The rise of refurbished smartphones: the interplay between brand, price and environmental consciousness

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Dissertation submitted in partial fulfillment of the requirements for the MSc in Business at Universidade Católica Portuguesa

January 2024

Abstract

In a rapidly evolving electronics industry, marked by the accelerating turnover of smartphones, this thesis explores the unexplored potential of refurbished smartphones in Portugal. Applying an experimental methodology, including a pilot study and a main study with 421 responses, the research reveals a more detailed understanding of two variables that are essential to comprehending consumer behavior in relation to refurbished smartphones: brand equity and price perception. The study's findings highlight the importance of brand equity for sales of refurbished products and its close relationship with pricing strategies. Notably, it was also shown that the customer's environmental consciousness had no significant effect on sales of refurbished products, indicating the predominance of economic factors in influencing consumer purchasing decisions. After all, environmental consciousness remains a low significant factor in buying refurbished smartphones in Portugal.

Keywords: Sustainability, Refurbished, Smartphones, Consumers, Purchase Intentions, Brand Equity, Price Perception, Price Ratio, Environmental Consciousness, Circular Economy, Sustainable consumption.

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Resumo

Numa indústria eletrónica em rápida evolução, marcada pela aceleração do volume de negócios dos smartphones, esta tese explora o potencial inexplorado dos smartphones recondicionados em Portugal. Aplicando uma metodologia experimental, incluindo um estudo piloto e um estudo principal com 421 respostas, a investigação revela uma compreensão mais detalhada de duas variáveis essenciais para compreender o comportamento do consumidor em relação aos smartphones recondicionados: o valor da marca e a perceção do preço. Os resultados do estudo destacam a importância do valor da marca para as vendas de produtos recondicionados e a sua estreita relação com as estratégias de preços. De forma notável, foi também demonstrado que a consciência ambiental do cliente não teve um efeito significativo nas vendas de produtos recondicionados, indicando a predominância de factores económicos na influência das decisões de compra dos consumidores. Afinal, a consciência ambiental continua a ser um fator pouco significativo na compra de smartphones recondicionados em Portugal.

Palavras-Chave: Sustentabilidade, Recondicionados, Smartphones, Consumidores, Intenções de compra,Valor de marca, Perceção de preço, Rácio de preço, Consciência ambiental, Economia circular, Consumo sustentável.

Título: A ascensão dos smartphones recondicionados: a interação entre a marca, preço e consciência ambiental

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Acknowledgments

Writing this thesis required me to balance eight hours of work a day with an incredibly rewarding and difficult experience. My aspirations for writing a dissertation were challenged and I was met with the harsh truth that our strong discipline is the only thing keeping the process moving forward.

I am very grateful to everyone who helped with this thesis. First and foremost, I would like to express my gratitude to Professor Paula Hortinha, my supervisor, whose direction and constant support have been invaluable to me during this research project. Without a doubt, her support and experience have improved the quality of this work.

Secondly, I want to express my gratitude to my girlfriend Joana, for all of her help and encouragement in the challenging phases of this academic work. Her encouragement gave me the drive I needed to carry on with my adventure.

Lastly, I would especially like to thank my family and friends for their patience, understanding, and support during this journey. Without them, nothing in my life would be possible.

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Chapter 1

INTRODUCTION

1.1 Problem Definition

Over the past decade, our planet has experienced an unmatched, fast acceleration in global consumption habits. The never-ending desire for goods and services has reached an all-time high, in which we consume the planet's resources 1,7 times faster than it is capable of regenerating, resulting in a destructive race that has drained valuable natural resources (Waters, 2021). Developed nations, once blind to the harmful implications of excessive consumption, have begun being mindful of the detrimental effects of such behaviors on the environment, recognizing its far-reaching economic consequences (Ahmad & Zhang, 2020).

Following this realization, there has been a significant increase in scientific interest in Circular Economy, motivated by the desire to decrease waste, optimize resource usage, and establish an environmentally self-sufficient economy. According to the United Nations Economic Commission for Europe (2023), the Circular Economy is a model aimed at reducing pollution and waste, extending product lifecycles, and enabling broad use of physical and natural assets. In acknowledgment of this, Portugal came up with a National Action Plan in 2017 mirroring this Circular Economy model, sharing concern with water scarcity and land protection as national problems, as well as putting in place measures to address these pressing environmental issues and promote sustainable resource management (Fidélis et al., 2021). This transition to a Circular Economy comes as a response to the alarming increase in global consumption, which continues to destroy natural resources and harm the environment. (Bigliardi et al., 2022).

The link between the adoption of Circular Economy principles and the consumer's role in minimizing environmental problems becomes evident when we look at the notion of sustainable consumption, that is a concept that holds consumers responsible for addressing the impact of environmental problems by adopting sustainable lifestyles, to guarantee that future generations' needs are not compromised (*Sustainable Consumption and Production Policies*, n.d.). This strategy is consistent with the core values of the Circular Economy, emphasizing resource optimization and

longevity, and allowing consumers to actively combat the critical threats of global warming, fostering a heightened environmental consciousness.

As we take a closer look at the implications of overconsumption and the change that is taking place in the electronics sector, it becomes clear that the growing part of society that places a high value on sustainability is a fundamental driver of this movement. (Wang et al., 2021).

The electronics sector, which is always evolving rapidly to satisfy consumer desires, is one of the sectors in which consumers play the most important role. It is important to recognize a simultaneous shift towards sustainability in response to the pressing global concern about electronic waste. In the past, this industry has incentivized consumers towards excessive consumption motivated by social status and prestige, often resulting in the use of short-lived products and little attention to extending the product's life cycle, which has had a negative effect (Jensen et al., 2019). Today, this sector has a different approach to consumer electronics, a transformation that is only possible by concentrating and making available the resources needed for refurbishment and remanufacturing (Jensen et al., 2019).

Both terms, refurbishment and remanufacture, are used interchangeably throughout this dissertation. Within this context, the refurbishment process consists of reputable businesses refurbishing pre-owned products, restoring them to full functionality and satisfaction, offering a sustainable solution to preserve the value of items and minimize waste. (Rathore et al., 2011).

Following this, smartphones in particular will be the focus of this study, as they are the equipment in the entire electronics industry with one of the highest number of units sold and therefore the highest replacement rate (Andrae & Edler, 2015). Thus, refurbished smartphones have emerged as a sustainable option for buying new smartphones since they increase the life cycle of this equipment and therefore reduce the ecological impact (Lee et al., 2022).

This way, in this changing environment where consumer choices are crucial in reshaping the electronics industry, it's essential to understand consumer motivations for purchasing refurbished smartphones. Consumers are motivated to choose refurbished products for a variety of reasons, including financial savings, environmental concerns and brand equity (Van Weelden et al., 2010).

However, despite this evident consumer interest, companies are hesitant to invest in refurbishment operations, partly due to the fact that it is a new market and lacks information (Bittar, 2018).

The aim of this study is to investigate consumer motivations in relation to the purchase intention of refurbished smartphones. A careful examination of previous studies revealed that there was no clear pattern within the research landscape on refurbished smartphones in Portugal. This knowledge gap became evident because, despite numerous studies on the broader topic of refurbished products, none of them have looked particularly at external company complexities such as environmental consciousness influencing consumers' intentions to purchase refurbished smartphones.

1.2 Managerial, Academic and Political Relevance

1.2.1 Managerial Relevance

The findings of the research are highly relevant for businesses, particularly those in the electronics sector participating in or desiring to venture into the refurbished smartphones segment. Given the growing trend towards environmentally conscious customer choices in the consumer electronics industry, it is essential for businesses to understand the variables affecting consumers' purchase intentions for refurbished smartphones (Jensen et al., 2019).

This understanding is important for companies evaluating the feasibility of investing in refurbishment operations, and it provides an opportunity for those who have already invested to personalize their marketing strategies, product offerings, and brand messaging in accordance with consumer preferences and values (Bittar, 2018). Companies can improve their market positioning, promote greater trust among consumers, and ultimately boost sales by emphasizing the sustainability dimensions of refurbished smartphones and addressing the motivations driving purchasing intentions.

1.2.2 Academic Relevance

This thesis makes a contribution to the academic environment by adding to the existing body of research on consumer behavior towards refurbished electronics, new perspectives that include the influence of environmental consciousness on the purchase intentions of consumers (Grimmer, M.,

& Bingham, T., 2013). By looking into this, this study hopes to discover trends and insights that have gone unnoticed in previous investigations. This contributes to the larger scientific conversation on sustainable consumption, circular economy principles, and the changing dynamics of the electronics sector. The findings might clear the way for more study and research in related fields.

1.2.3 Policy-making Relevance

This study is aligned with global and regional environmental priorities. Portugal, like many other countries, is dedicated to meeting sustainability targets and lowering its carbon impact. The findings of this dissertation have the potential to enlight policymakers in Portugal and elsewhere about the significance of environmental consciousness in promoting sustainable purchasing decisions. Policymakers should design policies to encourage sustainable consumption patterns and assist enterprises with circular economy initiatives by researching the elements that impact the adoption of refurbished smartphones (Bittar, 2018). This study adds to the political debate on environmental sustainability and promotes discussion about how to advocate and govern sustainable consumer behavior in the electronics sector.

1.3 Research Questions

The decisions people make when purchasing electronic devices have a significant impact on the market, the environment, and the direction of sustainable consumption in this constantly changing consumer environment (O'Rourke & Ringer, 2015). The electronics industry, once a contributor to overconsumption, has shifted toward refurbishing electronic equipment. This change reflects the increased focus on sustainability (Jensen et al., 2019). In order to gain a better understanding of the variables that influence consumer decisions in the Portuguese market, in particular, the importance of environmental awareness, it is necessary to analyze the elements that affect consumers' purchase intentions for refurbished smartphones. In this context, and based on some studies that highlight key elements that contribute to this purchase intention, two research questions were formulated.

Research Question 1: How does brand equity and price perception influence the consumers' intention to purchase refurbished smartphones in the Portuguese market?

