INSTITUTO
UNIVERSITÁRIO
DE LISBOA

M-COMMERCE: MOTIVATIONS AND DYNAMICS FROM GENERATION Z E-BUYERS

Joana Duarte Antunes Rufino

Master in Management

Professor Ana Brochado, Assistant Professor (with Aggregation), ISCTE Business School, Department of Marketing, Operations and General Management

November 2021

BUSINESS
SCHOOL

Department of Marketing, Operations and General Management

M-COMMERCE: MOTIVATIONS AND DYNAMICS FROM GENERATION Z E-BUYERS

Joana Duarte Antunes Rufino

Master in Management

Professor Ana Brochado, Assistant Professor (with Aggregation), ISCTE Business School, Department of Marketing, Operations and General Management

November 2021

Acknowledgment

Before making any statements, I would like to pronounce how proud I am to see this project close to being completed. Writing my dissertation was one of the many challenges I embrace this past year and looking back I can say I grew as a person. I choose to conciliate my master's research while embarking on a professional experience, allowing me to empower my sense of duty, responsibility, and perseverance, and I can say it was one of the best choices to make.

The accomplishment and dedication given to this project weren't possible without the contribution of a group of people that along the way accompany me and motivate me to pursue my goals. Firstly, to Professor Ana Brochado, I would like to give my sincere thank you for the active support throughout this process, for being present to answer my numerous doubts, for the knowledge transmitted, and for guiding me in this difficult path, thank you. To my family, I want to leave a special thank you for being the pillar of support throughout the process. I want to leave a special message to my parents and sisters, who directly see my devotion to this project and pushed me forward to continue, and to my cousin Luísa, who helped me with her astounding language skills for the final Italian questionnaire. A special word to my closest friends, who join me in this journey, cheer me with my accomplishments, help when I struggle and make this challenge a lot more pleasant. Finally, I want to make a final thank you to all who contributed by completing the online questionnaire, without you, it would not have been possible to obtain the collected information and proceed with the research.

I appreciate all the support and motivation transmitted by every single person I came across during this journey. Each one impacted me and contributed to the end of this crucial phase in my life.

My sincere thank you.

Resumo

A Geração Z é reconhecida como a geração que não conhece um mundo sem a internet, nasceu lado a lado com a inovação e exige cada vez mais do mercado. As marcas devem trabalhar em prol de novos progressos digitais, de uma inovação constante nos seus sistemas e por processos interativos que captem esta geração de consumidores. Compreender o comportamento da Geração Z nas diferentes plataformas digitais, expõe como esta geração observa as plataformas de comércio móvel.

O estudo tem como objetivo explorar as motivações e as dinâmicas de compra dos indivíduos da Geração Z através de uma perspetiva de dois países, proporcionando insights aos retalhistas online para a criação de estratégias de marketing eficientes. A pesquisa pretende identificar quais os fatores que impactam a adoção de aplicações de compra móveis pelos indíviduos da Geração Z. O estudo propõe uma versão modificada do modelo conceptual UTAUT2, que incluem os novos fatores Confiança e Reputação da Marca/Retalhista, utilizando o Género e a Nacionalidade como variáveis moderadoras. Os dados para este estudo incluem uma amostra de 600 respostas de indivíduos da Geração Z de Portugal e Itália. Através dos resultados obtidos descobriu-se que o Hábito foi o fator que mais contribuía para a intenção de compra, seguindo-se a Reputação da Marca/Retalhista e a Confiança. Contrariamente, as Influências Sociais, Condições Facilitadoras e Motivações Hedónicas tiveram efeitos reduzidos. Adicionalmente, as variáveis Género e Nacionalidade não demonstraram variações significativas entre os grupos. Os resultados do estudo geraram implicações significativas para os retalhistas presentes online.

Keywords: Geração Z, inovação, digital, compradores online, comércio móvel, UTAUT2.

Abstract

Generation Z is recognized as the generation that does not know a world without the internet, grows side to side with innovation and demands more from the market. Brands need to work for new digital updates, constant innovative systems, and interactive processes to captivate these consumers. Understanding the behaviors towards different digital platforms by Generation Z exposes the way this generation looks to the m-commerce platforms.

This study aims to explore the shopping motivations and dynamics of Generation Z e-buyers from a cross-country panorama, contributing insights to e-retailers creating effective marketing strategies. The research intends to identify which factors impact the adoption of mobile shopping applications from Generation Z individuals. The study proposes a modified version of the UTAUT2 conceptual model, by adding the constructs Brand/Seller Reputation and Trust, using Gender and Nationality as moderators' variables. The data for this study includes a sample of 600 responses from Generation Z individuals within Portugal and Italy. The outcomes of this study found that Habitat was the highest predictor of behavioral intentions, followed by Trust and Brand/Seller Reputation. In contrast, Social Influence, Facilitating Conditions, and Hedonic Motivations have low effects. Additionally, the variables Gender and Nationality do not demonstrate significant variations between the groups. The study's results formulate solid implications for e-retailers.

Keywords: Generation Z, innovation, digital, e-buyers, m-commerce, UTAUT2.

Content

List of Tables

List of Figures

1. Introduction

Interconnected societies driven by technological and digital advances establish the world individuals live. These phenomena change the way people communicate, transform the way businesses are carried and switch the consumers' information flow.

Today, the shopping experience shift to an online environment and has become a common practice. E-commerce is in continuous growth, beating a total amount of 3.53 trillion US dollars, in 2019, in worldwide sales (Statista, 2020). It is one of the primary sectors related to individual consumption affecting different levels of each generation present in nowadays society. Nevertheless, several studies conducted by Puiu (2016) and Desai and Lele (2017) established that Generation Z exhibits different consumer values and preferences from earlier generations; therefore, identifying its consumption characteristics and online consumer behavior is fundamental for brands' success. Why do brands need to understand the online behavior of this generation? A European study conducted by EUROSTAT (2020) shows that individuals with ages between 16 and 24 years (i.e., Generation Z) have the highest percentage (78%) regarding the internet users who bought or ordered goods or services for private use in the previous 12 months (i.e., for the year 2019).

This dissertation aims to explore the shopping motivations and dynamics of Generation Z e-buyers, providing insights to e-retailers and guidelines to create effective marketing strategies. The focus will stand on understanding how this generation behaves in online shopping, considering the technology acceptance towards mobile shopping applications. This study will provide data from a cross-country view for a deeper understanding of the issue, including statistical data from 600 questionnaires answered by Portuguese and Italians belonging to Generation Z.

Portugal counts 1.092.325 individuals, in 2018, with ages from 15 to 24 (i.e., Generation Z) (Pordata, 2020), meaning an estimation of 11% of the total population. The percentage can be perceived as low; however, according to Marktest (2019), the most significant range regarding the use of e-commerce platforms, in Continental Portugal, belongs to the age range of 15-24 years (i.e., Generation Z) with 66% in the usage of e-commerce platforms. Italy counts 5.885.993 individuals, in 2018, with ages from 15 to 24 (i.e., Generation Z) (Pordata, 2020), meaning an estimation of 10% of the total population. Although there's a lack of statistical data available concerning the rates of e-commerce platforms usage by age to have an accurate estimation, Italy, is pointed to as one of the fastest-growing e-commerce markets in Western Europe. The choice of mobile shopping applications for the sector owes to the increased use of smartphones in both countries. In Portugal, 67% access the internet by smartphones (Marktest, 2019). In Italy, 52.5% of users prefer smartphones for online purchases and price comparison (Idealo 2019).

Further in the paper is presented a proposed conceptual model based on the original UTAUT2, adding the constructs Trust and Brand/Seller Reputation and the moderators' variables Gender and Nationality, to predict the consumer's behavior. The main segment of the study is individuals from Generation Z, this research intends to identify and analyze their motivations to buy online, measure their online behavior towards technology innovation and uncover which variables are most valuable to them when it comes to m-commerce platforms. Generation Z lives in an over-information and over-choice bubble this is a problematic situation for brands, being important to identify and analyze: Which factors drive Generation Z to buy online and use m-commerce platforms? These factors have the same importance for each user (i.e., which variables are most valuable)? How does each factor impact the user's technology acceptance? (e.g., the m-commerce platform is used because the brand has a well-known reputation, or trust in it because of the m-commerce platform seller? If it takes too much effort to use it, the consumer will use it anyway because of the brand/ seller reputation?). The results of the study attend to provide insights that will answer the research questions this issue brings.

The Dissertation structure begins by defining the generation concept and scoping the different generational cohorts of society appropriate for the cyberspace domain under study. Moreover, a deeper investigation regarding Generation Z theory, according to several authors. The research focuses on the shopping orientation, acceptance of innovative technologies, and how the factors impact the adoption of these innovations; therefore, it is vital to emphasize the e-commerce buyer behavior models. Further in the paper is presented the modified conceptual model and the eleven formulated research hypotheses. After revisiting the literature, are describe the research context, sample, and the techniques adopted for data treatment. Conclusively, the several analyses expose the discoveries and the outcomes. Additionally, supplementary implications to the theory obtain from the present research.

2. Literature Review

2.1. Generation Concept

A Generation represents an "identifiable group of people who share common birth years, experience similar life events and grow up in a comparably alike environment with equal resources, opportunities, and challenges" (Krbová & Pavelek, 2015; Kupperschmidt, 2000; Seemiller & Grace, 2017). As each generation matures through similar events and exposures, they tend to develop a uniform belief system, values, and personality features that differ from preceding and succeeding generations (Howe & Strauss, 1992; Srinivasan, 2012). Inside one generational cohort the consumers' motivations are related, by contrast, between two generations usually many differences can be observed (e.g., in purchase behavior and buying involvement) (Krbová & Pavelek, 2015). This generational distinction can be observed by the communication style, knowledge, skills, and other aspects of life including socializing, and purchasing (Howe & Strauss, 1992; Srinivasan, 2012).

2.2. Generational Cohorts

The present society is composed of individuals belonging to different generations, holding multiple and distinctive relevant generations. Each generational cohort was built in a particular historical period, characterized by distinguishing economic, technological, political, cultural, and social conditions, resulting in different attributes and behavior (Sabaitytė & Davidavičius, 2017). Not all generations are appropriate to a specific research field; therefore, separate study fields find it applicable to approach different combinations of generational cohorts (e.g., X, Y, Z or Baby Boomer, X, Y) (Sabaitytė & Davidavičius, 2017) (Table 2.1).

Table 2.1: Generation combinations according to the research field.

Author(s), Year	Generational Cohorts	Research Field
Li et al. (2013)	Silent, Baby Boomer, X and Y generations	Tourism
Chi et al. (2013); Gursoy et al. (2013)	Baby Boomer, X and Y generations	Hospitality
Sabaitytė & Davidavičius (2017)	Baby Boomer, X, Y and Z generations	Cyberspace

Source: Compiled by Authors

According to Li et al. (2013), for the tourism sector, only four generations (Silent, Baby Boomer, X and Y generations) are required to investigate. Other studies produce for the hospitality sector distinguish three important generations (Baby Boomer, X, and Y generations) (Chi et al., 2013; Gursoy et al., 2013). To explore online consumer behavior is relevant to analyze its active members; therefore,

the suitable combination of generations for cyberspace is Baby Boomer, X, Y, and Z generations (Sabaitytė & Davidavičius, 2017).

The Generation Baby Boom (i.e., Baby Boomers) has individuals born between 1945 and 1964 (Lyons et al., 2005). After the high birth rate decline appear Generation X (also called Baby Bust generation) (Sabaitytė & Davidavičius, 2017). Generation Xers, born between 1965 and 1979 (Lyons et al., 2005). The followed is Generation Y, also titled the Millenials, described as the cohort of people born in 1980 to 1994 (Bednall et al., 2012; Sabaitytė & Davidavičius, 2017). After Generation Y, the youngest individuals of today's society belong to Generation Z (Sabaitytė & Davidavičius, 2017).

2.3. Generation Z

There are considerable disputes and debates about the definition of Generation Z (Thangavel et al., 2019). The scientific literature does not agree with one accurate determination of age limits for this generation. (Sabaitytė & Davidavičius, 2017) (Table 2.2).

Table 2.2: Different definitions of Generation born in 1990-2010.

Author(s), Year	Title	Definition	Time Horizont
Rowlands et al. (2008)	Google Generation	Without or little life experience before the internet.	Born in 1993.
Targamadze (2014)	New generation	Generation Z is familiar with technologies that affect the human brain's function.	Born in 1995.
Turner (2015)	iGeneration	Generation Z is the youth born in the Mid-1990s until the late 2010s.	The mid-1990s until the late 2010s.
Özkan & Solmaz (2017)	Generation Z	Individuals who are growing using extensively the internet.	1996 and beyond.

