

Technology Adoption in Democratic Republic of Congo(DRC): An
Empirical Study Investigating Factors that Influence Online Shopping
Adoption

By

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ABSTRACT

The growing popularity of the internet and its activities have opened a wide range of business opportunities especially in terms of e-business. Though, reports show that the adoption rate of e-commerce in developed countries seem to be striving, a lot of developing countries still struggle with slow e-commerce adoption rate. Democratic Republic of Congo (DRC) is one these countries where e-commerce adoption is still in its infant stages. However, because of the recent infrastructure improvements and the growth in telecommunication services in the country, internet penetration, more specifically, mobile Internet penetration is growing at a significantly fast pace. This could mean opportunities for e-business services in DRC.

The objective of this research is to investigate the factors that could influence online shopping adoption in DRC. This investigation was carried out by adapting an extended version of the Technology Acceptance Model (TAM). A quantitative approach was used in the collection of data and the data was edited and analyzed using the programming language, R. Also, the analytical techniques used in conducting this research include: Descriptive Statistical Methods (Cross tabulation, frequencies) and inferential Statistical Methods (Logistic Regression, ANOVA and Chi square tests).

The results from this research show that contrary to the conceptualized model in the literature review where the main constructs included: Perceived Ease of Use(PEOU), Perceived Usefulness(PU) and Perceived Trust(PT), it appears that Perceived Ease of Use(PEOU) does not have any significance in a user's intention to shop online($p > 0.01$). However, this research found that Perceived Usefulness and Perceived Trust have a strong statistical significance to a user's intention to shop online. Furthermore, we found that Gender, Income and Age do not have any moderating influence on the relationship between a user's perception and their intention to shop online in DRC. However, when the relationship between

perception and intention to shop online is moderated by experience, we find that there is a variation between users with prior online shopping experience and those without.

While these research findings make for remarkable recommendations on a user's intention to shop online, we recommend that further research on actual usage of e-commerce be examined in DRC to get a better understanding of consumer online behaviors.

Keywords: E-commerce, M-commerce, E-commerce Adoption, E-business Technologies, E-business, DRC, Africa, technology, Technology Adoption, Technology Acceptance Model (TAM), Perceived Usefulness, Perceived Ease of Use, Perceived Trust.

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To God

To the University of Ottawa

To my Supervisors & Examiners

To my Family

To my Friends

To Everyone that contributed to the successful completion of this thesis

From the depth of my heart,

I say, Thank you.

Sincerely,

Janet Onyeche Audu

CHAPTER 1: INTRODUCTION

This chapter provides a brief background of the Democratic Republic of Congo (DRC). We also address the motivation for studying e-commerce adoption in Africa, specifically in the Democratic Republic of Congo (DRC) and finally end the chapter with an overview of all the chapters in this thesis.

DEMOCRATIC REPUBLIC OF CONGO (DRC)

The Democratic republic of Congo (DRC), is a country in central Africa covering approximately 2,345,000km² in total geographical area with a population of about 73 million people. About 35% of the country's population live in urban areas, while the other 65% live in rural regions (Kazadi, 2013).

DRC's economy is led by the Agricultural sector which is said to employ about 70% of its population (Kazadi, 2013). The Mining sector in DRC is also known to cater to a considerable percentage of the population. The DRC is famous for having a high concentration of mineral resource such as; Coltan (for manufacturing capacitors), diamond (for high-end fine jewelry, for cutting, drilling materials etc.), gold (monetary transactions, high-end fine Jewelry, Dentistry, Electrical-electronic appliances etc.), copper (used to transfer electricity), uranium (used in nuclear defense systems, medicine, etc.), zinc, iron ore (used in the manufacturing of steel), silver (used in high end jewelry, electroplated wire, solders, etc), cadmium (used in plating and alloying,

batteries, plastic, etc.), etc (Kazadi, 2013; ScienceViews, 2008; Sutherland, 2011). A recent study showing the forecast GDP growth of major African countries suggests that DRC is a small but a fast growing economy (Deloitte, 2014).

Similarly, reports suggest that e-commerce in Africa has a huge growth potential (Kamel, 2015; KPMG, 2014; Ndonga, 2012). The International Trade Centre projects that the continent will reach a US\$50 billion market by 2018, up from just US\$8 billion in 2013 (ITC), 2015). This estimation can be attributed mostly to Africa's growing young population, and to the fact that the continent is a frontrunner in mobile connection and handheld technology. (Kendall, Schiff, & Smadja, 2014; KPMG, 2014).

Besides its promising e-commerce market, some African countries such as the Democratic Republic Congo (DRC) are principal contributors in the production of Electronic Devices. As mentioned in the introduction, DRC is heavily endowed with mineral resources with one of its products being Tantalum. Tantalum is the refined form of the mineral resource Coltan, which is also called Columbite Tantalite. Tantalum is a heat resistant powder that can hold high electrical charge, and therefore it is vital to the production of capacitors (an element that is used in controlling the flow of current inside a circuit). This resource is used to manufacture devices such as servers, desktops, laptops, tablets, and smartphones and DRC is noted as a major supplier of tantalum on the world market (Bleischwitz, Dittrich, & Pierdicca, 2012).

