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THE M-COMMERCE IN THE RETAIL INDUSTRY:

Exploring consumers and retailers perspectives of features in a
mobile app for supermarkets

By

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Biography

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Abstract

Due to the rapid proliferation of mobile devices in people's lives, the mobile channel has become the ultimate marketing vehicle for retailers to be in touch with consumers, anytime, anywhere, and this business potential is growing exponentially. However, retailers are still trying to understand how consumers use this new technology, who are the mobile devices users and what they value.

This investigation recognizes this issue and intends to describe the impact of m-commerce in the supermarket industry, having the retailers and consumers perspective about the features that a mobile app should have in order to help with shopping, bringing value for them both.

This study employs a qualitative method, more precisely personal interviews to understand consumers' point of view and a single case study to explain the retailers' vision about the topic in study.

This dissertation shows that shopping lists, loyalty card and scanable barcodes are the main features consumers value in a mobile app for supermarket, and on the contrary, the integration of social networks and interactive games have not been mentioned for none of the interviewees as something they value in a supermarket app.

This work also indicates that consumers search for utility and ubiquity when they talk about mobile apps for supermarkets; they want to do their shopping faster and easier than ever before.

Also, retailers in Portugal are not able, yet, to take a step towards personalization (matching consumers' preferences with promotions and store offers) and localization of customers inside the store, because it arise technical and privacy issues lacking further clarification.

Resumo

Em virtude da rápida proliferação dos dispositivos móveis na vida das pessoas, o móvel tornou-se o mais recente veículo de marketing para os retalhistas estarem em contacto com os consumidores, onde quer que eles estejam e este negócio tem crescido exponencialmente. No entanto, os retalhistas ainda procuram perceber como é que os consumidores utilizam esta tecnologia, quem é que eles são e o que é que eles valorizam.

Esta investigação reconhece estas questões e pretende descrever o impacto do m-commerce na indústria dos supermercados, conseguindo apresentar a perspetiva de consumidores e retalhistas sobre quais as funcionalidades que uma app para apoiar compras num supermercado deve ter e qual o valor que ela tem para mesmos.

Foi aplicado o método qualitativo neste estudo, especificamente as entrevistas individuais para compreender a perspetiva do consumidor e o caso de estudo único para explicar o ponto de vista dos retalhistas sobre este tópico.

Esta dissertação demonstra que as listas de compras, o cartão de fidelização e os scan de códigos de barras são as principais funcionalidades que os consumidores valorizam numa app no que toca a supermercados. Ao contrário a integração das redes sociais e dos jogos interativos não foram mencionados por nenhum dos entrevistados.

Este trabalho demonstra igualmente que os consumidores procuram utilidade e ubiquidade quando se referem a apps para supermercados; eles querem fazer as suas compras mais rápida e facilmente do que faziam antes.

Do mesmo modo, os retalhistas ainda não estão aptos para dar o passo em direção à personalização (corresponder as expectativas dos consumidores, com as promoções ou ofertas dentro da loja) e localização dos consumidores dentro da loja, porque isso implica problemas técnicos e de privacidade que ainda não estão totalmente clarificados.

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Abbreviations

M-commerce - Mobile Commerce

Apps - Applications

SKU - Stock-Keeping Units

TAM - Technology Acceptance Model

TPB - Theory Planned Behaviour

IDT - Innovation Diffusion Theory

GPS - Global Positioning System

TRA - Theory of Reasoned Action

RFID - Radio Frequency Identification Technology

NFC - Near Field Communication

UWB - Ultra wideband

GMA - Grocery Manufacturers Association

QR - Codes Quick Response Codes

GMSA - Groupe Speciale Mobile Association

1 Introduction

Smart phones and other mobile devices, as well as the technologies that came along with it like 3G, have grown in popularity. Therefore mobile commerce (m-commerce) became a “business phenomenon” with a large potential market that is also blurring the lines between online and in-store customer experience (Zhang et al., 2012).

This first chapter aims to explain the purpose of this study and to describe how this work is organized.

1.1 Relevance and purpose of the study

In the past, if someone wanted to buy an item, they had to walk into a physical store, find the product, put it into the shopping cart and pay for it at the checkout, or they could also order it by catalogue.

Then, the e-commerce arrived and radically changed the way people did their shopping. Nowadays, without leaving their houses, people are able to compare and buy products through their personal computer. During this time, we have seen the birth of big companies working only on the online channel and having a resounding success, like Amazon or E-bay.

Recently the next big change happened when mobile technology entered into peoples' lives. “Users now want to communicate, get information, be entertained, and shop whenever and wherever they are, often all at the same time” (Verizon, 2011: 1).

One more time, the retail industry was no exception. The changes that mobile lifestyle brought revolutionized shopping as society knew it.

In order to understand the dimension of mobile in people's lives, the most recent study by Marktest (Grupo Marktest, 2013) referred that 63,3% of the residents in mainland Portugal, with more than 15 years old, use the Internet and this number had

increased 10 times in the last sixteen years. More importantly, the data highlight that the access to the internet from mobile devices like mobile phones and tablets is growing faster (58%) than the access through the computer, which stabilized compared with the year 2012.

Additionally, Ericsson Mobility Report (Ericsson, 2013), released in November of 2013, shows that by 2019 60% of the projected 9,3 billion mobile subscriptions will be for smart phones, which are currently about 25% to 30%. And finally, according to Gartner (Gartner, 2013), by 2015 companies will generate 50% of web sales through social presence and mobile applications.

But all this potential must be used wisely because it can influence, not only immediate sales, but also could facilitate impulse buying, up-selling and cross-selling. Also, building an app for mobile phones will bring the brand closer to the consumer with a new shopping experience, so it must be useful but also personal, fun and optimized for mobile (Ying, 2012).

Therefore, this study aims to describe the impact of m-commerce in the supermarket industry. The retailers and consumers' perspective about the features that a mobile app should have to help with shopping for groceries, and that bring value for them, will be presented.

These perspectives are relevant since the approaches to this constantly changing subject have been to understand the factors that lead to the adoption of the technology and the development of mobile interfaces rather than the behaviour of consumers with a smart phone and their preferences in the context of a world of existing apps.

Also, the retailers' point of view is essential because their interests and needs could collide with consumers thoughts about what should be the future of m-commerce.

The subject of this dissertation also presents personal relevance since the investigator works in the supermarket industry and it would promote a better understanding of the innovations that are happening in the company where she works in and in the market itself, as m-commerce is the future.

This study may also be relevant in the managerial context because continuous learning about the mobile customers' behaviour is an imperative for retailers and could be essential to retain customers. The main goal is to be able, by the end of this work, to present a proposal concerning the features that should be in a mobile app for retail.

1.2 Work Structure

This study begins with a literature review divided into two chapters: Retail Shopping/In-store Behaviour (Chapter 2) and Mobile Shopping Behaviour (Chapter 3).

In the Chapter 2 it will be discussed how customers are influenced inside the store by retail factors like store atmosphere, sales promotions, impulse buying and variety seeking and also by consumer factors like the influence of other shoppers, the time spent on shopping as well as how often they visit the store.

In the third chapter the way consumers act when shopping with a smart phone will be described. It begins with a brief reference to the factors that lead consumers to adopt interactive technologies, like smart phones, in their daily lives. It will be based on Technology Acceptance Model (TAM), Theory of planned behaviour (TPB) and Innovation Diffusion Theory (IDT). Afterwards, some concepts will be discussed like m-commerce, its advantages and disadvantages and the chapter end with an overview of m-commerce in the retail industry, more precisely in supermarkets' industry.

In the fourth chapter the methodology used in this study will be explain, specifically, the qualitative method of personal interviews and a single case study, aiming to understand more about which features, either for consumers' and retailers' points of view, are the most valuable in a mobile app for supermarkets.

Finally, the results of the methodological approach will be presented in the fifth chapter and the conclusions of the study in the last one.

2 Retail Shopping Behaviour

As Solomon (2010) stated, consumer behaviour involves the selection, purchase and use of products, by consumers, in order to satisfy their needs and desires. So, this is a process in development and does not happen when someone pays for their goods or services and take it home with them.

According to Solomon (2010) the exchange between consumers and producers is not the only thing to take into account when studying the consumer behaviour. We also have to observe all the process before, during and after a purchase, i.e. as Tauber (1972) said we have to study the process of shopping, buying and consuming.

The in-store shopping behaviour is affected by a huge set of variables that can be customer related or retail related. Those variable can be manipulated by retailer like atmosphere, promotions, prices, presentation and items variety (section 2.2) or can be triggered by the customer itself like interaction with other people, limitations of time and frequency of purchase (section 2.3).

This chapter intends to describe the main variables that influence retail shopping behaviour in the store, particularly about what influence customer choices when doing their grocery shopping.

2.1 Why do people shop?

Babin *et al.* (1994) stated that consumers usually want more than only to satisfy some functional, physical or economic needs when shopping. They also want to have consumption experiences, i.e. expressions of joy, excitement, captivation, escapism, and spontaneity as fundamental aspects of hedonic shopping value.

So, there are two fundamental motivational orientations which justify why people go shopping, i.e., shopping motives:

- Utilitarian motive: task-related, efficient and rational;

- Hedonic motive: subjective and personal, resulting in playfulness and fun.

Utilitarian consumer behaviour is described as task-related, efficient and rational and its value might depend on whether the shopping trip goal was accomplished (Babin et al., 1994).

In a study conducted by Babin et al. (1994) people who participated in the focus group told that a successful shopping trip was the one in which they could get in and out of the store with a minimum amount of time wasted or when they could get all they wanted in only one store. So, shoppers may find value only if the shopping chore is successfully completed.

Nevertheless, the circumstances may transform all shoppers into utilitarian shoppers. For instance, when we urgently need something, have to buy a lot of material, are about to do a difficult job that requires special material, do regular purchase, or even when we are looking for new ideas (Van Kenhove *et al.*, 1999).

That said, it is also relevant to highlight that it is not necessary to have a purchase to be called utilitarian shopping. Utilitarian value can come from collecting information (ideas, prices) as it is not seen as a waste of time (Babin et al., 1994).

Therefore, shopping occurs when a consumer need for a particular good is sufficient for allocating time and money to travel to a store for shopping. It could also happen when a consumer “needs attention, wants to be with peers, desires to meet people with similar interests, feels a need to exercise, or simply has leisure time” (Tauber, 1972). Thus, it is now important to explain the hedonic value of shopping.

Hirschman and Holbrook (1982) defined hedonic consumption as “those facets of consumer behaviour that relate to the multi-sensory, fantasy and emotional aspects of one’s experience with the products.” They also said that it is more subjective and personal and results more from the fun and playfulness than from the task accomplishment.

Hedonic shopping means that consumers engage in shopping to derive inherent satisfaction from the shopping activity itself, not from the purchase. The shopping activity is motivated by more experiential benefits provided by the experience, such as agreement or excitement and not, as in utilitarian shopping, from the products or services bought (Lunardo and Mbengue, 2009).

Babin et al. (1994) reported some examples based on focus group. In their study people says that shopping helps them to forget their problems, allows them to dream with things they cannot have and also refer the excitement of shopping for bargains that brings the feeling of a very good business.

In short, in hedonic consumption, the purchase of goods may be incidental, the experience is the most important component and consumers enjoy a product's benefit without purchasing it (Babin et al., 1994).

Consequently, utilitarian and recreational consumers are likely to differ in terms of the level of control they desire to perceive during the shopping experience.

That said retailers want to provide consumers with the best experience possible when shopping in the store, in a way that influences their behaviour. This can be done by knowing the previously exposed ideias, this is, that consumers search for an experience and not only the purchase itself and also that there are factors that can be controlled by retailers and others that are part of consumers.

2.2 Retail Factors

Based on the exposed above, the retail factors affecting consumer behaviour inside the store will be firstly illustrated. There are certainly a lot of factors to be taken in, but the selected ones were the most relevant to this study and the ones that could be matched with the behaviour inside the store with or without a smart phone.

2.2.1 Store Atmosphere

As Kotler (1973) said, when people make shopping decisions, they respond to the “total product” not only to the physical good or the offered services but the place where they have access to it is the most important variable.

Also, according to Kotler (1973) atmospherics is the environment built to produce a specific emotional effect on consumers to intensify their purchase probability.

Table 1 - Atmospheric Variables
(Adapted from Berman and Evans (1995) cited by Turley and Milliman (2000))

1. <u>External variables</u> a. Exterior signs b. Entrances c. Exterior display windows d. Height of building e. Size of building f. Color of building g. Surrounding stores h. Lawns and gardens i. Address and location j. Architectural style k. Surrounding area l. Parking availability m. Congestion and traffic n. Exterior walls	2. <u>General interior variables</u> a. Flooring and carpeting b. Color schemes c. Lighting d. Music e. P.A. usage f. Scents g. Tobacco smoke h. Width of aisles i. Wall composition j. Paint and wall paper k. Ceiling composition l. Merchandise m. Temperature n. Cleanliness
3. <u>Layout and design variables</u> a. Space design and allocation b. Placement of merchandise c. Grouping of merchandise d. Work station placement e. Placement of equipment f. Placement of cash registers g. Waiting areas h. Waiting rooms i. Department locations j. Traffic flow k. Racks and cases l. Waiting queues another individual or group m. Furniture n. Dead areas	4. <u>Point-of-purchase and decoration variables</u> a. Point-of-purchase displays b. Signs and cards c. Wall decorations d. Degrees and certificates e. Pictures f. Artwork g. Product displays h. Usage instructions i. Price displays j. Teletext
5. <u>Human variables</u> a. Employee characteristics b. Employee uniforms c. Crowding	d. Customer characteristics e. Privacy

Turley and Milliman (2000) based on Berman and Evans 1995 framework divided atmospheric stimuli in five variables: external, general internal, layout and design, point-of-purchase and decoration and human, as represented above (Table 1).

External variables are the first signs seen by consumers when choosing a store to shop. These elements must be appealing, pleasing and induce approach behaviours for a retail store (Turley and Milliman, 2000).

General interior variables refer to inside store cues that influence consumer's emotions, like music, colours, temperature, among others showed in Table 1. Music is the most studied variable of this group and is expected to make consumers to feel better, which makes them to spend more time in the store and, consequently, consume more (Turley and Milliman, 2000).

Thirdly, we have the layout and design variables which are “visual features and have a great potential to influence would-be shoppers’ psychic costs (consumers’ mental stress or emotional labour during the shopping experience) and therefore their shopping experience and store patronage behaviour” (Baker *et al.*, 2002: 138). The goal is convenience, which includes getting in and out of the store quickly and to be able to find the products they seek easily. So, poorly designed stores may cause consumers to incur psychic costs.

The other group presented by Turley and Milliman (2000) is the point-of-purchase and decoration. This category includes product displays (prominent display can significantly influence sales), point-of-purchase displays (the way a product is displayed, by brand or by flavour, for example, also can have an impact on consumer choices), posters, signs (when signs are combined with sale price information or a special display they can have an effect on retail shoppers and sales) cards, teletext messages, and wall decorations (Turley and Milliman, 2000).

Finally, the Human variables include crowding or density, privacy, customer characteristics, personnel/employee characteristics, and employee uniforms. The crowding, privacy and customer characteristics will be explored in the section 2.2 Consumers Factors.

Retail employees are part of retailer's strategy because they are the vehicle to communicate with consumers while they are in the store (Solomon, 1985), cited by (Turley and Milliman, 2000).

Also in a study of Baker *et al.* (1994) it was found, and marginally supported, that consumers infer a higher service quality in a prestige-image social environment (more sales personnel, wearing aprons, and greeting customers).

In short, pleasant store atmosphere facilitates purchase incidence, which significantly influences the consumers' perception about a specific shopping area (Tafesse and Korneliussen, 2012).

2.2.2 Sales promotions

Sales promotions are “an **action-focused marketing event** whose purpose is to have an **impact on the behaviour** of the firm's customers” (Blattberg and Neslin, 1990).

Sales promotions have four characteristics: (i) they are **action focused** (generate involvement, for example gathering sales receipts, fill up coupons or quizzes), are also (ii) **marketing events** (marketing - because they establish a relation between consumer and retailer and event – since retailers do several action gathered with that sale promotion), likewise they are (iii) designed to have a **direct impact on consumer behaviour** (they exist not only to sale the product but also to involve customers leading them to talk about it with their peers) and as well, they are (iv) designed to **influence consumers or marketing intermediaries** (because sales promotions also help retailers to differentiate from competitors, regarding how they are in touch with their consumers) (Brito, 2000).

Based on Zenone and Buairide (2005) work, the benefits of sales promotions, are (i) encourage the purchase, for example by a price decrease during a determined period in time aiming to reduce stock or stimulate the experimentation of a new product; (ii) encourage the visit to the store which could increase the demand; (iii) attract new customers which would expand their market share and store/retailer substitution; (iv)

lock the competitors, by providing an additional advantage, which would result in a decrease in the competitors' products/brands sales; and (v) increase sales force efficiency, since the increasing number of people inside the store, open roads to a more efficient sale.

Inside a supermarket there are two types of a promotion sale: monetary and non-monetary, derived from the nature of promotion offered.

