close the literature gaps. Scholars should also contribute to the literature by looking further into E-commerce as a resilience tool to face the challenges of pandemic health crises in order, not only to assure the survival of businesses, but also to identify which aspects are most valued by consumers and consequently improve the online shopping platforms and the shopping

experience. Moreover, analysing to what extent the perception of barriers and benefits of E-commerce varies according to both product/service type and the sociodemographic profile of the shoppers is imperative for offering a better experience by adapting the online shopping platforms to what is being sold and offering a more personalised experience to the target audience.

Future research should focus on data that goes beyond self-reported behaviour and instead analyses big data in order to minimise the impact of bias on the results. This could be achieved by analysing direct results from a website regarding A/B tests, offering different kinds of benefits and posing certain obstacles to analyse how the customers behave in those scenarios.

We also suggest forthcoming studies to prioritize probabilistic sampling methods and a larger sample of the population than the one included in this research, so that the results can be more representative and more easily generalised. It would also be interesting to conduct a similar study in different countries in order to understand and satisfy consumers from all over the world, this study being limited to Portuguese shoppers.

Lastly, only two predictors of consumer behaviour ('Shopping Frequency' and 'Amount Spent') were included in the analysis. Although this is not considered a limitation of the study it is an opportunity for researchers to use a wider selection of behavioural variables in future and identify what effects the perceived benefits and obstacles of E-commerce have on them.

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APPENDIX I - Questionnaire (Portuguese version)

O COMÉRCIO ELETRÓNICO NUM CONTEXTO DE UMA CRISE DE SAÚDE PANDÉMICA

Este estudo sobre os benefícios e barreiras do comércio eletrónico num contexto de uma crise de saúde pandémica serve de base a uma dissertação no âmbito do Mestrado em Marketing e Estratégia da Universidade do Minho. Tem por objetivo investigar os fatores que influenciam o utilizador a aceitar ou rejeitar o comércio eletrónico numa situação de crise de saúde causada pelo COVID-19. Serão precisos apenas 5 minutos para responder ao questionário. As respostas são anónimas e confidenciais, pelo que serão adicionadas a outras respostas e usadas apenas nesta investigação académica. A qualidade do nosso trabalho depende das suas respostas livres e sinceras.

Muito obrigada pela sua colaboração,
Ana Beatriz Costa
anabeatrizfc98@gmail.com

Ao responder ao questionário, declara que:
- Dá um consentimento informado à sua participação,
- A sua participação é voluntária,
- Autoriza a utilização das suas respostas na investigação em curso.

AGRADEÇEMOS DESDE JÁ A SUA PRECIOSA COLABORAÇÃO!

Instruções: Por favor, responda às questões assinalando com um (x) na opção mais apropriada (☐).

1.	Em relação ao Estado de Emergência, qual das seguintes frases se aproxima mais da sua opinião?	
1)	Não era necessário ter-se declarado o Estado de Emergência	☐
2)	Era necessário, e estas restrições são as adequadas	☐
3)	Era necessário, e ainda são necessárias mais restrições	☐

2.	Em geral, em que medida tem sido fácil ou difícil para si lidar com as atuais restrições?	
1)	Tem sido fácil	☐
2)	Tem sido relativamente fácil	☐
3)	Tem sido relativamente difícil	☐
4)	Tem sido muito difícil	☐

3. Até quando se sente preparado/a para viver sob as atuais restrições?

1)	Até ao fim de abril	☐
2)	Até ao fim de maio	☐
3)	Até ao verão	☐
4)	Até ao final do ano	☐
5)	Até daqui a um ano ou mais	☐
6)	Não sei dizer	☐

4. Tendo em conta a situação de crise de saúde pandémica em que vivemos, realizou alguma compra pela internet durante este período? (Exemplo: seguros, vestuário, calçado, eletrónica, livros)