Source: Compiled by Authors

For Rowlands et al. (2008), Generation Z is designated as the google generation, including people born in 1993, with none or little life experience before the internet spread. Targamadze (2014) usually defined this generation mostly as the "new generation" sometimes as the digital generation, children of the virtual environment, or natives of the digital generation. For this author, individuals born in 1995 belong to Generation Z, considering a member who is closely related to the technologies that affect the human brain function, which helps to adjust to the current challenges. According to Turner (2015), Generation Z is the generation referred to as iGeneration, net-gen or digital natives, which describe

the youth born in the mid-1990s through the late 2010s. Özkan and Solmaz (2017) characterize Generation Z as the group of individuals growing in an environment where the Internet is extensively and commonly used (e.g., for their social experiences on the Internet), born in 1996 and beyond.

Generation Z's representative features are different from the other generations (Özkan and Solmaz, 2017). No other generation was born in an era in which technology is so readily accessible (Prensky, 2001). This generation grows with computers and technological discoveries, making technology and the Internet indispensable (Özkan and Solmaz, 2017). Generation Z's behavior in cyberspace is unique since it is the first generation to grow up in the era of global digitalization, which radically changes the communication model (in the physical and virtual environment), thinking style, specifics of information retrieval, and absorption (Sabaitytė & Davidavičius, 2017). The younger generation has more choices than any generation had ever before (Taylor, 2018).

Generation Z has more choices than any generation had ever before (Taylor, 2018). This generation lives in a world of constant updates with considerably more information (Thangavel et al., 2019). This phenomenon creates a tendency for Generation Z consumers to be confused by "over choice" and countless of them will limit their product search using the filters in the e-commerce platforms (Thangavel et al., 2019).

According to the Accenture (2017) global consumer shopping questionnaire, Generation Z will switch most purchases to retailers that provide the newest digital tools and channels. The report states a greater demand for new shopping methods and speed processes, also showing that Generation Z enjoys giving feedback but is incapable to develop loyal relationships with the brands. Brand loyalty is losing its significance among Generation Z consumers (Thangavel et al., 2019). It is rational that Generation Z would choose less expensive and convenient products over the well-established high prices brands (Taylor, 2018).

A study conducted by Thangavel et al. (2019) aimed to segment Generation Z online shoppers into unique shopping orientation groups. The research established four profiles according to the shopping behavior: Economic-quality seekers; Convenience shoppers; Deal hunting-convenience seekers; Brand and quality-conscious shoppers.

2.3.1. Economic-Quality Seekers

This cluster describes the Generation Z consumers that seek quality products at a reasonable price. These individuals are most likely to compare available products in the e-commerce platforms before making the final purchase. This segment is not influenced by brand names or convenience. Consumers from this cohort consistently switch between brands that suit their needs at the time and exhibit value consciousness when shopping online. This cohort is above-average spenders in an e-commerce platform. For e-retailers to reach this segment, they must offer quality products at competitive prices

and not displease this segment with quality because they are hardcore switchers and least guilty about returning the product (Thangavel et al., 2019).

2.3.2. Convenience Shoppers

This cluster is convenience oriented. This segment doesn't develop loyalty relationships with brands or sellers. Overall, Generation Z is the least loyal consumer in e-commerce and tends to choose more wisely than any other preceding generation (Van den Bergh and Pallini, 2018). The long-term benefits (e.g., loyalty cards or coupons in the subsequent purchases) have little value for Generation Z. However, the short-term benefits (e.g., discounts, freebies and, free delivery) seem to be very attractive for this cohort. To e-retailers reach this segment, the focus needs to be on convenience and flexibility attributes, i.e., benefits like doorstep delivery, paid-fast delivery, easy return policy and flexible delivery schemes. These qualities seem to be effective with this segment's convenience orientation needs (Thangavel et al., 2019).

2.3.3. Deal Hunting-Convenience Seekers

The third segment is price consciousness and convenience orientated. This segment values the discounts and the convenience attributes of the purchase, often looking for the best deals, sales and, discounts to reap the maximum value for their money. The online retailers who target this segment must focus on these convenience attributes. The phenomenon of over-choice is not a problem for this cohort because it had an early introduction to the digital era and social media platforms, being accustomed to constant updates and navigate through large amounts of information. This cohort is tech-savvy and holds the highest number of shoppers with long periods of Internet users compared to the other three segments (Thangavel et al., 2019).

2.3.4. Brand and Quality-Conscious Shoppers

This cohort is brand and quality consciousness. This segment is brand-conscious, as it might believe that only the well-known brands offer the best quality. The high price is not a negative attribute when this cohort shops online. Thereby, brand reputation and quality are the most relevant attributes to consider. E-retailers need to build a reputation for their private label brands through advertising, celebrity endorsement and, associating their brand with social causes. E-retailers should focus on delivering quality products and services. The quality needs to be highlighted in all marketing campaigns since it helps build the brand reputation (Thangavel et al., 2019).

2.4. E-commerce Buyer Behavior Models

Several theories and models explain and forecast the adoption of new products, systems, innovations, or technologies, justifying why individuals adopt or reject them (Al-Tarawneh, 2019). Electronic service

development success depends on the technology assimilation in society, so the models go along according to the time cycle they represent (Sabaitytė & Davidavičius, 2017; Al-Tarawneh, 2019). The technology acceptance models combine psychology, sociology, and information technology factors, allowing understand the predictors of human behavior toward potential adoption or rejection of the innovation in technology (Al-Tarawneh, 2019). Al-Tarawneh (2019) conducted a study presenting insights concerning the applicability and limitations of the most dominant models and theories of the technology acceptance field, identifying the most significant to study the adoption of innovation the models: TRA; TPB; TAM; and UTAUT (Table 2.3).

Table 2.3: Technology Acceptance Models.

Author(s), Year	Technology Acceptance Model	Important features affecting behaviour intention and actual behaviour
Fishbein & Ajzen (1975)	*TRA*	Attitude / subjective norms
Ajzen (1985)	*TPB*	Attitude / subjective norms / perceived behavioural control
Davis et al. (1989)	*TAM*	Perceived usefulness / perceived ease of use / attitude
Venkatesh et al. (2003)	*UTAUT*	Performance expectancy / effort expectancy / social influence / facilitating conditions
Venkatesh et al. (2012)	*UTAUT2*	Performance expectancy / effort expectancy / social influence / facilitating conditions / habit / hedonic motivation / price value

Source: Compiled by authors

2.4.1. Theory of Reasoned Action (TRA)

The earliest model to explain technology acceptance was the Theory of Reasoned Action (TRA) (Al-Tarawneh, 2019). Developed by Fishbein and Ajzen (1975), the TRA model has two main factors: Attitudes toward Behavior and Subjective Norms, to explain Behavioral Intention.

2.4.2. TPB

Due to the limitations of TRA, Ajzen (1985) adjust the Theory of Planned Behaviour (TPB) by adding the Perceived Behavioral Control (PBC) factor. According to Ajzen (1991), PBC is is the perception of facility or difficulty to perform a particular behavior by the individual and considers the individual's less controlled behavior in specific situations, including variables that change according to the environment and the actions involved (i.e., measures unconscious behavior).

2.4.3. TAM

TAM (Technology Acceptance Model) was suggested by Davis et al. (1989). The model explains the consumer's behavior intention to use a specific technology considering the Perceived Ease of the System's Use (the desired technology wouldn't require significant effort) and the User's Perceived Usefulness (beneficial use for a specific activity, the utility of use) (Sabaitytė & Davidavičius, 2017). TAM does not include subjective norms as determinants of Behavioural Intention, like in TRA (Al-Tarawneh, 2019). However, contemplate psychological characteristics (e.g., the consumer's attitude) because they are directly connected with the use of technologies in consumer involvement (Sabaitytė & Davidavičius, 2017).

2.4.4. UTAUT

Venkatesh et al. (2003) acknowledge that a fusion of eight models was required to obtain a unified view of users' technology acceptance, creating the Unified Theory of Acceptance and Use of Technology (UTAUT). This new model included moderator variables (i.e., experience, the voluntariness of use, age, and gender) to eliminate the limitations of the previous models (Venkatesh et al., 2003). According to the model proposed by Venkatesh et al. (2003), UTAUT has four constructs: Performance Expectancy, Effort Expectancy, Social Influences, and Facilitating Conditions. The variables Performance Expectancy, Effort Expectancy, and Social Influences determine Behavior Intention; however, the Actual Behavior (usage) is the result of one interconnection between Facilitating Conditions and other interconnection with Behavioral Intention (Venkatesh et al., 2003).

Performance Expectancy is defined as "the degree to which an individual believes that applying the technology will help him or her to attain gains in job performance", Effort Expectancy is described as the "extent of ease connected with the use of the system", Social Influence is designated as "the degree to which an individual perceives that others believe he or she should use the new system", and Facilitating Conditions is "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" (Venkatesh et al., 2003).

Due to the far-reaching feature of this model, some researchers in the field of technology acceptance consider the UTAUT model the benchmark of most predictive models (Weerakkody et al., 2013).

2.4.5. UTAUT2

UTAUT2 is an extension of the UTAUT, called the Extended Unified Theory of Acceptance and Use of Technology (Al-Tarawneh, 2019). UTAUT was further modified to include more contextual factors to overcome some theoretical criticism in parent adoption (Venkatesh et al., 2012). According to Venkatesh et al. (2012), UTAUT2 is the most powerful model to explain behavioral intention since the

model includes the consumer perspective. The validation proceeded by adding three external constructs (Hedonic Motivation, Price Value, and Habit). Price Value is the "consumer's cognitive trade-off between the perceived benefits of the application and the monetary cost for using it", Hedonic Motivation means "the enjoyment or joy that is caused by using a particular technology" (e.g., enjoyment, playfulness, and joy), Habit is defined by "the extent to which people tend to perform behavior automatically because of learning" (Venkatesh et al., 2012). The model considers individual differences, counting with moderator variables such as Age, Gender, and Experience (Venkatesh et al., 2012).

Tarhini et al. (2019) analyzed 437 questionnaires regarding the factors capable of molding consumers' intentions to adopt m-commerce in Oman. The authors integrated the UTAUT2 constructs, with SERVQUAL factors (i.e., Self-efficacy (SE), Information Quality (IQ), System Quality (SQ), and Service Quality (S)), and the external construct Trust (T), to predict the customer behavior. The success of the questionnaires owes to the expertise and knowledgeable feedback of the academics and the pilot study previously made. The method used for the data analysis was the two-stage approach of structural equation modeling (SEM) and, to examine the relationships between the proposed constructs in the research model (i.e., test the model fitness), a confirmatory factor analysis (CFA), based on AMOS 21.0, was applied.

Alalwan et al. (2017) applied UTAUT2, adding the construct Trust, targeting Jordanian bank customers who use mobile banking services. The authors adopt a skewness-kurtosis approach to test univariate normality for each variable, using AMOS 21.0. The data collected from 334 questionnaires was subject to further analyses with the SEM. To test the fitness of the model it was conducted the CFA, followed by an evaluation of the reliability and validity of the constructs. After analyzing the data collected, they reported that the behavioral intention construct was affected significantly and positively by performance expectancy, effort expectancy, hedonic motivation, price value, and trust.

Morosan and DeFranco (2016) augmented the original UTAUT2 to establish a comprehensive model capable of explaining the acceptance of near field communication (NFC) in mobile payments. The original constructs remain, the authors add the constructs: General Privacy (GP); System-related Privacy (SrP); and Perceived Security (PS). After the pilot test, the questionnaire was refined and sent to the consumers. Based on 794 responses from American hotel customers, the data were collected in April 2015. The data were analyzed by applying the CFA and the corresponding SEM. They reported that performance expectancy was the strongest construct to predict behavioral intention; while other factors (habit, hedonic motivation, and social influence) had lower effects.

Table 2.4: Empirical Studies.

Author(s), Year	Research Context	Original Conceptual Model	Additional Constructs	Sample and Period	Statistical Method
Tarhini et al. (2019)	Omani's m-commerce users	UTAUT2	*SE, IQ, SQ, S, T*	N=430; February and April 2017	SEM; CFA based on AMOS 21.0
Alalwan et al. (2017)	Jordania's bank users	UTAUT2	*Trust*	N=343	Skewness-kurtosis approach using AMOS 21.0; SEM; CFA
Morosan & DeFranco (2016)	American Hotel Consumers; Mobile payments	UTAUT2	*GP, SrP, PS*	N=794; April 2016	SEM; CFA

Source: Compiled by authors

3. Conceptual Model and Research Hypothesis

3.1. Revisiting the core UTAUT2 Model

After analyzing and consider the literature and empirical studies, the most adequate conceptual model to investigate the factors that affect the adoption of m-commerce platforms by Generation Z is the UTAUT2 model. UTAUT2 is an extension of the UTAUT, is the result of an adjustment to include more circumstantial factors and properly explain the behavioural intention from the consumer perspective. For the present research, a proposed model will be developed and contemplate the seven original constructs (i.e., Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivations, Price Value, Habitat). The proposed conceptual model adds two new constructs and two moderator variables described further in this chapter. The proposed model investigates 11 proposed hypotheses with brief definitions of the components and their roles.