Monetary sales promotions, like discounts, coupons, and rebate are the most common sales promotions and provide monetary savings, but also value expression, entertainment, product quality and shopping convenience (Chandon *et al.*, 2000).

On the other hand, non-monetary promotions such as flyers, in-store displays, shelf talkers or other mechanisms that draw attention to a specific product, do not involve price strategies to conquer consumers (Corsi *et al.*).

Finally, is presented a brief discussion on the most important types of sale promotions used by retailers inside the store, based on Brito (2000):

- (i) **Temporary price discounts**, as the name implies it consists of a temporarily decrease of the product' price. It is advertised in-store as an exceptional variety of prizes with an explicit message saying "shop now", "-50% off" or "save x€" and that would also be visible the reference price to comparisons.
- (ii) **Coupons** are tickets or documents that can be exchanged for a financial discount or rebate when purchasing a product. The advantage is being able to control how many consumers will benefit from that promotion.
- (iii) **Banded packs and free product**, this sale promotion consists in adding more quantity of the original product at the same price. This could lead the consumer to have more stock of that product inhibiting the purchase of competitive products.

- (iv) **Gifts**, is a mode of exchange where valuables are not sold, but rather given without an explicit agreement for immediate or future rewards. The risk of this technique is if the gift has no value to consumers.
- (v) **Free samples**, of a new product are one way to increase adopting rate, by letting consumers experience it for the first time, without having to pay for it.
- (vi) **Sweepstakes and contest** involves buying a product or, a brand with the expectation of winning a prize that would be drawn randomly. This strategy needs a higher involvement of customers, because they have to search and buy the product, and also fill in the contest coupon and send it to the retailer. The aim is to lead customers to buy the product.
- (vii) **Loyalty programs**, in this type of sale promotion, consumers have to buy an established number of products of a certain brand, in a limited time and for each purchase they have a sort of stamp to collect. After collecting the defined number of stamps the client earns a prize. This technique intends to create brand loyalty among consumers.
- (viii) **Sales promoters** are specially used in the promotion of a new product. They are able to prospect clients and provide them with information about the products.

2.2.3 Impulse buying

Retailers use in-store promotional activities to increase the short-term sales, which in some cases will come from impulse purchases that nowadays are a substantial portion of retail industry sales (Kacen et al., 2012).

Impulse buying occurs when a consumer sees a product in the store and purchases it with little or no deliberation. There is not any prior recognition of need, but only the

urge to possess it (Kacen et al., 2012), i.e., spontaneously, unreflectively, immediately, kinetically and without a goal (Peck and Childers, 2006).

Impulse buying is associated with complex hedonic psycho-social motivations and low-effort, low cognitive control and spontaneous behaviour when the buyer is close to an appealing object of attraction (Sharma et al., 2010).

In sum, impulse buying is typically categorized as a spontaneous act, accompanied by a positive emotional charge. The consumer does not think about its consequences which involve a hedonic temptation for consumption (Amos *et al.*, 2014).

However, impulse buying is not the same as unplanned purchasing behaviour, they are very distinct. An unplanned purchasing behaviour is, for example, when a consumer goes shopping, passes by the milk aisle, remembers that he is running out of milk at his home inventory, and this item is not in his shopping list. In that case he will buy the product, but he has a real need for it (Amos *et al.* (2014); Kacen *et al.* (2012)).

A pure impulse purchase has no reminder component since there was no prior recognized need. Also, this type of decision to purchase is taken in-store, **influenced by store environment** (Kacen et al., 2012).

Kacen *et al.* (2012) also wrote that impulse buying behaviour was a three-stage process. First the consumer sees the impulse object, then he desires it and, finally, he purchases the good. According to the author, the most significant phase is the second one, when the consumer has a desire for the product. In this case, the characteristics of the product itself, seems to worth more than the price or the promotion.

Although, product characteristics are the main factor that influences impulse buying, there are other aspects that lead to that behaviour. For instance, promotional prices, merchandising displays and in-store atmospherics, being the last aspect the one that has the greatest influence (Kacen et al., 2012).

2.2.4 Variety seeking

The variety presented by each store is decided by retailers and determine the variety (i.e., number of categories), depth (i.e., number of stock-keeping units (SKU) in a category), and inventory per SKU of the merchandise (Bahng and Kincade, 2013).

If the retailer well planned its variety of assortment, customers will find not only what they want (familiar goods) (Bahng and Kincade, 2013), in the amount they want, but also new brands and products if they are seeking to change (Sharma et al., 2010). This positive experience creates loyal customers as well as increasing profits for the retailer (Bahng and Kincade, 2013).

Based on the paper of Hirschman and Holbrook (1982) and Sharma et al. (2010) variety seeking is “associated with complex hedonic psychosocial motivations and low-effort, feeling based decision-making” (Sharma *et al.*, 2010: 276) with high involvement and spontaneous exploratory behaviour, because it provides customers with excitement and novelty in their purchase experience.

However, nowadays, customers are confronted with the over-choice phenomenon in the retail environment which offers multiple benefits, but also psychological costs (Beneke et al., 2013).

The main benefits are to save time because they only have to go to a central location to shop, to allow comparison, and the ability to find goods that match their individual needs, preferences and budgets (Beneke et al., 2013).

On the other hand, because of the wide range of different products available, large assortment impacts consumer perceptions, decision-making and purchasing behaviour (Beneke et al., 2013).

Desmeules (2002) suggested an inverted-U relationship between variety and the positiveness of a consumption experience. This means that as assortment size increases up until a point, the purchases also increase and customers are satisfied. But after that “point of satisfaction” customer will find the “point of regret” where the curve starts to

dive. At this point, variety alone brings doubt and regrets, stress and frustration because they are not able to choose from all the goods available. In this point the consumer is "infected" by that feeling and the probability of purchase decreases.

Finally, it is important to mention that the level of familiarity of the consumer with the product category has significant effects on purchasing behaviour. This means that, the more familiar with a category the customer is, the easier it becomes to perceive differences between various products and make preferences in an assortment (Beneke et al., 2013).

2.3 Consumer Factors

It will be now described the two main factors affecting and influencing consumer behaviour inside the store: social influence of other shoppers and time and frequency of purchase. There are certainly many more factors to be considered, but the selected ones were considered the most relevant to this study.

2.3.1 Social influence of other shoppers

Shopping is a social experience and not only a mean to acquire a desired product. Therefore, retailers have to take into account the social influence when people go shopping (van Rompay et al., 2012). This variable could be part of store atmosphere, as pointed out in the retail factors section.

Social influence does not include only the interactive situations, but also occurs without it (Jennifer J. Argo *et al.*, 2005). The work in this area has explored concepts like density, perception of density and perception of crowding which will be described below.

Density is the "...number of people occupying a limited space" and is the antecedent of crowding perception (van Rompay et al., 2012: 1126) i.e., it "...is a function of a number of individuals and the amount of space available" (Mehta, 2013: 643).

“Perceived density is the respondents' assessment on the number of shoppers (termed as perceived human density) or space available to the shoppers (termed as perceived spatial density)” (Mehta, 2013: 643).

On the other hand crowding is “... an experiential state that refers to the restrictive nature of the limited space as perceived by the individuals” (Mehta, 2013: 643) which means that the same density level may be perceived by different persons in different ways, which will result in different types of discomfort when shopping (Mehta, 2013).

Having said that, perceived crowding “is a psychological state that occurs when a person's demand for space exceeds the supply” (in Stokols, 1972 cited by Eroglu et al. (2005: 203)).

When there is a limited space (density) that restricts or interferes with individuals' activities and goal achievement, the individual will perceive that the environment is crowded. Perceptions of crowding are individual in nature (Eroglu et al., 2005).

In short, “density is an objective measure, perceived density is subjective and neutral, as it does not have any positive or negative connotation, while perceived crowding is subjective and evaluative in nature” (Mehta, 2013: 643), and as Eroglu (1990) said, the perceived crowding affects shoppers decisions, as well as, the satisfaction of the shopping activity.

Hence, the social presence of other shoppers affects the three aspects of shopping - visit, shop, and buy - which mean that it may attract consumers toward an aisle in the store. This occurs because it may create an initial level of social attachment, with positive emotional responses associated. This leads shoppers to visit zones where the density of other shoppers is high. Nevertheless, it reduces consumers' tendency to shop at that zone (Sam K. Hui *et al.*, 2009).

It's now important to mention that some shoppers need social contact, which means that together with their shoppers' goal, they are able to find social interactions. For them, the density increases shopping pleasure and spending. In contrast, consumers who are indifferent to social contact, and are task-oriented with well-defined goals may prefer to

shop alone. In this case, crowding is seen as an obstacle to their shopping pleasure and related behaviours, i.e. has negative effects (van Rompay *et al.*, 2012).

Consumers, who desire social interactions when doing their shopping find it stimulating or exciting; want to have others' attention, search for emotional support and opportunities for social comparison (van Rompay *et al.*, 2012). So, in order to generate a positive image, people adjust their behaviour in the presence of others (Jennifer J. Argo *et al.*, 2005).

In conclusion, the effects of social perceived density and crowding on shopping satisfaction may vary with situational variables, store type, time spent in the store, but also with social consumer's needs, emotions, expectations, perceived risk, time pressure and tolerance for crowding (Eroglu *et al.*, 2005); (van Rompay *et al.*, 2012); (Mehta, 2013)

That said, it's important to mention that as retailers know that crowds may influence consumers' behaviour, they use a number of strategies for crowd management.

These strategies go through the layout of the retail space, placement of products, number of sales-support personnel, number of checkouts (Mehta, 2013), architectural features of the store and the store environment, like music and temperature which can help to reduce the feeling of human crowding (Eroglu, 1990).

Nevertheless, research indicates that perceived crowding is an important variable, it is still difficult to control for managers (Mehta, 2013).

2.3.2 Time and frequency of purchase

Since cost of time is high and it is seen by consumers as a scarce resource, they are determined to demonstrate a preference for retail formats which provide convenience, such as a "form of accessibility, fewer travel-time costs, and less waiting time in the store" (Jayasankaraprasad, 2014: 46).

A consumer may enter a retail store with a “shopping time budget” in mind, and as time goes by, may start to feel time pressure, which will influence his shopping decisions (Sam K. Hui et al., 2009). Consumers become less effective and make fewer unplanned purchases in this situation (Thomas et al., 2010).

“Time pressure can be viewed as a perceived limitation of the time available to consider information or make decisions” (Rajneesh Suri and Kent B. Monroe, 2003: 92) and also “time pressure is defined as the perceived costs of time scarcity” (Thomas et al., 2010: 388).

Time pressure increases consumer perceptions of retail crowding, decreases shopper satisfaction, lowers information search and limits in-store browsing activities (Eroglu, 1990). Finally, time pressure can dramatically impact the use, exchange, and communication of information (Thomas et al., 2010).

That said, Sam K. Hui et al. (2009) concluded that, as consumers spend more time in the store, they are less disposed to spend time on exploration of the store and are more likely to shop and buy quickly.

Therefore, time pressure and travel time cost will affect consumers’ choice of the retail format. They will choose to buy their grocery shopping, due to the “opportunity cost of time” (Jayasankaraprasad, 2014).

“Retailers need to evaluate their marketing strategies with respect to one-stop-shopping or multipurpose shopping in an effort to meet the needs of time-constrained consumers (Jayasankaraprasad, 2014: 48)”. Also the one-stop-shop or multipurpose shopping could be an opportunity for cross-selling activities to amplify retention and customer value.

Additionally to the available time for shopping, it is also important to be aware of the **shopping routines and shopping frequency of purchase.**

Frequency of purchase is “the number of times (you) personally shop for any one item” (Dholakia, 1999: 156).

Frequency of purchase depends primarily on the type of commodity involved, for example: we only buy a wedding ring fewer times in our life *versus* buying groceries, and varies among customers. Some of them shop in food stores daily, while others only once a week. The size of the total purchase, the number of items and the quantity of each item bought all vary with frequency of purchase. The more frequently a customer visits a store, the more he is exposed to the impact of promotional sales devices used in the store (Applebaum, 1951).

That said, it is important that retailers know the interpurchase times of a regular buyer in comparison with a random buyer. Being a regular buyer may indicate that someone is bound by time constraints that forces the consumer to buy in highly regular time intervals (Vakratsas and Bass, 2002). In contrast the random buyer may be more difficult to retain.

The interpurchase times of a regular buyer exhibits a steady pattern which means that we can identify intervals of similar lengths. This suggests a strong dependence on the time elapsed since the last purchase. In the opposite way, a random buyer has its next purchase weakly dependent on the time elapsed since the last purchase (Vakratsas and Bass, 2002).

2.4 Conclusion

This chapter aimed to present the relevant factors that shape buying behaviour of consumers in the physical store.

With the introduction of smart phones in the retail industry, some of these factors are not present anymore, or not in the same way.

Therefore, the next chapter will explore how this new type of commerce, m-commerce, will change the way people do their shopping in the grocery stores.

3 Mobile Shopping Behaviour

Mobile devices offer opportunities to combine information search, phone functionality and interaction while shopping in-store or using a product. A mobile device is a constant companion to the consumer, a gateway to a relationship between the consumer and the retailer, making it an ideal supplementary channel for distance selling and physical retailing (Shankar et al., 2010).

This chapter will cover some concepts like m-commerce, advantages and disadvantages as well as highlight some insights on m-commerce in the retail sector, more specifically in a supermarket environment, addressing the main features that an app should contain to match consumers and retailers' needs.

First of all, it will be briefly explained the determining factors that lead to the adoption of a new technology, like m-commerce, to understand why people adopted in such a big scale the mobile in their lives.

3.1 Determining factors in the adopting of an interactive Technology

“Interactive technology refers to methods, tools or devices that allow various entities (individuals, machines, or companies) to engage in mediated communication to facilitate the planning and consummation of exchanges between them”(Varadarajan *et al.*, 2010: 2).

In the retailing context, this type of technology is present through the smart phone and includes collecting information, trials of virtual products and facilitation of purchase decisions (Varadarajan et al., 2010).

Although, interactive technology was not developed specifically for retailing sector, it had a major impact on it. Mobile marketing is a result of that because it incorporates the text messages which simplify the communication between retailers and consumers, the web browsing capabilities which revolutionized the retail, allowing the creation of apps to show products (i.e. characteristics, prices, stock available and advertisement) in real

time and also the ability to have GPS (Global Positioning System) technology and location sensitive apps in the mobile phones (Varadarajan et al., 2010).

Nevertheless, this new technology is not adopted overnight, it has its own enablers and inhibitors and the use of the mobile in the retail environment is not an exception. So, the next section will cover the major reasons that take people to adopt a certain technology.

Most studies on m-commerce adoption were derived from models such as Technology Acceptance Model (TAM) (Davis, 1989), Innovation Diffusion Theory (IDT) written by Rogers (1995) and Theory of Planned Behaviour (TPB) (Ajzen, 1991). TAM focus on people's internal perceptions of the technology/innovation, TPB explores the user's external perception, but in the early stage of new information technology, people have little knowledge about it so innovativeness is another factor that had to be considered, and here enters the IDT (Zhang et al., 2012).

3.1.1 Technology Acceptance Model (TAM)

TAM is a theory adapted by Davis (1989) from the Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1980) that predicts technology acceptance among potential users, through their beliefs, attitudes and behavioural intention ((Ha and Stoel, 2009); (Im and Ha, 2013)).

TAM is one of the most common technology adoption models and has been applied in various studies including in the m-commerce context (Ha and Stoel, 2009).

Theory suggests that the two main predecessors affecting attitude towards the adoption/use of a technology are perceived usefulness (people tend to use a technology which they believe will help them to have a better performance) and perceived ease of use (which involves weighing up the benefits of the new technology against the effort of learning how to use it) (Davis, 1989).

Davis (1989) defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989: 3).

In the m-commerce environment as there are many new m-commerce applications and features almost every day, users might find it difficult to absorb all this information. The challenge is to develop apps that are at the same time easy to use and functional regarding the mobile's small display screen, and difficulty in keying data (Chong, 2013b).

On the other hand, perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989: 3).

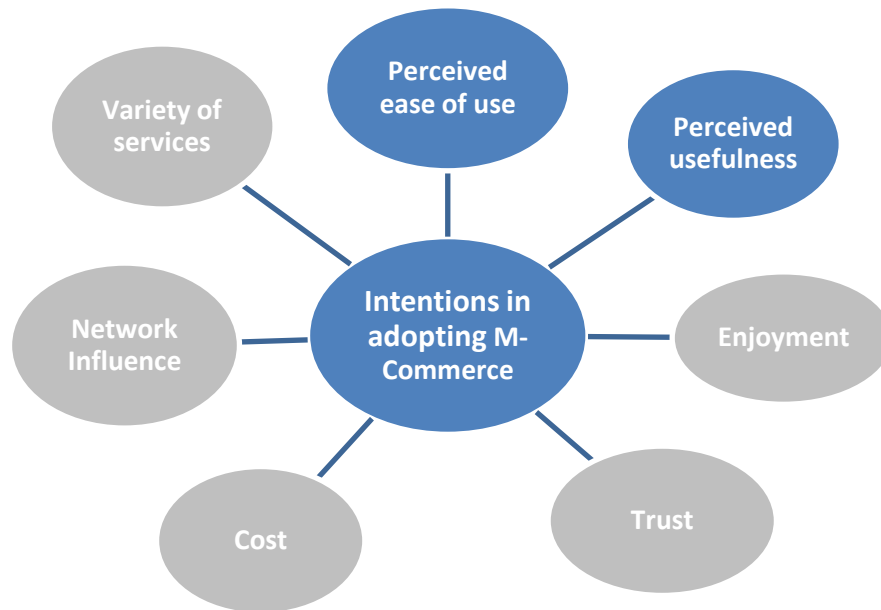
As far as m-commerce is concerned, consumers can have more flexibility because of the ability to provide services without the constraints of wires, when compared to e-commerce. But, users will only appreciate m-commerce if they consider that m-commerce' offer is more useful when compared to its alternatives (Chong, 2013b).