1)	Sim	☐
2)	Não	☐ **TERMINA AQUI O SEU QUESTIONÁRIO!**

5. Se sim, qual ou quais os tipos de produtos/serviços que comprou?

1)	Produtos alimentares	☐	9)	Computadores	☐
2)	Produtos de higiene	☐	10)	Telemóveis	☐
3)	Produtos de beleza	☐	11)	Livros	☐
4)	Produtos de limpeza	☐	12)	Aplicações (apps)	☐
5)	Produtos de saúde	☐	13)	Serviços de Streaming (Netflix, Spotify)	☐
6)	Vestuário	☐	14)	Subscrições de jornais	☐
7)	Calçado	☐	15)	Seguros	☐
8)	Mobiliário/Decoração	☐	16)	Outro (Qual?)	

6. Tendo como referência este período (Estado de Emergência), quantas vezes terá feito compras pela Internet? (Se não tiver uma ideia precisa, partilhe connosco uma estimativa)

1)	Nenhuma vez	☐	5)	Entre 11 a 20 vezes	☐
2)	Menos de 2 vezes	☐	6)	Mais do que 20 vezes	☐
3)	Entre 2 a 5 vezes	☐			
4)	Entre 6 a 10 vezes	☐			

7. Qual foi o montante máximo que gastou, nesse período (Estado de Emergência, numa compra de um produto/serviço pela Internet? (Se não tiver uma ideia precisa, partilhe connosco uma estimativa)

1)	Menos de 25€	☐
2)	Entre 26€ e 50€	☐
3)	Entre 51€ e 100€	☐
4)	Entre 101€ e 200€	☐
5)	Mais de 200€	☐

8. **Como é que os seus hábitos de compra em plataformas eletrónicas foram afetados pelo Coronavírus? (1- Hábitos de compra não foram nada afetados; 7- Foram muito afetados)**

	1	**2**	**3**	**4**	**5**	**6**	**7**	
Nada Afetados	☐	☐	☐	☐	☐	☐	☐	Muito Afetados

9. **De uma forma geral, como avalia a sua experiência de compras pela internet neste contexto (Estado de Emergência)? (1- Muito negativa; 7- Muito positiva)**

	1	**2**	**3**	**4**	**5**	**6**	**7**	
Muito Negativa	☐	☐	☐	☐	☐	☐	☐	Muito Positiva

10. **Na sua opinião, como avalia os seguintes Benefícios da compra de produtos e serviços pela internet neste contexto (Estado de Emergência)? Escolha, por favor, as opções que considere adequadas.**

	Muito Pouco Importante - 1	2	3	4	5	6	Muito Importante - 7
1) Conveniência da compra	☐	☐	☐	☐	☐	☐	☐
2) Poupança de tempo	☐	☐	☐	☐	☐	☐	☐
3) Poupança de dinheiro	☐	☐	☐	☐	☐	☐	☐
4) Maior segurança (ex. evita o contacto com outras pessoas)	☐	☐	☐	☐	☐	☐	☐
5) Facilidade na comparação dos produtos	☐	☐	☐	☐	☐	☐	☐
6) Facilidade na comparação dos preços	☐	☐	☐	☐	☐	☐	☐
7) Aumenta a minha produtividade e eficiência (ex. na tomada de decisão ou encontrar a informação do produto/serviço num curto espaço de tempo)	☐	☐	☐	☐	☐	☐	☐
8) As empresas online cumprem sempre as suas promessas	☐	☐	☐	☐	☐	☐	☐
9) As empresas online preocupam-se com os meus interesses como cliente	☐	☐	☐	☐	☐	☐	☐
10) Acesso a produtos não disponíveis em lojas físicas	☐	☐	☐	☐	☐	☐	☐
11) Conveniência na entrega dos produtos/serviços	☐	☐	☐	☐	☐	☐	☐
12) Disponibilidade 24 horas/ 7 dias por semana	☐	☐	☐	☐	☐	☐	☐

11. Como avalia os seguintes **Receios** que o levam/poderão levar a não efetuar uma compra pela internet neste contexto de crise de saúde pandémica.

