

## **Adoption of virtual shopping: Using smart phones and QR codes**

Mira Almehairi  
Zayed University, Dubai, UAE

Tariq Bhatti  
Zayed University, Dubai, UAE

### **ABSTRACT**

With the recent emergence of social commerce the future of shopping is changing. Web 2.0 has affected e-commerce, resulting in the emergence of a new concept of virtual shopping using smart phones. Consumers find QR (Quick Response) bar code a new way of getting information about the products and services and gain information before they visit the store or purchase online. This paper proposes using adoption theory a conceptual model how virtual shopping using smart phones will emerge in the UAE. The model is tested using a data from random sample of UAE residents. The results show virtual shopping has great demand in the UAE. The study also shows that consumers are interested in simple and more convenient way of shopping. Though shoppers are highly concerned about the risks associated with shopping by smart phones but they are interested in buying electronic items, groceries, shoes, handbags, and movies tickets. On the basis of these findings, it is recommended that virtual shopping process should be simple and short, captures shoppers' interests effectively and ensure the security of virtual shopping by offering safety payment methods such as cash on delivery.

Keywords: Virtual Shopping, Quick Response, Adoption

## 1.0 INTRODUCTION

Consumer adoption of technological innovations process is influenced by consumer characteristics, such as personality traits and demographic or socioeconomic factors, the characteristics of the new product, such as its relative advantage and complexity, and social influences, such as opinion leaders. Adopting new technology as virtual shopping will come down to changing behavior of people and getting them to do something a new way that they have been unable to do before. We must understand the factors that cause change and know the value of the change in people's behavior. The factors that can influence a consumer's willingness to adopt this new technology could be the perceived risk of using the technology, the perceived value of the technology, and the technology's perceived ease of use (Perner, 2010). Human behavior is unique to each individual but common factors exist for all consumers when determining their likelihood of adopting new technology. Some consumers are quick to embrace new technology but the vast majority of consumers need to see clear value for them to assume the perceived risk and time required to learn and use new technologies.

In recent years, online shopping has become a popular trend around the world. People have started to depend on online shopping heavily which made it offer all kinds of goods and services. The number of people using the Internet to make purchases in the UAE has reached 42 percent in 2010 and continues to grow (Leigh, 2011). Recently, virtual shopping is used by the shoppers to purchase products through their smart phones. The process of virtual shopping happens when a buyer downloads a special application in a smart phone, and uses the apps to scan the barcode of the product (Adams, 2011). The barcode includes all the information related to the product such as brand name, type and price. Moreover, virtual shopping doesn't require taking a huge space to build a store or hire a lot of employees. Instead, products such as grocery and clothing are presented in billboards attached with a barcode for consumers to view. Virtual shopping is adopted on a large scale in many other countries because it is considered environmentally friendly and saves a lot of costs (Adams, 2011).

The numbers of smart phone users are increasing in the UAE (Sands, 2012). People from different age categories use smart phones on a daily basis to read newspapers, send and receive emails, browse the Internet and communicate through social networks. In the UAE, about 800,000 of people use BlackBerrys and more than 11 million use their smart phones for other purposes like social networking, texting and browsing (Sands, 2012).

Fast development of technologies, markets and many other external circumstances stimulate the changes in consumer behavior. Usually consumer behavior has drawn upon theories developed in related fields of study of human behavior such as psychology, sociology, economics, behavioral economics, and anthropology, to develop a theoretical framework for the analysis of the behavior of consumers (Merritt, 2011). The roles of consumer behavior in marketing helps to improve marketing strategies by understanding issues such as the psychology of how consumers think, feel, and reason. The psychology of how the consumer is influenced by his or her environment like culture, family, and media. Limitations in consumer knowledge or information processing abilities influence decisions and marketing outcome. How consumer motivation and decision strategies differ between products. And how marketers can adapt and improve their marketing

campaigns and marketing strategies to more effectively reach the consumer (Perner, 2010).