In analyzing this first research question, we aim to find out more about how consumers' purchase intentions for refurbished smartphones in the Portuguese market are influenced by price perception and brand equity. Research has shown that brand equity, a broad term that includes aspects such as reputation, loyalty, as well as perceived quality (DAVIS & MENTZER, 2008), has a significant impact on customer choices. In addition to this, price perception is also an important aspect for measuring customers' intention to purchase (Maxwell, 2002). Consumers frequently assess a product's brand equity against their price perception, evaluating if the refurbished choice provides an advantage when it comes to price as well as quality (Bittar, 2018).

Research Question 2: What is the importance of consumers' environmental consciousness on their purchase intention for refurbished smartphones in Portugal?

Analyzing how consumers' environmental consciousness influences their purchase intentions in relation to refurbished smartphones in the Portuguese market is the focus of this second research question. Sustainable consumption is heavily influenced by environmental consciousness, which is defined as an individual's knowledge of and responsibility for environmental issues (Bigliardi et al., 2022).

Individual decisions about what to purchase when it comes to electronic products have a significant impact on the environment, the market and the direction of sustainable consumption (Newberry et al., 2003). This research question will help to better understand the factors driving consumer choices in the Portuguese market, in particular the role of environmental consciousness.

1.4 Thesis Structure

This thesis is structured into six main chapters in order to guide the reader through a comprehensive exploration of the research topic. The first chapter introduces the research problem at hand and defines the research questions, setting the study in a broader context to provide essential background information. The second chapter, the Literature Review, provides relevant ideas to complement the other studies we based ourselves on, it goes into sustainability within the electronics industry, consumer purchase intentions, and environmental consciousness specifically within the Portuguese market. In the third chapter a set of hypotheses are formulated and a Conceptual framework is proposed, laying the groundwork for the experimental study conducted in this dissertation. The fourth chapter, Methodology & Research Design, carefully details the

methodologies employed and the data sources utilized for collecting primary data. Following this, the Main Results & Findings, in chapter five, presents the outcomes derived from the experimental study and the answers to the hypotheses. In the sixth and final chapter, conclusions are drawn, academic and practical applications are outlined and limitations to the research are exposed, providing avenues for future research.

Chapter 2

LITERATURE REVIEW

This chapter consists of two sections, which provide a focused exploration of the main dimensions of the electronics industry and the field of consumer behavior. The first section analyzes the critical aspects of the electronics industry, highlighting the details of sustainable consumption, the importance of refurbished electronic products and the key roles played by brand value and price perception. The second section focuses on consumer behavior, analyzing the complex nature of consumer purchasing intentions and the influential factor of environmental awareness. This overview sets the stage for an in-depth analysis of the interaction between these elements, offering valuable insights into the dynamics that shape consumer choices in the electronics market.

2.1 The Electronics Industry

The electronics industry, often associated with cutting-edge innovation and quickly expanding technology, has seen a remarkable transformation towards sustainability in recent years. However, this transformation was caused not just by rising environmental concerns, but also by a historical pattern throughout the sector (Suppipat & Hu, 2022).

Historically, this high-tech sector prioritized innovation, product development, and addressing rising consumer demand for electronic products over environmental sustainability. This strategy resulted in a growing trend of shorter product life cycles, having substantial environmental repercussions and led to a growing wave of worry (Loch, C., Stein, L., & Terwiesch, C., 1996). As the environmental concerns surrounding the industry continued to escalate, various initiatives were launched to address these issues, such as the introduction in 2001, and its following implementation in 2006, of the Restriction of Hazardous Substances (RoHS) Directive by the European Union. This regulation is designed to restrict the use of specific dangerous elements in electronic equipment by requiring manufacturers to use more environmentally friendly designs (European Commission, n.d.).

Today, the electronics industry has adopted a new approach to consumer electronics, made possible by a strong focus on recycling and refurbishment initiatives. Such initiatives are intended to recover

valuable resources and reduce waste, thereby aligning with sustainability goals (Jensen et al., 2019). As a major component of these projects, refurbishment provides a sustainable approach of conserving the intrinsic value of products while minimizing waste. (Sharifi & Shokouhyar, 2021)

2.1.1 Sustainable Consumption

After examining the historical pattern in the electronics industry, the evolution of consumer behavior and industry practices over time has paved the way for a critical shift towards sustainability. "Sustainability" develops as a dominant framework for ethics in the twenty-first century, addressing global concerns such as resource shortages, climate change and environmental degradation, with special relevance to the electronics sector (Buerke et al., 2016). The Brundtland Commission described this notion as "meeting the needs of the present without jeopardizing future generations' ability to meet their own needs." (Sustainability | United Nations, n.d.).

This comprehensive concept gives us the basis for exploring sustainable consumption in greater depth, defined as consumption that simultaneously optimizes the environmental, social and economic consequences of consumption in order to meet the needs of current and future generations (Phipps et al., 2013). This may involve minimizing the use of natural resources and toxic materials, waste and pollutant emissions, as well as promoting products with extended lifecycles, to ensure that future generations' needs are not jeopardized (*Sustainable Consumption and Production Policies*, n.d.). This concept serves as a central pillar in the search for a more sustainable and environmentally conscious world, especially in the landscape of the electronics market.

The impact of consumer choices is particularly significant in sectors like electronics, where decisions influence the economy on various fronts. However, there is still a substantial knowledge gap in knowing how to persuade customers to embrace sustainable practices, such as the adoption of refurbished electronics (Bittar, 2018). While Industrial Ecology research has identified key consumer impact areas, it has predominantly focused on technical strategies. Much remains unknown about how sustainability information can truly change consumer behavior and foster a shift towards more responsible consumption, particularly in the context of the electronics industry (O'Rourke & Ringer, 2015).

2.1.2 Refurbished Electronics

To address this behavior related knowledge gap, we delve into the realm of refurbished electronics, a key component in the industry's quest for environmental responsibility. The refurbishment is a process consisting of reputable businesses buying and restoring pre-owned products to a fully functioning and satisfactory state, making these refurbished items available for sale to new consumers (Rathore et al., 2011).

Refurbishment and remanufacturing represent distinct processes, with remanufacturing implying the restoration of used products to a condition identical to or superior to their original state (Rathore et al., 2011). Given the various opportunities in the field of smartphones, which include refurbishment activities, such as battery replacement, and remanufacturing processes, such as hardware upgrades, both were considered in this study. For the sake of clarity and consistency, we have adopted the term "refurbishment" throughout this document to encompass both practices, as have other authors such as Mugge et al., (2017). This choice is motivated by the widespread use of the term in the context of selling used smartphones that have undergone restoration processes, especially here in Portugal.

Refurbishment, in this sense, is a process that attempts to return old equipment, such as smartphones, to their original working state. Cleaning, replacing and/or repairing essential parts that may be malfunctioning, damaged or about to fail are part of the process. Visual improvements are also made to refresh the appearance of devices (Nasiri & Shokouhyar, 2021). The major purpose of refurbishing is to extend the lifespan of electronic gadgets while reducing waste and actively supporting a more environmentally friendly and resource-effective future. This technique is consistent with sustainable consumption concepts, stressing the significance of reusing and optimizing the value of currently available smartphones (Nasiri & Shokouhyar, 2021).

2.1.3 Refurbished Smartphones

In the context of smartphones, a Deloitte study predicts that the environmental effect of smartphones can be vast, with the production process alone accounting for 85% of the device's entire carbon footprint (Lee et al., 2022). Refurbished smartphones are a greener option than buying

new ones, as they minimize the ecological impact of production and increase the lifespan of current equipment (Lee et al., 2022).

This study will focus on smartphones as a key product since they are characterized by frequent purchasing and replacement. Projections indicate a surge in smartphone sales, reaching an estimated 3 billion units by 2030 (Andrae & Edler, 2015). Notably, the average usage lifespan of a cell phone is less than 2,8 years. This implies that the brief operational lifespan of smartphones and the restricted options available for their end-of-life management contribute to the generation of more electronic waste (e-waste) and the depletion of valuable resources (Nasiri & Shokouhyar, 2021). Despite this, the collection rates for cell phones designated for recycling and refurbishing in Europe stand at approximately 15%. Moreover, the secondary market for cell phones, specifically in a refurbished state, constitutes only a fraction, amounting to 6% of the primary market, understanding the untapped opportunity in this sector (Mugge et al., 2017). However, a critical factor often overlooked in the success of refurbishment initiatives is the consumer perspective, emphasizing the need to understand the factors influencing consumers when considering the purchase of refurbished smartphones (Van Weelden et al., 2016).

In Portugal, the refurbished smartphone market is expanding. In an interview with Jornal Económico, the CEO of Swappie's, a company specializing in buying, refurbishing and selling refurbished smartphones, said that Portuguese customers are becoming more and more aware of the environmental benefits of buying refurbished smartphones. They are becoming increasingly conscious of the value these equipments provide, regarding cost savings along with quality, while simultaneously recognising accountability for promoting a more sustainable and environmentally friendly approach to electronics use (Lourinho, J. C, 2023). This growing awareness points to a promising future trajectory in the Portuguese market, where refurbished smartphones will develop into a popular alternative for many customers.

As so, this study uses brand equity as a metric to gauge consumers' perceptions of a brand, while the price ratio, a topic that will be presented later, is utilized to assess the equivalence of the price of a refurbished smartphone compared to that of a new one (Bittar, 2018). Also using consumers' environmental consciousness as a moderator of these variables. In the following sections, a more detailed analysis of these fundamental concepts will be made.

2.2 Consumer Behaviour

2.2.1 Brand equity

Entering the field of consumer behavior, brand value assumes a central role as a fundamental marketing construct that impacts these behaviors. Beyond the functional attributes of a product or service, brand equity covers the intrinsic value that the brand represents. It represents the intangible asset that is intrinsic to a brand and has the ability to influence customer behavior and stimulate economic growth. (DAVIS & MENTZER, 2008). The accumulation of brand equity develops gradually, shaped by various elements such as brand awareness, loyalty, perceived quality and associative brand links. A strong brand equity gives a company a competitive advantage, promoting greater customer loyalty, increasing brand visibility and raising the perceived value of its offerings (DAVIS & MENTZER, 2008).