	Muito Pouco Importante - 1	2	3	4	5	6	Muito Importante - 7
1) O produto/serviço não ser entregue	☐	☐	☐	☐	☐	☐	☐
2) O produto/serviço chegar danificado	☐	☐	☐	☐	☐	☐	☐
3) O produto/serviço não corresponder à imagem que está anunciada	☐	☐	☐	☐	☐	☐	☐
4) O produto poder estar contaminado	☐	☐	☐	☐	☐	☐	☐
5) Não conseguir devolver o produto/serviço	☐	☐	☐	☐	☐	☐	☐
6) As empresas online não cumprirem as suas promessas	☐	☐	☐	☐	☐	☐	☐
7) Perder o dinheiro	☐	☐	☐	☐	☐	☐	☐
8) Ter de pagar para devolver o produto/serviço	☐	☐	☐	☐	☐	☐	☐
9) O valor monetário do produto/serviço ser cobrado mais do que uma vez	☐	☐	☐	☐	☐	☐	☐
10) Ter de fornecer dados pessoais	☐	☐	☐	☐	☐	☐	☐
11) Poderem usar os meus dados pessoais/bancários com outros fins, sem o meu consentimento	☐	☐	☐	☐	☐	☐	☐

12. Como avalia os seguintes aspetos que o levam ou poderão levar a **confiar** num website que apresente produtos/serviços para venda? **Escolha, por favor, as opções que considere adequadas.**

	Muito Pouco Importante - 1	2	3	4	5	6	Muito Importante - 7
1) Reputação do vendedor	☐	☐	☐	☐	☐	☐	☐
2) Familiaridade com o vendedor (se conhecido)	☐	☐	☐	☐	☐	☐	☐
3) Já ter feito compras antes no website	☐	☐	☐	☐	☐	☐	☐
4) O vendedor também ter loja física	☐	☐	☐	☐	☐	☐	☐
5) Os meus amigos/conhecidos/familiares recomendarem a compra num determinado Website	☐	☐	☐	☐	☐	☐	☐
6) O Website possuir certificados de qualidade	☐	☐	☐	☐	☐	☐	☐
7) O Website possuir informação detalhada sobre as condições da transação	☐	☐	☐	☐	☐	☐	☐
8) O Website ter contactos em Portugal	☐	☐	☐	☐	☐	☐	☐

13. Qual o meio de pagamento que costuma utilizar mais vezes para efetuar o pagamento das compras pela internet? (Se usar mais do que um, indique-os)

1)	Paypal	☐
2)	Transferência bancária	☐
3)	MBWay	☐
4)	Cartão de Crédito	☐
5)	Pagamento à Cobrança	☐

6)	PaySafeCard (sem necessidade de uma conta bancária ou cartão de crédito)	☐
7)	Cartão de débito	☐

14. Como avalia cada um dos seguintes meios de pagamento de compras pela internet quanto ao nível de segurança/confiança que lhe suscitam?

	Muito Inseguro	Inseguro	Relativamente Seguro	Relativamente Seguro	Seguro	Muito Seguro	Desconheço/ Não sei
Paypal	☐	☐	☐	☐	☐	☐	☐
Transferência bancária	☐	☐	☐	☐	☐	☐	☐
MBWay	☐	☐	☐	☐	☐	☐	☐
Cartão de Crédito	☐	☐	☐	☐	☐	☐	☐
Pagamento à Cobrança	☐	☐	☐	☐	☐	☐	☐
PaySafeCard (sem necessidade de uma conta bancária ou cartão de crédito)	☐	☐	☐	☐	☐	☐	☐
Cartão de débito	☐	☐	☐	☐	☐	☐	☐