Despite being a major contributor to the manufacturing materials of information technology devices, DRC is unfortunately still very slow in adopting Information

Communication Technology(ICT). A 2007 report by the International Telecommunication Union disclosed that the Information and Communication Technology Opportunity Index (ICT-OI) for DRC was ranked lowest taking the position of 183rd out of 183 countries that were analyzed (ITU, 2007). Additionally, in June 2016, the Internet World Stats estimated internet users were only 3.9% of the country's population. DRC's low internet penetration rate is not so surprising particularly because of the instability that has plagued the country; notable among them is a civil war which ended as recently as 2002, and current struggles with political instabilities (Ngoma, n.d.). Nonetheless, it is important to note that between 2000 and 2017, DRC's internet penetration grew from 0% to 3.9% (Internet Live Stats, 2017). This signifies a slow but steady penetration growth of internet in DRC.

Additionally, it is significant to mention that the telecommunication industry is picking up with over 37 million mobile phone subscribers, which is more than half of its population. Research conducted by Deloitte in 2015 additionally shows that there are 22 million unique telecommunication subscribers in DRC, which represents about 31% of the population. On a related note, mobile 3G internet is also on the rise. While the country saw just 1% of mobile internet penetration in 2013, the rate increased to 2.6% in 2015. There are now six million mobile internet subscribers in DRC, and according to the Group Special Mobile Association (GSMA) and Deloitte, half of them were adopted between 2013 to 2015 (GSMA, n.d.).

With its progressive internet penetration growth combined with a thriving telecommunications industry, there are reasons to be optimistic about the opportunities for e-commerce in DRC. Presently, there is no big scale e-commerce venture that has been established in the country. However, it is significant to flag that some residents of the country shop from

international websites like “Amazon.com”, and have their products delivered to them at their homes. DRC is yet to have a large scale established ecommerce platform but there have been smaller e-commerce startups introduced as recent as 2015 in the country.

STATEMENT OF THE PROBLEM

Although online shopping is rapidly becoming the preferred method for shopping worldwide, this trend is yet to become an adopted culture in the Democratic Republic of Congo (DRC). This research was inspired by the huge gap of e-commerce research in DRC as well as a proposal to establish a large-scale e-retail store, Sombolo.com, in DRC. Sombolo.com would be the first large scale online shopping platform in DRC and it aims to be a marketplace that would connect e-vendors to customers.

It is also important to mention that to the best of our knowledge, there is little to no research that has been done to study e-commerce adoption in DRC. Therefore, this research, although not intended to be exhaustive given that e-commerce adoption is a broad subject, aims at investigating the perception of e-commerce in DRC. As indicated in Chapter two of this research, we see that in a country still in its early stages of e-commerce adoption and one that has little or no research that has been conducted in the area of e-commerce adoption, “Purchase intention” is a suitable starting point which will then be built upon in later research

AIMS AND OBJECTIVES

The aim of this study is to investigate the factors that could influence the intention to shop online in Democratic Republic of Congo.

RESEARCH QUESTION

The main research question of this study is:

What are the factors that influence a user's intention to shop online in DRC?

More specifically, the objectives of this study are:

- Investigate the factors that influence e-commerce adoption in DRC
- Contribute to the lack of research in the area e-commerce in DRC
- Develop a model of factors influencing online shopping intention in the context of DRC

SIGNIFICANCE OF THE STUDY

The findings from this study are important for business executives looking to break into the Democratic Republic of Congo(DRC) market, it is also important for business executives already in the market and are looking to have a better understanding of what drives their customers and potential customers. Another key stakeholder that would benefit from this research are the Software Developers and Digital marketers as it would give them a better understanding of what possibly influences DRC customer's intention to shop online which in turn would assist in their development of e-commerce platforms and their marketing strategies

accordingly. Also, the Government of DRC can get a better understanding of e-commerce and its adoption opportunity in DRC and this research hopes to influence their decisions to make appropriate policies that would promote the adoption of this technology in DRC.

Furthermore, this research will set the groundwork for academic investigation about electronic commerce adoption in DRC in the hope that more researchers and academics would continue to do related work.

SCOPE OF THE STUDY

This research focused on the factors the influence the user's intention to shop online in Democratic Republic of Congo(DRC). The model adopted for this study was the Technology Acceptance Model (TAM). Which was then extended with an additional construct "Trust" which has been moderated with constructs such as Experience and Demographic characteristics (Age, Gender and Income). The research design used for this study was a Quantitative approach using a questionnaire as its study instrument and this study was conducted in the capital of DRC, Kinshasa.