Other authors assert that consumer-based brand equity is primarily determined by credibility. Brands serve as powerful tools for firms to communicate product positions and establish the credibility of their product claims. By functioning as market signals, brands enhance consumer perceptions regarding attribute levels and instill confidence in the legitimacy of brand claims. This, in turn, reduces uncertainty and elevates consumers' expected utility (Erdem & Swait, 1998).

A strong brand presence can become a decisive factor in influencing consumer choices, favoring products with established quality and reliability. A brand serves as an emblem of quality, and products bearing a strong brand are often associated with superior quality compared to their unbranded counterparts. In essence, the findings of the study align with the statement that elevated levels of brand equity enhance the probability that a consumer will opt for a product affiliated with that specific brand. (Tharmi & Senthilnathan, 2011).

2.2.2 Price Perception

Price perception goes beyond the mere numerical representation of the cost and goes into the subjective evaluation and interpretation of the monetary value associated with a product or service by consumers. In essence, price perception covers not only the quantitative aspect of pricing, but also the psychological and emotional meaning associated with the perceived value of the product or service (Janiszewski & Lichtenstein, 1999).

Consumers' price perceptions can be shaped by a myriad of factors, including internal reference prices, previous experiences, social comparisons and contextual clues. Several elements contribute to the complex interaction that influences how consumers perceive and evaluate the price of a product or service (Bittar, 2018).

If we look a little more closely at the concept of reference prices, we can find various perspectives, with one prevailing view characterizing it as a predictive expectation influenced by consumers' previous experiences and the prevailing purchasing context. This conceptualization finds its theoretical support in adaptation-level theory, asserting that individuals assess a stimulus in relation to the degree to which they have adapted to it. Consequently, within the pricing context, the expectation-based reference price serves as the benchmark against which alternative price stimuli are evaluated (Mazumdar et al., 2005).

In this research, where consumers probably have limited familiarity with reconditioned products, it is difficult to establish a reference price based on their previous experiences with these items. Consequently, the probability of forming a price judgment based on memory is reduced, as indicated by the research results (Briesch et al., 1997).

In this context, it is important to be precise, as consumers' perception of a fair price is a determining factor that influences their intention to buy. This perception shapes the consumer's perspective, positioning the product in question as a more attractive and advantageous offer (Maxwell, 2002).

To facilitate this process, we introduce the concept of price ratio in the next section, which allows us to categorically compare the price of a new smartphone with that of a refurbished one. This approach makes it easier to make a more accurate judgment, recognizing the unique challenges associated with price perceptions in the context of refurbished products (Bittar, 2018).

2.2.3 Price ratio

The price ratio is calculated as the percentage ratio between the prices of refurbished and new products (Bittar, 2018). Other research indicates that refurbished equipment is seen as a lower quality product, which makes consumers less willing to buy refurbished equipment compared to new equipment, as a result, consumers expect to see a lower price ratio (Guide, Jr. & Li, 2010).

Hence, it is anticipated that the price ratio for refurbished will fall below 1, precisely because it's not a new product.

However, the literature lacks unanimous agreement on the optimal price ratio for the refurbished products. Ovchinnikov's (2011) paper focuses on utilizing discount prices. The key finding of the author emphasizes that a discount of up to about 60% provides a limit beyond which respondents demonstrate a decreasing proclivity to purchase refurbished products. Following on from this thought, in this thesis we will use the price ratio instead of the discounted price in order to more easily analyze consumers' price perceptions.

2.2.4 Consumer Purchase Intentions

Consumer purchase intention is a very important concept in the context of consumer behavior, describing the likelihood of a consumer buying a particular product. A wide range of factors influence and shape the decision-making process, such as perceived product quality, price, brand equity and even the growing concern for environmental sustainability, which highlights its complex nature (Ahmad & Zhang, 2020).

When we enter into consumer behavior, purchase intentions reveal the complicated map of decisions and actions that people take throughout the purchase cycle. From the initial recognition of a need or desire to the final decision to make a purchase, each stage of this buying process is made up of an interaction between psychological, social and economic elements (Kotler et al., 2006).

This idea of purchase intention is important for anticipating and predicting customer behavior patterns, and is an essential component for understanding and predicting consumer behavior (Newberry et al., 2003). It serves as a starting point for the transaction itself, providing information on the individual's intended objective and willingness to purchase. It also makes it possible to break down the complexities of the elements that affect purchasing decisions and adapt strategies to customers' mindsets accordingly (Ajzen et al., 2004).

2.2.5 Environmental Consciousness

Having discussed sustainable consumption in the electronics industry, we now present environmental consciousness, which plays a key role in this context. With the growing awareness around environmental issues, more and more consumers are inclined to switch to sustainable products, which makes sustainable products increasingly popular on the market (Xu, W., et al., 2021). These environmentally conscious customers are tired of the current scenario of overconsumption and are actively looking for ways to make sustainable purchases of electronic products based on the company's position in society and its level of environmental responsibility (Grimmer, M., & Bingham, T., 2013).

Thus, factors such as environmental consciousness or other sustainable consumption-related factors include a variety of reasons that encourage people to make responsible and conscious purchasing decisions. Although economic value is a significant motivator for second-hand purchases, with consumers actively seeking good savings and value for money (Guiot, D., & Roux, D., 2010), studies such as those carried out by Bardhi and Arnould (2005) show that the motivators behind these behaviors go beyond financial benefits.

Therefore, it is acknowledged that environmental concerns have a significant influence on consumer behavior, leading them to buy used products with the aim of minimizing their environmental impact through their purchasing decisions (Bardhi, F., & Arnould, E. J., 2005). However, the important question lies in translating this awareness into tangible action, particularly in the form of consumer purchase intent towards refurbished products (Bittar, 2018).

In sum, a consumer with a high environmental consciousness can be expected not only to recognize the current environmental challenges facing society, but also to actively engage in environmentally responsible actions. These individuals prefer to buy products that conform to the principles of environmental sustainability, thereby contributing to the broader goal of promoting a more sustainable and environmentally friendly market (Iyer et al., 2016).

This consumer segment is expected to analyze brand equity and price perception through an environmentally conscious lens, looking for products that are not only in line with their commitment to sustainability, but also meet their expectations of quality, reliability and value for money.

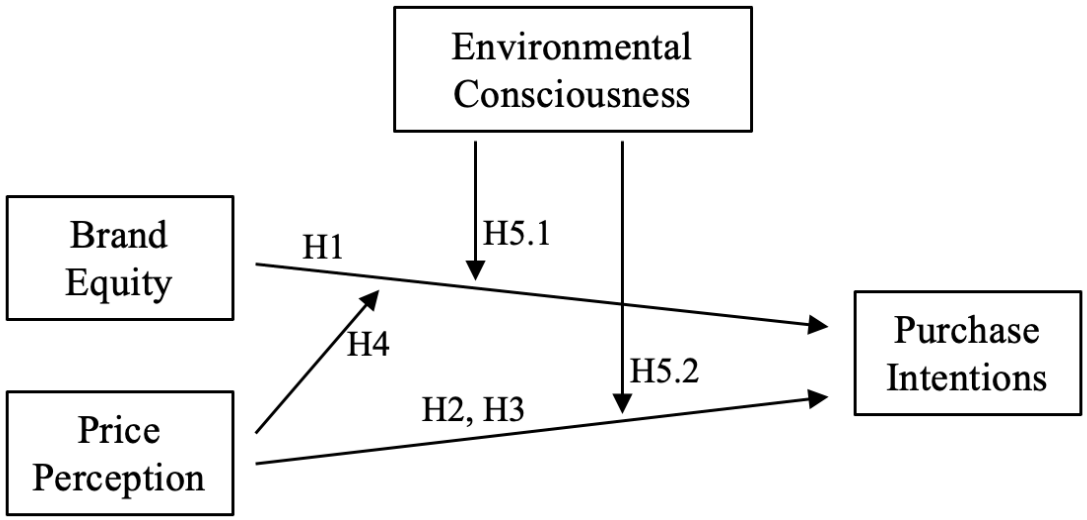
Chapter 3

CONCEPTUAL FRAMEWORK AND HYPOTHESES

3.1 Conceptual Framework

As we have been discussing, the purpose of this study is to examine consumer behavior with relation to refurbished smartphones. In particular, will investigate the influence of brand equity and price perception on customers' purchase intentions, and will also examine the moderating influence of environmental consciousness on the relationship between brand equity and price perception and purchase intentions of refurbished smartphones in the Portuguese market.The following figure 1 presents the conceptual framework.

Figure 1- Conceptual Framework



3.2 Hypotheses

Hypothesis 1: As the brand equity increases, the customer's purchase intentions towards refurbished smartphones increases.

Tharmi and Senthilnathan (2011), suggest that a higher degree of brand equity leads to an increase in consumers' purchase intention. This highlights that when consumer-perceived value and trust in the brand increases, consumers are more likely to make a purchase. In the context of our focus on

refurbished smartphones in the Portuguese market, this hypothesis suggests behavior similar to the one found by Tharmi and Senthilnathan.

Hypothesis 2: The price ratio of a refurbished smartphone is inversely related to the purchase intentions from the price ratio of 40% onwards.

Ovchinnikov (2011) shows that a discount of up to around 60% is the limit at which respondents show a decreasing propensity to buy refurbished equipment. This means that when the discount exceeds this threshold, the intention to buy stops growing. This discounted price of 60% is equivalent in our study to a price ratio of 40% regarding the value of the new product. With this hypothesis, we want to see if we can verify that between the price ratio of 80% and 40%, there is an inverse relationship in which the price ratio increases and the purchase intentions decrease.

Hypothesis 3: A positive price perception has a positive influence on the purchase intentions of the consumer regarding a refurbished smartphone.

According to Bittar (2018), a wide range of factors impact customers' price perceptions, influencing their judgment of a product's price. In addition to that, research by Harwani and Pradita (2017) indicates that price perception has a favorable effect on influencing purchase decisions, supporting the complex relationship between consumers' price perceptions and purchase intentions. Thus, this hypothesis proposes that a favorable judgment of price, defined as considering it a fair and reasonable price, has an impact on the purchase intentions of Portuguese people in relation to refurbished smartphones.