Although TAM theory factors have a direct relationship with behavioural intention to adopt a technology, it only examines perceived ease of use and perceived usefulness. So researchers found that these two elements were not sufficient to provide enough knowledge about the type of users who adopt or not m-commerce and whether there are additional specific issues which are relevant to it (Zhang *et al.*, 2012). Because of that, there was a need to extend TAM when studying the adoption of m-commerce (Chong, 2013b).

So, Chong (2013b) incorporated five new variables to explain the adoption of a new technology: enjoyment, trust, cost, variety of services, and network influence, as seen in figure 1.

Enjoyment is important because people use their cell phones not only for business, but also for leisure, like playing games, listening to music, chatting with friends. So the joy when users interact with m-commerce is a relevant factor for the intention to adopt this technology (Chong, 2013b).

**Figure 1 - Factors that influence consumer's m-commerce adoption intention
(Adapted from Chong (2013b))**



On the other hand, m-commerce is a newer technology when compared with e-commerce, and is also conducted through, most of the times, mobile phones which are personal and used typically by one individual. Adding to that, they have information about the user's location via GPS, emails, agenda, contact lists and so on, resulting in higher privacy and security risks (Chong, 2013b).

Therefore, trust in the technology means the user believes that m-commerce is secure and that privacy will be assured (Zhang *et al.*, 2012), so they must be willing to use it despite the risks and taking into account the advantages offered (Chong, 2013b).

In the study conducted by Chong (2013b), trust was the most significant variable influencing the adoption of m-commerce.

Shankar *et al.* (2010) also stated that trust in the applications, in service provider and in retailer can enhance perceived usefulness and enable wider and deeper adoption of m-commerce.

Cost is another variable that explains the adoption of m-commerce and it refers to the cost of the device, subscription fees, cost to download applications (Chong, 2013b) and covers also communication fees (Zhang *et al.*, 2012).

Because the mobile device and applications may fall under discretionary spending for many consumers, prices of the mobile device and applications should be within the budgets of targeted users. (Shankar *et al.*, 2010)

Chong (2013b) found that cost has a negative and significant relationship with m-commerce, which means that customers are still concerned with this variation and will adopt this technology only if it is worth its values.

Additionally, m-commerce is influenced by network externalities and users might be more willing to adopt it if their peers are using it too (Chong, 2013b). Therefore the network influence might play an important role in m-commerce adoption as a key enabler that increases perceived usefulness (Shankar *et al.*, 2010).

Chong (2013b) found that network influence is the second most important variable. Users will only find an app useful if there are many people in their social network that are using it, as well as other users who are using the application.

Users value mobile devices as these help them stay in touch with other people. Some prefer to use the mobile primarily for social networking, which means, to keep in close contact with their friends and family members, others use the mobile primarily for professional networking that is, being in touch with their business colleagues. Retailers should design and pitch their offers differently to these segments based on the difference in the purpose of primary usage (Shankar *et al.*, 2010).

The last variable is the variety of mobile applications which increase the usefulness and thus enhances adoption. In particular, location-based services enhance consumer utility and lead to faster adoption by a large number of consumers (Shankar *et al.*, 2010).

That said, m-commerce application providers faced an important challenge to understand if increasing the variety of services would be sufficient to attract and retain m-commerce users or if other factors such as cost and trust play a more prominent role in influencing their adoption decisions (Chong, 2013b).

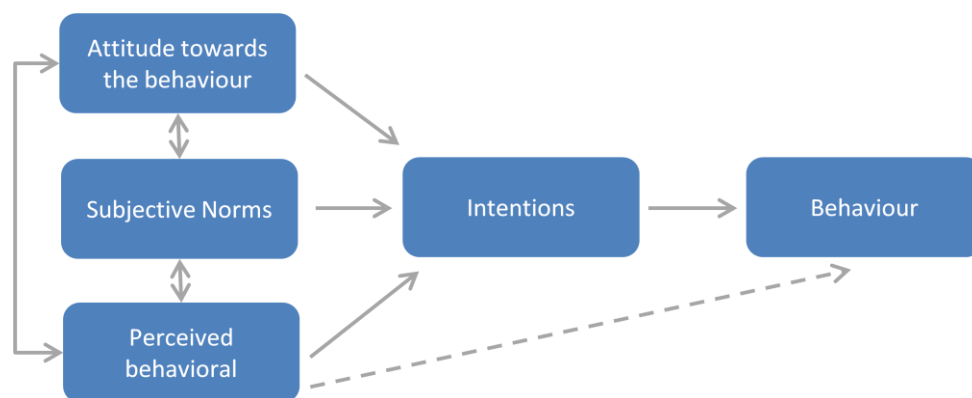
3.1.2 Theory of planned behaviour (TPB)

The theory of planned behaviour is an extension of the Theory of Reasoned Action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) developed by Ajzen (1991) and predicts the individual's intention to perform a given behaviour.

Ajzen (1991) defined intentions as the motivational factor behind the behaviour, which points out the willingness to try, the effort that people want to make in order to do something. He stated that “the stronger the intention to engage in a behaviour, the more likely should be its performance” (Ajzen, 1991: 3).

As such, TPB brings three conceptually independent determinants of intention to have a certain behaviour: attitude, subjective norm, and perceived behaviour control as shown in figure 2.

Figure 2 - Theory of Planned Behaviour
(Adapted from Ajzen (1991))



Attitude refers to “the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question” (Ajzen, 1991: 10). Subjective norm refers to the “perceived social pressure to perform or not to perform the behaviour” (Ajzen, 1991: 10). The third antecedent of intention is perceived behavioural control which refers to the “perceived ease or difficulty of performing the behaviour and it is assumed to reflect past experience as well as anticipated impediments and obstacles” (Ajzen, 1991: 10).

That said, the intensity of an individual's intention to perform a determinate behaviour is influenced by the most positive attitude, the respect of that behaviour for the subjective norms and the greater the perceived behaviour control (Ajzen, 1991).

Also Venkatesh and Davis (2000) recognize subjective norms as a variable that influences intention to perform a behaviour, in their model which is an extension of TAM – TAM2.

The authors said that even if people do not seem to have a supportive attitude towards a certain behaviour and its consequences, if others considered by them as references, think they should do something, they have enough motivation to do that (Venkatesh and Davis, 2000).

3.1.3 Innovation Diffusion Theory (IDT)

Innovation Diffusion Theory (IDT) and TAM can supplement each other because they provide a better explanation and prediction of information technology acceptance behaviour (Zhang et al., 2012).

“An innovation is defined as an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers, 2001: 1) and m-commerce is a relatively new innovation.

IDT believes that innovation's characteristics are the main determinant of innovation diffusion and the main features which determine an innovation's rate of adoption are: (a) relative advantage, (b) compatibility (c) complexity, (d) trialability, and (e) observability (Rogers, 2001).

“Relative advantage is the degree to which an innovation is perceived as better than the idea it supersedes” (Rogers, 2001: 2). This means that, if people perceive a certain innovation as being able to help them doing a certain thing faster, easier or better, they will rapidly adopt that innovation (Rogers, 2001).

“Compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters” (Rogers, 2001: 3). That implies that innovations/ideas that are not in line with social norms and values, will have more difficulty to be adopted (Rogers, 2001).

“Complexity is the degree to which an innovation is perceived as difficult to understand and put into use” (Rogers, 2001: 3).

“Triability is the degree to which an innovation can be experimented” (Rogers, 2001: 3). If that is possible, it represents less uncertainty to the individual, who can learn by trying out the new idea (Rogers, 2001).

And, finally, “Observability is the degree to which the results of an innovation are visible to others” (Rogers, 2001: 3) which stimulates discussion of the new idea, and thus more rapid adoption (Rogers, 2001).

Rogers (2001) and Zhang *et al.* (2012) concluded that only relative advantage, compatibility and complexity are consistently related to innovation adoption. So, in the m-commerce case, this theory tells us that this technology has to be, essentially, better or have something better than the previous ones, has to be consistent with the norms and values of the potential adopters and easy to use.

3.1.4 Conclusion

After an overview of the most important theories about the adoption of an interactive technology like m-commerce, the conclusion is that there are many factors which can influence it.

First, the perceived usefulness brought by TAM, which is related to the relative advantage in IDT and also attitude towards the behaviour of TPB. All these factors tell us that some new interactive technology has to promise added value to the users, or he will not use it. Has to have something new, that in his opinion is something better or that allows him to do things faster or easier.

Also the perceived ease of use, which mean consumers want the new technology to be simple to use, to be easy to understand and work with. This factor of TAM is also related to the complexity, advanced by the IDT and perceived behaviour of TPB.

Further, the technology has to include/to be aware of its surroundings, meaning that have to take into account people's feelings, society norms, way of doing things, as all the theories referred, TAM as network influence, TPB as subjective norms and IDT as compatibility.

Finally, TAM brings us more four factors to be aware of when understanding the adoption expectation of a new technology, and they are: enjoyment, trust, cost and variety of services.

3.2 M-Commerce

The strong growth of communication technologies not requiring wires, cables or any other forms of electrical conductors, like smart phones, GPS, Bluetooth and a lot of other devices and technologies, brought the attention to m-commerce as a new way of doing business (Chong et al., 2012).

In this part of the chapter, the definition of m-commerce will be described, referring its advantages and disadvantages as well as what is happening in the retail sector, more specifically in supermarkets, related to the introduction of m-commerce in it.

This means that, outlining all the features present in an app for supermarkets that allow consumers to do m-shopping (purchasing their groceries' goods through the help of a mobile app) (Tiware and Buse, 2007) and what, in theory retailers should be capable to do in it to get closer to their clients and explore this new technology.

3.2.1 Definition of M-Commerce

There are several definitions for m-commerce in literature which are described below in order to understand the real concept.

For Ngai and Gunasekaran (2007) in page 1 the “Wireless technology converts e-commerce into mobile commerce (m-commerce). M-commerce can be defined as any transaction with a monetary value - either direct or indirect - that is conducted over a wireless telecommunication network.”

Also for Tiwari and Buse (2007) in page 33, m-commerce is “any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of mobile devices”.

Here, the authors focus only in the transaction by a wireless device because many of the services offered by m-commerce may as well be available using e-commerce (Tiwari and Buse, 2007) although this definition is too narrow (Chong, 2013a).

Considering the above, Feng (2006) argued that m-commerce is more than an extension of e-commerce due to its differences in interaction styles, usage patterns and value chain.

Also, Dholakia and Dholakia (2004) distinguish m-commerce from e-commerce not only as a term for e-commerce transactions carried out via mobile and wireless terminals, but as “(...) novel, location-based services delivered by a variety of handheld terminals” (Dholakia and Dholakia, 2004: 1).

These definitions bring out new information about location-based services that are possible only with m-commerce and that represent the biggest advantage of this type of business. M-commerce opens new business opportunities by offering innovative, location-based and context-sensitive services that the e-commerce is not able to offer (Tiwari and Buse, 2007).

M-commerce brought ubiquitous access to information, anytime, anywhere (Chong et al., 2012).

Additionally, Shankar and Balasubramanian (2009) “(...) define mobile marketing as the two-way or multi-way communication and promotion of an offer between a firm and its

customers using a mobile medium, device, or technology. Because it involves two-way or multi-way communication, mobile marketing is primarily interactive in nature, and could include mobile advertising, promotion, customer support, and other relationship-building activities” (Shankar and Balasubramanian, 2009: 1)

Regarding the last definition, the authors introduce additional insights to the concept of m-commerce, through the concept of m-marketing, like interactivity between customer and seller/marketer as the nature of this new concept and also go beyond the idea of transaction and talk about communication, customer support and the establishment of a relationship with the consumers.

In sum, m-commerce consists in transactions carried out via mobile and wireless terminals (Ngai and Gunasekaran, 2007) with interactive nature (Shankar and Balasubramanian, 2009) bringing ubiquitous access to information, anytime, anywhere (Chong et al., 2012), with location-based and context-sensitive services (Tiwari and Buse, 2007) and also including mobile advertising, promotion, customer support, and other relationship-building activities (Shankar and Balasubramanian, 2009).

3.2.2 Advantages of M-Commerce

M-commerce brings with it a range of advantages to both users and companies.

The first one is **portability**, which means m-commerce runs through small size devices that can be carried anywhere. “(...) the new range of mobile technologies offers the Internet “in one’s pocket””(Wu and Wang, 2006: 2).

Mobile phones become an important business and personal devices for consumers. They are used not only to make phone calls or to send messages, but also to listen to music, watch videos, play games, conduct business transactions (Maity and Dass, 2014), and connect to social networking sites. The interactions between consumers and their mobile phones have presented opportunities for companies to use m-commerce to personalize services (Chong et al., 2012).

Also, the mobile phone is something we use every day, so we can be reached at anytime and anywhere (Dholakia and Dholakia, 2004). These devices are a “constant companion to the user and are used on a continuous basis” (Shankar and Balasubramanian, 2009: 2).

Another advantage is the fact that m-commerce is “**Always-on**” due to the size and design of the mobile devices and also, as it is linked to the internet, people can talk to their friends, conduct transactions while travelling, i.e. are always in touch with the whole world (Mahatanankoon *et al.*, 2005), which brings them convenience (Tiwari and Buse, 2007). Besides, mobile devices are not tethered or connected by wires which increases its usage (Dholakia and Dholakia, 2004).

Thereby, m-commerce is **ubiquitous**, in other words, the user can avail of services and carry out transactions largely independently of his current geographic location (“anywhere” feature). This feature can be useful in many situations, for example, to cross check prices while standing in a supermarket (Tiwari and Buse, 2007). The ubiquity of the m-commerce comes from the fact that it is portable and always-on (Gao *et al.*, 2009).

On the retailer’s side, ubiquity means m-commerce providers are able to reach their customers anywhere, anytime (Siau *et al.*, 2001). Users of m-commerce, on the other hand, can obtain information whenever, and wherever they want (Chong, 2013b). M-commerce’s flexibility allows users to conduct internet based activities such as transactions and surfing the web while they are travelling, allowing consumers to eliminate the waste of time in some activities (Chong, 2013b). This will improve their quality of life, and may also bring more satisfied and loyal customers (Mahatanankoon *et al.*, 2005).

Also, the ubiquity enables the user to perform urgent tasks in an efficient manner, such as, fast reaction to stock market developments regardless his current geographic location. It is also useful in emergency situations (Tiwari and Buse, 2007).

The third advantage is the fact that the mobile phone is used, usually, only by one person which increases the opportunity for individual marketing – **Identifiability** (Mahatanankoon *et al.*, 2005).

Customization/personalization is equally a huge benefit of m-commerce versus e-commerce because the mobile devices are personal (Gao *et al.*, 2009). Marketers can creatively design and segment tools for a specific type of customers, for instances based on their purchase habits (Mahatanankoon *et al.*, 2005). This means they can represent information or provide services which are appropriate for a specific group of users or unique to a specific user to provide a personalized service (Chong, 2013b).

Besides, it is important to mention the camera function used for instance to compare or scan products that augment the experience and provides additional information (Ström *et al.*, 2014).

Finally, and the most important and disruptive advantage is the possibility of knowing where the customer is, **Location-centric**. With this feature, m-commerce grants the dissemination of information by providing data about a specific geographical region where the user is located, through the GPS incorporated in the cell phone: location awareness (Chong, 2013b).

Also positioning technologies allow companies to offer goods and services to the user according to his current location, matching their needs and wishes and in close proximity to the vendor, thereby increasing the probability of sales ((Tiwari and Buse, 2007); (Dholakia and Dholakia, 2004)).

3.2.3 Disadvantages of M-Commerce

In spite of the advantages of this technology m-commerce has some disadvantages, especially on the consumer side.

Shankar and Balasubramanian (2009) talk about the dimensions of the mobile phone's **screen** which do not allow “information-intensive messages” to be delivered or making

it difficult to locate a target key without pressing the neighbouring ones. (Chen et al., 2010). Also, for older customers this constraint could hinder their participation in this type of commerce (Shankar et al., 2010).

For example, in e-commerce, a consumer may simultaneously browse a product listing on a web page, and watch a video about the product on the same computer screen. On the contrary, in m-commerce, that is difficult to achieve due to m-commerce limitations (Maity and Dass, 2014).