THESIS OVERVIEW

1. **Introduction:** This chapter gives an overview of the study and discusses the context of this research, as well as its aims and objectives.
2. **Literature Review:** This chapter reviews the literature available for factors influencing intention to shop online in other developing countries and then concludes by stating that adoption cannot

be studied without first investigating a user's intention to use the technology. This chapter also maps out the theoretical background of this research. It explores the following theories: Technology Acceptance Model (TAM), Theory of Reason Action (TRA), Theory of Planned Behavior (TPB) and Innovation Diffusion Theory (IDT) model. With this, three factors are established for further analysis; Perceived Ease of Use(PEOU), Perceived Usefulness(PU) and Perceived Trust(PT). This chapter closes by formulating the hypothesis on which this research is conducted.

3. **Methodology:** This chapter provides details about the process in which this research was carried out. It also highlights the approaches, techniques and steps that were taken to conduct this study.
4. **Analysis and Data Presentation:** The statistical analysis of this research is presented in this chapter where we use both Descriptive Statistics (cross-tabulation) and Inferential Statistical techniques (Logistic Regression, ANOVA and Chi Square Tests) to analyze the sample.
5. **Discussion and Conclusion:** This chapter summarizes the entire research and concludes by highlighting findings from the analysis chapter while comparing them to the literature about factors which influence a user's intention to shop online. It also discusses the limitation of this research, managerial implications, and recommendations for further research.

CHAPTER 2: LITERATURE REVIEW AND THEORETICAL

BACKGROUND

INTRODUCTION

This chapter presents an overview of the literature available on the factors that influence a user's intention to shop online. It also includes a conceptual model for this research, which is produced using an extensive model of the Technology Acceptance Model (TAM). The selected factors that influence a user's intention to shop online include: Perceived Usefulness (PU), Perceived Ease of Use and Perceived Trust. Also, to get a better understanding of how these factors influence intention to shop online, we moderate them with "Experience" and "Demographic characteristics" (Age, Income and Gender). Finally, the gaps in the research are discussed.

LITERATURE REVIEW

E-COMMERCE IN DEVELOPING COUNTRIES

(Schneider, 2000) defines e-commerce as business activities that are conducted using electronic data transmission over the internet. (Fredriksson, 2013), on the other hand, defines e-commerce as transactions that involve making a sale, or purchasing goods or services over a computer-mediated network. However, (Molla & Licker, 2005; Dogramaci et al, 1998) argue

that e-commerce transcends just buying and selling over the internet, or making payments through credit cards, but also includes a wide range of interactive business processes that occur before and after actual sales transactions are made. The major types of e-commerce have been classified as: B2C (Business to Consumer), B2B (Business to Business), P2P (Peer to Peer), and M-Commerce (Mobile Commerce), C2C (Consumers to Consumers).

(Datta, 2011; Molla & Licker, 2004, 2005) explain that the e-commerce adoption rate in developing countries is slower than that of developed countries. Researchers have also identified the different factors and barriers that influence e-commerce adoption in developing countries. (James & David, 2014), state that these determinants can be grouped into macro, meso and micro factors.

MACRO FACTORS INFLUENCING E-COMMERCE ADOPTION

The macro factors are environmental issues that create facilitating conditions for e-commerce adoption in a developing country. These issues include governmental laws and regulations to help facilitate the smooth running of e-commerce in a nation, government providing the necessary communication and education to the people on digital services and most importantly, the provision of the appropriate Information, Communication Technology (ICT) infrastructure. Indeed, (Datta, 2011), states that e-commerce postulates that without providing these facilitating conditions in a country, e-commerce adoption independent of the users perception of the technology would still be slow. (Datta, 2011) further explains by giving this example, “users in a country may marvel at ecommerce, only to realize the paucity of technology support personnel or networking infrastructures “.

INFORMATION, COMMUNICATION TECHNOLOGY (ICT) INFRASTRUCTURE IN DRC

ICT infrastructure signifies the systems, services and networks in place that enable the running of information communication technology. (Rithari, 2014) explains that the infrastructure components that hinder the adoption of e-commerce include: level of telecommunication network penetration, cost of the internet and access to hardware.

In recent years, the Democratic Republic of Congo has made some moves towards improving IT infrastructure in the country, one of them being the completion of the second phase of its Fibre Optics network project in 2017. Fibre Optics is a technology that allows for the fast transmission of huge amount of data on long distances. They also allow for cheaper and better information Communication Technology service quality when compared to its Satellite alternative (African Development Bank, 2016). The Fibre Optics network project is part of the Central African Backbone (CAB) Project whose main goal is to “contribute to the diversification of the economy by fostering the emergence of a digital economy in Congo” (African Development Bank, 2016).

Some of the anticipated outcomes of this project include not only infrastructure enhancement in the country but also to provide citizens with access to digital literacy training programs, facilitate the establishment of large scale ICT applications, provide institutional support and capacity building, and finally, provide project management resources for these projects.