15. Há quanto tempo utiliza a internet?

1)	Menos de 1 ano	☐
2)	Entre 1 e 2 anos	☐
3)	Entre 3 e 4 anos	☐

4)	Entre 4 e 6 anos	☐
5)	Mais de 6 anos	☐

16. Como avalia o seu nível de experiência no uso da internet?

	1	2	3	4	5	6	7	
Inexperiente	☐	☐	☐	☐	☐	☐	☐	Muito experiente

17. Género

1)	Feminino	☐
2)	Masculino	☐

18. Qual é a sua...

1)	Idade:	_____

19. Estado Civil

1)	Solteiro(a)	☐
2)	Casado(a)/União de facto	☐
3)	Divorciado(a)	☐
4)	Viúvo(a)	☐

20. Nacionalidade

1) Portuguesa ☐
2) Dupla nacionalidade ☐
3) Outra (Qual?) ☐

21. Quais as suas habilitações académicas (completas)?

1) Ensino Básico ☐
2) Secundário ☐
3) Curso técnico-profissional ☐
4) Bacharelato ☐
5) Licenciatura ☐

6) Mestrado /MBA ☐
7) Especialização profissional ☐
8) Doutoramento ☐
9) Outro - Por favor, especifique: ☐

22. Dimensão do agregado familiar, contando consigo?

1) 1 ☐
2) 2 ☐
3) 3 ☐

4) 4 ☐
5) 5 ☐
6) Mais do que 5 pessoas ☐

23. Qual é o rendimento mensal do seu agregado familiar?

1) Menos de 500€ ☐
2) Entre 500€ e 1000€ ☐
3) Entre 1001€ e 1500€ ☐
4) Entre 1501€ e 2000€ ☐

5) Entre 2001€ e 2500€ ☐
6) Entre 2501€ e 3000€ ☐
7) Mais de 3000€ ☐
8) Não sei ☐

24. Neste momento, a situação financeira do seu agregado familiar já foi afetada pela pandemia?

1) Sim ☐
2) Não ☐

25. O que acha que poderá acontecer à situação financeira do seu agregado familiar se as atuais restrições se prolongarem?

1) Vou/Vamos continuar a conseguir pagar as nossas despesas normais ☐
2) Vou/Vamos ter de reduzir as nossas despesas para conseguir pagá-las ☐
3) Vou/Vamos deixar de conseguir pagar as nossas despesas básicas ☐
4) Não sei dizer ☐

26. Em que distrito vive?   27. Em que concelho vive?

28. Qual das seguintes áreas descreve melhor a zona em que reside?

1) Urbana ☐   2) Suburbana ☐   3) Rural ☐

APPENDIX II - Questionnaire (English version)

E-COMMERCE IN A PANDEMIC HEALTH CRISIS CONTEXT

This study about the barriers and benefits of E-commerce in a pandemic health crisis context is the basis of a dissertation of the Masters in Marketing and Strategy of University of Minho. This thesis' main goal is to analyse the factors that influence the user to adopt or reject E-commerce in the pandemic outburst of COVID-19. This survey will take no longer than 5 minutes. All answers are anonymous and confidential; they will only be used in this academic investigation. The quality of our work depends of your volunteer and sincere answers.

Thank you for your collaboration,
Ana Beatriz Costa
anabeatrizfc98@gmail.com

When you answer this survey, you declare that:
- You consent your participation
- Your participation is volunteer
- You authorise your answers to be used in this ongoing investigation

THANK YOU FOR YOUR VALUABLE COLABORATION!

Instructions: Please answer the questions by selecting with an (x) the right option (□).