3.1.1. Performance Expectancy

Performance Expectancy is defined as "the degree to which an individual believes that using the technology will help him or her to attain gains in job performance" (Venkatesh et al., 2003). The concept of performance has been defined as a multiplicity of system attributes that provide benefits to its users, i.e., system efficiency, speed, accuracy in the task completion, and other attributes that eventually would set that platform apart from its competitors (Yang, 2009). Performance expectancy was found to influence intentions to use information systems (Baptista and Oliveira, 2015). Thus, the following hypothesis was formulated.

H1: Performance expectancy has a positive impact on the behavioral intention for mobile shopping applications.

3.1.2. Effort Expectancy

Effort Expectancy is described as the "degree of ease associated with the use of the system" (Venkatesh et al., 2003). This construct is originally from the variable perceived ease of use from Davis' TAM theory (1989), defined as 'the degree to which a person believes that using a particular system would be free of an effort'. However, several studies found non-significant relationships between effort perceptions and intentions (Baptista and Oliveira, 2015; Lian, 2015) or positive relationships of low magnitudes (Pascual-Miguel et al., 2015), thus offering inconclusive results vis-a-vis the relationship between effort expectancy and intentions. In this context, the following hypothesis was developed.

H2: Effort expectancy has a positive impact on the behavioral intention for mobile shopping applications.

3.1.3. Social Influence

Social Influence is designated as the "degree to which an individual perceives the degree of approval of a certain behavior by important references." (Venkatesh et al., 2003). Similar to all consumers that face systems in their adoption phase and, as the electronic payment methods are inevitably evolving, it becomes likely that consumers form general perceptions regarding those systems (Fishbein and Ajzen, 1975). In this context, the following hypothesis was developed.

H3: Social Influence has a positive impact on the behavioral intention for mobile shopping applications.

3.1.4. Facilitating Conditions

Facilitating Conditions is the group of conditions with a direct effect on system usage and is defined as "the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system" (Venkatesh et al., 2003). The premise is that consumers' engagement in certain task-related behaviors using a given system would not be possible in the absence of an infrastructure of conditions capable of facilitating the interactions necessary for task completion (Venkatesh et al., 2012). Therefore, the following hypothesis was formulated.

H4: Facilitating Conditions have a positive impact on the behavioral intention for mobile shopping applications.

3.1.5. Hedonic Motivation

Hedonic Motivation means "the enjoyment or joy that is caused by using a particular technology", i.e., enjoyment, playfulness, and joy (Venkatesh et al., 2012). Initially, most consumer technology systems were designed to be primarily task-oriented, the focus of adoption was on internal beliefs and utilitarian factors (Thong et al., 2006). Brands found entertainment was a relevant attribute because consumers did not use systems exclusively to complete tasks (Dwivedi et al., 2016). Consider this information become crucial to insert playfulness characteristics (i.e., entertainment value, and enjoyment, and other non-utilitarian functions) into the system (Dwivedi et al., 2016). Thus, the following hypothesis was developed.

H5: Hedonic Motivation has a positive impact on the behavioral intention for mobile shopping applications.

3.1.6. Price Value

Price Value is the "consumer's cognitive trade-off between the perceived benefits of the application and the monetary cost for using it" (Venkatesh et al., 2012). Price value can be an appropriate construct when examining individual technologies, emphasizing utilitarian value (Tamilmani et al., 2018). However, Price value is not an appropriate construct to include in the research model of studies examining individual technology adoption and diffusion-related issues that are free to users, i.e., mobile, and social networking websites (Tamilmani et al., 2018). In this context, the following hypothesis was developed.

H6: Price Value has a positive impact on the behavioral intention for mobile shopping applications.

3.1.7. Habitat

In their conceptualization of the UTAUT2 model, Venkatesh et al. (2012) incorporated the view that consumers' automatic behaviors outside of the task environment influence behavior. Specifically, defined habit as "the extent to which consumers tend to perform automatic behaviors due to learning" (Venkatesh et al., 2012). In the specific context of m-commerce, consumers go through a series of repetitive steps from the need's recognition until the product consumption/evaluation (Venkatesh et al., 2012). This process could become automatic; therefore, become a habit (Venkatesh et al., 2012).

H7: Habitat has a positive impact on the behavioral intention for mobile shopping applications.

3.2. Augmenting the Model

The literature review presents previous studies concerning the adoption and use of e-commerce by individuals. The conceptual model (Figure 1) proposed for this study is based on the UTAUT2 by Venkatesh et al. (2012) since it is the most predicted model to understand consumer behavior regarding technology acceptance. The original constructs remain, adding the constructs Trust and Brand/ Seller Reputation. Regarding the individual differences, since the research target is Generation Z, the variables Experience and Age won't generate distinct outcomes; therefore, the variables Gender and Nationality were the the only moderator variables used.

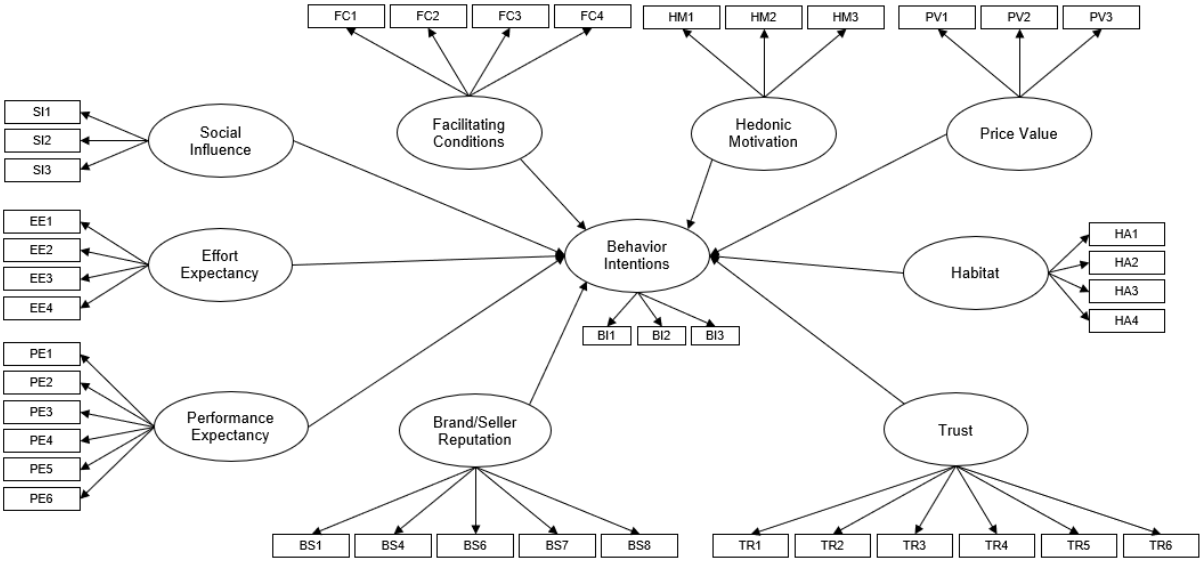

Figure 3.1: Proposed Research Model based on UTAUT2.

3.2.1. Trust

Trust means "a positive expectation and attitude towards others and the degree of confidence with which one can depend on others" (Rousseau et al., 1998). Privacy, security, and trust become the main factors when evaluating information systems (Hoffman et al., 1999). Hoffman et al. (1999) stated that Internet service providers should build their customers' trust by ensuring their privacy and safety since these two are considered significant tangible issues on the Internet. Trust in Internet service providers may be determined by competence, sincerity, and benevolence (Bhattacherjee 2000). Thus, the following hypothesis was developed.

H8: Trust has a positive impact on the behavioral intention for mobile shopping applications.

3.2.2. Brand/Seller Reputation

The online retail environment is characterized by a low degree of physical proximity, leading to a psychological distance and insecurity, unlike in traditional retail environments, where consumers can formulate opinions about retailers based on various physical aspects (Grewal et al., 2004). Within a digital interface, consumers need to seek certain factors to determine whether the company is trustworthy to purchase or not (Román, 2007). Consumer perceptions are a critical factor when deciding to purchase, especially their perception of the E-retailers ethics (Román & Cuestas, 2008). E-retailers must follow and exhibit ethical conduct to influence consumers' purchase and repurchase intentions, as well as in the formation and maintenance of long-term relationships between brands and customers (Lee & Charles, 2021). When shopping online, consumers can purchase from a well-established e-retailer, i.e., with a long history of the business, or decide to purchase from an unknown

e-retailer, i.e., hardly known and wonder if the retailer follows ethical conduct (Lee & Charles, 2021). Most consumers prefer to shop with well-established e-retailers because it is convenient and safe. However, some consumers are willing to make purchases from unknown e-retailers if they perceived it is an ethical e-retailer. (Lee & Charles, 2021). Accordingly, the following hypotheses were formulated.

H9: Brand/Seller Reputation has a positive impact on the behavioral intention for mobile shopping applications.

3.2.3 Gender

UTAUT presents a moderating effect of gender in the relationships between performance expectancy and behavioral intention, i.e., performance expectancy is more significant for men, as effort expectancy and behavioral intention are more significant for women (Venkatesh et al., 2003). The attitude towards risk stated another difference between men and women since reviewed research supported the idea of higher risk-taking on the part of men (Aguirre-Urreta & Marakas, 2010). There is no doubt in the existence of a gender effect in each central relationship, explaining the user acceptance of technology (Aguirre-Urreta & Marakas, 2010).

H10: Gender is a model moderator for mobile shopping applications.

3.2.4 Nationality

Smart technologies, i.e., smart devices and mobile applications, are a central part of modern lifestyles and people's consumption practices (Rattanaburi & Vongurai, 2021). Consequently, there are important characters of culture on the global consumption of the Internet (Hermeking, 2005). Smart technologies transformed the business environment, affecting global retail (Nikhashemi et al., 2021). Nevertheless, cultural values and communication are intrinsic and influence consumption preferences (Hermeking, 2005).

H11: Nationality is a model moderator for mobile shopping applications.

4. Methodology

4.1. Research Context and Sample Design

The present research examines Generation Z in a cross-country study regarding two European Countries, i.e., Portugal and Italy. In the 2018 assessments, Portugal held 11% of the total population with individuals between 15 and 24 years (i.e., Generation Z) (Pordata, 2020). The value can be low; however, according to Marktest (2019), the age range of 15-24 years uses the most compared to other cohorts, e-commerce platforms, counting with 66% in the usage of e-commerce platforms. Similar statistical values appear in Italy. In 2018 estimations, Italy declared 10% of the total population with individuals between 15 and 24 years (i.e., Generation Z) (Pordata, 2020). Italy denotes as one of the fastest-growing e-commerce markets in Western Europe. The choice of m-commerce platforms owes to the increased use of smartphones in both countries. In Portugal, 67% access the internet by smartphones (Marktest, 2019), and in Italy, 52.5% of users prefer smartphones for online purchases (Idealo 2019).

The target population for the research was Generation Z individuals from Portugal and Italy. According to the literature expose, the considered age range was from 14 to 27 years old. After defining the target population, Sampling Convenience was the procedure to reach Generation Z individuals from both countries (Malhotra, 2019). Generation Z individuals are significantly present on social media, subsequently, to benefit from these online platforms, the sample selected was from social media (e.g., Linkedin and Facebook) groups of universities and students (Malhotra, 2019).

4.2. Research Design

The literature highlights how digital innovations in technology platforms influence the online consumption of Generation Z. Authors project the wide range and easy access to information, the demand for improved digital systems and processes when it comes to e-commerce platforms. The main goal of the research is to understand the motivations and dynamics that drive e-buyers from Generation Z to use mobile shopping applications and their behavior towards mobile commerce platforms. This knowledge will give an overview of how the new technology platforms present in m-commerce affect online purchases in the lives of Generation Z consumers and buyers.

A quantitative research design was applied due to the descriptive nature of this investigation. The study for this dissertation was empirical, through which large samples of quantifiable data were collected from online consumers within Generation Z, concerning the two countries in the study (Portugal and Italy). The results were evaluated via statistical analysis with the software IBM SPSS to test the theory exhibit in the literature, and extra constructs presented in the proposed modified

model. For the research, secondary data was necessary to expose the e-commerce evolution, mobile usage, and Generation Z digital tendencies (i.e., previous studies and statistical information). Primary data was collected using an online questionnaire (i.e., Google forms format) focus on the variables mention in the study.