Likewise, in terms of hardware availability, the telecommunication industry in DRC seems to be striving which seems to be pertinent with the realities in other developing countries (GSMA, 2017). As regards mobile operators, some of the big names in telecommunication

industry are present in DRC. These include: Airtel, Orange, Tatem Telecom, Africell, SuperCell and Vodacom. As a result, 31% of the citizens of DRC own mobile phones and are unique subscribers (GSMA, n.d.). The continued growth of mobile technologies in developing countries, has in turn inspired the growth of many digital-services in these countries, making it the preferred method for generating, delivering and consuming digital contents and services (GSMA, 2017).

It is no surprise that mobile payment services in DRC seem to be booming when compared to other financial services. For instance, while mobile money penetration is 17.5%, financial services in the country are at only a 4% penetration rate (Gilman, Genova, & Kaffenberger, 2013). Mobile money in this case is similar to the Paypal model in North America. While PayPal allows transactions to be tied to email addresses, mobile money uses phone numbers. Although mobile money transfers in DRC are only limited to buying mobile airtime and sending money because the technology has not yet been adopted for making online purchase payments, PayGate, a South African payment solution provider has recently made it possible for Kenya's extremely successful mobile money service, MPESA to serve as a payment option in e-commerce (Mulligan, 2013). It is foreseen that it will not be long before such services are extended to DRC.

MESO AND MICRO FACTORS INFLUENCING E-COMMERCE ADOPTION

Both Meso and Micro factors that influence e-commerce adoption deal with readiness. Meso factors focus on the organizational (industrial) readiness and its potential to affect e-commerce adoption (Gareeb & Naicker, 2015; Kolawole, 2001; Kongongo, 2004). Finally, at the Micro level, consumers' characteristics play a crucial role in e-commerce adoption. These

characteristics include: the perception of the technology and level of skills and proficiency on the use of e-commerce technologies (James & David, 2014).

CONSUMER ONLINE BEHAVIOR

Generally, consumer online behavior is analyzed by models that have been fragmented into categories such as (Intention to use) → (Adoption) → (Continuance) (Chan et al, 2003).

Intention to use refers to the process involved before an actual purchase is made. Adoption is the actual purchase behavior and continuance refers to behaviors that happen after a purchase has been made (re-purchase).

Since e-commerce is still in its early stages in the Democratic Republic of Congo (DRC), it is ideal that this research focuses on the “intention to use” category which in turn leads to “adoption”. We leave “continuance” out of scope of this research.

Intention to use a technology (in this case, intention to shop online), is defined by the level of conscious effort that a user will follow to approve his/her behavior (Wahid, 2007). (Liat, Shi Wuan, & Wuan, 2014) define intention to use a technology as the measure of strength of a user’s intention to accomplish a behavior. Online shopping intention has also been known to measure an individual’s conative beliefs when it comes to deciding whether or not to adopt online shopping (Belanger, Hiller, & Smith, 2002). Understanding the factors that affect customer’s intention to shop online, can help in developing business strategies that can be used in converting potential customers to active customers (Kibet, 2016).

Many models have been used to measure the intention to shop online. However, for this research we adopt a modified extension of the Technology Acceptance Model (TAM) in order to calculate the factors that could influence intention to shop online in DRC.

THEORETICAL FOUNDATION

Technology Acceptance Model (TAM) is the foundation for most of the models used in studying technology adoption. Laroche (2010) justifies this by saying that TAM is very useful for the development of original models used in understanding consumer online behavior and its constructs, and has been widely studied especially in the context of developing countries.

TAM was originally derived from the Theory of Reasoned Action (TRA), (Fishbein, Martin & Ajzen, 1975), and this was one of the first acceptance models to gain recognition in Information system research. This theory (TRA), models attitude and behavior, and states that individuals would use a computer [technology] if they see the positive outcomes that are associated with using them (Fishbein, Martin & Ajzen, 1975). (Davis, 1989), added psychological factors to the TRA and therefore, produced TAM.

Davis (1989), Technology Acceptance Model (TAM), postulates that perceptions about an innovation are significant for the development of attitudes that eventually lead to system utilization behavior. It also states that the attitude of the user affects the perceived usefulness of the system, and its perceived ease of use. The TAM model was specifically created to test user's acceptance of a system and it has been said to be very useful in analyzing e-commerce adoption in developing countries (Chau & Hu, 2002; Lai, 2017). TAM was the first adoption model to

introduce psychological factors (Davis, 1989; Samaradiwakara, 2014) and this became the major difference between the TAM model and the TRA.

RESEARCH CONSTRUCTS/HYPOTHESIS DEVELOPMENT

PERCEIVED EASE OF USE (PEOU)

According to TAM, Perceived Ease of Use (PEOU) is a major determinant that affects the acceptance of a particular system. PEOU is defined as the concentration of physical and mental efforts that a user expects to receive when considering the use of technology i.e. the degree to which a particular technological system would be free from effort (Davis, 1989).