## **2.0 LITERATURE REVIEW**

Increasing activities of people over Internet has served as a new commercial medium, a new way of approaching business. It is giving an advantage to e-commerce and spread of online sales of product and groceries, which led to the rise of virtual shopping. Virtual shopping can be defined as a customer surfing on the internet, looking at an advertisement of any particular brand or product on any website, and clicking on that link to gain knowledge regarding that product, either to purchase or to have general information of that particular item without physically touching the product. This activity is termed as virtual shopping. It can be stated as using the internet version for shopping, which was previously done through catalogues; a person orders the items by scrolling over the products he sees on the screen and the one which he finds perfect for himself, orders it rather than going to the shop (Barnatt, 1998).

It is like switching of product sales through electronic means, a shift from shopping physically through store format and seeing catalogues in hard copies to changing it with electronic format and electronic catalogue to a form which constitutes via World Wide Web and internet using (Parsons, 2002).

### **2.1 History Of Virtual Shopping**

With the Internet arrival and its usage as a means to enhance marketing channels, it has increased tremendously and has affected the retailing style of the shoppers. In the US, shopping centres use this tool to advance a higher level of marketing relationship between consumers and the related companies (Shen & Khalifa, 2012). In the UK, Meadowhall and Oracle shopping centres introduced online portals for shopping owing to the people's demand for displaying the associated brands which consumers are requiring and asking for. Evidence suggests that web-shopping activities in Hong Kong are on a wing because of the rapid rise in the e-tailoring business inside the country. The two main supermarket chains, Wellcome and Park 'N Shop, are maintaining a continuous investment policy to improve and nurture their e-tailoring business, which is targeting more and more Chinese consumers and increasing the local web-selling activity (Grunert & Ramus, 2005). India has a huge growing business for online shopping; there are many online companies like Flipkart, eBay, BestStylish, HomeShop 18, which are offering a wide variety of appliances. This list of shopping portals in the country is endless, signifying a rapid growth of online shopping in the country.

#### **2.1.1 World's First Virtual Shopping Store**

Tesco HomePlus, South Korea's version of Wal-Mart, believes that its customers shouldn't have to take time to go to the store and buy groceries, so they developed a method where the store goes to the people. Tesco constructed virtual grocery stores in subways/metro stations all over Korea. The "virtual stores" are essentially posters on the walls resembling a grocery store with a barcode under it. Individuals can take a picture of

the barcode on their phone and put it on their virtual cart while they are waiting for their train. After a few hours, everything they purchased will be delivered to their homes.

Virtual shopping is a business to consumer “B2C” process because in this case, Home plus is selling products to the general public through the catalog displays utilizing shopping cart software. B2C almost always involves customers typing information into an order screen and that is what people need to do after they have collected all the products they want to buy in the virtual shopping cart (Le & Ma, 2012).

Another example of virtual shopping is in UK, Ocado company is launched a virtual high street shop with pictures of groceries. Customers scan the barcodes of products they want to buy using their smartphone and the goods are delivered to the front door. The supermarket giants created a virtual store consisting of posters of shelves stocked with goods. After the success of the scheme Tesco are reportedly planning on bringing the virtual supermarket to Britain. Ocado co-founder Jason Gissing said: “We hope this trial is a hit and, based on its success, we'll be looking at options around continuing this "virtual window shopping" approach in other locations” (Cooper, 2011).

## **2.2 Elements And Process Of Virtual Shopping**

There are three elements for virtual shopping and they are:

### **2.2.1 Shopper**

They are the group of people who makes the product purchase on internet and are usually referred to as customer; they pay for the item they have selected from the browsing list (Anckar, Walden, & Jelassi, 2002).

### **2.2.2 Business enterprise**

A particular company which has a registered name on the website and helps the user to browse to the product category, select his desirable brand and item he is being looking for. These are e-commerce websites which can be said act like an interface between the actual company and customers through which the users select their appropriate items. They work on some insertion fee to every item the user select from the companies they have listed in their brand column.