However, the major obstacle for m-commerce is the fact that “(...) mobile devices invite **intrusion of privacy** from unscrupulous marketers.” (Shankar *et al.*, 2010: 10) and this brings uncertainty to consumers which have to be controlled by companies.

“Customization strategy may be used to ease the fear of mobile transaction with respect to security and privacy” (Mahatanankoon *et al.*, 2005: 7).

A study conducted between 2003 and 2004 in an American university by Mahatanankoon *et al.* (2005) which ranked the most important applications for mobile devices, concluded that the apps that were related to transactions such as “(...) electronic payment, buying products from physical shops, or transferring money from a preconfigured bank account, did not rank as high as we had predicted they would” (Mahatanankoon *et al.*, 2005: 7). This was due to the concerns over the security and privacy, because it involves consumers’ confidential information of customers, which can expose their identity.

The authors pointed out an idea to minimize this disadvantage that is the ability of consumers to change the security and privacy settings to match their individual taste and concerns. However, providers of the service have to be aware that this issue could “(...) deter consumers from fully utilizing their mobile functionalities” (Mahatanankoon *et al.*, 2005: 7). As so, even in the simplest app, companies need to take into account these consumers’ concerns (Mahatanankoon *et al.*, 2005).

More, in m-commerce, as well as in e-commerce, the customers are always in a **digital shop**, they cannot feel or experience the same way as a real shop, which is necessarily different (Shankar *et al.*, 2010).

The last disadvantage found is **battery consumption**, which is not unlimited and is very significant when users conduct a wireless session (Cano and Domenech-Asensi, 2011).

Recent work shows the importance of developing and using smart “green” applications (Cano and Domenech-Asensi, 2011) so that consumers could use cell phones without having to be worried about a place to charge it.

After knowing what is m-commerce and its main advantages and disadvantages, its impact on the retail sector will be described.

3.3 M-commerce: A new paradigm in the Retailing Environment

Due to the massification of the Internet, shoppers have now a greater degree of control over the access and use of information than ever before, namely through social networks, search engines, like Google or Yahoo, and advanced mobile devices. Mobile devices are always with them and became routinely devices for several activities (communicating with others, listening to music, searching for information, conducting transactions and managing daily schedules) (Shankar *et al.*, 2011).

Also, because of the economy, consumers are more focused on shopping for the best offer at the best price, instead of hedonic spending (Shankar *et al.*, 2011).

Therefore, the introduction of mobiles in a retail environment is changing the way of buying because consumers can now buy anything, anywhere through their cell phones (Shankar *et al.*, 2010). Cell phones brought convenience and powerful functions, introducing the “new era of the localization applications in our daily life” (Man and Ngai, 2014: 1).

On the other hand, retailers are always in touch with their clients, enabling them to be in retail environment constantly. In contrast, in the traditional channel, retailers may only interact with their clients inside the store, by media or outdoors (Shankar *et al.*, 2010).

This mobile interaction with the real world can be based on several technologies like RFID (Radio Frequency Identification Technology), NFC (Near Field Communication), sensors, light beams, smart objects, Bluetooth, camera-based application, infrared, Augmented reality applications (Salo *et al.*, 2013), GPS (Global Positioning System), WI-Fi, UWB (ultra wideband), mapping of Magnetic Field and beacons (Cai, 2014).

3.3.1 Features of a mobile application for supermarket industry

Focusing now on the supermarket's sector, mobile devices are already a reality for retailers to understand that the key to succeed in the future is to “meet shoppers where they are”, and no one wants to be left behind (Verizon, 2011: 1).

Likewise, mobile applications have come from only showing their online catalogue or being a reproduction of the company's website (Verizon, 2011), to much more sophisticated and integrated apps that help them in their shopping, outside and inside the store.

That said, it is important, first of all, to distinguish how consumers use the mobile apps in a retail context, because they have different needs when shopping (with or without a smart phone).

As suggested by Saarijärvi *et al.* (2014), consumers could be divided into two groups depending on the leverage that retailers can have on them: the ones where retailers can have a **utilitarian interaction** and others where they can establish a **hedonic interaction**.

The author also brings attention to the ability that m-commerce has, through the introduction of m-service (providing other services not only the core activity), to expand influence not only in the store but also in customers' lives, transforming into not only a

supplier of goods but also a provider of a much more complete offer (Saarijärvi *et al.*, 2014).

So, Saarijärvi *et al.* (2014) developed a framework to show the main differences between these two types of consumers, and the stage of interaction that they are in (pre-purchase, in-store or post-purchase process) and to give clues about the focus to have in mind when retailers are building an app for a smart phone, as shown in the table below (table 2).

**Table 2–Framework reflecting differences matching different natures and stages of interaction
(Adapted from Saarijärvi et al. (2014))**

	Utilitarian interaction	Hedonic interaction
Pre-purchase processes	Comparison of prices and products, shopping list to plan the groceries to buy, buying groceries in advance and asking for the delivery at home and store related information.	Planning events, shopping of healthy meals, help customer's to achieve lifestyle goals.
In-Store processes	Finding the product needed quickly, using the self-scanning to save time, earn discounts and compare products.	Search the origin and nutritional characteristics of the product; scan product bar codes to be able to see potential recipes.
Post-purchase processes	Video that help to prepare meals with the products brought, promotions related to the shopping history.	Reviews and sharing of the experiences with products.

As we can see, there are different needs in both groups of consumers (nature of interaction – Hedonic or utilitarian) and different offers according to the stage of interaction (in-store or pre or post-purchase processes) and to fulfill their needs retailers have to have different feature in their app. So, retailers should have an active role when creating a mobile app, to meet the consumer's desires, whether they are driven by utilitarian or hedonic values (Saarijärvi *et al.*, 2014).

Now, it will be briefly explain the features that a mobile app should include for each stage, in order to help consumers doing their shopping.

- **Pre-purchase processes**

Usually, before shopping at a supermarket, most families tend to prepare a written list, which provides valuable insight into the household's purchase intentions (Schmidt, 2012), a shopping list.

The shopping list made by the consumers in the past was done on a piece of paper that they brought to the supermarket, taking into account the things they needed to buy.

Nowadays, with the help of a mobile app, it is possible to do shopping lists directly in the smart phone. There, consumers can also cross information about mobile coupons and loyalty programs by brands, or they can incorporate the ingredients of a recipe that they want to make, directly to their shopping list. An example of that is the ifood from Kraft that has over 7,000 recipes which can go directly to the shopping list and the consumer can see if the store is offering any promotion for those items (Shankar et al., 2011) or “Chef Online” app, from Continente.

Those shopping lists can be incorporated in consumer's mobile phone (Hui *et al.*, 2013) and, once inside the store, locations of the identified merchandises can be obtained. In order to save shopping time, the smart phone is able to determine the shortest route to buy all the products in the list (Hou and Chen, 2011).

However, according to GMA 2010, 77% of shoppers enter in stores without a detailed shopping list. Most of them have only a rough or mental list of the things they need to buy. Schmidt (2012) found that shopping lists can contain needed products or a reference to an activity or event like “something for Sunday's party” and not always the exact item with a specified brand. So, the majority of the times, the decision-making of what to buy is made inside the store (Shankar et al., 2011).

For this reason, some customers go shopping without a definitive shopping list. In this case, the recommended route could be based on shopping history and in sales promotions set by the retailer, which can increase the customer's satisfaction and sales volume (Hou and Chen, 2011).

- **In store-processes**

Due to the rapidly growing amount of information available, it is difficult for the customers to process all the innovations and new products that appears in the market (Lin et al., 2010).

So the introduction of a product recommendation system will help the customer to identify the products they wants to purchase, customizing the service, based on previous purchases or inference from the preferences of other consumers sharing similar interests, which can promote loyalty and help visitors become consumers (Lin et al., 2010).

Besides, the recommended route can also be useful because the shopping space of some retailers has several floors and it might be difficult to find the goods only by the signals. With the real-time guidance, customers can improve their browsing and shopping efficiency (Hou and Chen, 2011), since the venue navigation app will be able to indicate turn-by-turn directions inside the store, and find the places where the goods customer wants are located (Cai, 2014).

Although, in small shops the limitations of this application are obvious, once the customer knows the store, he will not need this app anymore and will probably not use it a second time (Cai, 2014).

Additionally, mobile devices in the store have opened a new opportunity to influence shoppers' attitudes and behaviour, particularly in the retail environment (Shankar et al., 2010). This happened because with location-based mobile apps retailers can not only establish a route based on the customer's shopping list or shopping history, but also use it to call attention to promotions inside the store, which could increase shoppers' in-store travel route and thus unplanned spending (Hui *et al.*, 2013).

Once in the store and with the shopping list defined, consumers look forward to have precise and comprehensible product information at the point of sales, for example, knowing the ingredients of the groceries (Kowatsch and Maass, 2010), nutritional information or origin country. Additionally, they want to compare prices, characteristics

and promotions (Fang et al., 2012). This would not be possible without a smart phone due to the massive amount of brands, constant product innovation and difficulty to have samples (Stahl and Freudenschuss, 2006).

In consumer research for in-store shopping situations, it was proved that product information has a strong influence on purchase behaviour (Kowatsch and Maass, 2010).

So, with the global use of smart phones, product information can be increased by recommendation agents, retailers' apps, that apply users' preferences and contextual information, like location, time and promotional offers (Fang et al., 2012) providing a vast amount of information (Saarijärvi *et al.*, 2014) which helps improving decision making with less effort (Häubl and Trifts, 2000). For example, a retailer can offer a coupon through the customer smart phone for a cereal brand while the shopper is on the cereal aisle (Shankar et al., 2011).

Digital product information is relevant to the client, especially if it can be adapted to consumers' needs (Kowatsch and Maass, 2010) and inside the store environment, it can be complemented with the direct perception of products by taste, touch and smell (Citrin *et al.*, 2003).

The consumers are also using social media like facebook or twitter, to search for opinions of other users and experts, or to find promotions about a determined item they want to buy, which will influence their shopping decision before entering a store and also while they are inside the store, through their smart phone (Shankar et al., 2011).

The technology incorporated into this feature can be mobile Bar Codes or RFID reader devices, where the consumers scan the bar code of the product and the smart phone shows the information about it (Kowatsch and Maass, 2010).

To achieve this, retailers have to provide access to electronic product information, identify them with a Barcode, RFID or Quick Response Codes (QR Codes), which will endow retailers with a unique selling proposition (Kowatsch and Maass, 2010).

With that, retailers will attract more consumers to stores, instead of purchasing products online, at home; with this technology they will be able to improve the shopping experience in retail stores (Kowatsch and Maass, 2010).

Another feature that mobile apps could incorporate is the mobile payment, which involves the “completion of payments and transactions between two parties in a fast, convenient, safe, and simple way, anytime and anywhere, using a mobile device” (Liébana-Cabanillas et al., 2014: 464), which means using wireless technology.

For that, there are nowadays many ways of doing it online like, credit card, debit card, PayPal, (Ondrus and Pigneur, 2006) cash on delivery payment and bank transfers (Liébana-Cabanillas *et al.*, 2014) and the trend will continue. The transformation of physical to virtual payments will be a larger reality as it brings more convenience and speed to consumers and retailers (Ondrus and Pigneur, 2006).

The most recent technology in this field is NFC which enables consumers to tap-and-go payments through their smart phone. This technology will transform the way consumers buy things. It is available in Europe since 2011 and GSMA estimates that by 2017, 25% of US and Western European mobile phone users will pay their goods in-store using it (GMSA, 2013).

NFC is a very simple technology to work with because it performs only with the speed of touch-and-go, which means that instead of giving the credit card to the sales person to pay for the groceries, consumers have to swipe their smart phone at the checkout lane in the grocery store, insert the pin code and the payment is done. It also integrates vouchers and loyalty programme (GMSA, 2013).

In sum, in the future, consumers do not have to carry a wallet with hard cash or credit cards, they only have to bring their smart phone to pay for their groceries. It also allows consumers to see their spending and budget more effectively (GMSA, 2013).

Finally, the biggest advantages for the retailers using positioning approach inside the store is knowing the users' locations anytime, the length of the user stays in store, users' preferences without requiring the input of information and also achieving store level

accuracy (Fang et al., 2012). Additionally, they are able to determine the “nature of the decision (e.g., planned vs. unplanned, frequent vs. infrequent, and hedonic vs. functional), and cross-effects (e.g., category adjacencies)” (Shankar *et al.*, 2011: 7).

With technologies like beacons, retailers can interact with potential clients through push marketing and sales notifications to select groups of users who have installed their mobile app. Then, they can detect consumers around the retail store, likewise connect to the users’ Facebook account for product and interest suggestions (Cai, 2014).

- **Post-purchase processes**

Post-purchase processes aim to maintain customer in the retail environment, even after doing their shopping. As Saarijärvi et al. (2014) observed, there are already some retailers that are investing in this stage of interaction, with features in their mobile apps to achieve this goal.

As reported, for example, a retailer that provides recipes’ videos so consumers could use their ingredients at home, as a hedonic experience. Using this data on how many and what recipes consumers saw, retailers could have more complete information about them (Saarijärvi *et al.*, 2014).

Other retail company presents in its apps, tips for products that consumers can buy in their store, like how to cook a determined fish, how to save money in a meal, how to live a healthier life, and so on (Saarijärvi *et al.*, 2014).

In sum, the key question for the retailers is no longer who has the most attractive product category or the best location, but which one provides the most engaging experience to consumers’ value creating processes since pre-purchase, undergoing to in-store environment and over to post-purchase processes (Saarijärvi *et al.*, 2014).

3.3.2 Application Design

Although retailers want to use mobile technology to improve their shopping experience, they have to be careful. The adoption of a new technology/device per se is not synonym of success; they have to pay attention to the implementation (RetailPro, 2011).

Kowatsch and Maass (2010) highlight the fact that it is crucial to provide apps without any delay, with a mature graphical layout, that have access to product recommendation services and increase both perceived ease of use and perceived usefulness to the end user.

Therefore, applications that have interest to mobile shoppers seems to be content delivery (searching and obtaining information, assortments, brands and prices), transactional (order and payment services), location based (knowing when and where consumers are to send them proper offers, advertisements, maps and routes), finding products in computer storage and exercise instructions, memory support (shopping lists, pictures of products, brands), administration of loyalty benefits and sharing of information and content (Ström *et al.*, 2014).

So, designing mobile applications means to incorporate localization, mobility and social network feature into one integrated service solution (Man and Ngai, 2014).

Therefore, retailers have to make tests to see what technology best suits them, like an augmented reality system developed at the Massachusetts Institute of Technology media lab and named SixthSense where customers only have to use their hand gestures to see prices and information about the products or a simpler app similar to a notebook where they can do their shopping list (Shankar *et al.*, 2011).

Also, many future innovations have to involve customers in the co-creation of value, because in order to adopt, use and be loyal to new devices and technologies, it have to suit their needs (Ström *et al.*, 2014).

3.4 Conclusion

Summing up, this chapter clarified that m-commerce brings with it lots of new features and technologies, as well as new ways of buying groceries.

People can now easily make their shopping list, have more information about the products they are buying, receive personalized promotions and discounts, share experiences with their friends, pay their groceries only with their phone and can do their shopping faster and more efficiently than ever with the help of smart phones.

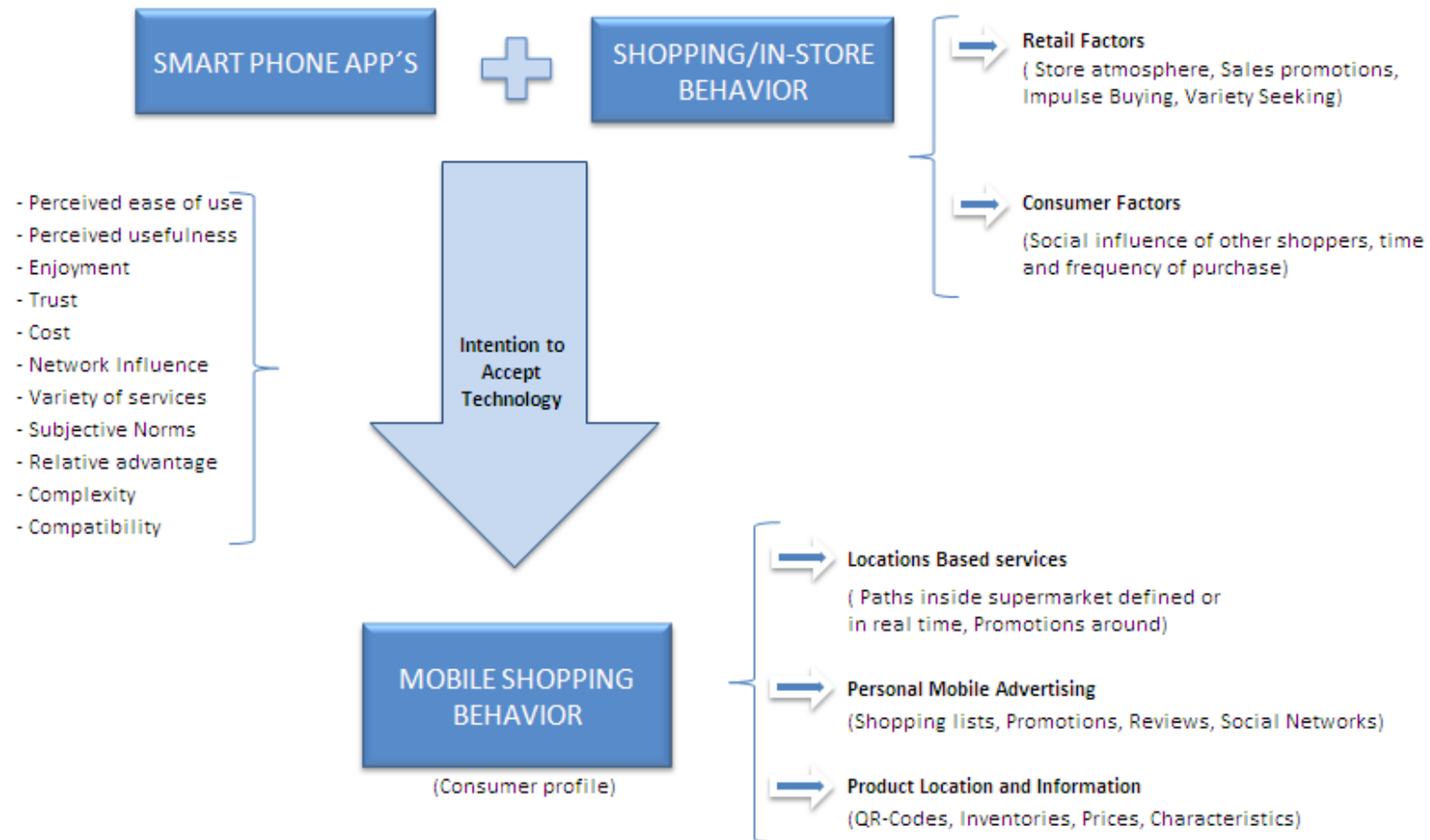
On the other hand, retailers have the challenge to take advantage of this new way of doing business in a clever way, meeting the customer's expectations, and having the ability to be in touch with them all the time, before, during and after their purchases, without being too intrusive.