According to (Selamat, Jaffar, & Boon, 2009), technology perceived to be easy to use would more likely be accepted by users. Conversely, a technology that is perceived as complex to use would be adopted at a slower rate. This theory is also supported by (Teo, 2001) in a study in that concluded that a system that is perceived as easy to use would require less effort from the user, therefore increasing the chances of adoption. Since TAM was introduced, other researchers have found that PEOU has a positive impact on a person's intention to shop online (Bisdee, 2007; Eri, Aminul Islam, & Ku Daud, 2011). Therefore, the following hypothesis is proposed:

H1: A Person's Perceived Ease of Use (PEOU) of online shopping positively influences their intention to shop online.

PERCEIVED USEFULNESS (PU)

Another variable in TAM is Perceived Usefulness (Davis, 1989). Ultimately, it is defined as the belief that a technology may enhance the performance of an activity (Davis, 1989). Donna (2004) states that a technology's ability to improve the shopping performance, productivity, and accomplish shopping goals are what makes a consumer or user record it as a success. (Barkhi, Belanger, & Hicks, 2008) also conclude similarly in their study by suggesting that consumers will develop positive attitudes towards products or services they believe to provide sufficient benefits, and negative attitudes toward those that are inadequate. Therefore, the following hypothesis is proposed:

H2: A Person's Perceived Usefulness(PU) of online shopping positively influences their intention to shop online

PERCEIVED TRUST (PT) AND TAM

Previous studies in developing countries have shown that Perceived Trust (PT) is a strong indicator of a user's intention to shop online (Jiang, Li, & Gao, 2008; Mcknight & Chervany, 2002; Zhu, Lee, & O'Neal, 2011). A few others have also extended the standard TAM model with "Perceived trust" in order to measure online shopping adoption (Blagoeva & Mijoska, 2017).

The use of trust in measuring online shopping adoption can be attributed to the fact that it is a new approach to shopping that people are not used to and it could also be due to the minimal face to face interaction between buyers and sellers in the online scene (Liat et al., 2014). Trust in Electronic Commerce as defined by (Stewart, Pavlou, & Ward, 2001), is the subjective probability with which a consumer believes that a transaction carried out online through a web retailer, will be delivered in a manner that is consistent with their expectations. (Mahmood, Bagchi, & Ford, 2004) further explain that trust as an adoption factor has a significant positive contribution to a consumer's online behavior. Some of the major challenges that have been identified from research that seem to affect a user's trust in Business to Customer (B2C) e-commerce include fraud, the fear of making payment online and the cost involved with accessing the internet to shop online (Ayo, Adewoye, & Oni, 2011). These are the items that are used in measuring perceived trust in our research. Therefore, the following hypothesis is proposed:

H3: A person's Perceived Trust (PT) of online shopping positively influences their intention to shop online

MODERATING CONSTRUCTS (MODERATORS)

Experience and demographic characteristics have been added to this research as moderators of the factors that influence intention to shop online. Moderators have been explained to influence the “nature of the relationship between the predictor variable and an outcome variable”(Breitborde et al 2010). The aim of including the moderating variables in this

research is to gain better insights on how the relationship between the factors that influence intention to shop online vary depending on different groups.

EXPERIENCE

When it comes to technology, a direct experience would simply be the act of using that particular system (Thompson, Higgins, & Howell, 1991). (Viswanath Venkatesh & Davis, 1996) define experience as hands on usage [shopping online] of a system. (Thompson, Higgins, & Howell, 1994) further explain that experience has two components: the skill level associated with using the technology, and the length of using the system. In this study, we focus on the direct experience of shopping online.

Researchers explain that a user's prior experience with a technology is a salient factor in user adoption behavior (Ajzen, 1985; Bentler & Speckart, 1979; Fishbein et al, 1975; Gefen et al, 2003; Klopping & McKinney, 2006; Schwarz et al 2004). It is therefore understandable to assume that an experienced user will be more willing to adopt the technology than a user that has never used the technology. Previous research also shows that a user's perceived usefulness, perceived ease of use, and other consumer online behavior determinant factors have different influences on a user's experience (Taylor & Todd, 1995; Venkatesh & Davis, 2000; Venkatesh et al 2003). (Gefen et al., 2003), specifically suggest that the intention to use a technology and its perceived usefulness or perceived ease of use and usefulness are stronger for people who have gained direct experience with the system. Therefore, the following hypothesis is proposed:

H4: Factors that influence online shopping intention affect people with prior experience and those with no prior experience differently.

DEMOGRAPHIC CHARACTERISTICS

Previous research shows that customers' demographic characteristics often influence customer shopping behaviors (Brashear et al, 2009; Chang & Samuel, 2004; Hashim et al, 2009). Demographic analysis is especially important to a business for the purpose segmentation in marketing.