4.3. Survey Design

The online questionnaire was divided into two distinctive parts. The first part considers a demographic characterization of the individual, target to mobile phone usage and mobile shopping applications (i.e., age, gender, academic qualifications, average mobile spent time, number and type of mobile applications, and frequency of shopping in m-commerce platforms) (Annex A), generating variables denominated as nominal, ordinal and scale. The second part of the questionnaire was composed of the potential factors that may influence the adoption of m-commerce (i.e., constructs and model moderator variables of the proposed conceptual model) (Annex A). These questions were an adaptation of previous scientific research related to the field of study for this dissertation. The scales to measure the original constructs had been used previously by researchers Venkatesh et al. (2003) and Venkatesh et al. (2012). The scales to measure the added constructs Trust and Brand/Seller Reputation were adapt from the investigation of Gefen et al. (2003), Lee and Charles (2021) and Thangavel et al. (2019), presented in the following table (Table 4.1).

Table 4.1: Online Questionnaire Structure

Variable	Question	Adapted From
PE1	I find mobile shopping applications useful in my daily life	Venkatesh et al., 2012
PE2	Using Mobile shopping applications increases my chances of achieving tasks that are important to me	Venkatesh et al., 2012
PE3	Using mobile shopping applications helps me accomplish tasks more quickly	Venkatesh et al., 2012
PE4	Using Mobile shopping applications increases my productivity	Venkatesh et al., 2012
PE5	Using mobile shopping applications would allow me faster access to the produts	Venkatesh et al., 2012
PE6	Using mobile shopping applications would allow me to make more accurate purchases	Venkatesh et al., 2012

EE1	Learning how to use mobile shopping applications for my purchases is easy for me	Venkatesh et al., 2012
EE2	My interactions with mobile shopping applications are clear and understandable	Venkatesh et al., 2012
EE3	I find mobile shopping applications easy to use	Venkatesh et al., 2012
EE4	It is easy for me to become skilful at using mobile shopping applications	Venkatesh et al., 2012
SI1	People who are important to me think that I should use mobile shopping applications	Venkatesh et al., 2012
SI2	People who influence my behaviour think that I should use mobile shopping applications	Venkatesh et al., 2012
SI3	People whose opinions that I value prefer that I use mobile shopping applications	Venkatesh et al., 2012
FC1	I have the necessary resources to use mobile shopping applications	Venkatesh et al., 2012
FC2	I have the necessary knowledge to use mobile shopping applications	Venkatesh et al., 2012
FC3	Mobile shopping applications are compatible with other technologies I use	Venkatesh et al., 2012
FC4	I can get help from others when I have difficulties using mobile shopping applications	Venkatesh et al., 2012
HM1	Using mobile shopping applications is fun	Venkatesh et al., 2012
HM2	Using mobile shopping applications is pleasant	Venkatesh et al., 2012
HM3	Using mobile shopping applications is entertaining	Venkatesh et al., 2012
PV1	Mobile shopping applications is reasonably priced.	Venkatesh et al., 2012
PV2	Mobile shopping applications have good value for the money	Venkatesh et al., 2012
PV3	At the current price, mobile shopping applications provide a good value	Venkatesh et al., 2012
HA1	Generally, the use of mobile applications for shopping has become a habit for me	Venkatesh et al., 2012
HA2	I am addicted to using mobile phones for general shopping	Venkatesh et al., 2012
HA3	I must use mobile applications for shopping	Venkatesh et al., 2012

HA4	Using mobile applications for shopping has become natural to me	Venkatesh et al., 2012
TR1	I believe mobile shopping applications are trustworthy	Gefen et al., 2003
TR2	I trust mobile shopping applications	Gefen et al., 2003
TR3	I do not doubt the honesty of mobile shopping applications	Gefen et al., 2003
TR4	I feel assured that legal and technological structures adequately protect me from problems with mobile shopping applications	Gefen et al., 2003
TR5	Even if not monitored, I would trust mobile shopping applications to do the job right	Gefen et al., 2003
TR6	Mobile shopping applications can fulfil their task	Gefen et al., 2003
BS1	Mobile shopping application reputation	Lee and Charles, 2021
BS2	Mobile shopping application for a specific gender/age	Lee and Charles, 2021
BS3	Mobile shopping application online market recognition	Lee and Charles, 2021
BS4	Mobile shopping application online ratings and reviews	Lee and Charles, 2021
BS5	Mobile shopping applications with the secure transaction and personal information	Lee and Charles, 2021
BS6	I tend to buy mostly from a particular mobile shopping application	Thangavel et al., 2019
BS7	Only my favourite mobile shopping application provides me the best products	Thangavel et al., 2019
BS8	I like to try new mobile shopping applications	Thangavel et al., 2019
UB1	I frequently use mobile applications for shopping	Venkatesh et al., 2012
BI1	I intend to continue using mobile shopping applications in the future	Venkatesh et al., 2012
BI2	I will always try to use mobile shopping applications in my daily life	Venkatesh et al., 2012
BI3	I plan to continue to use mobile shopping applications frequently	Venkatesh et al., 2012

Source: Adaptation from compiled authors

The items were measure on a seven-point Likert scale “1 = Strongly Disagree”, and “7 = Strongly Agree”. There were some exceptions, four of the six questions related to the construct Brand/Seller

Reputation (i.e., BS1, BS2, BS3, BS4) (Table 4.1), which the seven-point Likert scale ranged from "1 = Not important" to "7 = Very Important". The second exception was related to the question about the "frequency of using mobile shopping apps" (i.e., apparel apps, food apps, electronic items apps, book apps, sport items apps, decor items apps, cosmetic items apps, travel apps, stock apps) which the seven-point Likert scale ranged from "1 = Never" to "7 = Several times a day" (Annex A).

After a rigorous pilot test with five trials from different users, the instrument was refined, and the data was collected in July 2021. For each country, a sample of 300 responses was achieved to further analysis and testing according to the proposed research theory model and hypothesis. The questionnaire was exposed to different digital platforms (e.g., social media) to reach the target group effectively. It has the same structure and content for both countries, only changing the language.

The questionnaire was crucial to reach the final goal of understanding the profile of the Generation Z online consumers and recognize what drives them to use m-commerce platforms.

4.4. Data Treatment

To obtain the results, analyze and interpret the data, several methods were followed. In the first instance, a Descriptive Analysis was performed to describe and characterize the sample, using the statistical software IBM SPSS.

Proceed by an Exploratory Factor Analysis to validate the constructs present in the study. Subsequently, Partial Least Squares Path Modeling (PLS-PM) was the statistical approach to modeling complex multivariable relationships, i.e., to estimate and evaluate the measurement and structural models (Hair, 2014). PLS-SEM provides numerous advantages when working with structural equation models. Several studies raised prominent arguments to use this statistical procedure, namely non-normal data, small size samples, and formatively measured constructs, resembling the present investigation (Hair, 2014).

The final investigation examines whether prevail a significant difference between the group's Gender and Nationality, using the Multigroup Analysis of PLS-PM. The multigroup analysis represents a moderator analysis to spotlight the differences between these two groups and if they potentially affect the relationships in the inner model (Hair, 2014).

5. Results and Discussion

This chapter demonstrates the discoveries and the outcomes of the study while revealing additional contributions to the current theory. The chapter comprises the statistical analysis of the research, presents the data collected, and exposes the results obtained concerning the application of the questionnaire.

5.1. Descriptive Analysis

For the sample obtained, an analysis to understand more profound the demographic characteristics was performed. The first part of the questionnaire included questions related to the intention to buy from mobile shopping applications by gender, age group, level of studies, and mobile behavior (e.g., mobile usage time, number of mobile shopping applications, and shopping frequency) (Table 5.1). The questionnaire collects a total of 600 responses answered by Generation Z individuals. According to the literature expose, the age considered in this research for Generation Z individuals was from 14 to 27 years old.

The responses are distributed equally by the two nationalities of the study (Italians and Portugueses, i.e., 300 answers each). The questionnaire was complete by a majority of 61.3% female individuals, also verified as the majority group inside both nationalities, i.e., 58.5% female answers form all Portuguese answers, and 64% female answers form all Italian. The age group with more weight is the 21-23 (47%), followed by the 24-27 (40.2%). Almost 80% of the respondents who had complete the questionnaire had a college degree, also verified as the majority group inside both nationalities, i.e., 83% Portuguese college students and 71% Italian college students.

The questionnaire included questions regarding mobile behavior. Assorted to this sample, the research states an average of "3 to 4 hours" (42.7%) spent on the mobile per day. The respondents' majority have "1 to 3 apps" (37.7%) and the average shopping frequency is "1 or 2 times per month" (36%).

Generation Z is known as the digital native generation; however, a minority of the results display the exception for this classification, the sample has individuals who don't shop from mobile applications (6.7%), don't hold mobile applications (9.2%), and use the phone less than an hour (1.7%).

Table 5.1: Research Sample Characterization

Variable	Category	Sample (*n*=600)		Italy (*n*=300)		Portugal (*n*=300)	
		N	N%	N	N%	N	N%
Gender	Female	367	**61.3%**	192	64.0%	175	58.5%

	Male	232	38.7%	108	36.0%	124	41.5%
Age group	14 to 17	12	2.0%	7	2.3%	5	1.6%
	18 to 20	65	10.8%	49	16.3%	16	5.3%
	21 to 23	282	**47.0%**	112	37.3%	170	56.7%
	24 to 27	241	40.2%	132	44.0%	109	36.3%
Level of Study	Middle School	10	1.7%	9	3.0%	1	0.3%
	Secondary School	128	21.3%	78	26.0%	50	16.7%
	University	462	**77.0%**	213	71.0%	249	83.0%
Phone Usage	Less than 1 hour	10	1.7%	8	2.7%	2	0.7%
	1 to 2 hours	89	14.8%	54	18.0%	35	11.7%
	3 to 4 hours	256	**42.7%**	102	34.0%	154	51.3%
	5 to 6 hours	177	29.5%	88	29.3%	89	29.7%
	7 or more hours	68	11.3%	48	16.0%	20	6.7%
Mobile Apps Hold	Zero Apps	55	9.2%	32	10.7%	23	7.7%
	1 to 3 apps	226	**37.7%**	113	37.7%	113	37.7%
	4 to 6 apps	168	28.0%	89	29.7%	79	26.3%
	7 to 9 apps	91	15.2%	36	12.0%	55	18.3%
	10 or more apps	60	10.0%	30	10.0%	30	10.0%
Mobile Apps Using	Zero Apps	65	10.8%	36	12.0%	29	9.7%
	1 to 3 apps	377	62.8%	185	61.7%	192	64.0%
	4 to 6 apps	127	21.2%	64	21.3%	63	21.0%
	7 to 9 apps	24	4.0%	12	4.0%	12	4.0%
	10 or more apps	7	1.2%	3	1.0%	4	1.3%
Shopping frequency	Never	40	6.7%	24	8.0%	16	5.3%
	1 or 2 times per year	47	7.8%	29	9.7%	18	6.0%
	1 or 2 times per 6 months	56	9.3%	32	10.7%	24	8.0%
	1 or 2 times per 3 months	144	24.0%	58	19.3%	86	28.7%
	1 or 2 times per month	217	36.2%	109	36.3%	108	36.0%
	1 or 2 times per week	96	16.0%	48	16.0%	48	16.0%

The research intends to understand what motivates Generation Z individuals to predict behavioral intentions. To engage and better perform in the future is important to recognize what is currently happening. in the mobile shopping applications environment. Besides the demographic information gathered, an additional question concerning the type of mobile shopping applications used by the

respondents was made. Besides the demographic report demonstrated, was add a question concerning the mobile shopping applications environment: "Type of Mobile Shopping Applications use.". This question proposes several alternatives (Table 5.2). The most used mobile shopping applications among the respondents are "Food delivery or grocery products" (n=224), followed by "Apparel clothing and accessories products" (n=186), and "Travel (for hotels and flights). In contrast, the less used mobile shopping applications are "Decoration Products" and "Stocks Trading and Cryptocurrency".

Table 5.2: Type of Mobile shopping apps use by the respondents

Type of applications	Portuguese users	Italian users	Total
Apparel Clothing and Accessories products	**186**	**212**	**398**
Food delivery or Grocery products	**224**	**132**	**356**
Electronic items	97	117	214
Books	5	125	130
Sport Items	3	74	77
Decoration products	28	40	68
Cosmetic and grooming products	61	100	161
Travel (for hotels and flights)	**149**	**182**	**331**
Stocks Trading and Cryptocurremcy	50	26	76
Other	13	40	53
None	7	0	7
Total			1871

5.2. Determinants of Behavior Intention

The proposed conceptual model incorporates the constructs of the original model, i.e., Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, and Habitat, adding the new constructs Trust and Brand/Seller Reputation. Each of them was classified as a reflective construct.