So, after knowing the main advantages and disadvantages of m-commerce, and also after exploring the main features possible to incorporate in a mobile retail app, it's now important to understand if all the consumers pay the same attention to all the features, that is, understanding if all the possible features are valued by the customers, and if so, what are the main ones that they want to have in a mobile app.

Furthermore, it's now important to understand if retailers are already able to benefit of all the technologies and all the information that they can have when building an app, and investigate if the features they are investing in are the ones that consumers value.

Figure 3 shows the conceptual model that sums up the two chapters above.

Figure 3 – Conceptual Model
(Source:The author)



4 Methodology

The overriding purpose of this chapter is to justify and describe the methodological approach selected for this topic. This study employs a qualitative method, more precisely the personal interviews and a single case study.

This study is of a descriptive character and seeks to collect, document and interpret information about the features to incorporate into a mobile app for a supermarket (Reiss, 2011).

It should be stated, however, that the results of this work are not intended to be representative, because a representative sample would require a larger and random sample.

In this chapter, the research questions will be described explaining the main objectives of the study, the methodology used, in this case the personal interviews and the single case study and how data were collected and analyzed.

4.1 Research Questions

Overall, this study attempts to describe the impact of m-commerce in the supermarket industry, with the retailers' and consumers' perspectives on the features a mobile app should have to help with shopping for groceries and that bring value to them.

As described in the previous chapter, m-commerce is changing the way people do their shopping and it is important to understand if all the features available nowadays have already perceived value for consumers and outcome value for firms. If this already happened, potentially it is creating a higher brand involvement, loyalty and strengthening the bonds between retailer and consumer (Ström *et al.*, 2014).

Mobile device shoppers may be valuable segments for retailers, so it's important to know more about what they think that are the advantages of this new way of shopping.

Moreover, as a fast changing subject, m-commerce is rapidly evolving and issues as privacy intrusion and security have to be understood from the consumer's perspective (Ström *et al.*, 2014).

Finally, from the retailers' point of view, it's also important to understand that this new commerce seems to increase consumer connectivity with retailers and outcome value, but it demands big changes in the way retailers conduct their business today. So, exploring the main features, that are more interesting to consumers, perhaps they can gradually improve their service to their customers, while learning new technology and consumer shopping behaviour (Ström *et al.*, 2014).

So, the investigation questions are:

Q1: Which are the features that customers most value in a mobile application (app) for a supermarket?

Q2: Which are the features that retailers are able to release to the market and see more value for a mobile application (app) for a supermarket?

Q3: Which product categories are more likely to benefit from this type of apps?

4.2 Research strategies

The qualitative research focus on the meaning and interpretation of the data, which means that the construction of the theory is based on the data collected.

It was chosen the qualitative research, since the interest lies in the understanding of the topic in study by the perspective of the consumers and retailers.

4.2.1 Single case study

The case study strategy attempts to examine: “(a) a contemporary phenomenon in its real-life context, especially when (b) boundaries between phenomenon and context are not clearly evident” (Yin, 1981).

From the retailer’s point of view, it was adopted a single case strategy¹, using a non-structured interview.

The descriptive case study method was chosen because the study aims to understand the relatively recent phenomena of m-commerce from the retailers’ point of view.

4.2.2 Personal interviews

The non-structured interview methodology was used for collecting the consumer’s data. It presents the following characteristics: “a low degree of structure imposed by the interviewer; a preponderance of open questions; and a focus on specific situations and action sequences in the world of the interviewee, rather than abstractions and general opinions” (Cassell and Symon, 2004).

The chosen method in this study aims to obtain information based on several interviews with consumers. The goal was to achieve detail descriptions, integrate multiple perspectives and develop holistic descriptions (why they come to have that particular perspective) about what they thought that were the main features that an app for a mobile phone, in the supermarket industry, should have.

“Qualitative interviews may focus on the internal or the external; what is common to them all is that they ask the respondent to provide an observer’s report on the topic under study” (Weiss, 2008: 8).

¹ The chosen methodology is justified in chapter 6.4.

Regarding to the sample selection, it was used a convenience sample due to the time and costs constraints and because it is impossible to reach the whole population. Convenience sample, means selecting cases that are easier to obtain. (Saunders, 2012).

4.3 Collecting Data

The empirical research requires the establishment of the meaning of the phenomenon from the participant's point of view. So one of the key elements is knowing how the data were collected (Creswell, 2013).

Following the literature review, two interview scripts were outlined one for consumers and the other for retailers together with a list of themes and questions to be covered in the interview.

All the interviews were performed by the same person. These guaranties the consistency required in data collection. As Saunders (2012) stated, the behaviour, comments, appearance, posture and tone of voice of the interviewer may have an influence on the flow of the discussion.

Another important thing is to audio-record the interviews (Creswell, 2013) which happened in all the cases. The result of the interview was then transcribed, almost all of them, on the same day they took place.

In order to anticipate all the ethical issues in collecting the data, all interviews were recorded with the express consent of the interviewed at the beginning of it. At this moment, all the objectives of the study and of the interview were clarified and the confidentiality of all the answers was ensured. Because of that, names will not be mentioned in the finding below.

The interview questionnaires were included in the appendix.

- **Consumers**

Before stepping into the proper interviews, the consumers' script was tested in order to measure time, difficulties and poorly formulated questions and the consequent adjustments were made.

The interviews took place in June and July of 2014.

The average duration of the interviews was 30 minutes. Face-to-face and one-to-one interviews occurred in a quiet room with no interruptions. Exceptions for two interviews which took place in a coffee shop due to the interviewees' availability. All the interviews were recorded with the express permission of the people involved.

In total, 10 consumers were interviewed through a non-structured interview, which provided more flexibility and freedom to formulate and also adapt the questions during the conversation. The selected consumers were known persons of the investigator invited to do the interview. The criteria for the sample were married or single persons between 25 and 40 years old who had a smart phone and who regularly did their shopping in a supermarket.

- **Retailers**

In June 2014, 10 retailers who own a supermarket in Portugal and who have an app for mobile phones were contacted by the investigator. They were the following: Aldi Portugal, Auchan Portugal, Continente, Dia Portugal, El Corte Inglés Portugal, Froiz Portugal, Grupo Mosqueteiros Portugal, IKEA Portugal, Lidl Portugal and Spar Portugal.

First a phone call was made to each company to know the email address of the marketing department or, if possible, the name of the person responsible for mobile marketing in the company. Then, an email was sent, describing the purpose of the study and asking for a personal interview. Finally, the companies which had failed to respond were contacted by telephone, but only one accepted to give an interview and another one agreed to send the responses to the script by email.

The company that responded by email only answered half of questions with general ideas and tendencies, since the script was answered by their publicity company. This company has yet no presence in the mobile field in Portugal, so, and also as the answers were very generic, it was not integrated in this study.

The company that agreed to do the interview was Continente and that is the reason a single case study was conducted.

The interviewed was with a top manager of the mobile marketing in the company. The interview occurs in June 2014 in the company's office, during work time and it was recorded with the consent of the company's manager.

4.4 Data Analysis

“The process of data analysis involves making sense out of the text and image data. It involves preparing the data for analysis, conducting different analyses, moving deeper and deeper into understanding the data (...), representing the data, and making an interpretation of the larger meaning of the data” (Creswell, 2013).

So, following Creswell (2013) scheme, the first step was to organize and prepare the data for analysis, which involved transcribing the interviews. As exposed before, almost all the interviews were transcript on the same day they took place.

Afterwards, all the collected data was read in order to make a general sense of all the information.

The third step was coding and the fourth was organizing it into themes. So, the interviews were organized into four segments that best suit the topic in study, referred in the following chapter, by manually grouping questions asked in the interview. The four topics were: (I) Advantages in the use of smartphones; (ii) Key characteristics in an app; (iii) Super and hypermarket industry's apps; and (iv) Smartphone's future.

Then, the data were manually coded because “As with any software program, qualitative software program requires time and skill to learn and employ effectively (...)” (Creswell, 2013).

The final steps were inter-relating themes and interpreting their meaning, which will be undertaken in the next chapter.

5 Empirical Results

This chapter aims to present and interpret the data collected through the empirical study, using the data analysis' method, explained in the previous chapter.

First, the consumers' point of view will be presented by describing their profile and answering the research questions. This last section is grouped according to themes such as: (i) Advantages in the use of smart phones, (ii) Key characteristics in an app for a smart phone; (iv) Supermarkets industry' apps and (v) Smart phone's future.

Therefore is presented the retailers' point of view, in this case, the interviewed retailers was Continente. It begins with a brief description of the retailer chosen and then the arguments are presented to understand why they are in the mobile industry, what their target group is, what features seem to be more interesting to have in a mobile app and finally what are the biggest challenges and the future of smart phones.

For each topic the data were summarized, which involved condensing the meaning of a large amount of text in a few words (Saunders, 2012).

5.1 Consumers' vision

5.1.1 Profile

This section intends to characterize the sample selected, by the criteria explained in the methodology chapter, in the figures below by sex, age and education level.

The sample, is formed by 10 participants, have more men (60%) than women (40%) and the average age is 33 years old.

Figure 4 - Sample according to sex
Source: The author

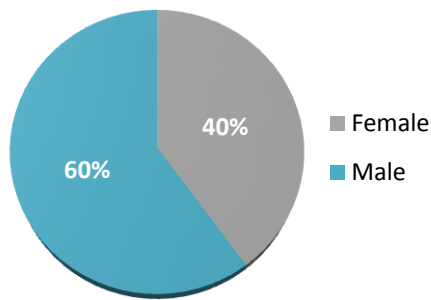
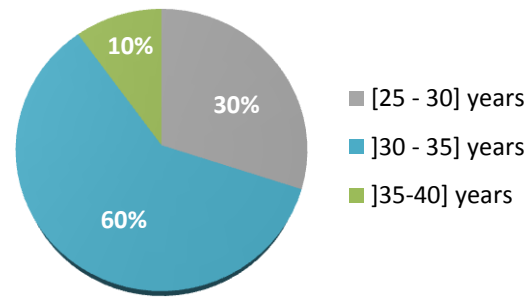
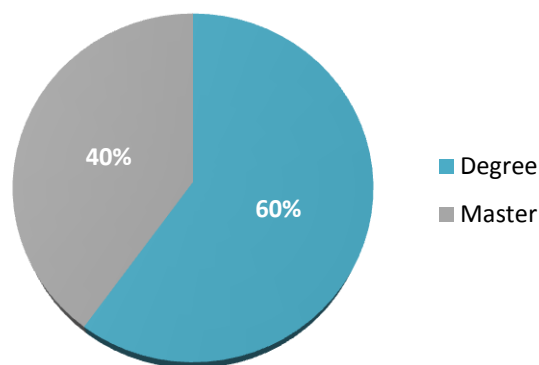


Figure 5 - Sample according to age
Source: The author



Regarding the education level, 60% of the interviewees have an academic degree and 40% a master degree, as shown in figure 6.

Figure 6 - Sample according to education level
Source: The author



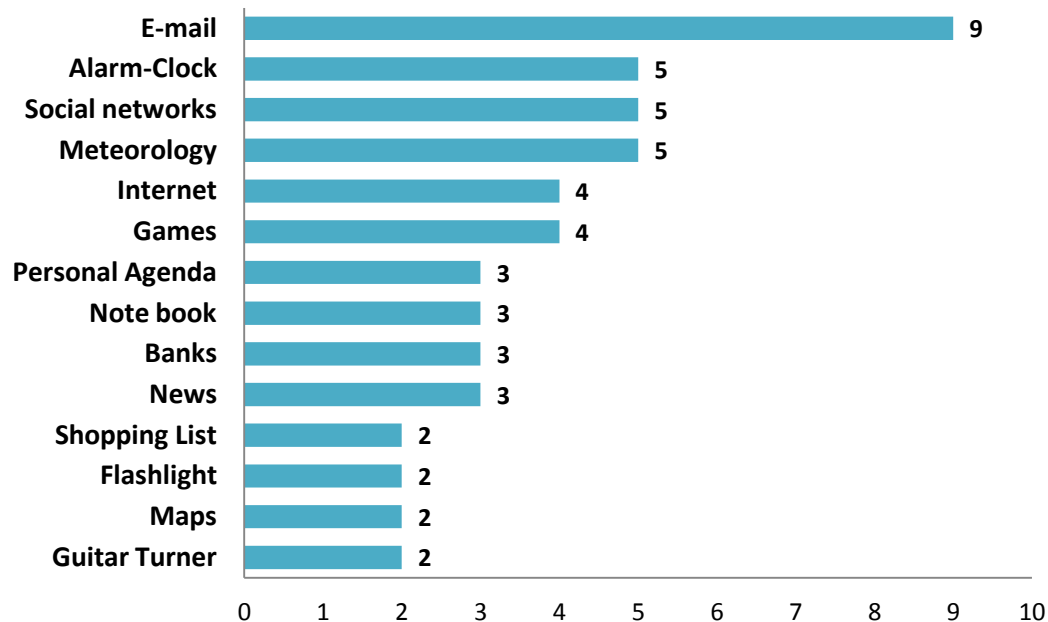
When it comes to occupations they have very distinct professions like, Analyst, Veterinarian, Dentist, people who work in the Sales and Stocks Departments, HR managers, Project Managers, Food Safety Technician and Researchers.

In terms of time spent using the smart phone, almost all participants said that they check their phone frequently, but for a short amount of time (2 to 5 min). Some also stated that they looked at it every 30 minutes, other every 1, 2 or 3 hours and that in total, in a typical day, they spent between 30 minutes to 2 hours using their phone.

To finish the characterizations of the sample, the respondents were asked what app's/features they use the most in their smart phone, excluding sms and calls.

The e-mail was the most reported feature, followed by alarm-clock, social networks and meteorology apps, as shown in figure 7.

Figure 7 - Number of participants that mentioned to use this type of app
Source: The author



This result underlines the literature review when it stated that mobile users are interested in content delivery information (searching and obtaining information), like consulting the email, the meteorology, using Internet search engines or reading and receiving news ((Ström *et al.*, 2014); (Mahatanankoon *et al.*, 2005)). These types of apps are related to the “always-on” advantage, as they can have information anytime, anywhere (Mahatanankoon *et al.*, 2005).

Apps like alarm-clock, personal agenda, notebook, banks and shopping lists also highlight one of the reasons why a technology is adopted, the perceived usefulness (Davis, 1989). These types of apps help consumers in their daily needs, making their life easier.

Also, as described in the figure 7, five of the ten interviewees referred they use the social network daily on their smart phones. This is in line with the literature, since the network influence is one of the factors that, by TAM’s model influences the acceptance of technology, because mobile users want to stay in touch with other people (Chong, 2013b).

Finally, four of the interviewees referred to use games and two of them referred the guitar tuner as a functionality they use in their smart phone. This also points out that entertainment has a place in the use of smart phones by consumers, another factor in TAM's model (Chong, 2013b).

5.1.2 Advantages in the use of smart phones

The first question asked to the interviewees was what they thought were the main advantages in the use of a smart phone.

This question intended to understand if what the literature said was what the interviewees thought were the main advantages, to have a clue about why consumers use smart phones. This is the first step to build an app since retailers have to know what customers value in the smart phone.