In the context of online shopping, age, gender, education, and income have been used widely to study adoption behaviors. According to (Brashear et al., 2009), online shoppers tend to be younger, earn more, and are more educated. In addition to this, research suggest that men and women behave differently towards online services(Bae & Lee, 2011). (Van Slyke, Comunale, & Belanger, 2002) further state that men shop online more than women, although, women have been known to shop more generally (multichannel: offline and online) than men (Maurer Herter et al, 2014). (Sharma, Gupta, & Sharma, 2011), however, claim that demographics like gender have no effect on online shopping adoption. Kazadi (2013) also explains that gender equity plays no role in ICT in education in Democratic Republic of Congo (DRC). As for income, (Datta, 2011), states that IT adoption varies depending on an individual's income group. The rich have more access to IT and adopt IT faster than those in lower income groups. Conversely, (Choubey & Sanjay, 2002) in their study show that income is not significant in determining how an individual adopts online shopping.

Therefore, the following hypothesis is proposed:

H5: Factors that influence online shopping intention influence people in different income categories differently

H6: Factors that influence online shopping intention influence both men and women differently

H7: Younger people are more likely to shop online

GAP IN RESEARCH

From the literature, we see that studies on the determinants of online purchase have been carried out in developed and developing countries. However, the results slightly contrast depending on the context in which it is being studied.

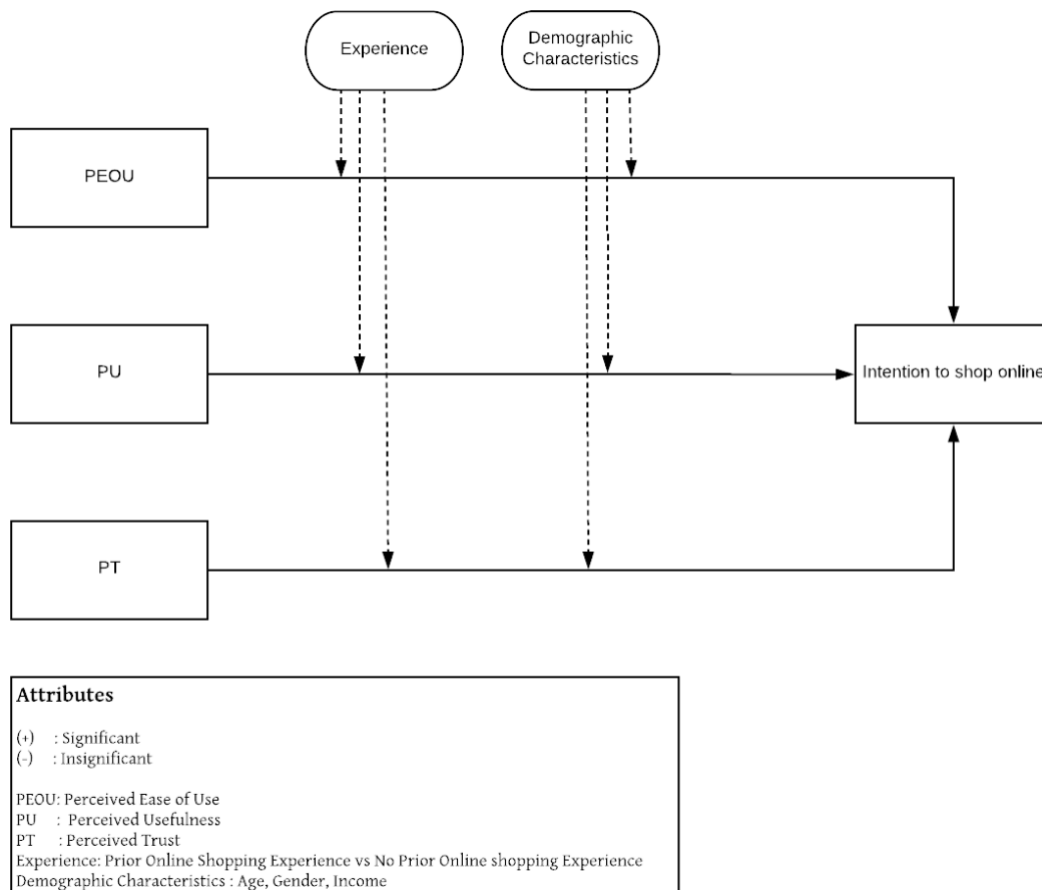
Although the topic of e-commerce adoption has been highly investigated in developed countries, literature on e-commerce adoption and online shopping intention in developing countries seem to be scarce. Furthermore, an extensive search of the literature failed to reveal any empirical study on e-commerce adoption in Democratic Republic of Congo. (Boateng et al, 2008), further explains the few research on technology adoption in developing countries, including recent ones, lack user focus.

Even though a lot of research has been done on e-commerce adoption in developed countries, the “results from developed countries cannot necessarily be transferred and applied to developing countries” due to technological differences, social differences and environmental differences (Oluoyinka, Shamsuddin, Ajabe, & Enegbuma, 2013). This in fact, is evident from the varying results seen in the literature review section of this research. Hence, generalisation

cannot be made in the context of DRC. It is therefore imperative to study online shopping intention in the DRC.