### **2.2.3 Shopping centre administration**

It's an administrative unit which authorize as to which virtual shop is to setup, the unit accepts or deny their application and has the power to reject or represent as to which kind of products should be presented on the screen. They are the intermediate linkage between the user to business enterprise, directly the payment to their account and interfacing any case conflict by user regarding any item or any information dissatisfaction (Yang & Kim, 2012).

#### ***2.2.4 Process of virtual shopping***

The shopper usually performs the following steps in order to make any purchases, which are:

- Searching for product on internet
- Browsing of the product category which he is being looking for
- Browse for the brand which the user desires to make purchase
- Registering onto the website and signing up through his own account
- Requesting for more information on the product
- Adding the selected product to his shopping chart
- Clicking to the proceed gateway onto the payment section page
- Viewing the account detail and payment history (Dennis, Harris, & Sandhu, 2002).

#### ***2.2.4 QR code application***

Quick response code applications it enables the user to record the storing address and the company's URL of the item which the user might be finding fascinating to him while he is walking and seen at any advertising posture or either looking through the magazine and with the use of smartphones it captures the image of that code and through the help of code reader application present in the phone enables the user to track down the URL, company information and the product description he is being looking at. Then connecting to internet and opening the desired web page, selecting the item and proceeding towards the payment zone to make the payment (Jones, Comfort, Clarke-Hill, & Hillier, 2010).

### **2.3 Online Shopping Behavior In Dubai**

The use of internet has increased extensively inside the country and partially being less active to the traditional mean of making direct marketing by the consumers. The percentage of people using internet has increased over the year and accordingly the online shopping experience using MasterCard. Consumers in the middle age around 25-45 years are the driving force in the increased activity of virtual shopping across the country with most of the participators seen are the women responding to the online marketing scheme. More and more UAE consumers are going online to purchase their daily need product because the responses feel they are getting cheaper products online rather than going to the store. The role of branding on internet is increasing and it is making consumers flexible due to their time scarceness to go offline and shop but they are feeling too easy online as it is time saving for them (Walker & Johnson, 2006). This behavior of consumers are indicating that shoppers are too diversifying their interest and making more efforts onto their online marketing scheme to make the consumers comfortable in the choices and they are able to get what they are desiring. MasterCard is being used extensively by the UAE nationals for their shopping and this emphasis onto the fact of growing retailing shopping business online. Top three categories which are in demand among the nationals are Airline tickets, purchasing any phone applications or

software and buying any online games as a part of their entertainment zone (Madichie & Blythe, 2010).

## **2.4 Mobile Commerce**

Mobile electronic commerce is a component of the electronic commerce. It only contains the use of methods related to the mobile telecommunication devices and networks (Jelassi & Enders, 2008). It is significant to recognize the importance of M-commerce in the light of the size of business in Dubai. The essential point is that the use of Internet and World Wide Web has recently risen. M-commerce has been with us for an extended period of time and its large role in business operations from evaluating the customer's needs to receiving the feedback of the products or services delivered to the customers. The benefits of M-commerce have been constructive in large scale businesses in Dubai while businesses are reluctant to use the M-commerce facilities.

For buyers and sellers both M-commerce facilitates with several advantages. For example, M-commerce decreases logistical issues and can make tiny organizations giants. Further studies have concluded that M-commerce can lessen expenses, put forward faster and enhanced service to customer, boost up sales, cut down the time between the initiation and its commercialization of an idea, and decrease the inefficiencies of supply chain (Turban e., 2004).

The theory of reasoned action proposed that behavior is affected by a business's purpose to carry out the behavior in question for example, It has explained that purposes of adoption Mobile-commerce are recognized by intentions by two things. First is the target technology which is someone's perception that carrying out the behavior is superior or inferior and second is the subjective norm which describes someone's judgment of the societal heaviness imposed through others to carry out the behavior (Rogers, 1983). The technology acceptance model for M-business is known as the forceful across populations, settings, time and technologies (Venkatesh and Davis, 1996). The technology acceptance model proposes that ease of use and convenience are two fundamental antecedents for acceptance of Mobile-commerce in Dubai.