The answers were similar and in line with the literature, interviewees said that they used the smart phone because it was always with them (Qt1²; Qt2), it was a personal object not an extra device, so they carry it anywhere they go (Qt3), easily. This is in line with the **portability** and **always on** advantages (Mahatanankoon *et al.*, 2005).

As shown in the statement in the appendix, participants refer that the portability itself does not mean usefulness, the biggest advantage arises from the fact that because it incorporates internet, the information is available anywhere, "always-on" and they can make more informed decisions (Häubl and Trifts, 2000).

Interviewees also referred that smart phones are easier, faster, more practical and a help in their daily life, instead of other devices (Qt4). This accentuates the TAM's model since it is perceived as **ease to use**, but at the same time it has to be **useful** in their daily lives (Davis, 1989).

Lastly, only one of the participant mentioned, as an advantage, the high degree of **personalization** of the smart phone (Qt5) as mentioned in theory by Mahatanankoon *et*

² Qt 1 is the first quote possible to read in the appendix.

al. (2005). He sees advantage in personalization and is satisfied to be able to customize his smart phone as he want.

5.1.3 Key characteristics in an application for a smart phone

After understanding why interviewees use their smart phone, it was time to find out why people download/delete apps and what a good app should have, generically speaking.

This question is related to the fact that, besides the advantages of the use of smart phones, a bad app will not be used by consumers. So, the idea was to find out the main characteristics that make a good app, in the interviewees' point of view.

- **Why do consumers download an application?**

The data showed that, based on the sample, the search for an app occurs in different manners, such as by recommendation of friends and family, to search for a specific functionality or by the influence of a store ranking, reviews or publicity in the media.

As table 3 shows, recommendation of friends and family is taken into account when choosing an app for almost all interviewees. Also the store tops and the reviews were mentioned by almost half the interviewees. Once again this sustains the literature review in the previous chapters, since, as Chong (2013b) stated, people will be more willing to adopt a new technology, in this case, a new app, if their peers are using it too.

Therefore, the application should have the option to send an email or a message to user's friends recommending the app.

Also, they mentioned, as another factor that lead them to search for an app, the search of a specific functionality that they need, choosing the best app available. This choice takes into account the stores' reviews, and also the stores' TOPs, companies' sites that mentioned the mobile app and the media, like television and magazines.

Table 3 - Why consumers download an app
Source: The author

Why interviewees download an app?	N° of interviewees	Excerpts from the interviews
Family and Friend's recommendation	7	<i>"We end up trusting more in a friend that tell us that the app works rather than in some ranking".</i> (Interviewee 5)
Search for a specific functionality	5	<i>"Need, to eliminate a need I have. I'm not a user that scavenges everything, I identify a need and search for the app that does what I need and if I like, I download it."</i> (Interviewee 6)
Stores TOPs, company sites and Media	5	<i>"I also see client's recommendations or the sites that have the icon in the mobile app. At the Apple Store, sometimes, I search for the most downloaded apps in my zones of residence."</i> (Interviewee 5)
Reviews in the stores (Apple Store or Google Play)	4	<i>"I always read some reviews, see app's images and if I found it, some videos too."</i> (Interviewee 6)

- **What are the main characteristics an app should have?**

Looking now for the most important thing an app should have, all the participants refer that the main features that lead them to download an app is the **precondition of utility**, which means an app that would be able to make their lives easier (Qt6; Qt7). Once more, it is present the idea that an app has to be useful for their users (Davis, 1989).

In the second place, seven of the ten participants pointed out, in first place for almost all of them that they only downloaded **free apps** (Qt8; Qt9). Although, three interviewees admitted to have bought an app, but only because the cost was low (Qt10) and they saw an important value in it.

This is an insight that has already been identified by Ström *et al.* (2014) as he stated that for "price-sensitive consumer groups mobile service costs can be a barrier to adopt a mobile device shopping behaviour". Although all the interviewees in this study are

currently working, students were the main group with this characteristics in Ström *et al.* (2014) study.

The next most cited characteristics were the need to be quick, **intuitive, simple and with a relatively good design/layout** (Qt11; Qt12). Participants do not want an app that has lots of publicity or that is slow in terms of loading time; they want it to be fast and simple to use anywhere, anytime.

These characteristics support the Kowatsch and Maass (2010) idea that an app should be provided without any delay, with a mature graphical layout, in order to increase both perceived ease of use and perceived usefulness to the end user.

Also, two participants indicated that an app with **synchronization** and **exportation** (Qt13; Qt14) of the data to other devices, **accessible configurations** and **frequent actualizations** would score extra points. This can be a new insight for retailers, so they can add value to the mobile proposition.

- **Why do consumers delete apps?**

Finally, the main causes to delete an app, established in interviews, is when the apps do not meet expectations, which means it is not useful or no longer is useful (Qt15), or when there is too much publicity or is too slow downloading.

Likewise the phone memory (Qt16) and the fact that sometimes the downloaded app stops working are other factors conducting to apps elimination.

To eliminate all these negative points some interviewees said that they sometimes download two or three similar apps, try them and choose only one, deleting the others. They refer that they can only do this because apps are free, so they can choose.

5.1.4 Supermarkets industry' applications

Regarding now the supermarket industry, five of the ten participants have an app on their smart phone for this business.

The reason why they download the app was because they wanted to have a shopping list (Qt17) related to the supermarket (three interviewees), also because of the coupons (Qt18) and to check the credit in the supermarket card (two interviewees) and to do their shopping (purchase) through the smart phone (one interviewee).

The other five interviewees do not have an app for this industry, two of them are unfamiliar with this type of apps and the other three know that they exist, but have not download it yet, in spite of recognizing the advantages (Q19).

5.1.4.1 Major features valued by customers in a supermarket' applications

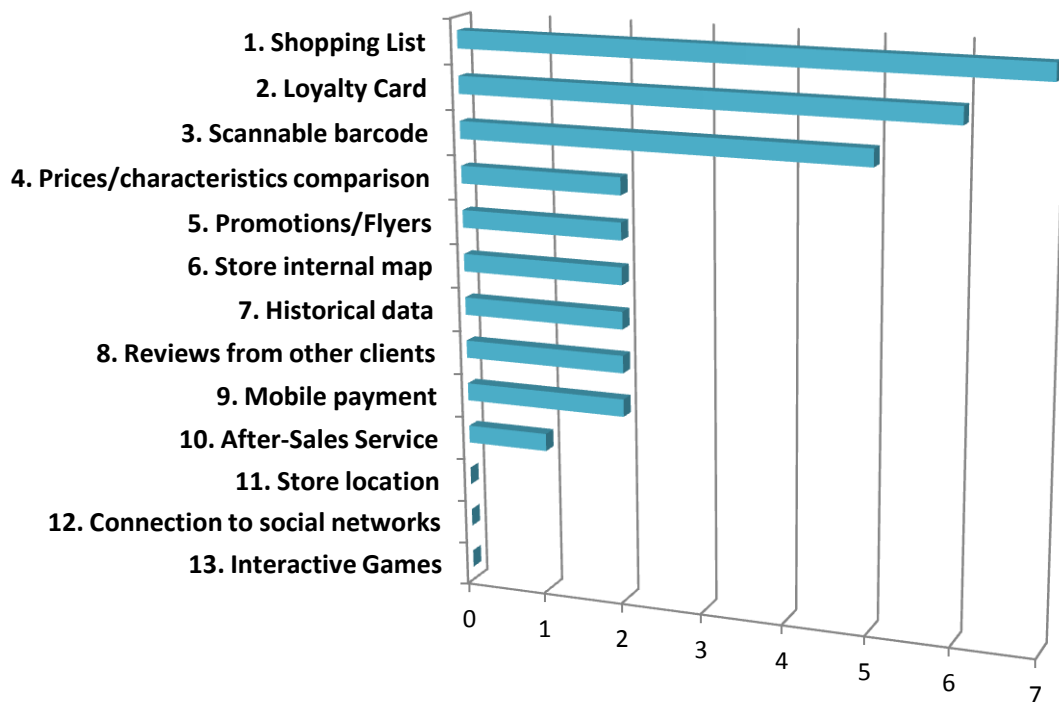
The 10^a question of the interview intends to respond to one of the research questions that is Q1: Which are the features that customers most use or value in a mobile application (app) for a supermarket?

For each feature, interviewees were invited to express their opinion about it, to tell if it would be useful for them, and if so, if they would use it. At the end of the question, they were challenged to indicate the top three features they thought were the most important ones to have in a mobile app for a supermarket.

All the features arise from the literature review aiming to understand which ones were the most relevant, and which ones should retailers invest in first.

Figure 9, shows that the three most cited ones were, **shopping list, loyalty card and scannable barcode**. On the other hand, none of the interviewees referred interactive games, social networks or the store location as an important feature to have in an app for retail.

Figure 8 - Features valued by customers in a supermarket' app
Source: The author



Each feature will now be described, aiming for a deep understanding of why interviewees choose the three features mentioned above.

- **The Shopping List**

As Hui *et al.* (2013) stated, shopping lists can be incorporated in the mobile phones and this feature was mentioned by seven of the ten participants in this study as one of the top three essential features to have in a mobile app to supermarket. Besides, all the interviewees said that it was an important one and that they would use it.

As mentioned in the literature review, almost all people have the need to think about what they will buy when they go shopping (Schmidt, 2012). Some of them write it down others has the products in mind, and the participants in this study are no exception. They already use a shopping list and see the advantages of having it on their smart phone, even more if it is linked to a retailer store they usually buy at.

“I do my shopping list in paper or in “OneNote” (I write it down on the PC and it synchronizes with the cell phone). First, I do a list of everything I need and then I organize it by the route in store.” (Interviewee 6)

I downloaded the app to see how the shopping list works, because the one I have at the moment does not please me, and because I could have some interconnection with prices and promotions or any kind of extra feature.” (Interviewee 3)

The shopping list is a topic hardly studied (Schmidt, 2012) however, it was considered the most important feature by interviewees, which confers the shopping list a lot of utility. They also came up with ideas like synchronization of the shopping list with all the people in the household.

Some of them do their shopping list only by writing down the products, others by category of products, other by store route and others by house departments.

- **The Loyalty Card**

It is also possible to incorporate mobile coupons as loyalty promotions into the smart phone as Shankar *et al.* (2011) referred in their work.

So, in second place, it is the loyalty card that was referred by six people as one of the top three features to have in a mobile app. However, all the interviewees recognized value and utility on it and, for some, this feature was the one that lead them to download the app.

This arises primarily from the fact that it allows consumers to have the coupons and the loyalty card itself in their mobile phone which they carry with them all the time, not needing to have it on paper. Also, they have the possibility to check out their credit whenever they want to, not needing to go to a store.

“Yes, I enjoy knowing how much money I have in the supermarket card. It gives me the idea of how much I’m saving and wining.” (Interviewee 5)

“Yes, I think it’s very important and relevant. For me it was what triggered the download of the app.” (Interviewee 6)

“It’s easier because sometimes we received our coupons at home, but if we don’t put them in the wallet, we can’t use them.” (Interviewee 8)

- **The Scannable Barcode**

The scannable barcode was the third feature elected as one of the most important to have in a mobile app for the retail industry. This feature was presented to the interviewees with two functionalities: (i) to scan barcodes of goods with the goal of adding them to the shopping list, but also as (ii) a help to, inside the store, check the prices and characteristics of the products (Kowatsch and Maass, 2010).

(i) The help to build the shopping list is seen as something that saves time, and almost all interviewees said that it would be useful and they would use it.

(ii) The possibility of checking prices and characteristics is viewed from different perspectives, some participants value more the prices and other think characteristics are more important to them. All said that this feature has more importance inside the store.

“Yes, I would use it. Not only for food products but, for example, for products to the cars. We scanned the barcode of one auto motor oil and we know immediately to which brands and car model it could be used to.” (Interviewee 2)

“Great. I would use it. Sometimes, in a busy day you have 3 or 4 pastas and you don’t know the price, the fact that you are able to check it on your phone, without needing to search for that machine that give you the prices, is very good.” (Interviewee 5)

But unlike the two features above, two participants said that they would not use it, because essentially they do not pay attention to prices or characteristics, they already know the products they want to buy, not having the time to check them in terms of price and characteristics.

- **Prices and characteristic comparison**

The interviewees were also asked if they thought that an app in which they could compare prices and characteristics of several products in the same category would be interesting and useful, since there is a lot of information available that can be confusing (Kowatsch and Maass, 2010).

Only two of the interviewees said that it would not be useful for them, because in their daily bases they are not worried with the prices of the things, especially in essential goods that they buy every week, maybe only if it was an expensive ones.

“I don’t have time for that, I buy and that’s it.” (Interviewee 9)

The other 8 participants stated that it would be useful and interesting, especially for price comparison, and two of them elected this feature as one of their top three.

Interviewees saw more usefulness in this feature for expensive products because they would have to spend more money, they would like to be well informed and when a similar item are on promotion, it could be useful to understand if the exchange of one for another would be interesting.

“In more technical things like a pan, motor oil or wine, it will be interesting that comparison.” (Interviewee 5)

“I would use it if it was intuitive and an alternative to the shopping list. For example, I want to buy something and the app tells me the alternatives. In basic essentials I wouldn’t search for that comparison, in more technical ones I do the study at home.” (Interviewee 6)

- **Promotions/Flyers**

People see price as an important factor to buy a determined item, but they felt they are overwhelmed with promotions and flyers, which is in line with what was said in the literature review (Lin et al., 2010), so they are careful answering this question. Most of them see promotions as a way of saving but, at the same time they are not able to see them all, so if this feature helps them, like through the synchronization with their shopping list, it would be useful, otherwise, they do not want it.

This attribute was referred by two individuals as one of the top three features to have in a mobile app for supermarkets.

“One useful thing is the app allowing consumers to see the flyers. But I think it shouldn’t be the flyer itself instead, it should be the picture of the product with the discount. Because if I’m seeing the flyer in my mobile phone and I want to buy a certain product, I have to get out the flyer tab, go to the search for product area and do the search.” (Interviewee 2)

“Yes, if it was not too much. For example if in my shopping list it was shown an exclamation point in that items in promotion or indicate that a similar product is in promotion, would be interesting. Now, if is some kind of information that transform my shopping list in something very complicated to read, instead of liking, I would hate.” (Interviewee 3)

It was also asked what they think about getting inside store push messages to the items on promotion. Some people said that they would like it, but only if the promotions were useful for them if retailers matched them with their shopping profile and also if it was not too much information. Others said that they don’t want that, because it would be uncomfortable and annoying.

Here, the personalization of the push messages or of the recommendations on the shopping list by the retailer would be an extra point in consumers’ point of view.

- **Store internal map**

In this question the interviewees were asked for their opinion about an internal store map inside the retail app, where, based on their shopping list, the app would show them the shortest route (Hou and Chen, 2011) or help them to find something inside the store (Cai, 2014).

Three of the participants stated that they would not use it, some because they use the app essentially in the pre-purchase process, organizing their shopping visit, others because they don’t want a pre-established route.

“No, it is too standard. I like to experience the store, then I don’t like to shop online. I wouldn’t use it undoubtedly.” (Interviewee 7)

But the majority of the interviewees were excited with this functionality. They saw the usefulness in it. Although some of them were not sure whether would consult their smart phone to do that.

“It’s interesting that your smart phone suggests inside store paths more efficient, because you end up forgetting something you wanted to buy.” (Interviewee 1)

“Yes, I think it’s amazing. In my case, it was one of the things that I would use, because it saves me time. I don’t have any pleasure doing shopping, I would like my shopping to be faster.” (Interviewee 2)

“I dream with it. When it is ready? I have thought: these guys should have a map, because sometimes we take so long to find something we want, you go to a hall and it’s not there you have to go to another and so on. So this app would be spectacular, primarily because you could search an item and the app tells you where to go.” (Interviewee 4)

On the contrary, only two of them answered that they would share their location when an app asked for it. For almost all the interviews this request is seen as a privacy intrusion and they do not want to share their location.

“I recognize the advantage that it could bring me, but I don’t want them to tell me, I want to be able to have the initiative and not be the system to tell me. So, for me it is a big intrusion to my privacy so I have that function blocked in my smart phone, pc at home and tablet.” (Interviewee 4)

However, some of the interviewees told us that if they saw advantage in sharing their location they would do it, like for example, GPS/maps or trusted brands.

“It depends if it’s someone who inspired me confidence and security. We are retained customers of some brands, so I would say yes, I would allow to share my location.” (Interviewee 5)

- **Historical data**

This next feature allows consumers to search for historical data of shopping and suggests promotions or ads frequently bought items to the shopping list (Hui *et al.*, 2013). This was chosen by two interviewees as one of the top three features.

This functionality is seen for almost everyone as a thing that simplifies their lives and they saw the advantages in their use, especially because it might suggest a promotion in some frequently bought item or making sure they do not forget to buy something they need.

“Yes, I think I would use it. After the initial resistance, we start using and it is something that brings us advantages, besides it simplifies our lives and we spend less money. So I think it makes sense.” (Interviewee 10)

Also, it could be a functionality that increases the loyalty of the customer to a certain brand if they use it as one-to-one mobile marketing.