1.	Relating to the State of Emergency, which of the following statements matches your opinion?	
1)	The declaration of the State of Emergency was not necessary	□
2)	It was necessary and these are the adequate restrictions	□
3)	It was necessary and more restrictions are necessary	□

2.	Generally, how hard or easy has it been for you to deal with the current restrictions?	
1)	It has been very easy	□
2)	It has been somewhat easy	□
3)	It has been somewhat hard	□
4)	It has been very hard	□

3.	Until when do you feel prepared to live under the current restrictions?	
1)	Until the end of April	□
2)	Until the end of May	□
3)	Until the Summer	□
4)	Until the end of the year	□
5)	Until next year or longer	□
6)	I cannot tell	□

4. **Considering the pandemic health crisis context that we live in, have you bought anything online during this period? (e.g. clothing, shoes, books, electronics...)**

1) Yes ☐

2) No ☐ **YOUR SURVEY ENDS HERE!**

5. **If yes, what have you bought?**

1) Food Products ☐		9) Computers ☐	
2) Hygiene Products ☐		10) Mobile Phones ☐	
3) Beauty Products ☐		11) Books ☐	
4) Cleaning Products ☐		12) Apps ☐	
5) Health Products ☐		13) Streaming Services (Netflix, Spotify) ☐	
6) Clothing ☐		14) Journal Subscriptions ☐	
7) Shoes ☐		15) Insurance ☐	
8) Furniture / Decoration ☐		16) Other (Which?)	

6. **Considering this period (State of Emergency), how many times have you shopped on the Internet? (If you don't have a precise idea, share an estimate)**

1) None ☐

2) Less than 2 times ☐

3) Between 2 to 5 times ☐

4) Between 6 and 10 times ☐

5) Between 11 and 20 times ☐

6) More than 20 times ☐

7. **What was the maximum amount that you have spent, during this period (State of Emergency), on an online purchase of a good/service? (If you don't have a precise idea, share an estimate)**

1) Less than 25€ ☐

2) Between 51€ and 100€ ☐

3) Between 100€ and 200€ ☐

4) Between 101€ and 200€ ☐

5) More than 200€ ☐

8. **How much have your shopping habits been affected by the COVID-19? (1- Shopping Habits not affected; 7- Very affected)**

	1	2	3	4	5	6	7	
Not Affected	☐	☐	☐	☐	☐	☐	☐	Very Affected

9. **Generally, how do you evaluate your online shopping experience during this period (State of Emergency)? (1- Very Negative 7- Very Positive)**

	1	2	3	4	5	6	7	
Very Negative	☐	☐	☐	☐	☐	☐	☐	Very Positive

10. In your opinion, how do you evaluate the following **Benefits** of the purchase of products and services online in **this context (State of Emergency)**? Please, choose the most adequate options.

	Not Important at all - 1	2	3	4	5	6	Very Important - 7
1) Shopping Convenience	☐	☐	☐	☐	☐	☐	☐
2) Time Saving	☐	☐	☐	☐	☐	☐	☐
3) Money Saving	☐	☐	☐	☐	☐	☐	☐
4) More Security (Avoids the contact with others)	☐	☐	☐	☐	☐	☐	☐
5) Easy product comparison	☐	☐	☐	☐	☐	☐	☐
6) Easy price comparison	☐	☐	☐	☐	☐	☐	☐
7) Increasing my productivity	☐	☐	☐	☐	☐	☐	☐
8) Online shopping companies always keeping their promises	☐	☐	☐	☐	☐	☐	☐
9) Online shopping companies caring about my interests as a customer	☐	☐	☐	☐	☐	☐	☐
10) Accessing products that are not available in physical stores	☐	☐	☐	☐	☐	☐	☐
11) Convenience on the delivery of products/services	☐	☐	☐	☐	☐	☐	☐
12) Availability 24 hours / 7 days a week	☐	☐	☐	☐	☐	☐	☐

11. How do you evaluate the following **Barriers** that lead or may lead you to not shop online in **this context of a pandemic health crisis**? Please, choose the most adequate options.