## **2.5 Smartphones Usage**

Now the smartphones constitute to around 50 % of the total cellular handsets of the country and the people of UAE are adapting to the situation quickly and its usage pattern seems to be familiar to them. The users now wants a relaxed life along with having everything at their fingertips whatever they desire and smartphones are the quicker method which allows them to fulfil their desire and get the things through it various system applications (Grandhi, Singh, & Patwa, 2012). More than 50 percent of the smartphone population of the country has blackberry and iPhone carrying with them and they prefer to use utilities present in the phone like making their bills payment, going through their work stuffs and looking through items they desire to bring at home while they are relaxing because they don't want to go shopping and waste extra time in travelling, just requiring to browse the product on phone, select the product put it to the shopping chart and make the payment. The people are not even bother that they have to

wait for 2-3 days for delivery it just they want to make the deal on their hands leading to increase of smartphones in Dubai (Dixon & Marston, 2005).

In recent years, considerable research has been devoted to understanding consumer behavior in shopping online using common shopping websites and surfing website catalogues. Some other research has focused on world's first virtual store and the very first process of shifting from physical stores to non-physical stores. Still another stream of research has focused on the innovativeness that lead to explore the idea of virtual shopping. However, a review of the relevant research revealed several gaps that merit further consideration.

Firstly, most of the previous research on Internet shopping takes a marketing or consumer behavior perspective, simply extending existing theories and frameworks developed from the traditional retail environment (e.g., store retailing and catalogue retailing) to the new and innovative virtual marketplace. Secondly, the multidimensional nature of consumers' adoption of the virtual shopping has not been adequately addressed. Thirdly, consumers' use of the Internet for shopping is subject to change. And whether adapting virtual shopping will change their current behavior, has not yet been adequately addressed.

Finally, It is ambiguous to predict the satisfaction degree of people adapting virtual shopping as it is not being experienced yet.

### **3. Conceptual Model**

#### **3.1 Create smarter and easier shopping experience**

Our idea is to create a company that aims to form a smarter and easier shopping experience for customers. We intend to build virtual stores, which are billboards that include pictures of products sold attached with a QR code. The billboards are going to be distributed in locations where people spend their time waiting such as, waiting areas in metro stations and bus stations. The company will function as a retailer that buys products from a number of suppliers and sells them to end-users. In other words, the company will operate like a supermarket, however, the store will be converted to a billboard and the products will not be tangibly available. Unique QR codes will be designed for each product to represent them during the purchasing process. Each QR code will include information about a specific product, as well as, create a link between buying products and smartphones. In order to apply the idea we need:

##### ***3.1.1 Strategic location***

The idea behind billboards is to be visible for people to attract their attention. People need to recognize that a billboard exist in a particular location, therefore, finding a strategic location is a necessity. As a company we target smartphone user who are busy, and who spent their time in waiting areas. Therefore, a crowded metro station or a bus station will be a good solution. People of different cultures and different age groups use the Dubai metro and bus stations on daily bases. Moreover, the estimated number of passengers who used the Dubai metro daily in 2010 reached around 149,000 passengers and about 314,000 passengers used public buses (Dubai Metro, 2011). As a result,

implementing the idea of virtual shopping in areas like Dubai metro and public bus stations will be an advantage for attracting customers.

### **3.1.2 QR code**

Every product requires a unique QR code. The quick response code works as a reference for a specific product. It helps the customer to identify which product they want to purchase and view the product information. As a company we look for a supplier that create unique QR codes in the UAE. Spectrum is one of the companies that create special QR codes for other companies. They provide their service through encoding the information of a certain product into a QR code.