Hypothesis 4: Brand equity is more strongly related to the purchase intentions of a refurbished smartphone when the price ratio is low rather than when it is high.

As Tharmi and Senthilnathan (2011) point out in their research, a strong brand presence emerges as a determining factor, with a substantial influence on consumer choices. This influence tends to favor products with proven quality, reliability and high brand value. This suggests a more pronounced link, particularly when the price is considered attractive and appealing since the consumer ends up making a trade-off between price and brand.

In light of this, our hypothesis posits that the association between brand equity and the intention to purchase a refurbished smartphone gains greater strength when the price ratio is low.

Hypothesis 5.1: The higher the consumer's environmental consciousness, the stronger the relationship between brand equity and their intention to purchase.

Hypothesis 5.2: The higher the consumer's environmental consciousness, the stronger the relationship between price perception and their intention to purchase.

As Bigliardi (2022) pointed out in his research, environmental consciousness significantly shapes consumers' perspectives on environmental concerns and has a notable impact on their purchasing habits, especially in the context of the circular economy and sustainable consumption. However, the main challenge lies in translating this increased awareness into concrete action, specifically in guiding consumers to moderate their purchasing decisions for refurbished products.

Therefore, these two hypotheses state that environmental awareness acts as a moderating force in the relationship between the brand equity and price perception of refurbished smartphones and consumer purchasing behavior in the Portuguese market.

Chapter 4

METHODOLOGY AND RESEARCH DESIGN

4.1 Research Method

In order to answer the research questions of this dissertation, the collection of primary data was a very important step in this research. For the quantitative research aspect, that was motivated by the need for data collection and statistical analysis in order to more rigorously answer the research questions we proposed. a Qualtrics survey platform recommended by the Portuguese Catholic University was used. Qualtrics is a tool that allows to reach a large number of participants through a simple link, making it easily accessible in different locations. This allows an online audience to be engaged within a specific time frame, offering participants the flexibility to respond at their convenience from anywhere (Tingling et al., 2003). To this, experimental research was used, allowing us to manipulate variables and examine their effects on the dependent variable, providing a controlled environment to draw meaningful conclusions about cause and effect relationships. Manipulations were required and were presented to the participants through randomization, offering one of eight distinct experimental conditions randomly assigned to the participants as well-developed stimuli (Bittar, 2018).

The web-based experiment in Qualtrics guarantees the privacy of participants and respects personal boundaries, as responses are completely anonymous. This anonymity increases the likelihood that individuals will participate and be truthful in their responses (Evans & Mathur, 2005).

4.2 Sampling

Due to the study's focus on consumption within the Portuguese market, there were no restrictions on respondents, making it open to every consumer, therefore we chose the non-probability convenience sampling technique. To reach a diverse consumer base efficiently, individuals were approached through popular social media platforms like Instagram, WhatsApp, LinkedIn and Email within our network, since it was the easiest way to get answers for the study (Sedgwick, 2013). This strategy offered an easy, quick and cost-effective approach to quickly reaching a large

audience, corresponding to the criteria of efficiency and effectiveness of marketing research techniques to reach a large audience for data collection and analysis, indicated by Malhotra et al. (1999).

4.3 Research Instruments

In order to answer the hypotheses using a quantitative research approach, two experimental studies were carried out on the Qualtrics platform, a pilot study and a main study. Below is a description of both studies, detailing the design and analysis of the variables defined in the conceptual framework presented in Chapter 3, with the ultimate aim of being able to test the hypotheses we proposed.

4.3.1 Pilot Study

Before starting the main study, a pilot study was conducted on December 1st, 2023, to assess the experimental conditions related to refurbished electronics, focusing on price and brand equity. The pilot study engaged 32 participants who completed tasks that included a manipulation check for each categorical variable, ensuring respondents comprehended the presented scenarios. Within the survey, participants were asked whether the refurbished smartphone displayed belonged to a well-known brand, evaluating brand equity in a Likert scale between 1 and 7, and to select the offered price ratio, evaluating price ratio. The outcomes indicate that the manipulation scenarios utilized in the study were correctly understood and interpreted by the participants.

4.3.2 Pre-test Study

Before carrying out the main study, a preliminary test was administered to 12 participants. Following their exposure to the main survey, they expressed several concerns. Firstly, the length of the scenario description was identified as a potential contributing factor to a significant drop-out rate. In addition, minor improvements were suggested, such as the inclusion of a progress bar, so that participants could understand what stage the survey they are at, as well as a back button, to optimize the survey experience. Consequently, adjustments were implemented in response to this feedback.

4.3.3 Main Study

The main study was conducted in Portuguese from December 3rd to 7th, 2023. A data set for further in-depth analysis was formed by collecting a total of 580 responses, of which 421 were fully completed.

The survey's length, which had a duration of approximately 5 minutes, and the extensive and dense nature of the presented scenarios contributed to a notable dropout rate. "Dropout rates" refer to the percentage of participants who initially take part in the research but for some reason fail to complete all of the stages" (Howitt & Cramer, 2007). Especially for respondents who accessed the questionnaire on their mobile phones, the text may have seemed long due to the smaller format.

It is important to highlight that the dropout rate for this survey, although not exceptionally high considering the number of completed responses, was 27,4%. This implies that out of 580 individuals, a total of 159 were unable to complete the survey.

Despite this, each scenario of questions in the study received, on average, more than 50 replies, achieving the minimum required for a randomized experimental-design study and maintaining high consistency and validity (Anderson et al., 2017).

4.4 Design and Procedure

The study followed a "vignette-based field experiment" structured as a 2 x 4 factorial design, manipulating two categorical variables, brand equity and price ratio. Brand equity ranged from low to high, whereas the price ratio had four levels (80%, 60%, 40%, and 20%).

All participants began the study with a shared block that included a quote from a Portuguese online newspaper highlighting the importance of refurbished smartphones for the environment as well as the refurbishment process they went through. Next, the participants were presented with a scenario in which they had to decide whether they wanted to buy a refurbished smartphone. Each respondent was randomly assigned to one of the eight experimental stimuli and filled in the questionnaire with the hypothetical scenario in mind. The questionnaire was the same for all the respondents and covered aspects such as purchase intention, brand equity, price perception and environmental

consciousness. Finally, the participants provided demographic information such as age, gender, highest level of education, current professional situation and annual household income.

4.5 Stimuli Development

The stimulus for this study involved the presentation of two fictitious smartphone brands carefully selected to illustrate contrasting scenarios in the market. One brand represented a widely recognized and innovative market leader with a large consumer base, while the other represented a relatively unknown brand recently introduced to the electronics sector.

4.6 Variable Descriptions

4.6.1 Manipulation Check

In order to ensure that the respondents understood the scenarios, it was important to perform different manipulation checks of each categorical variable (Hora and Klassen, 2013).

With regard to brand equity, in order to check whether the hypothetical brand presented in the pilot study was actually understood or not, participants were asked to rate the familiarity of the brand presented on a seven-point Likert scale. Similarly, we examined whether the price was understood by the participants. In this case, we asked them to choose the price ratio that was offered (80%, 60%, 40%, and 20%).

4.6.2 Independent Variables

As previously stated in the literature review, brand equity represents the customer's image and reputation of a brand, whereas price perception is the judgment that allows the consumer to distinguish between the price of a refurbished smartphone versus the price of a new product.

Furthermore, in order to correctly assess and answer the proposed hypotheses, participants were asked a series of questions about brand equity (e.g., "It makes sense to buy this brand instead of any other brand, even if they are similar.") adapted from (Yoo & Donthu, 2001) and (Yoo et al., 2000), as well as questions about price perception (e.g., "The offer of this refurbished electronic

represents an extremely fair price.") adapted from (Bitter, 2018). The answers were captured on a seven-point Likert scale ranging from 1 to 7 (1- strongly disagree to 7 - strongly agree).

4.6.3 Dependent Variables

In this analysis, Consumer Purchase Intentions acts as the dependent variable. To determine whether the participants intended to purchase the refurbished smartphone exhibited in the survey, they were asked to indicate their level of inclination on their purchase intentions (e.g., "The probability of purchasing this product is") using a seven-point scale (1-very low to 7-very high), adapted from (Dodds et al., 1991).

4.6.4 Moderator

In this research, environmental consciousness serves as a moderator. Individuals, who are environmentally conscious behave responsibly towards the planet and give priority to ecological and environmentally friendly products (Iyer et al., 2016; Gatersleben et al., 2002). Participants were asked to respond to questions on their environmental behaviors (e.g., "I always purchase products that are less harmful to the environment.") on a seven-point Likert scale (1-strongly disagree to 7-strongly agree), modified from (Iyer et al., 2016).

Chapter 5

ANALYSIS AND RESULTS

5.1 Sample Characterization

The study received 421 responses, with a predominant representation of women (69,4%) compared to men (29,9%), and a minimal percentage opting not to reveal their gender (0,7%). The entire sample was made up entirely of individuals who have lived in Portugal for at least the past 5 years (100%). Participants varied in age from under 18 to over 65, with the largest group falling within the 18 to 25 age group (72,0%), possibly as a result of convenience sampling, and thus not necessarily being a representation of the population. Following age groups included 26 to 35 (9,3%), 46 to 55 (9,3%), and 56 to 65 (5,2%).

Regarding educational background, the majority had bachelor's degrees (58,0%) or master's degrees (26,8%). Furthermore, a significant portion of respondents were either currently studying (47,0%) or employed (32,8%). Lastly, a majority answered having annual incomes below €20.000 (19,7%), between €20.000 and €30.000 (20,0%), or between €30.000 and €50.000 (20,9%), while 18,1% chose not to reveal their income information.

5.2 Outlier analysis

It is critical to check the data for any statistical outliers. Outliers are cases in a dataset that have odd results when compared to others for the same metric (Malhotra et al., 2017). To reduce the danger of statistical mistakes, it is critical to handle such situations, which may be performed by implementing an Outliers Analysis. As such, we used the Mahalanobis distance test, a common test which measures the distance between two points, to find outliers in analyses that involve several variables. We then computed the p-value for each Mahalanobis distance and concluded that, since there were no p-values < 0,001, our dataset had no outliers. Subsequently, we proceeded to analyze the following hypotheses.