	Not Important at all - 1	2	3	4	5	6	Very Important - 7
1) The product/service not being delivered	☐	☐	☐	☐	☐	☐	☐
2) The product/service arriving damaged	☐	☐	☐	☐	☐	☐	☐
3) The product/service not matching the picture that was advertised	☐	☐	☐	☐	☐	☐	☐
4) The product being contaminated	☐	☐	☐	☐	☐	☐	☐
5) Not being able to return the product/service	☐	☐	☐	☐	☐	☐	☐
6) Online companies not keeping their promises	☐	☐	☐	☐	☐	☐	☐
7) Losing the money	☐	☐	☐	☐	☐	☐	☐
8) Having to pay to return the product/service	☐	☐	☐	☐	☐	☐	☐
9) The monetary value of the product/service being charged more than once	☐	☐	☐	☐	☐	☐	☐
10) Having to provide personal data	☐	☐	☐	☐	☐	☐	☐
11) Someone using my personal/banking data for other purposes without my consent	☐	☐	☐	☐	☐	☐	☐

12. **How do you evaluate the following aspects that lead or may lead you to **Trust** on an online platform that sells products/services?** **Please, choose the most adequate options.**

	Not Important at all - 1	2	3	4	5	6	Very Important - 7
1) Seller's reputation	☐	☐	☐	☐	☐	☐	☐
2) Familiarity with the seller (if known)	☐	☐	☐	☐	☐	☐	☐
3) Have already shopped on the website	☐	☐	☐	☐	☐	☐	☐
4) The seller also having a physical store	☐	☐	☐	☐	☐	☐	☐
5) My friends/acquaintances/family recommending shopping on a certain website	☐	☐	☐	☐	☐	☐	☐
6) The website having quality certificates	☐	☐	☐	☐	☐	☐	☐
7) The website providing detailed information about the transaction's conditions	☐	☐	☐	☐	☐	☐	☐
8) The website having contacts in Portugal	☐	☐	☐	☐	☐	☐	☐

13. **What are the payment methods that you use the most when paying for online purchases (If you use more than one, select them as well)**

1) Paypal ☐

2) Bank Transfer ☐

3) MBWay ☐

4) Credit Card ☐

5) Cash on Delivery ☐

6) PaySafeCard (without the need of a bank account or a credit card) ☐

7) Debit Card ☐

14. **How do you evaluate the following online payment methods according to the level of security/trust they give you?**

	Very Insecure - 1	2	3	4	5	6	Very Secure - 7
Paypal	☐	☐	☐	☐	☐	☐	☐
Bank Transfer	☐	☐	☐	☐	☐	☐	☐
MBWay	☐	☐	☐	☐	☐	☐	☐
Credit Card	☐	☐	☐	☐	☐	☐	☐
Cash on Delivery	☐	☐	☐	☐	☐	☐	☐
PaySafeCard (without the need of a bank account or a credit card)	☐	☐	☐	☐	☐	☐	☐
Debit Card	☐	☐	☐	☐	☐	☐	☐

15. How long have you been using the Internet?

1) Less than 1 year ☐ 4) Between 5 and 6 years ☐
2) Between 1 and 2 years ☐ 5) More than 6 years ☐
3) Between 3 and 4 years ☐

16. How do you evaluate your level of experience using the Internet?

	1	2	3	4	5	6	7	
Inexperienced	☐	☐	☐	☐	☐	☐	☐	Very Experient

17. Gender

1) Female ☐
2) Male ☐

18. What is your...

1) Age: _____

19. Marital Status

1) Single ☐
2) Married ☐
3) Divorced ☐
4) Widowed ☐

20. Nationality

1) Portuguesa ☐
2) Double Nationality ☐
3) Other (Which?) ☐

21. What is your educational level? (completed)

1) High School ☐ 6) Master degree/MBA ☐
2) Technical-Vocational Course ☐ 7) Professional specialisation ☐
3) Licentiate degree ☐ 8) PhD ☐
4) Bachelor degree ☐ 9) Other (Which?) ☐
5) High School ☐