CONCEPTUAL FRAMEWORK

After reviewing many research papers, we gathered some of the most common factors that influence a user's intention to shop online. The Technology Acceptance Model (TAM) has been adopted to fit the condition of Democratic Republic of Congo (DRC). It has also been extended by Perceived Trust(PT) and the model has been moderated with factors of demographic characteristics and experience.



METHOD OF FINDING LITERATURE

Diverse journals were selected for this literature review. They ranged from Management Information Systems to e-commerce journals in developing countries, marketing, development journals, and sociology, as well as African business journals. Also, included to the writing of this research were Masters as well as PhD thesis gathered from ProQuest dissertation database, and the University of Ottawa's database. These theses were based on the matters of e-commerce adoption in general, online shopping adoption and factors influencing online shopping intention.

Primarily, we searched for empirical papers that investigated technology acceptance theories that have been adopted to investigate online shopping adoption in other developing countries. This was done by first going through literature review and meta-analysis papers in order to have a big picture of the models and theories available to study e-commerce adoption and then proceeding to search the reference papers included in the literature review and meta-analysis papers.

The databases that were used included uOttawa's library search+, Web of Science, Proquest, Proquest dissertation, Science direct, Springer link, SCOPUS as well as Google Scholar. Research Gate was also helpful in following the trends of different researchers' works. The criteria for choosing the papers were done by first scanning through the keywords of the

paper, reading the abstract and then proceeding to read the full body of the text to filter the relevant information.

CONCLUSION

This chapter reviewed the literature of several researchers that are related to the objectives set out in chapter one. It has been established that TAM alone is not adequate to study a consumer's intention to shop online. Therefore, Perceived Trust(PT) has been added to the model. We must keep in mind that even though most of these papers are empirical in nature and have provided the various factors that affect intention to shop online, DRC's market may be different and the significance of these factors may vary in notable proportions. The next chapter outlines the research methodology this research uses, and explains the sampling, data collection methods, research procedures, and data analysis models.

CHAPTER 3: RESEARCH METHODOLOGY

INTRODUCTION

In the Literature Review chapter, the foundation of this research was presented; hypotheses were developed and the conceptual framework for this research was produced. This chapter outlines the process in which this research has been carried out and it shows the methodology that has been used in systematically answering the research objectives which were discussed in chapter one of this research.

RESEARCH DESIGN

A researcher needs to choose a design that provides the best guide for a coherent and logical study (De Vaus, 2001). The research design of this research is exploratory in nature. The main reason for using this design is that it guides a researcher in analyzing the causal effects of the relationships between the variables in order to understand users' online behavior in DRC. (Zikmund et al 2013) explains that this design presents insights on the relations that exist between variables in the research's conceptual framework.

Furthermore, at the beginning of a research, it is important to choose the approach that would be used in carrying out this research. It could be the inductive approach; where the researcher collects the data, analyzes the data and finds patterns that would help in creating a theory that can explain these patterns or it could be the deductive approach; where a theory is sought out first and then this guides the instrument (in this case a questionnaire) development

and then the data collection process. Thereafter, the hypotheses are then tested to confirm if they are supported or are not supported. Also, the deductive approach is appropriate when a study is using quantitative data and for this reason, the deductive approach was used in this study.

QUANTITATIVE RESEARCH METHOD

This empirical study has been carried out by using the quantitative method in order to collect primary data. Quantitative method of research allows for the use of numbers or numeric terms in order to explore a study. The main concern of a quantitative study is to measure variables using statistical methods to determine the relationship between the variables.

A structured survey style questionnaire was selected to get the quantitative data. Structured surveys are usually used to collect data because they can cater to a larger population size (De Vaus, 2001), and every respondent relies on the same set of questions therefore, providing a consistent opportunity to analyze trends in behaviors.

DATA COLLECTION AND SAMPLING METHOD

The data collected for this research was distributed in the Capital region of DRC, which is Kinshasa. Kinshasa is the largest and one of the most developed cities in DRC. It has a population of approximately 10million people with about 1.3 million daily internet users in the city (OAfrica, 2012).

The survey was administered using the paper and pencil approach. The paper and pencil approach of data collection was chosen in order to get across to both people that have access to

the internet and the ones that do not. Students from the University of Kinshasa were employed to help with the manual distribution of the survey. At the beginning of the survey, the respondents were asked to read through the survey introduction where a brief background of the research has been highlighted and the benefits of the research has been clearly explained. In addition to this, voluntary participation criteria were clearly explained. Respondents were of the age 18 years and above and the survey was conducted in French which is the official language in DRC.

A total of 70 responses were collected out of which all 70 responses were used in conducting the analysis as they were all found valid and usable. The data of each respondent were reviewed to ascertain that they were complete. Being that the method of collecting the data was through manual distribution, all responses were complete and were all included in the analysis. However, one respondent opted not to declare their gender which had an inconsequential impact in testing one of the hypothesis.