5.3 Scale Reliability and Factor Analysis

Although the variables used in this study have been adapted from the literature, it is important to test the reliability of these scales. A factor analysis of scales with two or more items was done to check if they properly assessed the same concept. The results revealed the extraction of a single component for each variable, demonstrating that the items inside each variable may be effectively grouped together since they jointly assess the same construct (see Table 1 in Appendix).

Furthermore, the Cronbach's Alpha coefficient was calculated, which was chosen for its suitability with Likert-type scales (Gliem & Gliem, 2003). Cronbach's alpha is a frequently used statistic for determining whether a collection of three or more questions in a survey effectively assesses the same underlying domain or variable (Tavakol & Dennick, 2011). While some researchers believe that a starting point of 0,60 indicates a good measure (Hair et al., 2006), others believe that proving dependability demands a Cronbach's Alpha of at least 0,70 (Kline, 1993). According to Table 2, each scale has a Cronbach's Alpha above 0,70, suggesting the reliability of all utilized components. Therefore, the items measuring the same construct were averaged into a single scale for that same construct.

Table 2 - Reliability Statistics

Reliability Statistics

	Cronbach's Alpha	*Initial Number of Items*	*Cronbach's Alpha if deleted*	*Number of Items deleted*	*Final Number of Items*
Brand Equity	0,908	4	-	-	4
Price Perception	0,709	3	-	-	3
Environmental Consciousness	0,895	6	-	-	6
Purchase Intentions	0,938	6	-	-	6

After, a correlation analysis was conducted. Through a Pearson correlation statistic, which measures the strength of the linear relationship between two variables (Chen & Anderson, 2023), we created a Correlation matrix. It was found that the correlation coefficients between all variables tested were statistically significant and positive (Table 3).

Table 3 - Correlation Matrix

Correlation Matrix

Variables	1.	2.	3.
1. Purchase Intentions	-		
2. Brand Equity	.310**	-	
3. Price Perception	.544**	.353**	-
4. Environmental Consciousness	.257**	.158**	.098*

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

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

In addition, in order to apply Analysis of Variance and Linear regression to investigate the following hypotheses, two prerequisites had to be met: normality and homogeneity of variances. In the case of normality, the results obtained through SPSS validated this criteria, according to the Shapiro-Wilk scale, in which the p-value for all variables tested was more than 0,05. Moreover, according to the Central Limit Theorem one can claim that ($\varepsilon \sim N(0, \sigma 2)$) when $n > 30$ to support this point. This way, the test for normality was validated given that each scenario had more than 30 answers (Table 4 in Appendix). Regarding the second criteria, variance homogeneity was successfully verified through SPSS ($p > 0,05$).

5.4 Results Manipulation Check

In research, it is critical to ensure the clarity and comprehension of experimental circumstances (Hora and Klassen, 2013). To validate participants' understanding, manipulation checks were performed for each categorical variable in the pilot study tested by 32 people.

For the brand equity variable, respondents were asked to rate the familiarity of the brand in their scenario on a seven-point scale, with 1 to 3 representing lower levels of brand familiarity and 5 to 7 representing higher levels of brand familiarity. Similarly, participants' understanding of the price ratio was assessed by asking them to choose the offered price ratio.

As such, using a paired sample t-test at 95% confidence level, we proceeded to compare the real scenario, that is, the one randomly assigned to the respondent, with the answered scenario, obtained from the two questions indicated above. The results revealed a significant difference between scenarios (Table 5 in Appendix, Mean = 0,375; p-value < 0,05). This robust difference suggests

that participants correctly understood the concept of brand equity and the price ratio stated in the scenarios. As a consequence, these findings show that the implementation of manipulations was successful, providing confidence for the following analysis.

5.5 Main Results

This section aims to validate the hypotheses after a close analysis of the reliability of the variables and a review of all the experimental conditions to verify the effectiveness of the manipulation. This includes investigating the impact of brand equity and price perception on customers' purchase intentions. In addition, the moderating effect of environmental consciousness on the relationship between brand equity, price perception and the dependent variable was investigated.

Table 6 summarizes the descriptive statistics for purchase intentions in each scenario related to refurbished electronics in the Portuguese market.

Table 6 - Descriptive Statistics

Descriptive Statistics

Scenario	*Mean*	*Standard Deviation*	*Count*
High Brand Equity, Price Ratio 80%	4,48	1,77	53
High Brand Equity, Price Ratio 60%	5,04	1,28	51
High Brand Equity, Price Ratio 40%	5,20	1,21	58
High Brand Equity, Price Ratio 20%	4,18	1,41	52
Low Brand Equity, Price Ratio 80%	3,84	1,39	52
Low Brand Equity, Price Ratio 60%	4,16	1,61	55
Low Brand Equity, Price Ratio 40%	4,41	1,11	58
Low Brand Equity, Price Ratio 20%	4,54	1,57	42
Total	4,48	1,48	421

Hypothesis 1: As the brand equity increases, the customer’s purchase intentions towards refurbished smartphones increases.

To test the first hypothesis, a linear regression was conducted with all continuous variables. This technique was used to analyze the relationship between predictor variable, brand equity, and a dependent variable, purchase intention. As seen in table 7, results show that the standardized beta is 0,117, indicating a positive and statistically significant (p-value < 0,05) effect. That is to say, if

brand equity increases by 1 standard deviation, purchase intentions will increase by 0,117 standard deviations, holding all the other factors constant.

Table 7 - Linear Regression: Purchase Intentions as the dependent variable

Linear Regression

	Unstandardized Coefficients		Standardized Coefficient		
Model	*Beta*	*Std. Error*	*Beta*	*t*	*Sig.*
Constant	-0,119	0,730		-0,163	0,870
Brand Equity	0,110	0,104	0,117	1,054	0,029
Price Perception	0,688	0,142	0,542	4,834	< 0,001
Environmental Consciousness	0,339	0,207	0,300	1,641	0,102
Brand Equity x Environmental Consciousness	-0,001	0,030	-0,005	-0,030	0,976
Price Perception x Environmental Consciousness	-0,024	0,040	-0,129	-0,597	0,551

Purchase Intention as the dependent variable

Moreover, the two-factor ANOVA presented in table 8, relating brand equity, price ratio and purchase intentions, also mirrors the statistically positive and significant interaction (F = 12,37, p-value < 0,01).

Table 8 - Two-factor ANOVA: Purchase Intentions as the dependent variable

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*
Corrected Model	78,38	7	11,20	5,50	0,000
Intercept	8374,12	1	8374,12	4110,77	0,000
Brand Equity	25,20	1	25,20	12,37	0,000
Price Ratio	25,76	3	8,59	4,21	0,006
Brand Equity x Price Ratio	23,81	3	7,94	3,90	0,009
Error	841,33	413	2,04		
Total	9386,56	421			

The findings, supported by the linear regression results, suggest that as brand equity increases, so does purchase intention. In other words, as authors Tharmi and Senthilnathan (2011) commented, as consumers look at a brand with more value, their intention to purchase that same brand increases. As a result, Hypothesis 1 is supported.

Hypothesis 2: The price ratio of a refurbished smartphone is inversely related to the purchase intentions from the price ratio of 40% onwards.

This hypothesis suggests that an increase in the price ratio of refurbished smartphones, falling within the range of 40% to 80%, will decrease purchase intention. As such, to verify this, a two-factor Analysis of Variance (ANOVA) was conducted between brand equity, price ratio and purchase intentions. The results of the ANOVA are as follows.

Table 8 - Two-factor ANOVA: Purchase Intentions as the dependent variable

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*
Corrected Model	78,38	7	11,20	5,50	0,000
Intercept	8374,12	1	8374,12	4110,77	0,000
Brand Equity	25,20	1	25,20	12,37	0,000
Price Ratio	25,76	3	8,59	4,21	0,006
Brand Equity x Price Ratio	23,81	3	7,94	3,90	0,009
Error	841,33	413	2,04		
Total	9386,56	421			

With this, one can understand that there are statistically significant differences between the groups ($F = 4,21$; p-value $< 0,05$). As such Post Hoc Tests were conducted to understand how the groups differed (Table 8).

Table 9 - Post Hoc Tests: Bonferroni

Post Hoc Tests

Bonferroni					*95% Confidence Interval*	
Price Ratio	*Price Ratio*	*Mean Difference*	*Std. Error*	*Sig.*	*Lower*	*Upper*
Price Ratio of 80%	Price Ratio of 60%	-0,421	0,197	0,195	-0,942	0,100
	Price Ratio of 40%	-.6413*	0,192	0,006	-1,151	-0,132
	Price Ratio of 20%	-0,179	0,203	1,000	-0,716	0,359
Price Ratio of 60%	Price Ratio of 80%	0,421	0,197	0,195	-0,100	0,942
	Price Ratio of 40%	-0,220	0,192	1,000	-0,728	0,289
	Price Ratio of 20%	0,243	0,202	1,000	-0,293	0,779
Price Ratio of 40%	Price Ratio of 80%	.6413*	0,192	0,006	0,132	1,151
	Price Ratio of 60%	0,220	0,192	1,000	-0,289	0,728
	Price Ratio of 20%	0,463	0,198	0,120	-0,062	0,988
Price Ratio of 20%	Price Ratio of 80%	0,179	0,203	1,000	-0,359	0,716
	Price Ratio of 60%	-0,243	0,202	1,000	-0,779	0,293
	Price Ratio of 40%	-0,463	0,198	0,120	-0,988	0,062

**. The mean difference is significant at the 0.05 level.*

Bonferroni Post Hoc Tests for multiple comparisons found that the mean value of purchase intentions was significantly different between the price ratio of 80% and price ratio of 40% (p-value = 0,006, 95% C.I. = [-1,151; -0,132]). There was no statistically significant difference in

mean purchase intentions between the price ratio of 60% and price ratio of 80% (p-value = 0,195) or the price ratio of 60% and price ratio of 40% (p-value = - 0,220).