22. What is the dimension of your household, including yourself?

1) 1 ☐ 4) 4 ☐
2) 2 ☐ 5) 5 ☐
3) 3 ☐ 6) More than 5 people ☐

23. What is your household's monthly income?

1) Less than 500€ ☐ 5) Between 2001€ - 2500€ ☐
2) Between 500€ - 1000€ ☐ 6) Between 2501€ - 3000€ ☐
3) Between 1001€ - 1500€ ☐ 7) More than 3000€ ☐
4) Between 1501€ - 2000€ ☐ 8) Don't Know ☐

24. Right now, has your household's financial situation been affected by the pandemic?

1) Yes ☐

2) No ☐

25. O What do you think will happen to your household's financial situation if the current restrictions are extended?

1) I/we will be able to pay all my/our normal expenses ☐

2) I/we will have to reduce the expenses to be able to pay them ☐

3) /we will not be able to pay all my/our normal expenses ☐

4) Don't know ☐

26. In what district do you live?   **27. In what city do you live?**

28. Which of the following areas describe the area where you live better?

1) Urban ☐   2) Suburban ☐   3) Rural ☐

APPENDIX III - Spearman Correlation between 'Perceived Benefits' and all Items of 'Trust'

		Seller's reputation	Familiarity with the seller (if known)	Have already shopped on the website	The seller also having a physical store	The website having quality certificates	The website providing detailed information about the transaction's conditions	The website having contacts in Portugal
Shopping Convenience	Correlation	0.068	0.095	0.071	-0.073	0.126	0.171	0.020
	Sig. (2-tailed)	0.463	0.302	0.438	0.429	0.171	0.062	0.830
	N	120	120	120	120	120	120	120
Time Saving	Correlation	0.096	0.026	0.123	0.169	0.295**	0.284**	120
	Sig. (2-tailed)	0.298	0.774	0.181	0.065	0.001	0.002	.297**
	N	120	120	120	120	120	120	120
Money Saving	Correlation	0.222*	0.035	0.119	0.078	0.224*	0.215*	0.124
	Sig. (2-tailed)	0.015	0.707	0.197	0.394	0.014	0.019	0.177
	N	120	120	120	120	120	120	120
More Security (Avoids the contact with others)	Correlation	0.272**	0.091	0.112	0.116	0.276**	0.297**	0.246**
	Sig. (2-tailed)	0.003	0.321	0.225	0.207	0.002	0.001	0.007
	N	120	120	120	120	120	120	120
Easy product comparison	Correlation	0.137	0.099	0.099	0.093	0.275**	0.212*	0.245**
	Sig. (2-tailed)	0.135	0.283	0.283	0.314	0.002	0.020	0.007
	N	120	120	120	120	120	120	120
Easy price comparison	Correlation	0.161	0.147	0.129	-0.001	0.225*	0.218*	0.001
	Sig. (2-tailed)	0.079	0.109	0.162	0.987	0.013	0.017	0.994
	N	120	120	120	120	120	120	120

APPENDIX III - Spearman Correlation between 'Perceived Benefits' and all Items of 'Trust' (Continuation)

Online shopping companies always keeping their promises	Correlation	0.045	0.121	0.165	0.156	0.185`	0.212`	0.204`
	Sig. (2-tailed)	0.622	0.190	0.072	0.089	0.043	0.020	0.025
	N	120	120	120	120	120	120	120
Online shopping companies caring about my interests as a customer	Correlation	0.165	0.145	0.150	0.119	0.136	0.196`	0.125
	Sig. (2-tailed)	0.071	0.113	0.102	0.197	0.138	0.032	0.174
	N	120	120	120	120	120	120	120
Convenience on the delivery of products/services	Correlation	0.186`	0.073	0.178	-0.116	0.124	0.273``	-0.039
	Sig. (2-tailed)	0.042	0.429	0.051	0.209	0.176	0.003	0.672
	N	120	120	120	120	120	120	120
Availability 24 hours / 7 days a week	Correlation	0.190`	0.223`	0.137	0.168	0.157	0.211`	0.105
	Sig. (2-tailed)	0.038	0.015	0.137	0.067	0.087	0.020	0.255
	N	120	120	120	120	120	120	120
Total Items 'Perceived Benefits'	Correlation	0.280**	0.13	0.123	0.11	0.440**	0.427**	0.298**
	Sig. (2-tailed)	0.002	0.158	0.181	0.232	0	0	0.001
	N	120	120	120	120	120	120	120