### **3.1.2 Smartphone app**

In order for customers to conduct a purchase, the company needs to provide them with a special smartphone app. The smartphone app must function as a QR code reader that translates the QR code into information related to the products. The QR code reader must be able to scan the QR code from the billboard and provide the customer with the necessary information. There are many companies that design web pages and smartphones apps for other companies in Dubai such as ADWEB Studio. ADWEB Studio is a supplier that creates unique apps for phones like blackberry, iPhone, and Samsung. Moreover, companies like ADWEB Studio are part of the supplier chain as they sell a unique services and products for companies. Smartphones app designer companies works as a service provider. After a company creates a smartphone application, they get approval from smartphone application stores. Smartphone application stores publish the designed apps and allow customers to download the app (Gordon, 2009).

## **3.2 The Process Of Virtual Shopping In Dubai**

The journey of virtual shopping begins with downloading the company's app from the smartphone application store. After the download is completed the customer is asked to create an account for private use and provide his/her contact information. The contact information includes the name of the customer, mobile number, address, and email. The next step for customers is to search for their preferred item or product from the nearest billboard. To purchase the requested product, the customer must scan the QR code attached with the product using the company's app. The app reads the product QR code and views the product price, brand name, and product description. Then the customer is requested to confirm the purchase, and set the delivery time. Finally, the customer is offered two payment options, which are paying through visa or cash by delivery.

Base on the customer preference payments can be made. If the customer chose to pay via visa, the company will ask for the credit card number to confirm the payment. Then the customer bank will prove the payment information and complete the transaction. However, if the customer hesitates to give his/her credit card number or even don't have a visa or credit card. The company provides an alternative, which is paying

through cash. The customer can make his/her payment once the product is delivered. The delivery or sales person will ask the customer to provide him with the bill number or account name and will receive the money.

The Smartphone application saves all purchases made in the purchase history. The purchase history helps the customer to buy the same products without scanning the QR code. As well as, help the customer to track all the purchases that have been made.



Figur

### 3.3 The extended idea of virtual shopping

Though the use of virtual shopping is very much present in today's generation, they prefer it rather going to mall but there are some peoples who still think it is risky or the process is complex then to include those customers into the interphase it is required to make the information flow very simple, increasing the use of secure website link with HTTPS which will allow to remove any concern regarding fraud or privacy disclosure. Secondly inventing slogans and putting advertisement regarding online shopping network companies can be used to promote virtual shopping concept among consumers (Attaran, 1999).

The idea can be extended and feature in online shopping website like souq.com Also virtual shopping can be feature in billboards and magazines and in metro stations. In addition, it will great to applied the idea in university campus.

### 4.0 CONCLUSION

Virtual shopping is a new idea among the people in the UAE. Moreover, with the increase usage of smartphones among them, and people's need of having a relaxed life along with having everything at their fingertips, makes the UAE an iconic place for adopting such a technology. This innovative service which takes away the crowded shops in weekends, long checkout queues, and heavy bags is believed to be the next technology revolution. Moreover, it is very important to examine how the consumers form attitudes and behaviors towards virtual shopping because consumer attitude towards it is a noticeable factor affecting actual buying behavior. When marketers get to understand the factors affecting virtual shoppers' behavior then it create huge opportunity for the

marketers to develop the marketing strategies accordingly and turn the potential customers into actual one.

Therefore, in our research paper, we examined consumers' attitudes toward virtual shopping in Dubai, highlighted virtual shopping benefits, and determined the profile of potential virtual shoppers. We have concluded that that virtual shopping idea does attract consumers from young generations as they look for fun and entreating shopping experience, and also for consumers from middle age, as making purchases by a fingertip scan on QR is time and money saving for those who hate standing in long lines in stores and groceries. This supports the benefits behind virtual shopping which is to save time and reduce the load on cashiers. In comparison between our study and the previous research supports our result that consumers are willing to experience the idea, and believe that virtual shopping will support a wide array of technical, business, and consumer issues.

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