“I think that is interesting. For example, you buy a certain product every week and the app automatically includes it on your shopping list, so you won’t forget to buy it. I think it’s amazing, I would use it. I even thought it was interesting, as the app knows you buy the item every week, to grant a discount to that specific client. That was an extra motivation for you to go to that supermarket.” (Interviewee 4)

Only one of the respondents told that it would seem as an invasion of privacy.

“I have doubts, I think it’s a little intrusive, because the historical data of my shopping is a little invasion of privacy, despite we know they have all the information through the loyalty card. But, it annoys me to receive all the emails with information like that: this or that product is in promotion. When I want something I search for it.” (Interviewee 7)

However, consumers are not concerned or well aware of the privacy issues that m-commerce involve, since nowadays every retailer has access to their purchasing profile

by the purchases done with the client card and also the geolocation of their mobile phones, able through the phones' operators.

- **Reviews from other clients**

Another feature that could be incorporated in a supermarket app is the reviews about the products (Shankar et al., 2011). Only two participants told us that they would not use it, because they do not care about others' opinion in terms of supermarket goods. All the other respondents said it was a good thing to have, essentially in online shopping through smart phone.

"I think the reviews are very important because people took the initiative to write down his/her experience with that product and when you are buying something online you don't have physical contact with the goods." (Interviewee 7)

"That is the base of electronic commerce. I think I would use it in food and non food items. There also might be possible to have a geographic match with people with a similar buying profile or age that have chosen a certain product, so maybe I would like it too, and I would try it." (Interviewee 6)

- **Mobile payment**

Mobile payment was referred for two participants as one of the top three features to have in an app for the supermarket industry.

Almost all the participants said that they have already done online shopping, and some have also bought things by smart phone, but never groceries and not all kinds of things because of the screen size.

"When I'm buying something and will spend money, I prefer a bigger screen, to be more safe of what I want." (Interviewee 9)

Only two interviewees have not done online shopping because they do not feel it is safe.

Albeit, using the cell phone to pay their bill in the store at the end of their route (Liébana-Cabanillas et al., 2014) is something that is well received, but interviewees

talked about security and reliability. The key points are less time waiting in queue and control of the total bill.

“It would be an added value because I would have more control about the bill’ total, which means, as I put items in the shopping cart the app would add up to the total, each one. Of course, there is a downside, at a particular time, I may hold back and finish my shopping because I was spending too much money.”(Interviewee 6)

“The payment situation could be explored, because I have security in the “Via Verde” System, usually there are no mistakes, but the number of times that I use it, is small. It will be interesting that after a while, if there aren’t mistakes and we could figure that it was reliable, we pay with our smart phone. It will be amazing. But we should have the safety and sure that all that works.” (Interviewee 4)

They want to be able to control if the total is correct, the security of the payment methods and the coupons dynamic which could not be used every time (especially suppliers’ coupons).

- **After-Sales Service**

This feature had already some investigation done (Saarijärvi *et al.*, 2014) but, it is one of the top three feature for only one of the ten participants, especially because of the warranties. People stated that it is a “nice to have”, not a requirement. Although, all of them saw advantages in the warranty feature, the suggestions and complaints features are not, in their opinion, an important thing, because they prefer to do it in the store.

“I would like to have something related to the after-sales service, namely, the warranty management, where it could save the buying date, the length of warranty and if there were any repair service it would save it too.” (Interviewee 4)

“The warrants will be stunning. We have equipment that broke and was in the warranty length, but I lost the paper and if I have it in my cell phone I could use it.” (Interviewee 5)

- **Store location**

Eight of the interviewed people told that the store location was a feature they liked, but would use it only on vacations, because in their daily lives, they already know where the store is. Also in term of the Continente brand, one interviewee suggested to incorporate in this feature the associated stores of the SONAE group.

“It’s good for vacations. If I want to go for lunch somewhere and I want to take advantage of the discount in “Bom Bocado”, I use it. But the idea is not only having the supermarket, but the associated stores too (Well’s, Modalfa, ect.), important when we are not in our comfort zone.” (Interviewee 5)

The two people that do not saw advantage in this feature were the ones that were not loyal to a supermarket brand, buying their goods where it is more convenient.

“It depends because I will not do extra km to go shopping at a specific brand. I make my life and then go to a store next to me, unless there are determined products I like more in another brand. I am not very loyal to a certain brand, it is not a feature that I would use.” (Interviewee 8)

- **Connection to social networks**

All ten participants in the interview said that this feature was not useful and that they would not need it, because they would not share what they bought in supermarket. This result does not support the evidences in the literature review, where Shankar *et al.* (2011) stated that people now have the possibility and “need” to share with others their shopping trips or a product they liked.

However, it is important to understand that consumers want the app for a certain need, they use the social networks but they do not want to share with others the information present in an app for the supermarket sector.

- **Interactive Games**

Like social networks, none of the respondents has interest in this feature, some of them admit that if it was an addicting game, maybe they would play it or others may see the

advantage for people with kids. But overall, it was not a feature they want in a retail app.

“It depends on the reward. Imagine that if you completed the game, the supermarket gives you a discount on your groceries? If that happened, I would play it. But, I would not play it just for fun.” (Interviewee 4)

“If it was an addicting game like Candy Crush, I would play it.” (Interviewee 10)

5.1.4.2 Product categories who benefit more from a smart phone’ app in a supermarket

The third research question was Q3: Which product categories are more likely to benefit from this type of apps?

This question intends to gain an understanding whether there are in the consumer’s perspective, any kind of products they thought would benefit more from an app, inside a supermarket.

From the collected sample, the majority of the interviewees said that all products benefit at the same proportion.

“A hypermarket has everything, the technical products could have more benefit, because we can get more detail, but in general every product could gain from one way or another.” (Interviewee 6)

Although because of the buying frequency, food goods are considered by four people interviewed as the category that benefits the most.

“I think people, when considering supermarkets are referring to food goods, and for that reason, they go there because of that, so it’s where an app would help most. Maybe sometimes we go shopping for food and we buy other things, but is the food we buy every week.” (Interviewee 8)

On the other hand, some of the interviewees refer specific types of products that could benefit, in their opinion, more than others like books, machines, organic products, wines, more technical products that need more detail, expensive items, perishable goods and health household goods.

“Items with some complexity, for example, organic products I like to explore, but sometimes I miss more information. I don’t expect a person there willing to help me, so I think the app could help in this kind of products.” (Interviewee 3)

5.1.5 Smart phone’ future

To finish the interview, interviewees were asked about what they think would be the smart phone’s future.

First, it was asked if a company without an app, nowadays, was providing a poor service to their customers. Eight of the ten participants did not think so, a company would only need an app if it was useful for their customers; having an app, just with the company’s basic information, had no value (Qt20; Qt21).

They also referred that to download an app people have to be ready involved with the brand, because the first search is in a browser on the internet.

Despite that fact, some stated that a company without an app would be outdated soon (Qt22).

On the contrary, two people think that an app, is the equivalent to a company site on the internet a few years ago, so companies should put themselves close enough to their customers, on their phone, everyday. Also, for companies in the same industry, the ones with an app, make a difference for customers comparing to the ones without it (Qt23).

To finish the interview a more aspiration question was asked that consisted in understanding, in their point of view, about what will it be the smart phone’s future.

The answers were similar, all participants agreed that it will be the future, is not a passing fad (Qt24), society will not go back to the key phones, everybody will use smart phones (Qt25).

For some of them, the smart phone is essential and almost a personal object, something they carry everywhere and is part of their daily life.

They also said that they think this technology has a lot to evolve, from smart watches, to glasses, new positioning technologies, in their size, etc. that we still just keep on going (Qt26).

5.2 Continente' vision

5.2.1 Profile

Based on the corporative site, the brand “Continente” belongs to Sonae group and integrates the SONAE MC Company, which is responsible for the food retail area of Sonae.

Sonae MC is the food retail market leader in Portugal with a number of distinctive formats, which offer a varied range of high quality products at the best prices like: Bom Bocado (coffeeshop/restaurant), Note! (bookshop/stationery), Continente (hypermarket), Continente Modelo (hypermarket close at hand), Continente Bom Dia (convenience supermarket), Continente Ice (frozen products), MeuSuper (franchised supermarket) and Well's (health, well being and eye care).

The brand Continente is the first supermarket chain in Portugal that has been present in the food retail industry since 1985, as a benchmark for the other companies that followed.

Their aim is to build a brand that could respond to all the customers' needs. The company want to be a national reference, offering a wide and diverse range of the best products at the best prices and a service level much closer to their customers' needs.

Since 1985 they have tried to innovate and adapt, being elected for eleven times in a row as a Confidence Brand in Portugal.

5.2.2 Continente' app

Besides the physical stores, Continente has an online platform (www.continente.pt) for online shopping and also two mobile apps already available in the market: app “Continente” (launched in June 2013, but with significant improvements in April 2014) and the app “Listas Continente.pt” (launched in July 2014).

The app “Continente” (figure 9) allows consumers to (i) check the credit of the loyalty card; (ii) use the loyalty card and credit in the store through the consumer's smart phone; (iii) see the coupons available and use them in store without having to carry them on paper; (iii) consult the purchases of the last thirty days with the loyalty card; (iv) search for products, by name or barcode; (v) do a shopping list; (vi) search the shops around them and (vii) access to all the flyers and promotions available.

The app “Listas Continente.pt” (figure 10) intended to meet online clients' needs, since it allows online shoppers to scan the products' bar code which will be transformed into their shopping list on the online site, where consumers have to end up their purchase with the payment.

Figure 9 – App “Continente”
(Source: www.continente.pt)



Figure 10 – App “Listas Continente.pt”
(Source: www.continente.pt)



Continente' mobile department agreed on an interview for this study where the aim was to respond, essentially to the research question (Q2: Which are the features that retailers

are able to release to the market and see more value for a mobile application (app) for a supermarket?), to match with consumers' view and to understand the importance of m-commerce to the company.

The interview focused on the app "Continente" because is the app that best suits this study and also, in the moment of the interview, the app "Listas Continent.pt" had not been launched.

5.2.3 Why mobile?

The first question intended to understand why the company wanted to be on mobile and what lead them to invest in this new type of business.

The manager said that the mobility department is very recent, having been created in February, so they are presently outlining the path to follow.

However, there were two reasons why they invested in mobile development: innovation and convenience.

Innovation because Sonae is a group that encourages innovation processes and wants to be a step forward in it, so it was crucial to be on the mobile too.

"It doesn't bring us more sales, we believe that gives us extra points compared with the competition, in terms of innovation."

The second motive is convenience, because Continente believes that is what people want.

"Clients are less and less willing to spend time doing shopping, they want a quick and easy way to do it. And this app helps to simplify consumers' lives. Who likes smart phones sees utility in this service."

5.2.4 Target group

With this app, the company wanted to reach all Continente' customers, which means "almost all Portuguese".

Although in the beginning the target was very specific: people with smart phones and with loyalty card; the last version in the market is more interesting, even to customers that do not have the loyalty card, because they can do their shopping list, check the flyers and search for products without having to have the loyalty card, so the target group was extended.

More, the app is concentrated on helping clients to buy in the physical stores, which means, helping them to prepare their shopping or to check for prices or products inside the store, the intention is not, at this point, to be able to do the payment (m-commerce) only m-service.

"Essentially it is what we want, to help the client inside the store."

5.2.5 Features in Continente' application

As in the consumers' interview, the Continente Mobile' manager was asked about same features that an app should have, to understand which were already present in their app and to have the retailers' point of view about all of them.

As table 4 below shows Continente' app already has the most important features according to the consumers, like shopping lists, scannable barcode and loyalty card. However, there are some questions that have to be raised in retailers' point of view.

That is why it is important to answer the research question Q2: Which are the features that retailers are able to release to the market and see more value in a mobile application (app) for a supermarket?

Table 4 – Features present on Continente’s app
Source: The author

Features	Continente app have it?	Quotation
Shopping List	Yes	Explored below
Scannable Barcode	Yes	Explored below
Loyalty card	Yes	<i>“It’s possible to do everything with the smart phone, without having to bring the loyalty card to the store. Being supplier discounts and TV or SMS campaigns, the only type of promotions that aren’t integrated in the card. It’s something we are evaluating.”</i>
Historical data	No	<i>“It’s very interesting and we are evaluating it, but we don’t have it, yet, but we would like to have.”</i>
Store location	Yes	<i>“This is one of the most visited parts of the app. It’s information that we have in different apps and it’s seen. People see it and it is relevant for them.”</i>
Promotions/Flyers	Yes	<i>“It is something that we already have in Continente online. We can click on a product to add to the Continente Online list, but it isn’t possible to add to the shopping list on the app. Later it will be possible.”</i>
Prices and characteristic comparison	No	<i>“We don’t have it, but it’s interesting and it isn’t in our wish list. We haven’t thought about it. Something that everybody talks is price comparison. Consumers want to know when we could have the Pingo Doce’s prices there.”</i>
Mobile payment	No	<i>“It could be an evolution, although the means of payments aren’t much evolved. It’s easy to have a mobile store because we already have an online store. We use responsive design and we end up having a mobile store. But it’s not a good mobile store, so that is not what we want for now. It’s something that makes sense, customers ask for it, but we aren’t sure of how it will be developed.”</i>
After-Sales Service	No	<i>“The after-sales service is a very interesting theme and, one more time, we are not sure how to work it,</i>

		<i>because to have an app for self-care it's very interesting. But we have to be able to work with that suggestion, they shall proceed. For example, we have had lots of comments in the "stores" about the app, but what we do with that? We answer or not? To them all or only a few? And what we answer to bad words? It's a lot of questions and we are trying to learn how to deal with that. But self-care makes total sense in mobile, we should have it one day, for sure."</i>
Reviews from other clients	No	Explored below
Connection to social networks	Yes	Explored below
Store internal map	No	Explored below

- **Shopping List / Scannable Barcode**

These features are already present in app "Continente" and allow consumers to search for products to add to their shopping list, or scan them through their bar code.

The manager referred that all the information available about the products is already in the app, even videos. The only thing that has not been incorporated yet are the nutritional "traffic lights" and the information that the product is with a special discount.

But this feature has some constraints such as: assortment and price. Assortment because the products available are not the same in all the stores (for example inventory constraints) and the same happens with prices, so currently the products available in the app are from a reference store.

That is also why there is not, actually, the total amount of the products selected in the item list.

“We have lots of issues raised, but we haven’t figured it out how to resolve them. If one day we will incorporate the price for every store, or if will ask the client to do check-in at the store he usually buys., that was the ideal, but we are going to face a huge complexity and I don’t know if the client places great value in that.”

- **Reviews from other clients/ Connection to social networks**

According to the Continente’ manager, the reviews are very trendy, but are a dangerous ground, because people write all kinds of thing, most of the times, not related to the products itself and do not share the context, so the companies cannot help the customer.

So, because of that, Continente does not have a facebook page. What is available is the “like” or the sharing of the product in the social networks, but that is all.

- **Store internal map**

This feature is something that Continente’ app does not have, but it is controversial.

The manager said that helping clients moving in the store is something they already have thought of, but they have reluctance regarding knowing the users’ locations anytime, because of privacy issues.

“What we have already thought about was, in the future, we don’t know when, Continente could have a map of the store and the customer could say: Where are the school bags? And the app tells him: The school bags are in the stationery section that is here (and mark it on the map). At this time we think we will not go beyond that, because it includes very detailed information.”

For instance, regarding the pushing messages while the customer is in the store, the company thinks they are very intrusive, so it is something they do not want to do now and have to follow up how it will evolve; but they are always opened to changes in the way things will develop.

“Things like, I know the customer is in that aisle and I text him, that is super intrusive, me as a client would hate that. So we have to be careful.”

In sum, the strategy is to do the little things, the “quick-wins” that Continente knows will do well and that the customer will like, but there are a lot of features and upgrades they want to perform, but not for now.

5.2.6 Challenges of m-commerce

The big challenge pointed by the company is, first to understand **what consumers want from mobile, how the company can be on mobile.**

This is explained by the fact that communication has to be different in m-commerce. As the manager said, communication inside the store is overwhelming with banners, videos, flyers, posters, merchandising everywhere, but in mobile that could not happen.

“To me it doesn’t make sense to recommend 200 products to a client, and we know that there are already flyers with hundreds of products, so it is something we have to work hard to achieve.”

That is a big challenge, changing mentalities and systems in the company because customers want customization, but the systems have to preserve their privacy at the same time so. Since there is not a lot of experience in this field and things have to be well done, this is something Continente is working on.

“Clients want customization, because they know that I know they don’t buy diapers since two years ago, so I cannot show them a banner from the Baby’s Fair and that will bring us lots of big challenges, because we don’t do the personalization, yet.

Secondly, the challenge is to **know the mobile client**, not Continente’ client, but the customers that use the mobile app and consequently change/improve the features based on their needs. For example, based on the number of page views, they can learn what features are most used/seen and if the use is null or insignificant, they can eliminate or hide that feature.

“It is still too early to say something about mobile consumers, but our idea is that, for example, if nobody goes to the shopping lists we remove them.”