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Source: Author

APPENDIX IV - Spearman Correlation between 'Perceived Barriers' and all Items of 'Trust'

		Seller's reputation	Familiarity with the seller (if known)	Have already shopped on the website	The seller also having a physical store	The website having quality certificates	The website providing detailed information about the transaction's conditions	The website having contacts in Portugal
The product/service not being delivered	Correlation	0.042	0.085	0.134	0.293**	0.208*	0.271**	0.348**
	Sig. (2-tailed)	0.646	0.353	0.145	0.001	0.022	0.003	0.000
	N	120	120	120	120	120	120	120
The product/service arriving damaged	Correlation	-0.015	0.110	0.109	0.173	0.136	0.160	0.234**
	Sig. (2-tailed)	0.871	0.234	0.235	0.059	0.139	0.081	0.010
	N	120	120	120	120	120	120	120
The product/service not matching the picture that was advertised	Correlation	0.087	0.142	0.091	0.207*	0.189*	0.143	0.238**
	Sig. (2-tailed)	0.347	0.121	0.320	0.023	0.038	0.119	0.009
	N	120	120	120	120	120	120	120
The product being contaminated	Correlation	0.108	0.006	0.060	0.064	0.238**	0.265**	0.124
	Sig. (2-tailed)	0.239	0.948	0.514	0.490	0.009	0.003	0.176
	N	120	120	120	120	120	120	120
Not being able to return the product/service	Correlation	0.207*	0.105	0.102	0.172	0.304**	0.365**	0.304**
	Sig. (2-tailed)	0.023	0.252	0.266	0.060	0.001	0.000	0.001
	N	120	120	120	120	120	120	120
Online companies not keeping their promises	Correlation	0.149	0.060	0.103	0.191*	0.281**	0.345**	0.340**
	Sig. (2-tailed)	0.104	0.513	0.264	0.037	0.002	0.000	0.000
	N	120	120	120	120	120	120	120
Losing the money	Correlation	0.131	0.134	0.236**	0.307**	0.181*	0.265**	0.349**
	Sig. (2-tailed)	0.154	0.146	0.010	0.001	0.048	0.003	0.000
	N	120	120	120	120	120	120	120

Having to pay to return the product/service	Correlation	0.039	-0.029	0.103	0.199*	0.323**	0.301**	0.299**
	Sig. (2-tailed)	0.674	0.752	0.263	0.030	0.000	0.001	0.001
	N	120	120	120	120	120	120	120
The monetary value of the product/service being charged more than once	Correlation	0.108	0.166	0.022	0.319**	0.290**	0.382**	0.378**
	Sig. (2-tailed)	0.240	0.070	0.811	0.000	0.001	0.000	0.000
	N	120	120	120	120	120	120	120
Having to provide personal data	Correlation	0.084	.193*	0.109	0.325**	0.351**	0.222*	0.411**
	Sig. (2-tailed)	0.360	0.034	0.238	0.000	0.000	0.015	0.000
	N	120	120	120	120	120	120	120
Someone using my personal/banking data for other purposes without my consent	Correlation	0.123	0.152	0.071	0.176	0.213*	0.233*	0.336**
	Sig. (2-tailed)	0.182	0.097	0.443	0.055	0.019	0.010	0.000
	N	120	120	120	120	120	120	120
Total Items 'Perceived Barriers'	Correlation	0.086	0.131	0.082	0.309**	0.323**	0.339**	0.410**
	Sig. (2-tailed)	0.348	0.153	0.374	0.001	0.000	0.000	0.000
	N	120	120	120	120	120	120	120

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Source: Author