The model was estimated by applying the PLS-SEM (Hair et al., 2017). The research follows a two steps analysis (Hair et al., 2017). The first step was to proceed with estimation and evaluation of the measurement model, i.e., analyze the relationships between the items and respective constructs. The second step was to lead the same procedure for the structural model, i.e., validate the structural relationship among the constructs.

5.3. Measurement Model

For any study made, the data should be check for infringements of statistical assumptions (Howard, 2016). The analysis and evaluation of the model's measurement implied: assessing the indicator's reliability, i.e., internal consistency or composite reliability (Cronbach's alpha and rho_A); convergent and discriminant validity (average variance extracted [AVE]); determine if the observed correlation matrix is an identity matrix (Bartlett's test of sphericity (Bartlett, 1950)); and inspect the common variance within the data set (Kaiser-Meyer-Olkin (KMO) Measure Sample Adequacy (Kaiser, 1970)). The last two methods verify whether sufficiently large relationships exist within the data set of interest (Howard, 2016).

As verified in the outer model's specification (Table 5.3), the constructs demonstrate higher values than 0.7 for the KMO Test and a p-value lower than 0.05 for Bartlett's test of sphericity (Annex B). The results of the Bartlett test, i.e., rejection of the null hypothesis considering a significance level of 5%, and the KMO statistic revealed adequacy of the factor analysis for the presented constructs of the study, i.e., expose higher values than 0.6 (Dziuban & Shirkey, 1974; Kaiser, 1970), vary between 0.716 (Behavior Intentions) and 0.889 (Trust). Items that did not fill the criteria were removed, Brand/Seller Reputation had eight items; however, after acknowledging the value for each one, only five items advance to further research.

The measurement theory specifies how to measure latent variables, as the model only includes reflective constructs, the analysis focused on their respective loadings (Sarstedt et al., 2021). Reflective measurement models have direct relationships from the construct to the indicators; subsequently, the loading is a regression coefficient that quantifies the strength of the relationship between the construct and its items (Sarstedt et al., 2021). The bootstrapping method was applied to estimate the measurement model's t-statistic; therefore, loadings above 0.70 indicate that the construct explains more than 50% of the item's variance, demonstrating that the item exhibits a satisfactory degree of reliability (Sarstedt et al., 2021). As verified in the outer model (Table 5.3), the loading values range from an acceptable interval.

Regarding internal consistency reliability, Cronbach's alpha and rho_A measures produced satisfactory outcomes (Table 5.3) for this indicator (Sarstedt et al., 2021). The measure rho_A generates values from 0.915 (Brand/Seller Reputation) to 0.975 (Effort Expectancy), and for Cronbach's alpha, the values differ between 0.831 (Brand/Seller Reputation) and 0.950 (Price Value). The results confirm the model's consistent reliability (Hair et al., 2017).

Table 5.3: Specification of Outer Model

Constructs	*Item*	*Loadings*	*KMO Test*	*Cronbach's Alpha*	*Rho_A*	*AVE*
Performance Expectancy	PE1	0.876	0,860	0.921	0.938	0.717
	PE2	0.900				
	PE3	0.889				
	PE4	0.859				
	PE5	0.787				
	PE6	0.762				
Effort Expectancy	EE1	0.957	0.881	0.965	0.975	0.905
	EE2	0.944				
	EE3	0.956				
	EE4	0.948				
Social Influence	SI1	0.941	0,769	0.943	0.963	0.897
	SI2	0.952				
	SI3	0.948				
Facilitating Conditions	FC1	0.930	0.834	0.912	0.942	0.803
	FC2	0.946				
	FC3	0.928				
	FC4	0.768				
Hedonic Motivation	HM1	0.950	0.777	0.952	0.969	0.913
	HM2	0.959				
	HM3	0.958				
Price Value	PV1	0.942	0.765	0.950	0.968	0.910
	PV2	0.965				
	PV3	0.955				
Habitat	HA1	0.905	0.793	0.908	0.935	0.783
	HA2	0.801				
	HA3	0.898				
	HA4	0.930				
Trust	TR1	0.928	0.889	0.931	0.950	0.760
	TR2	0.922				
	TR3	0.917				
	TR4	0.877				

	TR4	0.688				
	TR6	0.875				
Brand/Seller Reputation	BS1	0.695	0.817	0.831	0.915	0.683
	BS4	0.882				
	BS6	0.842				
	BS7	0.847				
	BS8	0.855				
Behavior Intentions	BI1	0.888	0.716	0.904	0.939	0.838
	BI2	0.919				
	BI3	0.938				

5.4. Structural Model: Partial Least Squares Path Modeling (PLS-PM)

The analysis of the structural model was yield using the PLS-PM model. The statistical approach PLS-PM aims to develop structural relationships among latent variables measured by manifest variables (Sharma et al. 2018). Therefore, the structural model evaluates the significance and relevance of the model's relationships and the R^2 values (Hair et al., 2017), i.e., verifies the hypotheses prediction respecting the relationships of the constructs in the proposed conceptual model. Subsequently, the structural model's path coefficients were analyzed. The results of standardized coefficients must be between -1 and +1, the values between these two numbers indicate a strong positive relationship, i.e., contribute to Behavioral Intention (Hair et al., 2017). The significance of the coefficient depends on the standard error obtained via bootstrapping, used to calculate the t- values and p-values (Table 5.4).

Table 5.4: Structural Model Results

*Path**	*Coefficient (β)*	*t-value*	*p-value*
PE – BI	0.110	2.677	0.008
EE – BI	0.100	2.398	0.017
SI – BI	0.047	1.544	0.123
FC – BI	-0.026	-0.646	0.519
HM – BI	0.027	0.767	0.443
PV – BI	0.075	2.284	0.023
HA – BI	0.398	10.322	0.000
TR – BI	0.121	3.210	0.001
BS – BI	0.165	4.790	0.000

***Notes**: PE = Performance Expectancy; BI = Behavioral Intention; EE = Effort Expectancy; SI = Social Influence; FC = Facilitating Conditions; HM = Hedonic Motivation; PV = Price Value; HA = Habitat; TR = Trust; BS = Brand/Seller Reputation

H1 proposed that Performed Expectancy indicates a positive correlation to the Behavioral Intention of Generation Z towards mobile shopping applications adoption (β=0.110) (Table 5.4). Within the Performance Expectancy, there is clear evidence that PE2 ("Using Mobile shopping applications increases my chances of achieving tasks that are important to me") is the most strongly correlated item (0.900) (Table 4.1) to influence mobile shopping applications adoption.

H2 stated that Effort Expectancy is a determinant of mobile shopping adoption by Generation Z individuals (β=0.100) (Table 5.4). For this predictor, EE1 ("Learning how to use mobile shopping applications for my purchases is easy for me") was the strongest correlation to explain Behavioral Intention (0.957) (Table 4.1), proving the easiness of an individual from Generation Z to learn how new technologies work (i.e., mobile shopping applications).

The formulated hypotheses: H3 ("Social Influence has a positive impact on the behavioral intention for mobile shopping applications."); H4 (i.e., "Facilitating Conditions have a positive impact on behavior intentions for mobile shopping applications."); and H5 ("Hedonic Motivation has a positive impact on the behavioral intention for mobile shopping applications."), were not supported by the collected data, implying these predictors do not influence the adoption of mobile shopping applications from Generation Z individuals. The values observed in the structural model demonstrate social influence's coefficient in terms of determining users' mobile shopping applications adoption is below 0.05 (β=0.047), the facilitating conditions' coefficient is below zero (β=-0.026) and, the hedonic motivation's coefficient is similar but positive (β=0.027). Therefore, these constructs have an insignificant contribution and impact on Behavioral Intention.

H6 aimed that Price Value indicates a positive correlation to the Behavioral Intention of Generation Z towards mobile shopping applications adoption (β=0.075) (Table 5.4). Within this predictor, the strongest correlation came from PV2 ("Mobile shopping applications have good value for the money") with a value of 0.965 (Table 4.1).

H7 predicted that Habitat has a positive correlation to Behavioral Intention. This construct is the most significant one to explain the behavior intention towards mobile shopping applications (β=0.398) (Table 5.4). For this predictor, HA4 ("Using mobile phones for shopping has become natural to me") was the strongest correlation (0.930) (Table 4.1), showing how natural it is for Generation Z to be in the digital environment.

H8 stated that Trust impact positively Behavioral Intention concerning the adoption of mobile shopping applications by individuals of Generations Z (β=0.121) (Table 5.4). Between the items of this

predictor, the strongest correlation is determined by TR1 ("I believe mobile shopping applications are trustworthy") with a value of 0.928 (Table 4.1).

H9 proposed that Brand/Seller Reputation indicates a positive correlation to Behavioral Intention (β=0.165) (Table 5.4). Between the items of this predictor, the strongest correlation occurred from BS4 ("Mobile shopping application online ratings and reviews") with a significance of 0.882 (Table 4.1).

The coefficient of determination, i.e., the R^2 value, measures the model's predictive accuracy. For this model, R^2 is 0.629 (F=111.165; p=0.00) it can be considered a valid result. The path coefficients explain the impact and contribution from the constructs to Behavior Intentions. A considerable impact and contribution to Behavior Intentions come from the constructs Habitat (β=0.398), Brand/Seller Reputation (β=0.165), and Trust (β=0.121) (Graphic 1).

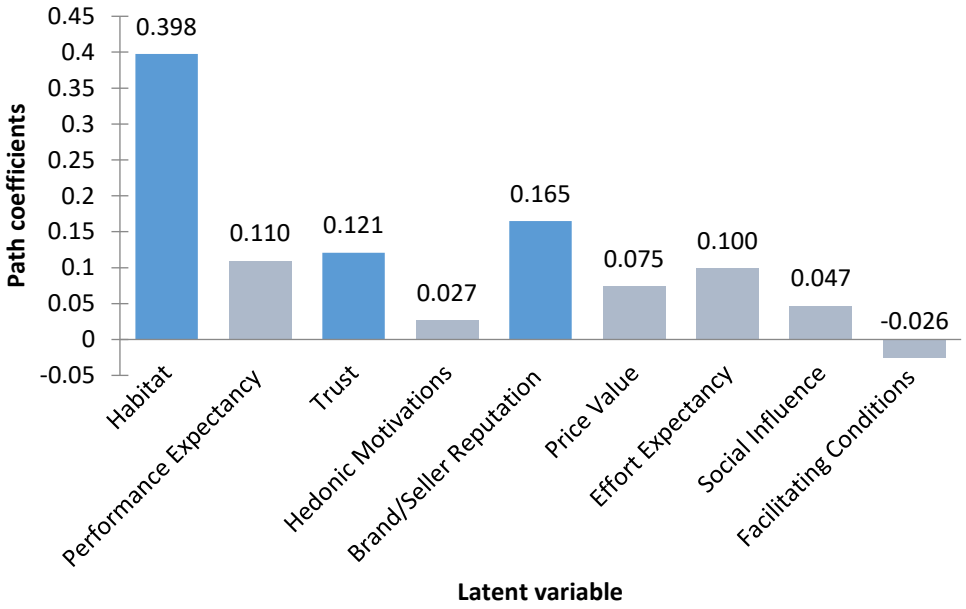

Figure 5.1: Impact and Contribution of the variables to Behavior Intention

5.5. Multigroup Analysis: Partial Least Squares Path Modeling (PLS-PM)

To complement the analysis, a multigroup comparison method in the framework of PLS Path Modeling. The research sample comprises Generation Z individuals from two countries (i.e., Portugal and Italy) and two genders (i.e., Female and Male). A group comparison test determines if there is or is not a difference between the groups regarding the path coefficients.

Regarding the moderator variable Gender, it is possible to verify (Table 5.5) in the group of female Generation Z individuals, the constructs Performance Expectancy (β=0.109), Social Influence (β=0.095), Habitat (β=0.412), and Brand/Seller Reputation (β=0.208) have a positive correlation to Behavioral Intention. The other constructs are insignificant, i.e., female individuals from Generation Z are not influenced by those factors to adopt mobile shopping applications. For the male individuals

from Generation Z, the factors that influence their adoption of mobile shopping applications are Effort Expectancy (β=0.141), Price Value (β=0.116), Habitat (β=0.332), Trust (β=0.204), and Brand/Seller Reputation (β=0.124). While the other constructs do not contribute to Behavioral Intention. Habitat is the most significant correlation for the female (β=0.412) as well as in the male (β=0.332) group.

Respecting the moderator variable Nationality (Table 5.5), in the Portuguese nationality group, the constructs that influence the adoption of mobile shopping applications are Performance Expectancy (β=0.174), Effort Expectancy (β=0.134), Habitat (β=0.355), and Brand/ Seller Reputation (β=0.175), i.e., these factors impact positively the decision of Portuguese respondents, the other constructs are insignificant. For the Italian nationality group, the constructs positively correlated to Behavior Intentions are Habitat (β=0.441), Trust (β=0.198), and Brand/Seller Reputation (β=0.132), i.e., Italian respondents are influenced by these factors in their decision to adopt or not mobile shopping applications while the remaining constructs have no impact.