Like Ovchinnikov (2011) found in his study, the participants' purchase intentions in our study decreased when the price ratio increased within the predetermined range of 40% to 80%. This conclusion emphasizes the importance of price variables in influencing purchase intentions of refurbished smartphone customers in the Portuguese market, revealing that not all prices are acceptable for refurbished smartphones. In this specific case, for the range between 20% and 40% purchase intention does not behave in the same way as for the other ratios, which might suggest that, within low price ranges, the weight of the brand equity may be more important. From this analysis, we can therefore infer that the hypothesis is supported.

Hypothesis 3: A positive price perception has a positive influence on the purchase intentions of the consumer regarding a refurbished smartphone.

Similarly to Hypothesis 1, the same linear regression analysis was used to examine the relationship between price perception and purchase intentions (Table 7). The results reveal a standardized coefficient beta of 0,542, indicating a positive and statistically significant correlation (p-value < 0,001).

Table 7 - Linear Regression: Purchase Intentions as the dependent variable

Linear Regression

	Unstandardized Coefficients		Standardized Coefficient		
Model	*Beta*	*Std. Error*	*Beta*	*t*	*Sig.*
Constant	-0,119	0,730		-0,163	0,870
Brand Equity	0,110	0,104	0,117	1,054	0,029
Price Perception	0,688	0,142	0,542	4,834	< 0,001
Environmental Consciousness	0,339	0,207	0,300	1,641	0,102
Brand Equity x Environmental Consciousness	-0,001	0,030	-0,005	-0,030	0,976
Price Perception x Environmental Consciousness	-0,024	0,040	-0,129	-0,597	0,551

Purchase Intention as the dependent variable

The standardized coefficient beta of 0,542 mirrors the strength of this relationship, further validating this third hypothesis. These results imply that if positive price perceptions increase by 1 standard deviation, there is a corresponding increase of 0,542 standard deviations in purchase intentions, and vice versa. As Harwani and Pradita (2017) point out, a good perception of price

positively influences purchase intentions. In this specific case, the perception of a good price of a refurbished smartphone implies a positive result in the comparison between its price and that of a new smartphone, which will have a positive influence on a Portuguese consumer's purchase intention for these refurbished smartphones. We therefore support this hypothesis.

Hypothesis 4: Brand equity is more strongly related to the purchase intentions of a refurbished smartphone when the price ratio is low rather than when it is high.

To study this hypothesis, the same two-factor Analysis of Variance (ANOVA) was used between the two categorical variables, price ratio and brand equity, with purchase intentions as its dependent variable. In this test, it was computed the interaction between the two categorical variables, showcasing how the effect of brand equity on purchase intentions may differ depending on the relationship with the price ratio. The results of two-factor ANOVA, in table 8, show the statistically positive and significant interaction ($F = 3,90$; p-value $< 0,05$).

Table 8 - Two-factor ANOVA: Purchase Intentions as the dependent variable

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*
Corrected Model	78,38	7	11,20	5,50	0,000
Intercept	8374,12	1	8374,12	4110,77	0,000
Brand Equity	25,20	1	25,20	12,37	0,000
Price Ratio	25,76	3	8,59	4,21	0,006
Brand Equity x Price Ratio	23,81	3	7,94	3,90	0,009
Error	841,33	413	2,04		
Total	9386,56	421			

Similarly, as done in hypothesis 2, we conducted a planned analysis to compare the differences among the purchase intentions in each scenario.

Table 10 - Comparison of Price Ratio scenarios

Comparison of price ratio scenarios

Purchase Intentions (Means)	*Price Ratio of 20%*	*Price Ratio of 40%*	*Price Ratio of 60%*	*Price Ratio of 80%*
High Brand Equity	4,183	5,201	5,042	4,478
Low Brand Equity	4,536	4,405	4,158	3,840
F	1,309	13,602***	9,699**	4,208*
P-value	0,255	< 0,001	0,002	0,043

** p<0,05; ** p<0,01; *** p<0,001*

In Table 10, it can be found that for the price ratio of 80% ($F = 4,208$), price ratio of 60% ($F = 9,699$), and price ratio of 40% ($F = 13,602$), the results revealed significant differences in purchase

intention depending on brand equity. However, when the price ratio was 20%, there were no statistically significant differences.

This indeed indicates that the relationship between brand equity and purchase intentions is stronger when the price ratio is low compared to when it is high. The findings emphasize Tharmi‘s (2011) findings where a strong brand equity influences the purchase intention, and even more when the price ratio is low. We are now able to prove as supported the fourth hypothesis.

Hypothesis 5.1: The higher the consumer's environmental consciousness, the stronger the relationship between brand equity and their intention to purchase.

Hypothesis 5.2: The higher the consumer's environmental consciousness, the stronger the relationship between price perception and their intention to purchase.

To test for moderation, a linear regression previously computed (Table 7) was used. All four variables included in this test, both independent variables, brand equity and price perception, as well as the moderator, environmental consciousness, and the dependent variable, purchase intentions, were continuous.

Table 7 - Linear Regression: Purchase Intentions as the dependent variable

Linear Regression

	Unstandardized Coefficients		Standardized Coefficient		
Model	*Beta*	*Std. Error*	*Beta*	*t*	*Sig.*
Constant	-0,119	0,730		-0,163	0,870
Brand Equity	0,110	0,104	0,117	1,054	0,029
Price Perception	0,688	0,142	0,542	4,834	< 0,001
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Brand Equity x Environmental Consciousness	-0,001	0,030	-0,005	-0,030	0,976
Price Perception x Environmental Consciousness	-0,024	0,040	-0,129	-0,597	0,551

Purchase Intention as the dependent variable

As presented above, in the case of Brand Equity, the interaction between this variable and Environmental Consciousness is not statistically significant (p-value = 0,976 > 0,05). The same reasoning can be applied when it comes to Price Perception, revealing that the p-value of the interaction is 0,551, higher than 0,05, and thus not significant for our analysis.

Through the use of a linear regression, these results suggest that Bigliardi’s (2022) research, in the context of this study is not applicable, since the impact of Environmental Consciousness on the

relationship between Brand Equity, Price Perception, and Purchase Intentions for refurbished smartphones is not a significant moderating factor. With that in mind, we reject these hypotheses.

An hypotheses summary table was created in order to effectively show the results of all 5 hypotheses tested in this study. In this manner, it becomes easier to follow that each hypothesis states what statistic was used to test such hypothesis, and if it was supported or not.

Table 11 - Hypotheses Summary

Summary

Hypotheses	*Supported*	*Experiment*
H1: As the brand equity increases, purchase intentions increases.	Supported	Linear regression, Beta = 0,117, p-value < 0,05 Two-factor ANOVA, F = 12,37, p-value < 0,01
H2: The price ratio is inversely related to the purchase intention from the price ratio of 40% onwards.	Supported	Two-factor ANOVA, F = 4,21, p-value < 0,05
H3: A positive price perception has a positive influence on the purchase intentions.	Supported	Linear regression, Beta = 0,542, p-value < 0,001
H4: Brand equity is more strongly related to the purchase intention when the price ratio is low rather than when it is high.	Supported	Two-factor ANOVA, F = 3,90, p-value < 0,05
H5.1: The higher the consumer's environmental consciousness, the stronger the relationship between brand equity and their intention to purchase.	Not supported	Linear Regression, Beta = -0, 005, p-value > 0,05
H5.2: The higher the consumer's environmental consciousness, the stronger the relationship between price perception and their intention to purchase	Not supported	Linear Regression, Beta = -0,129, p-value > 0,05

Chapter 6

CONCLUSIONS

6.1 Discussion

With this study we were able to answer the two research questions. The combination of conceptual frameworks, theoretical constructs and empirical data serve as the foundation for this investigation, all with the goal of shining light on the dynamics between consumer purchase intentions and brand equity, price perception, and environmental consciousness. An experimental study that was well-designed and conducted allowed us to examine the two major research issues that informed our hypotheses.

Research Question 1: How does brand equity and price perception influence the consumers' intention to purchase refurbished smartphones in the Portuguese market?

Both brand equity and price perception have a significant and positive influence on purchase intentions. Brand equity (H1, beta = 0.117) emerged as an essential factor for consumers deciding to purchase a refurbished smartphone, indicating that improvements in the company's brand equity lead to a perception of better quality and, consequently, a higher purchase intention.

Similarly, price perception (H3, beta = 0.542) plays an important role in consumers' decision to purchase refurbished smartphones. A positive influence was observed, highlighting that a well-established pricing strategy contributes to forming the consumer's perception of the product as a more attractive and advantageous option.

The study also confirmed consumers' expectation that refurbished smartphones should have lower prices than new ones, establishing an inverse relationship between price ratio and brand equity (H2, $F = 4{,}21$; p-value $< 0{,}05$), and also a greater inclination to purchase when these price ratios are lower (H4, $F = 3{,}90$; p-value $< 0{,}05$). The literature suggests a limit price ratio of 40%, and our results actually indicate an inverse behavior up to this limit. As for the price range between 20% and 40%, the same relationship does not apply. Since the ratio is proportionally inverse from the 40% price ratio onwards, a high or low brand equity can make a difference in this lower range, which is not the case in the others.

This result highlights the strategic relevance of pursuing brand equity for companies in the refurbished electronics market. Companies must carefully position their brands, not only to promote trust and loyalty, but also to favorably influence purchase intentions (Erdem & Swait, 1998). Accuracy is also essential in the area of price perception, since consumers' purchasing intentions are strongly influenced by their perception of a fair price. The consumer's perspective is shaped by this impression, which presents the product as a more desirable and advantageous option (Maxwell, 2002). Furthermore, a detailed understanding of these relationships sets the bases for companies to create targeted marketing strategies that emphasize both brand equity and competitive prices in order to attract and retain customers in the Portuguese market, whether or not this marketing is focused on sustainability, in the end it always positively influences consumers to buy a more sustainable product.

Research Question 2: What is the importance of consumers' environmental consciousness on their purchase intention for refurbished smartphones in Portugal?