To eliminate this temporary lack of knowledge, the company is promoting focus groups with customers, have a “wish lists” of things that they are not capable of doing now and is aware of the international players in this sector. However, excluding the big international players like Walmart and Tesco, no one has full understanding of this recent business.

“For example, we have done focus groups with our clients and they told us that they want something, but maybe now they will not use it. We need to see if anything is done wrong, because here there are many topics about customers experience and use this new device when it concern to shopping. Even internationally, who knows the mobile retail experience? Walmart, Tesco and few more. It’s very recent.”

Finally, the third challenge is **technical**, because it is easy to build an app, but it depends on what type of app companies wants.

“This app started to be planned three years ago, because to build an app it is very easy, cheap and quick, but the crucial point is what type of app do we want? Because our app is connected with all our systems and that is expensive and demanding in terms of technology.”

5.2.7 Smart phone’ future

Regarding the future of these revolutionizing devices, the Continente’ manager said that multichannel is what makes sense, because consumers want to have it all, mobile, physical store, PC, tablets, everything. There will be public for all the channels, but certainly mobile will evolve, smart phones will increase in size, the users’ experience will be better, so it will be the future.

“I use the app, the online site, go to stores, do it all. I’m the best example of multichannel, because it suits me, depending on the circumstances, it’s not everything so linear, black or white.”

6 Conclusions

This dissertation intended to study what features consumers value the most in a mobile app for the supermarket sector and what product categories benefit most from it. Besides, it also incorporated a retail perspective, of what would be possible to do, what are retailers' main concerns about the topic and where they can see more value when we talk about apps for supermarkets.

This work began with an overview of the main factors influencing the shopping behavior inside the store (consumers' and retailers' factors), that together with the introduction of smart phone apps have changed the way people prepare, do and finish their shopping. This change happened because of the fast adoption of this new technology, m-commerce, by consumers.

So, the third chapter initiate with the factors that influence and lead to the adoption of mobile commerce, outlining the three major theories that explain it, Technology Acceptance Model (TAM) (Davis, 1989), Innovation Diffusion Theory (IDT) written by Rogers 1995 and Theory of planned behaviour (TPB) (Ajzen, 1991).

Subsequently, the fundamental concept, m-commerce, is reviewed, as well as its advantages and disadvantages and the chapter closes with the insights of what is possible to incorporate in a retail app, nowadays.

In the fourth and fifth chapters are described the methodology used and the empirical results that derive from the field work.

Finally, the present chapter sums up the results of the empirical study, presenting the main conclusions on the topic in study. Afterwards, the impact of these results for practitioners and theory is described and the chapter ends with reference to the main limitation of this study and indications for future researches.

6.1 Main conclusions

Being a descriptive research the aim of this study is, as it sounds, to describe situations, not trying to make accurate predictions or determine the cause and effect.

That said, the first conclusion is that, based on the sample collected, smart phone are almost a personal object, always with consumers, and people spend an increasing amount of time using them. Some of the interviewees said that they check their smart phone every 30 minutes/1 hour, so this is a more and more relevant way to be in touch with consumers.

Consumers search mainly for portability, always on, usefulness and ease of use characteristics when they think about a smart phone. They search for content delivery information that allows them to be informed everywhere. Furthermore, they want to be in touch with their friends and family, they want to get more from waiting times, like playing a game or buying something they need, but essentially they see the smart phone as a help in their daily lives.

To achieve that consumers' search for a mobile app they need or download the one recommended by their family and friends, mainly, and also by store's tops and other consumers' reviews. These apps are, in almost all cases, collected preferentially free.

The use of smart phones in the retail industry is also a reality and, that said, it is important to answer the first research question: Which are the features that customers most use or value in a mobile application (app) for a supermarket?

Usefulness, portability and always-on

The three most cited features by consumers regarding a mobile app for a supermarket were: shopping list, loyalty card and scannable barcodes. All three highlight the need to make the shopping trip faster, easier and well informed.

The shopping list is the most mentioned one, since it allows consumers to prepare their shopping trip in their smart phone, being able to incorporate promotions and prices, and

also organize it by route in the store, product categories or home departments. Also, as it is written in their smart phones, instead of in a paper, and because the smart phone is always with them, they do not forget to buy the items they need.

The second one was loyalty card, essentially because people are more and more sensitive to prices, so they want to get more from promotions and discounts. Therefore, with the coupons and loyalty card in their smartphone, they are able to use them, without forgetting them at home, forgetting to put them in their wallet. Once again, this is relevant because smart phones are almost a personal object, that people carry everywhere they go and also because it's always on, so they can update their discounts and consult their credit inside or outside the store.

Finally the third feature more cited by interviewees was the scannable barcodes, because it is an easy way to fill their shopping list, by scanning the produce packaging as it runs out and also because, inside the store, they can check prices and characteristics of the products whenever they want.

Besides these three features, participants also saw advantages in prices and characteristics' comparison, promotions/flyers, store internal maps, historical data, reviews from other clients, store location, mobile payment and after sales service, but always with the idea of their usefulness, which means, adopting those because they somehow help them with their shopping.

On the contrary, social network connection and interactive games are features that none of the interviewees reported as useful in a mobile app for supermarkets, since this type of app is not seen as an entertainment one and people do not want to share their shopping with others.

This study also wanted to understand which product categories were more likely to benefit from this type of apps.

Interviewees were not sure about if there was a certain product category that benefitted more than the others. They said that a mobile app would be beneficial for them all, although, they pointed out food goods, for their shopping frequency or more

technical/expensive items, since people have to spend more money or have an specific job to know that product and to be sure, regarding the buying item, that it would probably benefit more for this type of apps.

Personalization, a big challenge for retailers

In the retailer's point of view (Continente), the mobile app was developed to help people in the pre and inside store processes of shopping. So, this study wanted to know which are the features that retailers are able to release to the market and see more value in a mobile app for a supermarket?

Continente, through their app, already provides the most important features for consumers: shopping lists, loyalty card and scannable barcodes. Although, mainly in the shopping list feature, there are still a lot of functionalities, asked by consumers, that have to be thought up and developed.

Since the shopping list is the most mentioned feature, for almost all interviewees, it could be the feature that the retailer should pay attention to, first.

Consumers would like to have the integration of the total bill, the whole range of the assortment available in physical stores, the products' process and the integration with the promotions inside the store. That is not possible yet because of constraints like different assortments and prices between physical stores, and technical and marketing constraints to have recommendations on the shopping list matching consumers preferences with promotions inside the store.

Therefore, personalization is something that retailers need to work on, since consumers are more and more demanding and are increasingly well informed. Consumers know that retailers have all their shopping information from the loyalty card and they would like to be treated as an important client and have their preferences well picked, so they could do smarter and faster shopping at the best price, benefiting from the promotions and discounts.

However, from all 10 interviews it was possible to understand that retailers have to separate the way they use the mobile technology to get to consumers, since there are consumers that search for a hedonic interaction, wanting to engage in the shopping experience, to others only want to buy their groceries and get out of the store.

Location-centric is far way of being a reality

On the other hand, some interviewees showed enthusiasm about having a map inside the store that suggested the most efficient route to do their shopping. Also they did not showed reluctance to receive push messages while they were in the store, if it was regarding products they really valued. However, some of them did not wanted that to happen and were not comfortable with it because it was seen as a privacy intrusion.

On the other hand, Continente is not working yet in locatization of the clients inside the store, because of privacy issues. They said that it's a controversial subject that society is not yet ready to discuss, so they will observe the market to see where it goes to.

6.2 Managerial Implications

The factors that lead to the adoption of this technology have been deeply studied but there is a lack of studies measuring how consumers use their smart phone and what are the features they value most on it.

So, in scientific terms, an extensive and updated literature review was provided and this dissertation contributes to deepen the knowledge about the consumer perceived value associated to a mobile app for supermarket and highlights on how that affects retailers outcome value of the mobile app developed.

On theoretical grounds, a model has also been developed, albeit preliminary, that describes the behaviour of consumers in the acquisition process with mobile devices. This model may be the basis for further research.

Likewise, organizations can benefit from this study since it is possible to know a little more about what consumers want and value in a mobile app for a supermarket.

Research also shown that the issues related with personalization and privacy are still little explored but are a major concern for consumers.

Overall, this study has the potential of offering major and important advices to organizations that want to go mobile commerce, allowing them to develop mobile applications that are tailored to the wants and needs of consumers.

6.3 Limitations and suggestions for future studies

During this study some limitations, which require to be mentioned, were identified.

The first limitation lies on the time factor. The presented theme required an extensive literature review not only to better contextualize it, but also to find the most adequate methodology to develop the work. So, the one-year deadline imposed to present this work was in fact considered a limitation.

Secondly, our sample was too small. It was selected by convenience, without randomization and limited to, in terms of consumers, people around the author, and also retailers, managers who wanted to collaborate on the study. The sampling error is not measurable and we do not know the representativeness of the sample. So, it is suggested to do subsequent investigations with a more random and a bigger sample to be able to generalize the results.

Another limitation, regarding the retailer's point of view, was the lack of availability of the contacted companies to talk about the subject, because it was a vacation period. Also, because is a recent topic, which could mean a lack of knowledge and also fear of exposing too much strategy.

It is also important to refer that because it is a subject in constant development, certainly some features may be missing, and besides the extensive literature review, it is possible to identify other characteristics that may contribute to the obtained results.

Also for future researches would be interesting to study in a much profound way the personalization of the interaction between consumers and retailers through a smart phone, as well as the privacy issues that arise from location-centric features.

In sum, this thesis should not be seen as an ended research project, but instead as a step towards to future studies, since its value lies on its contribution for knowledge, but also as a step to further studies.

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8 Appendix

8.1 Consumers' Script

1. What are the features that you use daily in your smart phone?
2. What are the main advantages in the use of the smart phones?
3. What makes you download an app? How do you get to the app?
4. What makes you delete an app?
5. Which are the main characteristics of a good app?
6. Do you think that a brand without a mobile app is serving a bad service to their clients?
7. Do you have any app for supermarket industry? Why?
8. Have you ever done shopping through your smart phone?
9. When the app ask you to share your location, do you accept it? Why?
10. Which are the features in a mobile app for a supermarket that you value the most?
 - i. Shopping List
 - ii. Loyalty Card
 - iii. Scannable Barcode
 - iv. Interactive games
 - v. Social networks
 - vi. Store location
 - vii. Historical data
 - viii. Promotions/Flyers
 - ix. Prices and characteristic comparison
 - x. Mobile payment
 - xi. After-Sales Service
 - xii. Reviews from other clients
 - xiii. Store internal map
11. Which product categories are more likely to benefit from this type of apps?
12. How do you see smartphones in the future?

8.2 Retailer' Script

1. What lead the company to invest in a mobile app?

2. What is the target of the app?
3. How the app is an advantage to business and communication of the company?
4. What were the main objectives?
5. What are the challenges of this new way of doing business?
6. In the retailer' point of view, which are the most important characteristics to have in an app?
7. The app is to help consumers in or outside the store?
8. What is your opinion about location-based technology?
9. Which are the features in a mobile app for a supermarket that you value the most?
 - i. Shopping List
 - ii. Loyalty Card
 - iii. Scannable Barcode
 - iv. Interactive games
 - v. Social networks
 - vi. Store location
 - vii. Historical data
 - viii. Promotions/Flyers
 - ix. Prices and characteristic comparison
 - x. Mobile payment
 - xi. After-Sales Service
 - xii. Reviews from other clients
 - xiii. Store internal map
10. How do you see smartphones in the future?

8.3 Consumers' interviews quotations tables

- **Advantages in the use of smart phones**

ID	Quotation	Interviewees
1	"I have it always with me, anywhere, anytime, even if I'm only for 5minutes waiting for something, I grab the smart phone and can have information there."	Nº 1
2	"(...) when I'm moving around, in the car, in a meeting, I can easily do	Nº3

	some research or do some editing, because it's with me. Also is very discrete and easy."	
3	"The ipad doesn't feet my wallet, but the smart phone is always with me. It is tiny."	Nº10
4	"For example, 3 months ago, I had an app to monitor my child 'development before he was born (completely customizable) and now I have an app to supervise the development of my son after being born. The idea of small apps to serve a specific function and which we choose the ones we want it's good because we configure it our own way."	Nº5
5	"One day, I went to El Corte Ingles to buy a pair of trousers and I wanted to know if I was getting the best bargain so I search for prices online. I even come to realize that maybe I would buy it cheapest in other place, but I would had to go to the other place and there in El Corte Ingles was practical. So, because it was not a significant difference, I end up buying the trousers there."	Nº4

- **What are the main characteristics an app should have?**

ID	Quotation	Interviewees
6	"Because it's easier to access what I want without having to visit the site of the company by the browser. For example, facebook and linkdin, I go through the app, is faster than going to the browser, write www..., insert my password, etc. It's simpler you go directly to the app, and it's done."	Nº 7
7	"It has to serve our need. For example, I have a meteorology app which allow me to see the weather, but in addiction it give us a lot of other things like if you can go out with your hair stretched, if it's good to practice a certain sport, etc., but it only have weather forecast for 1 day. I think the app is amazing, but it only have one day of forecast, so I will delete it. The app is so punch, the graphic layouts are fantastic, but don't let you see the weather forecast for at least 2/3 days."	Nº8
8	"One of the main criteria is being free, because I'm a fan of exploring applications of several types and because of that I never cross that barrier. Also, there is a risk associated, as sometimes apps are not so useful as we think."	Nº3
9	"Free only, because I think spending money on an app is not justified."	Nº7
10	"I have paid for 2 apps one to read books in the tablet, it was 3€, not so	Nº5

	expensive and an anti-virus. Usually I don't pay, but if I see added value and it have a fair price, I buy it."	
11	"The apps have to be very basic, intuitive and simple. I click here and go to there not tinkering around."	Nº2
12	"Intuitive, if I have to go to college to know how to work with the app is not worth. If I need it, I want it know that's all. Something quick, easy and intuitive."	Nº8
13	"Have synchronization is very good, with internet. For example in the shopping lists, if we have a shopping list shared with another person of the same household, it's better because they can all add item to the list."	Nº3
14	"Synchronization is important. For example, I use dropbox because of the ease to share documents between different devices, use it frequently. I use it almost unnoticed: I take pictures, put them in dropbox and have access to them in any device."	Nº6

- **Why do consumers delete apps?**

ID	Quotation	Interviewees
15	"I delete an app when their performance is bad, don't work, let my cell phone heavy (memory-full) and slow."	Nº4
16	"When I use it and if that was not quite what I was looking for or because it doesn't match my expectations or because it is not useful for me, I stop using it."	Nº3

- **Supermarkets industry' apps**

ID	Quotation	Interviewees
17	"If I'm in metro, or in anywhere else waiting, I could do my shopping list. Or imagine that I'm running out of olive oil in home, instead of writing it on a paper, and then I don't know exactly where I put it, I would write it down directly in the app."	Nº2
18	"I downloaded the app because it meets a need that existed, the fact that I didn't carry with me the coupons in paper. So one day, I went shopping and I left my coupons at home. Then, I downloaded the app in that moment, so I could go shopping without having to go back home. Here the brand brought me real value because of the app."	Nº5

19	“I thought about it lots of times. I haven’t made up my mind yet, but it have several advantages: it’s cheaper and you only buy what you really want, because you are not tented by what the store offers.”	Nº10
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- **Smart phone’s future**

ID	Quotation	Interviewees
20	“I think having an app just to have one and not be aligned with the product or service provided by the company, don’t make sense and don’t bring any value. I want, for example cars, a car brand builds an app that is a game, I will not download it because of that. But for example, as I’ve seen, the Mercedes app that uses augmented reality where you point out your phone to the car and the app tell you the piece code, that for me is spectacular. Because it have another thing the promise of utility, I have it in my phone, I don’t know when I’m gonna use it, but it’s there.”	Nº4
21	“I don’t think so. Depends of the company propose. If is a B2C company, the app makes sense because the company want to be connected to the client, but if the company is in the B2B industry, I don’t know, t would have so much advantage.”	Nº7
22	“I think they could lose compared to other companies. Because in terms of service, she could have an equally good service, but I guess that we will need more and more things to be simple, quick and at the time, we don’t want to wait.”	Nº8
23	“Yes, for example in banks industry. I work with more than one bank and there are some who have an app and other who don’t have it and that is a big difference for me, because I use it a lot.”	Nº9
24	“I don’t see myself living without a smart phone and I don’t think it’s a passing fad, no, I seems to me that it’s an utility that will be more integrated with everything, so the smart phone will be more and more intelligent, which means will adapt to everywhere we go. In term of size, ideal I would like something more portable, maybe the size of the wrist, but for me it wouldn’t be so interesting because the screen size.”	Nº3
25	“I don’t think it’s a passing fad because we can see the catalogues of mobile phone operators and that is all phones without keys, is the future of technology and will develop more.”	Nº4
26	“This is something that I question myself. I believe that smart phones will	Nº6

	evolve much more, I believe we will enter in a store and have the path pre-established for our shopping, with suggestions, all, point to products and he will ask what you want to dinner and give you a recipe with ingredients you have at home, or prior preferences. I believe that we have all to grow, but it will be more and more intrusive, where everything is shared where we are, what we eat, what we have at home, it's the flip side."	
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