Table 5.5: Multigroup Comparison: Gender and Nationality

Group	*Path*	*Coefficient (β)*	*t-value*	*p-value*
Female	**PE – BI**	0.109	2.099	0.037
	EE – BI	0.059	1.091	0.276
	SI – BI	0.095	2.378	0.018
	FC – BI	-0.014	-0.267	0.790
	HM – BI	0.050	1.104	0.271
	PV – BI	0.055	1.295	0.196
	HA – BI	0.412	8.337	0.000
	TR – BI	0.056	1.138	0.256
	BS – BI	0.208	4.581	0.000
Male	**PE – BI**	0.125	1.881	0.061
	EE – BI	0.141	2.174	0.031
	SI – BI	-0.024	-0.506	0.614
	FC – BI	-0.029	-0.472	0.638
	HM – BI	0.023	0.399	0.690
	PV – BI	0.116	2.220	0.027
	HA – BI	0.332	5.353	0.000
	TR – BI	0.204	3.447	0.001
	BS – BI	0.124	2.350	0.000
Portuguese	**PE – BI**	0.174	2.918	0.004

	EE – BI	0.134	2.142	0.033
	SI – BI	0.024	0.494	0.622
	FC – BI	-0.039	-0.676	0.500
	HM – BI	0.054	1.121	0.263
	PV – BI	0.077	1.624	0.105
	HA – BI	0.355	6.208	0.000
	TR – BI	0.049	0.911	0.363
	BS – BI	0.175	3.460	0.001
Italian	**PE – BI**	0.044	0.747	0.456
	EE – BI	0.063	1.098	0.273
	SI – BI	0.053	1.321	0.188
	FC – BI	-0.016	-0.282	0.778
	HM – BI	0.036	0.662	0.508
	PV – BI	0.056	1.168	0.244
	HA – BI	0.441	7.754	0.000
	TR – BI	0.198	3.695	0.000
	BS – BI	0.132	2.751	0.006

***Notes**: PE = Performance Expectancy; BI = Behavioral Intention; EE = Effort Expectancy; SI = Social Influence; FC = Facilitating Conditions; HM = Hedonic Motivation; PV = Price Value; HA = Habitat; TR = Trust; BS = Brand/Seller Reputation

According to the multigroup comparison method performed in PLS Path Modeling, within the moderator variable Gender (Table 5.6), there is no significant difference between the female and male respondents. This result implies the formulated hypothesis H10 ("Gender is a model moderator for mobile shopping applications.") was not supported by the obtained data, implying the Gender is not a moderator variable to Behavioral Intention. The moderator variable Nationality (Table 5.7) confirms the same result. There is no significant difference among Portuguese and Italian respondents when adopting mobile shopping applications. Therefore, the H11 ("Nationality is a model moderator for mobile shopping applications.") was not supported by the collected data, implying the Nationality is not a moderator variable to Behavioral Intention.

Table 5.6: Multigroup Permutation Test: Gender

Variables	Difference	p-value	Significant
PE – BI	0.016	0.861	No

EE – BI	0.082	0.366	No
SI – BI	0.119	0.069	No
FC – BI	0.015	0.782	No
HM – BI	0.027	0.812	No
PV – BI	0.061	0.465	No
HA – BI	0.079	0.475	No
TR – BI	0.148	0.099	No
BS – BI	0.084	0.317	No

Table 5.7: Multigroup Permutation Test: Nationality

Variables	Difference	p-value	Significant
PE – BI	0.130	0.208	No
EE – BI	0.071	0.436	No
SI – BI	0.029	0.634	No
FC – BI	0.023	0.792	No
HM – BI	0.019	0.832	No
PV – BI	0.020	0.851	No
HA – BI	0.086	0.426	No
TR – BI	0.149	0.089	No
BS – BI	0.043	0.525	No

To paraphrase, the original UTAUT2 theoretical model was revisited to count with the added constructs Trust and Brand/Seller Reputation, inherent to the m-commerce ecosystem, and the moderator variables Gender and Nationality. The results do not verify the hypotheses H3, H4, H5, H10, and H11; therefore, the factor Social Influence, Facilitating Conditions Hedonic Motivation, and the moderator variables, Gender, and Nationality, produce weak effects to predict Behavioral Intentions. Nonetheless, the hypotheses H1, H2, H6, H7, H8, and H9, indicate a positive correlation to Behavioral Intention; accordingly, the factors Performance Expectancy, Effort Expectancy, Price Value, Habitat, Trust and Brand/Seller Reputation demonstrate a positive impact. Amongst these factors, Habitat, Brand/Seller Reputation, and Trust, respectively, represent the highest impact and contribution to the dependent construct. Rephrasing, the difference between the group's respondents, i.e., Gender and Nationality, is non-existent. Therefore, Generation Z individuals, from both genders and countries, are influenced by Habitat, Brand/Seller Reputation, and Trust to adopt mobile shopping applications.

6. Conclusions and Recomendations

6.1. Discussion

Recognizing the digital ecosystem Generation Z born with and lives in, mobile commerce has considerable potential for these individuals. Nevertheless, the over-information and over-choice this generation is surrounded by can constitute a problematic situation for brands.

The study emphasizes the intention to use a mobile shopping applications environment, inspected globally in its dimensions. The present research attends to provide a clear understanding of this subject, becoming decisive to identify and analyze some questions this issue brings.

The first question investigates which factors drive Generation Z to buy online and use m-commerce platforms. The results present evidence of manifest intention to adopt mobile shopping applications derivative from several factors. According to the constructs applied in the research model to determine if Generation Z is driven or not towards mobile shopping applications, the most determinant predictors are Habitat, Brand/Seller Reputation, and Trust, respectively. The high contribution of the factor Habitat, i.e., consumers' automatic behaviors, is in line with relevant marketing contexts (Venkatesh et al., 2012). Additionally, the determinant Trust influencing the adoption of m-commerce corresponds to the highest predictors, i.e., ethical values are meaningful, consistent with studies of Bhatt (2021), Alalwan et al. (2017), and Tarhini et al. (2019). Regarding the determinant of Brand/Seller Reputation, the theory is almost non-existing; nevertheless, the result expresses that the brand or seller's reputation makes a considerable difference in intentions. However, the present study assesses Social Influences, Facilitating Conditions, and Hedonic Motivation as determinants with low effects, deviating from the existing literature where studies reveal opposing results (Morosan, 2016). This outcome confirms the assumption that Generation Z is not influenced by behavior references from society, by systems with facilitating conditions, or the need for playfulness characteristics when discussing mobile commerce.

The second research question explains the importance of the factors for everyone. The findings reinforced that the determinants do not have the same impact on all respondents, verified within the moderator's analysis, Gender and Nationality. The outcomes pointed to notable differences between the groups. In the Gender variable, for the female respondents, the most determinant predictors are Social Influence, Habitat, and Brand/Seller Reputation. In contrast, for the male respondents, the most significant are Effort Expectancy, Price Value, and Habitat. Regarding the variable Nationality, the Portuguese respondents are more impacted by Performance Expectancy, Effort Expectancy, and Habitat, even though, for the Italian respondents, Habitat, Trust, and Brand/Seller Reputation contribute more for the Behavior Intention. Nevertheless, within the moderator variable Gender and

Nationality, the final statements determine no significant difference among the respective groups. The outcome respecting the variable Gender reinforces previous research. Venkatesh et al. (2003) revealed remarkable findings, indicating that gender disparities may be transitory and disappear as younger users belong to generations born in an environment where technology is omnipresent, consequentially, gender differences will gradually reduce over time. The moderator variable Nationality also demonstrates non-significance contrast, between the Italian and Portuguese groups. Other investigations defend the opposite, cultural values and communication are intrinsic and influence consumption preferences (Hermeking, 2005). Furthermore, theories that support cultural dimensions and values still exhibit a statistically significant effect on m-commerce adoption because of individual characteristics (Mandler et al., 2018).

The third research question investigated was how each factor impacts the user's technology acceptance. The conceptual model presents remarkable results to predict the impact of each construct towards the adoption of mobile shopping applications. As verified in the prior questions, behaviors are influenced by several factors, consequently, within individuals' groups, those factors can have a different level of impact (Mandler et al., 2018). In a comprehensive view of the paper, the factors that most impact and contribute to the behavioral intention affecting the adoption of mobile shopping applications for Generation Z are Habitat, Brand/Seller Reputations, and Trust; however, this order can be different according to the individual and the respective technology in study.

In a balancing perspective, the investigation replenishes robust insights for brands present in online platforms, specifically for brands within the m-commerce environment. The outcomes provided can represent encouraging steps to adopt in today's business smart practices.

6.2. Theoretical Contribution

The study conceptualized the factors affecting behavioral intention towards m-commerce platforms with a comprehensive conceptual model based on the original UTAUT2 to clarify behavioral intentions, considering the model includes the consumer perspective (Venkatesh et al., 2012). The focus is to provide insights to e-retailers regarding the shopping motivations and dynamics from Generation Z e-buyers towards mobile shopping applications. The present study contributes to the literature on several levels.

First, the investigation uses a conceptual model based on the original UTAUT2 to assess the determinants of innovation and technology adoption (Venkatesh et al., 2012). The proposed model added two constructs (i.e., Brand/Seller Reputation and Trust) that produce outstanding results and prove shortcomings in the original framework. As the added constructs are within the determinants of behavioral intentions with the highest contribution, differing from the main determinants of other research contexts. Regarding the considerable contribution of the factor Trust, the users recognize

ethical and transparency values as decisive aspects. This result is consistent with the study of Alalwan et al. (2017), Tarhini et al. (2019), and Bhatt (2021). One of the main contributions to this paper was to incorporate the determinant Brand/Seller Reputation, which points to this factor as one of the highest correlations to behavioral intentions since there is limited literature exposure and studies concerning the influence of this factor on adopting m-commerce platforms.

Second, the research sample studies Generation Z individuals. Subsequently, the most relevant cohort for the digital ecosystem (Sabaitytė & Davidavičius, 2017). This generation is the youngest demographic group in society and is recognized as digital natives because they never lived without the internet (Turner (2015). However, non-empirical studies conduct a cross-examine between Generation Z and mobile shopping applications.

Third, the research investigates the Generation Z cohort of two countries, i.e., Portugal and Italy. Some researchers have reviewed the influence of cultural factors on the individual level in a single country (Baptista and Oliveira, 2015). However, these studies do not address cross-cultural variance (Mandler et al. 2018), and cultural cross dimensions studies are short in this field (Hoehle et al., 2015). This approach contributes more engaging data since the sample has the same age but can differ from experiences, behaviors, and cultural values.

6.3. Managerial Implications

The study's findings provide practical solutions and offer actionable implications for the e-tailing segment. From a managerial perspective, the paper demonstrates a significant number of Generation Z individuals adopting mobile shopping applications and intending to maintain this behavior in the long term. The sample considers a unique demographic cohort (i.e., Generation Z) the most forward generation to use digital platforms.

Globally, the results confirm the users consider mobile shopping applications as natural in their lives. The respondents are strongly influenced by the factor Habitat when adopting mobile shopping applications. Subsequently, the factors Brand/Seller Reputation and Trust also have a significant impact. Additionally, this confirms that customers are driven by shopping platforms that demonstrate as being similar and intuitive to previously used. Generation Z individuals respond better to platforms in which they know how to automatically use, by e-retailers who demonstrate valid ethics values, a solid positive reputation and need trustworthy structural evidence to adopt a mobile shopping application. In contrast, the factors Social Influence, Facilitating Conditions, and Hedonic Motivation are not statistically significant determinants to Behavioral Intention, i.e., do not impact the individuals' decision to adopt mobile shopping applications.

Regarding the multigroup analysis, the study investigates the moderator variables Gender and Nationality. The data do not expose significant differences among the groups; therefore, within

Generation Z, a Portuguese female has a similar behavioral intention to an Italian male. The data obtained proved independently of the gender or the country, Generation Z constitutes a homogeneous group. This affirmation establishes a considerable insight for e-retailers considering Generation Z can be classified as a segment formed by individuals with similar needs, interests, and behaviors. E-retailers can apply comparable strategies through digital platforms and effectively reach this segment/generation.

From a business and marketing strategic perspective, Generation Z lives in a globally interconnected environment, is the segment with the highest presence in the digital environment; therefore, the most relevant target to reach when managing a digital business and applying digital strategies. The digital business transformation is increasing, and consumers have access to countless channels, where actively and effortlessly connect with brands and other consumers (Verhoef et al., 2019). The present paper generates potential outcomes to apply in m-commerce platforms.