The examination of the impact of Portuguese consumers' environmental consciousness on their intention to purchase refurbished smartphones elucidates the complex relationship that exists between sustainability and consumer preferences. Although in past studies we have investigated environmental consciousness as an independent variable impacting purchasing intentions, in this study we addressed the moderating effect of this variable in the relationship between the independent variables, brand equity and price perception and dependent variable, purchase intention. Our results (table 7 show that the direct effect of environmental consciousness on purchase intentions is not statistically significant (p-value > 0,05). Neither is the moderating effect of environmental consciousness in the relationship between brand equity and price perception, and purchase intention (both p-values > 0,05).

This finding suggests that, although in several studies consumers demonstrate environmental consciousness and a desire for sustainable choices, their actual purchase intentions can be influenced by a myriad of factors who may have more strength than environmental considerations (Guiot, D., & Roux, D., 2010). These factors are price and brand equity, which confirm that are really a behavioral gap when it comes to consumers' environmental consciousness. Despite the stimulus highlighting the value of refurbished products for the environment, there was no discernible effect on consumers. This could mean that companies that want to benefit from

consumers' environmental consciousness will probably have to include sustainability in their marketing stories even more than they already do.

6.2 Implications

This study's conclusion raises a number of managerial, theoretical, and policy-making implications. A variety of stakeholders can benefit from the knowledge gained from investigating the electronics sector, and the relationship between refurbished smartphones and consumer decisions in the Portuguese market. This study is especially helpful for companies wondering how to leverage the sales of these refurbished products, as well as for policymakers concerned with reducing the worldwide effect of e-waste.

6.2.1 Managerial and Policy-making Implications

The results highlight how important it is promoting sustainable consumption is to the electronics sector. Promoting the advantages of choosing refurbished smartphones through marketing initiatives can increase adoption and consumer awareness. Moreover, through strategic brand positioning companies in the electronics industry can strategically position themselves to increase customer loyalty and trust. These companies should invest in creating powerful brand identities that resonate with consumers, as they understand the impact of brand equity on purchasing intentions. In marketing initiatives, placing a strong emphasis on reliability, quality and environmental consciousness can increase brand equity.

Additionally, this study showed the impact of the observed price perceptions on purchase intentions indicates that pricing strategies are key to the success of smartphones in the refurbished market. Companies can consider implementing pricing strategies and offering competitive price ratios to attract even more environmentally conscious customers. Incentives and discounts that fall within the ideal price we've established of 40% can make refurbished options more appealing. But they still need to be able to make a profit from this operation, so it would be important for the government to help with tax exemptions on sales operations or by considering a different VAT for products that have already been bought and therefore already paid that sales tax to the government.

Lastly, companies in the electronics industry can also incorporate sustainability and refurbishment initiatives into their corporate social responsibility strategies. Since it is supported by the government, promoting environmental responsibility can improve a company's reputation and attract customers who respect morals and sustainable business practices.

6.2.2 Theoretical Implications

This study contributes to the research in consumer behavior by investigating the complexities of purchase intentions in the context of refurbished smartphones. Not only does this research highlight the demand for refurbished smartphones, a topic that hasn't been explored deeply (Atasu et al., 2008), especially in Portugal, it also provides a better knowledge of how customers view and behave toward sustainability in the electronics industry. This was made possible by the investigation of sustainable consumption and the influence of environmental consciousness in this market. As such, it can provide light of how, rather than environmental consciousness, brand equity and price ratio impact consumers' intention to purchase. As well as provide a basis for additional in-depth studies and guide future study in the larger area of sustainable consumer behavior.

6.3 Limitations and Future Research

As we attempt to understand how consumer purchase intention in the Portuguese market is affected by refurbished smartphones, it is important to recognize the limitations and recommendations for future research.

Firstly, using an online survey and sharing it through online platforms makes it harder to achieve sample representation. This is because the reached audience consisted of mainly young people with a high level of completed education, illustrating a case of convenience sampling. As well as this, through the use of surveys, the genuineness and caliber of responses are questioned in the absence of direct oversight (Grimm, 2010). While 421 valid responses were collected in our study, which should be noted, the fact that the responses were split up into 8 different stimuli suggests that future research could benefit from a larger sample size to improve the results' generalizability and robustness.

Another limitation comes from the inclusion of only one external factor, environmental consciousness, and two internal factors, brand equity and price ratio, from the corporation. To improve the understanding of the dynamics at play in the consumer decision-making process, future study should include additional variables that can influence purchase intentions, such perceived risk, perceived quality, other warranty durations, cultural influences, social conventions, and technical improvements.

Moreover, as a purposeful restriction, this research only looks at refurbished smartphones. Although this method offers particular insights into one product category, in order to provide a more comprehensive picture of customer behavior within the refurbished electronics market, future research may examine a wider spectrum of electronic equipment.

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Appendix

Table 1 - Factor Loading of Scale Items

Factor Loading of Scale Items

Measurement	*Factor Loading*
Purchase Intetion 1 - "A probabilidade de comprar este smartphone recondicionado é"	0,796
Purchase Intetion 2 - "A minha disposição para comprar este smartphone recondicionado é"	0,828
Purchase Intetion 3 - "A minha vontade de comprar este smartphone recondicionado é"	0,810
Purchase Intetion 4 - "Comprarei um smartphone recondicionado quando precisar de um"	0,784
Purchase Intetion 5 - "Incentivarei a minha família/amigos a comprar smartphones recondicionados"	0,758
Purchase Intetion 6 - "Comprarei smartphones recondicionados num futuro próximo"	0,649
Brand Equity 1- "Mesmo que outra marca tenha as mesmas características, prefiro comprar a marca que me foi apresentada"	0,778
Brand Equity 2 - "Mesmo que outra marca tenha as mesmas características, prefiro comprar a marca que me foi apresentada"	0,832
Brand Equity 3 - "Se houver outra marca tão boa como esta, prefiro comprar a marca que me foi apresentada"	0,822
Brand Equity 4 - "Se outra marca NÃO for diferente em nenhum aspeto desta marca que me foi apresentada, continua a parecer-me mais inteligente comprar a marca que me foi apresentada"	0,713
Price Perception 1 - "A oferta deste smartphone recondicionado é uma excelente compra pelo seu preço"	0,673
Price Perception 2 - "Ao preço de venda, este smartphone recondicionado NÃO tem uma boa relação preço/qualidade"	0,669
Price Perception 3 - "A oferta deste smartphone recondicionado representa um preço extremamente justo"	0,693
Environmental Consciousness 1 - "Compro sempre produtos produtos que são menos nocivos para o ambiente"	0,684
Environmental Consciousness 2 - "Mudei para este produto por razões ambientais"	0,663
Environmental Consciousness 3 - "Convenci a minha família/amigos a NÃO comprarem produtos nocivos para o ambiente"	0,730
Environmental Consciousness 4 - "Faço todos os esforços para comprar produtos feitos de materiais reciclados"	0,711
Environmental Consciousness 5 - "NÃO compro produtos domésticos que prejudicam o meio ambiente"	0,666
Environmental Consciousness 6 - "NÃO compro produtos com embalagens excessivas"	0,610

Table 2 - Reliability Statistics

Reliability Statistics

	Cronbach's Alpha	*Initial Number of Items*	*Cronbach's Alpha if deleted*	*Number of Items deleted*	*Final Number of Items*
Brand Equity	0,908	4	-	-	4
Price Perception	0,709	3	-	-	3
Environmental Consciousness	0,895	6	-	-	6
Purchase Intentions	0,938	6	-	-	6

Table 3 - Correlation Matrix

Correlation Matrix

Variables	**1.**	**2.**	**3.**
1. Purchase Intentions	-		
2. Brand Equity	.310**	-	
3. Price Perception	.544**	.353**	-
4. Environmental Consciousness	.257**	.158**	.098*

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

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

Table 4 - Between-Subjects Factors

Between-Subjects Factors

	Value Label	*N*
Brand Equity	High	214
	Low	207
Price Ratio	Price Ratio of 80%	105
	Price Ratio of 60%	106
	Price Ratio of 40%	116
	Price Ratio of 20%	94

Table 5 - T-test Statistics with 95% Confidence Interval

Paired Samples Test

	Paired Differences			95% Confidence Interval		Significance	
	Mean	*SD*	*Std. Error*	*Lower*	*Upper*	*T-test*	*P-value*
Real Scenario - Answered Scenario	0,375	1,476	0,261	-0,157	0,907	1,438	0,030

Table 6 - Descriptive Statistics

Descriptive Statistics

Scenario	*Mean*	*Standard Deviation*	*Count*
High Brand Equity, Price Ratio 80%	4,48	1,77	53
High Brand Equity, Price Ratio 60%	5,04	1,28	51
High Brand Equity, Price Ratio 40%	5,20	1,21	58
High Brand Equity, Price Ratio 20%	4,18	1,41	52
Low Brand Equity, Price Ratio 80%	3,84	1,39	52
Low Brand Equity, Price Ratio 60%	4,16	1,61	55
Low Brand Equity, Price Ratio 40%	4,41	1,11	58
Low Brand Equity, Price Ratio 20%	4,54	1,57	42
Total	4,48	1,48	421

Table 7 - Linear Regression: Purchase Intentions as the dependent variable

Linear Regression

	Unstandardized Coefficients		Standardized Coefficient		
Model	*Beta*	*Std. Error*	*Beta*	*t*	*Sig.*
Constant	-0,119	0,730		-0,163	0,870
Brand Equity	0,110	0,104	0,117	1,054	0,029
Price Perception	0,688	0,142	0,542	4,834	< 0,001
Environmental Consciousness	0,339	0,207	0,300	1,641	0,102
Brand Equity x Environmental Consciousness	-0,001	0,030	-0,005	-0,030	0,976
Price Perception x Environmental Consciousness	-0,024	0,040	-0,129	-0,597	0,551

Purchase Intention as the dependent variable

Table 8 - Two-factor ANOVA: Purchase Intentions as the dependent variable

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*
Corrected Model	78,38	7	11,20	5,50	0,000
Intercept	8374,12	1	8374,12	4110,77	0,000
Price Ratio	25,76	3	8,59	4,21	0,006
Brand Equity	25,20	1	25,20	12,37	0,000
Price Ratio x Brand Equity	23,81	3	7,94	3,90	0,009
Error	841,33	413	2,04		
Total	9386,56	421			