6.4. Limitations and Suggestions for Future Research

The present research demonstrates valuable contributions for the field; however, in the elapse of the investigation, some inherent limitations occur.

First, the conceptual model explores the seven dimensions stated in the original UTAUT2 model (i.e., Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Price Value, and Habitat), with the addition of two distinct factors, i.e., Trust and Brand/Seller Reputation, and two moderator variables, i.e., Gender and Nationality. The outcomes were remarkable; nevertheless, the investigation involved multiple variables, and the analysis of the results became very complex.

Second, the research sample implied Generation Z individuals within two nationalities, Portuguese and Italian. Given the complex consumption behaviors and acceptance among the different cultures (e.g., Eastern and Western Europe), the study should involve more divergent cultures to develop a deeper knowledge of the determinants of adoption of m-commerce platforms.

Third, the only way to gather sufficient answers for the questionnaire was through online university groups in social media. Thus, the answers are identical because the respondents came from related environments, i.e., had similar experiences, had the same education, and had identical habits.

Fourth, a specific mobile shopping application was missing in the research. A practical example could give a contrasting perspective to the respondents when answering the questionnaire. The investigation could obtain distinctive results if built for a particular type of application inserted in a specific category instead of providing outcomes from a broad perspective.

7. References

Accenture. (2017, February). Gen Z and millennials leaving older shoppers and many retailers in their digital dust. https://www.accenture.com/t20170210t012359__w__/us-en/_acnmedia/pdf-44/accenture-retail-customer-research-executive-summary-2017.pdf

Aguirre-Urreta, M., & Marakas, G., (2010). Is it really gender? An empirical investigation into gender effects in technology adoption through the examination of individual differences. *Human Technology*, 6(2), 155-190.

Ajzen I. (1985). From intentions to actions: A theory of planned behavior. In Kuhl J., Beckmann J. (eds) *Action Control*. SSSP Springer Series in Social Psychology. Springer, Berlin, Heidelberg.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-219.

Alalwan, A., Dwivedi, Y., & Rana, N. (2017). Factors influencing adoption of mobile banking by jordanian bank customers: Extending utaut2 with trust. *International Journal of Information Management*, 37(3), 99-110.

Baptista, G., & Oliveira, T. (2015). Understanding mobile banking: the unified theory of acceptance and use of technology combined with cultural moderators. *Computers in Human Behavior*, 50, 418-430.

Bartlett, M. S. (1950). Tests of significance in factor analysis. *British Journal of Statistical Psychology*, 3(2), 77–85.

Bhattacherjee, A. (2000). Acceptance of e-commerce services: The case of electronic brokerages. *IEEE Transactions on Systems, Man, and Cybernetics - Part A: Systems and Humans*, 30(4), 411-420.

Bednall, D., Valos, H., Adam, S. M., & McLeod, C. (2012). Getting generation y to attend: Friends, interactivity and half-time entertainment. *Sport Management Review*, 15(1), 80-90.

Bhatt, S. (2021). An empirical study of factors affecting adoption of m- commerce in india. *Precision Agriculture*, 3(1), 2021.

Chi, C., Maier, T., & Gursoy, D. (2013). Employees' perceptions of younger and older managers by generation and job category. *International Journal of Hospitality Management*, 34, 42-50.

Davis, F., Bagozzi, R., & Warshaw, P. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982-1003.

Davis, F. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *Management Information Systems Quarterly*, 13(3), 319-340.

Desai, S. P., & Lele, V. (2017). Correlating internet, social networks and workplace – a case of generation z students. *Journal of Commerce and Management Thought*, 8(4), 802.

Dwivedi, Y., Shareef, M., Simintiras, A., Lal, B., & Weerakkody, V. (2016). A generalised adoption model for services: A cross-country comparison of mobile health (m-health). *Government Information Quarterly*, 33(1), 174-187.

Dziuban, C. D., & Shirkey, E. C. (1974). When is a correlation matrix appropriate for factor analysis? Some decision rules. *Psychological Bulletin*, 81, 358–361.

Eurostat. (2020, January). E-commerce statistics for individuals. https://ec.europa.eu/eurostat/statistics-explained/index.php/E-commerce_statistics_for_individuals

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research.* Reading, MA: Addison-Wesley.

Grewal, D., Iyer, G. R., & Levy, M. (2004). Internet retailing: enablers, limiters and market consequences. *Journal of Business Research*, 57(7), 703-713.

Gursoy, D., Chi, C., & Karadag, E. (2013). Generational differences in work values and attitudes among frontline and service contact employees. *International Journal of Hospitality Management*, 32, 40-48.

Hair, J., Hult, G., Ringle, C., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (pls-sem)*, 2nd ed., Sage, Thousand Oaks, CA.

Hair, J., Sarstedt, M., Hopkins, L. & Kuppelwieser, V. (2014). Partial least squares structural equation modeling (pls-sem): An emerging tool in business research. *European Business Review*, 26(2) 106-121.

Hermeking, M. (2005). Culture and internet consumption: contributions from cross-cultural marketing and advertising research. *Journal of Computer-Mediated Communication,* 11(1), 192-216.

Hoehle, H., Zhang, X., & Venkatesh, V. (2015). An espoused cultural perspective to understand continued intention to use mobile applications: A four-country study of mobile social media application usability. *European Journal of Information Systems*, 24(3), 337- 359.

Howard, M. (2016). A review of exploratory factor analysis decisions and overview of current practices: What we are doing and how can we improve? *International Journal of Human-Computer Interaction*, 32(1), 51-62.

Howe, N., & Strauss, W. (1992). Generations: The history of america's future, 1584 to 2069 (1st Edition). New York, NY: Harper Collins.

Idealo. (2019, May). E-commerce in italy: Overview & statistics. https://www.internet-idee.net/en/news/e-commerce-in-italy-overview-statistics-1.php

Kaiser, H. (1970). A second generation little jiffy. *Psychometrika*, 35, 401-415.

Krbová, P., & Pavelek, T. (2015). Generation y: Online shopping behaviour of the secondary school and university students. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 63(2), 567-575.

Kupperschmidt, B. (2000). Multigeneration employees: Strategies for effective management. *The Health Care Manager*, 19(1), 65-76.

Lee, L., & Charles, V. (2021). The impact of consumers' perceptions regarding the ethics of online retailers and promotional strategy on their repurchase intention. *International Journal of Information Management*, 57(2).

Lian, J. (2015). Critical factors for cloud based e-invoice service adoption in taiwan: An empirical study. *International Journal of Information Management*, 35(1), 98-109.

Li, X., Li, X. R., & Hudson, S. (2013). The application of generational theory to tourism consumer behavior: an American perspective. *Tourism Management*, 37(C), 147-164.

Lyons, S., Duxbury, L., & Higgins C. (2005). Are gender differences in basic human values a generational phenomenon?. *Sex Roles*, 53(9/10), 763-78.

Malhotra, N. (2007). Marketing research: An applied orientation, 7th edition, Upper Saddle River, NJ: Pearson/Prentice Hall.

Marktest. (2019, February). Sites e-commerce: Audiência difere segundo o género. https://www.marktest.com/wap/a/n/id~24b5.aspx

Marktest. (2019, September). Acesso à internet em portugal é cada vez mais mobile. https://www.marktest.com/wap/a/n/id~2555.aspx

Mandler, T., Seifert, R., Wellbrock, C., & Knuth, I., & Kunz, R. (2018). The impact of national culture on mobile commerce adoption and usage intensity.

Morosan, C., & Defranco, A. (2016). It's about time: Revisiting utaut2 to examine consumers' intentions to use nfc mobile payments in hotels. *International Journal of Hospitality Management*, 53, 17-29.

Nikhashemi, S., Knight, H., Nusair K., & Liat, C. (2021). Augmented reality in smart retailing: A (n) (a) symmetric approach to continuous intention to use retail brands' mobile ar apps. *Journal of Retailing and Customer Services*, 60(C).

Özkan, M., & Solmaz, B. (2017). Generation z - the global market's new consumers- and their consumption habits: generation z consumption scale. *European Journal of Multidisciplinary Studies,* 2(5), 150-157.

Pordata. (2020, June). População residente, média anual: total e por grupo etário. https://www.pordata.pt/Europa/Popula%c3%a7%c3%a3o+residente++m%c3%a9dia+anual+total+e+por+grupo+et%c3%a1rio-1274-312394

Pascual-Miguel, F., Agudo-Peregrina, A., & Chaparro-Peláez, J. (2015). Influences of gender and product type on online purchasing. *Journal of Business Research,* 68(7), 1550-1556.

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon*, 9(5), 1-6.

Puiu, S. (2016). Generation Z–A new type of consumers. *Revista Tinerilor Economişti*, 27, 67-78.

Rattanaburi, K., & Vongurai, R. (2021). Factors influencing actual usage of mobile shopping applications: Generation y in thailand. *Journal of Asian Finance, Economics and Business*, 8(1), 901-913.

Rauschnabel, P., Felix, R., Hinsch, C. (2019). Augmented reality marketing: How mobile ar-apps can improve brands through inspiration. *Journal of Retailing and Consumer Services*, 49(C), 43-53.

Román, S. (2007). The ethics of online retailing: A scale development and validation from the consumers' perspective. *Journal of Business Ethics*, 72(2), 131-148.

Román, S., & Cuestas, P. J. (2008). The perceptions of consumers regarding online retailers' ethics and their relationship with consumers' general internet expertise and word of mouth: a preliminary analysis. *Journal of Business Ethics*, 83, 641-656.

Rowlands, I., Nicholas, D., Williams, P., Huntington, P., Fieldhouse, M., Gunter, B., Withey, R., Jamali, H.R., Dobrowolski, T., & Tenopir, C. (2008). The google generation: The information behaviour of the researcher of the future. *Aslib Proceedings*, 60(4), 290-310.

Sabaitytė, J., & Davidavičius, S. (2017). Challenges and solutions of adopting public electronic services for the needs of z generation. *International Journal of Learning and Change*, 9(1), 17-28.

Sarstedt M., Ringle C., & Hair J. (2021) Partial least squares structural equation modeling. In: Homburg C., Klarmann M., Vomberg A.E. (eds) Handbook of Market Research. Springer, Cham.

Seemiller, C., & Grace, M. (2017). Generation z: Educating and engaging the next generation of students. *About Campus*, 22(3), 21-26.

Sharma, P., Shmueli, G., Sarstedt, M., Danks, N., & Ray, S. (2018). Prediction-oriented model selection in partial least squares path modeling. *Decision Sciences*. 52(3). 567-697.

Srinivasan, V. (2012). Multi generations in the workforce: Building collaboration. *IIMB Management Review*, 24(1), 48-66.

Statista. (2020, August). Global retail e-commerce sales 2014-2023. https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/

Tamilmani, K., Rana, N., Dwivedi, Y., Sahu, G.p., & Roderick, S. (2018). Exploring the role of 'price value' for understanding consumer adoption of technology: A review and meta-analysis of utaut2 based empirical studies. *Pacific Asia Conference on Information Systems*. 64.

Targamadze, V. (2014). Z karta: Charakteristika ir ugdymo metodologinės linkmės įžvalga. *Tilptai*, 4(69), 95-104.

Tarhini, A., Alalwan, A., Shammout, A., & Al-Badi, A. (2019). An analysis of the factors affecting mobile commerce adoption in developing countries towards an integrated model. *Review of International Business and Strategy*, 29(3), 157-179.

Taylor, C. (2018). Generational research and advertising to millennials. *International Journal of Advertising*, 37(2), 165-167.

Thangavel, P., Pathak, P., & Chandra, B. (2019). Consumer decision-making style of gen z: A generational cohort analysis. *Global Business Review*, 16(6), 1100-1111.

Thong, J., Hong, S., Tam, K. (2006). The effects of post-adoption beliefs on the expectation-confirmation model for information technology continuance. *International Journal of Human-Computer Studies*, 64(9), 799-810.

Turner, A. (2015). Generation z: Technology and social interest. *The Journal of Individual Psychology*, 71(2), 103-113.

Van den Bergh, J., & Pallini, K. (2018). Marketing to generation z. *Research World*, 2018(70), 18-23.

Venkatesh, V., Brown, S.A., Maruping, L.M., & Bala, H. (2008). Predicting different conceptualizations of system use: The competing roles of behavioral intention, facilitating conditions, and behavioral expectation. *Management Information Systems Quarterly*, 32(3), 483-502.

Venkatesh, V., Morris, M., Davis, G., & Davis, F. (2003). User acceptance of information technology: Toward a unified view. *Management Information Systems Quarterly,* 27(3), 425-478.

Venkatesh, V., Thong, J., Y., L., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *Management Information Systems Quarterly*, 36(1), 157-178.

Verhoef, P., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*. 122. 889-901.