Table 9 - Post Hoc Tests: Bonferroni

Post Hoc Tests

Bonferroni					*95% Confidence Interval*	
Price Ratio	*Price Ratio*	*Mean Difference*	*Std. Error*	*Sig.*	*Lower*	*Upper*
Price Ratio of 80%	Price Ratio of 60%	-0,421	0,197	0,195	-0,942	0,100
	Price Ratio of 40%	-.6413*	0,192	0,006	-1,151	-0,132
	Price Ratio of 20%	-0,179	0,203	1,000	-0,716	0,359
Price Ratio of 60%	Price Ratio of 80%	0,421	0,197	0,195	-0,100	0,942
	Price Ratio of 40%	-0,220	0,192	1,000	-0,728	0,289
	Price Ratio of 20%	0,243	0,202	1,000	-0,293	0,779
Price Ratio of 40%	Price Ratio of 80%	.6413*	0,192	0,006	0,132	1,151
	Price Ratio of 60%	0,220	0,192	1,000	-0,289	0,728
	Price Ratio of 20%	0,463	0,198	0,120	-0,062	0,988
Price Ratio of 20%	Price Ratio of 80%	0,179	0,203	1,000	-0,359	0,716
	Price Ratio of 60%	-0,243	0,202	1,000	-0,779	0,293
	Price Ratio of 40%	-0,463	0,198	0,120	-0,988	0,062

**. The mean difference is significant at the 0.05 level.*

Table 10 - Comparison of Price Ratio scenarios

Comparison of price ratio scenarios

Purchase Intentions (Means)	*Price Ratio of 20%*	*Price Ratio of 40%*	*Price Ratio of 60%*	*Price Ratio of 80%*
High Brand Equity	4,183	5,201	5,042	4,478
Low Brand Equity	4,536	4,405	4,158	3,840
F	1,309	13,602***	9,699**	4,208*
P-value	0,255	< 0,001	0,002	0,043

** p<0,05; ** p<0,01; *** p<0,001*

Table 11 - Hypotheses Summary

Summary

Hypotheses	*Supported*	*Experiment*
H1: As the brand equity increases, purchase intentions increases.	Supported	Linear regression, Beta = 0,117, p-value < 0,05 Two-factor ANOVA, F = 12,37, p-value < 0,01
H2: The price ratio is inversely related to the purchase intention from the price ratio of 40% onwards.	Supported	Two-factor ANOVA, F = 4,21, p-value < 0,05
H3: A positive price perception has a positive influence on the purchase intentions.	Supported	Linear regression, Beta = 0,542, p-value < 0,001
H4: Brand equity is more strongly related to the purchase intention when the price ratio is low rather than when it is high.	Supported	Two-factor ANOVA, F = 3,90, p-value < 0,05
H5.1: The higher the consumer's environmental consciousness, the stronger the relationship between brand equity and their intention to purchase.	Not supported	Linear Regression, Beta = -0, 005, p-value > 0,05
H5.2: The higher the consumer's environmental consciousness, the stronger the relationship between price perception and their intention to purchase	Not supported	Linear Regression, Beta = -0,129, p-value > 0,05

Online experimental survey

Default Block
Caro participante,

Agradeço desde já por se juntar a mim neste projeto de investigação, onde exploro o impacto dos smartphones recondicionados nas intenções de compra dos consumidores e o papel moderador da consciência ambiental em Portugal.

Destaco que a sua participação é inestimável. Os dados fornecidos serão anónimos e exclusivamente utilizados para fins de investigação, garantindo total confidencialidade. Não existem respostas certas ou erradas, todas são valiosas para este estudo.

O inquérito foi concebido para ser eficiente, ocupando apenas cerca de 4 minutos do seu tempo. Se surgir alguma dúvida ou se quiser partilhar as suas ideias, não hesite em contactar-me através do endereço s-jgguerreiro@ucp.pt. O seu feedback será muito bem recebido.

Ao participar, desempenha um papel crucial no avanço deste estudo. Agradeço sinceramente o seu tempo e esforço dedicados a este inquérito.

Obrigado pela sua participação.

Vamos começar!

Context Block
Está prestes a deparar-se com um cenário hipotético. Pedimos que se envolva nesta situação e que de seguida partilhe as suas respostas com base naquilo que faria realmente.

Random Scenario Blocks

Suponha que precisa de comprar um novo smartphone para as suas atividades diárias. Ao pesquisar sobre o equipamento, um artigo cativante sobre **smartphones recondicionados** capta a sua atenção.

"São produtos seminovos, que foram sujeitos a rigorosos testes de controlo, em termos estéticos e funcionais e que são reparados, se necessário, limpos e reconfigurados para o software de origem, para estarem funcionais e operacionais a 100%", (Nuno Natário, Diretor Comercial Worten Iberia).

"Numa altura em que o fabrico de smartphones emite mais de 100 milhões de toneladas de CO2 por ano e calcula-se 75 milhões de toneladas de lixo eletrónico no mundo até 2030 (...) a possibilidade da aquisição de um telemóvel recondicionado com o aspeto e capacidade de um smartphone novo, incentiva o público a fazer escolhas mais sustentáveis e com menor pegada carbónica (menos de 78% de CO2 em comparação com um smartphone novo).", (Diário de Notícias, 2023).

Com esta nova perspetiva, depara-se com uma oferta de um **smartphone recondicionado** semelhante ao que procurava novo. (A.1, A.2)

A.1 Este provém de uma **marca de smartphones consolidada**, enraizada no mercado há 47 anos, detendo uma reputação robusta e uma marca líder de mercado. Com uma equipa de mais de 130.000 colaboradores por todo o mundo, a empresa é sinónimo de confiança e é amplamente reconhecida pelos seus consumidores mundialmente. A sua especialização na venda de smartphones desde a data da sua fundação atesta a sua maturidade no setor.

A.2 Este provém de uma **nova marca de smartphones** que se inseriu no mercado recentemente. Foi fundada há apenas três anos e tem focado os seus esforços na produção de smartphones, já contando com uma equipa de 600 colaboradores. Sendo uma empresa relativamente jovem, ainda não conseguiu conquistar o reconhecimento de muitos consumidores, estando a tentar construir a sua confiabilidade neste mercado dos smartphones.

Este **smartphone recondicionado** em particular é de uma geração tecnológica recente, e oferece também a mesma garantia de 3 anos que teria ao adquirir um smartphone novo. Esta oferta tem um **preço equivalente (B.1, B.2, B.3, B.4).**

B.1 a 80% do valor do smartphone novo.
B.2 a 60% do valor do smartphone novo.
B.3 a 40% do valor do smartphone novo.
B.4 a 20% do valor do smartphone novo.

Consumer Purchase Intentions Block
Em baixo encontrará algumas afirmações, pedimos-lhe que responda mediante as suas preferências, **tendo em conta o cenário apresentado**, numa escala de 1 a 7. (1 - Muito Baixa; 7 - Muito Alta).

- A probabilidade de comprar este smartphone recondicionado é.
- A minha disposição para comprar este smartphone recondicionado é.
- A minha vontade de comprar este smartphone recondicionado é.
- Comprarei um smartphone recondicionado quando precisar de um.
- Incentivarei a minha família/amigos a comprar smartphones recondicionados.
- Comprarei smartphones recondicionados num futuro próximo.

Brand Equity Block
Em baixo encontrará algumas afirmações, pedimos-lhe que responda mediante as suas preferências, **tendo em conta o cenário apresentado**, numa escala de 1 a 7.(1 - Discordo Totalmente; 7 - Concordo Totalmente).

- Mesmo que outra marca tenha as mesmas características, prefiro comprar a marca que me foi apresentada.
- Mesmo que outra marca tenha as mesmas características, prefiro comprar a marca que me foi apresentada.
- Se houver outra marca tão boa como esta, prefiro comprar a marca que me foi apresentada.
- Se outra marca NÃO for diferente em nenhum aspeto desta marca que me foi apresentada, continua a parecer-me mais inteligente comprar a marca que me foi apresentada.

Price Perception Block
Em baixo encontrará algumas afirmações, pedimos-lhe que responda mediante as suas preferências, **tendo em conta o cenário apresentado**, numa escala de 1 a 7.(1 - Discordo Totalmente; 7 - Concordo Totalmente).

- A oferta deste smartphone recondicionado é uma excelente compra pelo seu preço.
- Ao preço de venda, este smartphone recondicionado NÃO tem uma boa relação preço/qualidade.
- A oferta deste smartphone recondicionado representa um preço extremamente justo.

Environmental Consciousness Block
Em baixo encontrará algumas afirmações, pedimos-lhe que responda mediante as suas preferências, **tendo em conta o cenário apresentado**, numa escala de 1 a 7.(1 - Discordo Totalmente; 7 - Concordo Totalmente).

- Compro sempre produtos produtos que são menos nocivos para o ambiente.
- Mudei para este produto por razões ambientais.
- Convenci a minha família/amigos a NÃO comprarem produtos nocivos para o ambiente.
- Faço todos os esforços para comprar produtos feitos de materiais reciclados.
- NÃO compro produtos domésticos que prejudicam o meio ambiente.
- NÃO compro produtos com embalagens excessivas.

Sociodemographics Block

Qual é o seu género?

- Masculino

- Feminino
- Outro
- Prefiro não dizer

Que idade tem?

- <18
- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- <65

Qual é o seu nível de educação mais elevado?

- Menos do que o ensino secundário
- Ensino secundário ou equivalente
- Licenciatura ou equivalente
- Mestrado ou equivalente
- Doutoramento ou outro grau avançado
- Outro (por favor especifique)

Qual é a sua situação profissional atual?

- Desempregado
- Empregado
- Trabalhador por conta própria
- Estudante
- Trabalhador-estudante
- Reformado
- Outro (por favor especifique)

Qual é o rendimento anual do seu agregado familiar antes de impostos?

- < 20.000€
- 20.000€-30.000€
- 30.000€-50.000€
- 50.000€-70.000€
- 70.000€-100.000€
- 100.000€-150.000€
- >150.000€
- Prefiro não dizer

País de residência dos últimos 5 anos?

- Portugal
- Outro (por favor especifique)