Weerakkody, V., El-Haddadeh, R., Al-Sobhi, F., Shareef, M., & Dwivedi, Y. (2013). Examining the influence of intermediaries in facilitating e-government adoption: An empirical investigation. *International Journal of Information Management*, 33(5), 716-725.

Yang, A. (2009). Exploring adoption difficulties in mobile banking services. *Canadian Journal of Administrative Sciences*, 26(2), 136-149.

8. Annexes

8.1. Annex A: Online questionnaire in portuguese

Género *

- ○ Feminino
- ○ Masculino
- ○ Outra opção...

Idade *

- ○ 11 a 14 anos
- ○ 15 a 17 anos
- ○ 18 a 20 anos
- ○ 21 a 23 anos
- ○ 24 a 26 anos
- ○ Outra opção...

Habilitações Literárias *

- ○ Ensino Primário
- ○ Ensino Básico
- ○ Ensino Secundário
- ○ Licenciatura
- ○ Pós-Graduação
- ○ Mestrado
- ○ Outra opção...

Uma aplicação de compra móvel (app) consiste num software que é instalado no dispositivo smartphone e permite ao utilizador interagir com uma loja online.

Exemplos: AliExpress; Zara; Ubereats; Amazon; Farfetch; Booking

Durante quantas horas utiliza o telemóvel por dia? *

- ◯ Menos de 1 hora
- ◯ 1 a 2 horas
- ◯ 3 a 4 horas
- ◯ 5 a 6 horas
- ◯ 7 ou mais horas

Que tipo de aplicações de compra móveis utiliza? *

- ☐ Peças de vestuário e acessórios
- ☐ Entrega de comida ou produtos de supermercado
- ☐ Produtos eletrónicos
- ☐ Produtos decorativos
- ☐ Produtos de cosmética e beleza
- ☐ Viagem (hotéis e voos)
- ☐ Ações e Criptomoedas
- ☐ Outra opção...

Quantas aplicações de compra tem no seu telemóvel? *

- ◯ Não tenho aplicações de compra móveis
- ◯ 1 a 3 apps
- ◯ 4 a 6 apps
- ◯ 7 a 9 apps
- ◯ 10 ou mais apps

Qual é o número de aplicações de compra móveis que realmente utiliza? *

- ◯ Não utilizo aplicações de compra móveis
- ◯ 1 a 3 apps
- ◯ 4 a 6 apps
- ◯ 7 a 9 apps
- ◯ 10 ou mais apps

Com que frequência fez compras através de uma aplicação móvel (produtos ou serviços), no último ano? *

- ◯ 1 a 2 vezes por semana
- ◯ 1 a 2 vezes por mês
- ◯ 1 a 2 vezes por cada 3 meses
- ◯ 1 a 2 vezes por cada 6 meses
- ◯ 1 a 2 vezes por ano
- ◯ Nunca

Classifique as seguintes afirmações sobre a performance das aplicações de compra móveis de acordo com a escala: 1 = Discordo Totalmente e 7 = Concordo Totalmente. *

	1	2	3	4	5	6	7
As aplicações de compra móveis são úteis na minha vida diária.	◯	◯	◯	◯	◯	◯	◯
Utilizar aplicações de compra móveis aumenta a probabilidade de realizar tarefas que são importantes para mim.	◯	◯	◯	◯	◯	◯	◯
Utilizar aplicações de compra móveis ajuda-me a realizar as tarefas mais rápido.	◯	◯	◯	◯	◯	◯	◯
Utilizar aplicações de compra móveis aumenta a minha produtividade.	◯	◯	◯	◯	◯	◯	◯
Utilizar aplicações de compra móveis permite-me um acesso mais rápido dos produtos.	◯	◯	◯	◯	◯	◯	◯

Utilizar aplicações de compra móveis permite-me fazer compras mais precisas.	◯	◯	◯	◯	◯	◯	◯

Classifique as seguintes afirmações sobre o esforço requerido em aplicações de compra móveis de acordo com a escala: 1 = Discordo Totalmente e 7 = Concordo Totalmente. *

	1	2	3	4	5	6	7
Aprender como utilizar aplicações de compra móveis é fácil para mim.	◯	◯	◯	◯	◯	◯	◯
As minhas interações com aplicações de compra móveis são claras e compreensíveis.	◯	◯	◯	◯	◯	◯	◯
Acho que as aplicações de compra móveis são fáceis de utilizar.	◯	◯	◯	◯	◯	◯	◯
É fácil para mim, tornar-me habilidoso a utilizar aplicações de compra móveis.	◯	◯	◯	◯	◯	◯	◯

Classifique as seguintes afirmações sobre a influência social na utilização de aplicações de compra móveis de acordo com a escala: 1 = Discordo Totalmente e 7 = Concordo Totalmente. *

	1	2	3	4	5	6	7
As pessoas que são importantes para mim acham que devo utilizar aplicações de compra móveis.	◯	◯	◯	◯	◯	◯	◯

As pessoas que influenciam o meu comportamento acham que devo utilizar aplicações de compra móveis.	◯	◯	◯	◯	◯	◯	◯
As pessoas cujas opiniões eu valorizo preferem que eu utilize aplicações de compra móveis.	◯	◯	◯	◯	◯	◯	◯

Classifique as seguintes afirmações sobre a facilidade de utilizar aplicações de compra móveis de acordo com a escala: 1 = Discordo Totalmente e 7 = Concordo Totalmente. *

	1	2	3	4	5	6	7
Tenho os recursos necessários para utilizar aplicações de compra móveis.	◯	◯	◯	◯	◯	◯	◯
Tenho o conhecimento necessário para utilizar aplicações de compra móveis.	◯	◯	◯	◯	◯	◯	◯
As aplicações de compra móveis são compatíveis com outras tecnologias que utilizo.	◯	◯	◯	◯	◯	◯	◯
Posso obter ajuda de outras pessoas quando tenho dificuldades em utilizar aplicações de compra móveis.	◯	◯	◯	◯	◯	◯	◯

Classifique as seguintes afirmações sobre a motivação para utilizar aplicações de compra móveis de acordo com a escala: 1 = Discordo Totalmente e 7 = Concordo Totalmente. *

	1	2	3	4	5	6	7
Utilizar aplicações de compra móveis é divertido.	◯	◯	◯	◯	◯	◯	◯
Utilizar aplicações de compra móveis é agradável.	◯	◯	◯	◯	◯	◯	◯
Utilizar aplicações de compra móveis é interessante.	◯	◯	◯	◯	◯	◯	◯

Classifique as seguintes afirmações sobre o preço das aplicações de compra móveis de acordo com a escala: 1 = Discordo Totalmente e 7 = Concordo Totalmente. *

	1	2	3	4	5	6	7
As aplicações de compra móveis têm preços razoáveis.	◯	◯	◯	◯	◯	◯	◯
As aplicações de compra móveis têm uma boa relação custo-benefício.	◯	◯	◯	◯	◯	◯	◯
Considerando os preços atuais, as aplicações de compra móveis oferecem um bom valor.	◯	◯	◯	◯	◯	◯	◯

Classifique as seguintes afirmações sobre a utilização de aplicações de compra móveis de acordo com a escala: 1 = Discordo Totalmente e 7 = Concordo Totalmente. *

	1	2	3	4	5	6	7
Geralmente, a utilização de aplicações móveis para fazer compras tornou-se um hábito para mim.	◯	◯	◯	◯	◯	◯	◯
Sou viciado em utilizar aplicações móveis para compras em geral	◯	◯	◯	◯	◯	◯	◯
Devo utilizar aplicações de compra móveis para fazer compras	◯	◯	◯	◯	◯	◯	◯
Utilizar aplicações móveis para fazer compras tornou-se natural para mim	◯	◯	◯	◯	◯	◯	◯

Classifique as seguintes afirmações sobre a confiança para utilizar aplicações de compra móveis de acordo com a escala: 1 = Discordo Totalmente e 7 = Concordo Totalmente. *

	1	2	3	4	5	6	7
Eu acredito que as aplicações de compra móveis são confiáveis	○	○	○	○	○	○	○
Eu confio nas aplicações de compra móveis	○	○	○	○	○	○	○
Não duvido da honestidade das aplicações de compra móveis	○	○	○	○	○	○	○
Tenho a certeza que as estruturas legais e tecnológicas me protegem adequadamente de problemas nas aplicações de compra móveis	○	○	○	○	○	○	○
Mesmo se não fosse monitorizado, eu confiaria nas aplicações de compra móveis para fazerem o seu trabalho corretamente.	○	○	○	○	○	○	○
As aplicações de compra móveis têm a capacidade de cumprir a sua tarefa.	○	○	○	○	○	○	○

Classifique as seguintes afirmações sobre aplicações de compra móveis de acordo com a escala 1 = Discordo Totalmente e 7 = Concordo Totalmente. *

	1	2	3	4	5	6	7
Costumo comprar principalmente de uma determinada aplicação de compra móvel	◯	◯	◯	◯	◯	◯	◯
Apenas a minha aplicação de compra móvel favorita me oferece os melhores produtos.	◯	◯	◯	◯	◯	◯	◯
Gosto de experimentar novas aplicações de compra móveis	◯	◯	◯	◯	◯	◯	◯

Classifique as seguintes afirmações em relação à escolha das aplicações de compra móveis de acordo com a escala 1 = Nada Importante e 7 = Muito Importante *

	1	2	3	4	5	6	7
Reputação da aplicação de compra móvel	◯	◯	◯	◯	◯	◯	◯
A aplicação de compra móvel ser específica para um determinado género/faixa etária	◯	◯	◯	◯	◯	◯	◯
Reconhecimento (no mercado) da aplicação de compra móvel	◯	◯	◯	◯	◯	◯	◯

Avaliações online da aplicação de compra móvel	◯	◯	◯	◯	◯	◯	◯
Segurança na transação e informações pessoais na aplicação de compra móvel	◯	◯	◯	◯	◯	◯	◯

Classifique as seguintes afirmações em relação à frequência na utilização de aplicações móveis para compras, de acordo com a escala 1 = Nunca e 7 = Algumas Vezes por dia *

	1	2	3	4	5	6	7
Apps de vestuário e acessórios.	◯	◯	◯	◯	◯	◯	◯
Apps de entrega de comida ou produtos de supermercado.	◯	◯	◯	◯	◯	◯	◯
Apps de produtos eletrónicos	◯	◯	◯	◯	◯	◯	◯
Apps de Livros	◯	◯	◯	◯	◯	◯	◯
Apps produtos de desporto	◯	◯	◯	◯	◯	◯	◯
Apps produtos de decoração	◯	◯	◯	◯	◯	◯	◯
Apps produtos de cosmética e beleza	◯	◯	◯	◯	◯	◯	◯
Apps para viagens (hotéis e voos)	◯	◯	◯	◯	◯	◯	◯
Apps de ações e criptomoedas	◯	◯	◯	◯	◯	◯	◯
Utilizo frequentemente aplicações móveis para compras	◯	◯	◯	◯	◯	◯	◯

Classifique as seguintes afirmações sobre a intenção de utilizar aplicações de compra móveis de acordo com a escala: 1 = Discordo Totalmente e 7 = Concordo Totalmente. *

	1	2	3	4	5	6	7
Pretendo utilizar aplicações de compra móveis no futuro.	○	○	○	○	○	○	○
Tentarei sempre utilizar aplicações de compra móveis na minha vida diária.	○	○	○	○	○	○	○
Pretendo utilizar aplicações de compra móveis com frequência.	○	○	○	○	○	○	○

8.2. Annex B: Specification of Outer Model (screening phase)

	PI	EE	SI	FC	HM	PV	HA	TR	BS	BI
PE1	0.867									
PE2	0.899									
PE3	0.893									
PE4	0.867									
PE5	0.785									
PE6	0.762									
EE1		0.958								
EE2		0.942								
EE3		0.956								
EE4		0.949								
SI1			0.941							
SI2			0.954							
SI3			0.947							
FC1				0.927						
FC2				0.945						
FC3				0.923						
FC4				0.780						
HM1					0.952					
HM2					0.958					
HM3					0.956					
PV1						0.944				

PV2 PV3						0.965 0.953				
HA1 HA2 HA3 HA4							0.892 0.826 0.901 0.920			
TR1 TR2 TR3 TR4 TR5 TR6								0.926 0.918 0.919 0.879 0.689 0.878		
BS1 BS2 BS3 BS4 BS5 BS6 BS7 BS8									0.674 **0.485** **0.499** 0.865 **0.437** 0.831 0.834 0.815	
BI1 BI2 BI3										0.870 0.932 0.944
KMO TEST	0,860	0.881	0,769	0.834	0.777	0.765	0.793	0.889	0.817	0.716
BARTLETT'S TEST	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CRONBACH A	0.921	0.965	0.943	0.912	0.952	0.950	0.908	0.931	0.831	0.904