Location in	Occupation	Number of Respondents
DRC (Kinshasa)		
Travel Agency	Workers	6
Cafeteria	Workers	3
Traffic	Traffic Attendant	2
Kinshasa Management School	Student	20
Commercial Areas (Grocery Stores, Markets, Forescom roundabout	Others (office workers, managers, traders, sportsmen)	39

(Business Districts where Banks and other companies are located)		
Total		70

TABLE 1: SAMPLING DISTRIBUTION SUMMARY

QUESTIONNAIRE DEVELOPMENT

Due to the lack of published research in Democratic Republic of Congo (DRC) regarding e-commerce, it was necessary to collect primary data to test the hypotheses and to fully meet the research objectives. The design of the survey questionnaire was based on careful review of published literature on the factors that influence e-commerce adoption in other developing countries and the questions were adopted directly from already existing Technology Acceptance Model (TAM) research.

QUESTIONNAIRE FORMAT

The questionnaire was designed based on the constructs that were identified in the literature review chapter. The questionnaire consists of five sections.

- Section one has the information sheet outlining the backgrounds of the study and the consent form of the survey.
- Section two investigated the respondent's internet accessibility and usage.
- Section three investigated the respondent's e-commerce experience. That is, to distinguish between the experienced shoppers and non-experienced shoppers.

- Section four contains questions that are based on the factors that influences intention to shop online as derived from the literature review.
- Section five, which is the last section, contained questions that were used to investigate the respondent's social demographic.

Variables	Questionnaire Sample	References
Perceived Ease of Use (PEOU)	PEOU ₁ : Online shopping is clear and understandable	(Rizwan, Umair, Bilal, Akhtar, & Bhatti, 2014; Viswanath Venkatesh, Thong, & Xu, 2012)
	PEOU ₂ : Online shopping is easy to use	
	PEOU ₃ : I am comfortable with online payments (including mobile payments)	
	PEOU ₄ : I do not have knowledge on how to shop over the internet	
Perceived Usefulness (PU)	PU ₁ : Online shopping (will) improve my shopping productivity	(V Venkatesh, Morris, & Davis, 2003; Yu, Ha, Choi, & Rho, 2005)
	PU ₂ : Online shopping (will) help me shop better	
	PU ₃ : I understand the advantages of shopping online over traditional shopping	

	PU: Online shopping would give me a better chance at knowing the correct price of a product before making a purchase	
Perceived Trust (PT)	PR: I can trust a company that is online	(Al-Somali, Gholami, & Clegg, 2009; Gefen, Karahanna, & Detmar W. Straub, 2003; Hsieh, 2011; Yu et al., 2005)
	PR: There is a high-risk shopping online	
	PR: It will cost me more to shop online	
	PR: I feel that making payment online (Including mobile payment) will be(is) secure	
Intention to shop online (I)	I will shop online (soon)	(Viswanath Venkatesh et al., 2012)

TABLE 2: QUESTIONNAIRE SOURCES

ETHICAL CONSIDERATION

When conducting research that involves human participants, there are certain ethical issues that needs to be taken into consideration(Sales & Folkman, 2000). These include; anonymity and confidentiality of the respondents, the method of recruiting the respondents, the method of collecting consent, and steps that would be taken to ensure that the respondents are not exposed to any harm due to their participation in the research. This research takes into consideration all these issues by ensuring proper steps were taken in order to ensure that our survey instrument is fit and ethical for the purpose of this research. The research instrument was examined and approved by the University of Ottawa’s Research Ethics Board(REB).

CONTENT VALIDITY

The questionnaire was examined by a Statistics Professor, a Professor in Democratic Republic of Congo and a Professor of Computer Science at University of Ottawa. In addition, the original questionnaire was translated from English to French by a native French speaking University of Ottawa Faculty member. The translated version of the questionnaire was reviewed by a French professor from DRC to ensure that the French version conveyed the exact same meaning as the English version of the questionnaire and to ensure that nothing was lost in translation.

Multiple measures, including nominal scales and Likert scales were employed in the questionnaire. In Section two and three, the statements were measured using a five-point Likert scale ranging from Strongly Agree (1) to Strongly Disagree (5).

PRE-TEST

Pre-tests help clarify questions and statements that may be unclear or ambiguous. This process helps in improving the reliability and validity of the questionnaire (Cooper & Schindler, 2006). After the questionnaire was reviewed, a pilot test was conducted using 10 random samples. The purpose of conducting this pilot test was to ensure that this research was carried out in a context that was adequate in Democratic republic of Congo. Researchers have outlined that some of the needs for pre-testing include: the questionnaire may be too short or too long for the population, the order of the questions may not flow in the right manner, language issues may be avoided through pilot testing. For Example, the meaning of a word may differ from culture to culture. For this research, since the questionnaire had to be translated from English

to French (French being the official language in DRC), it was important that we confirm that no meaning was lost in translation.

As we administered the pilot test, respondents were encouraged to make comments on questions that they thought were unclear. Due to this process, some minor changes were made to the questionnaire before going out for the main distribution.

DATA ANALYSIS TOOLS & TECHNIQUE

The data was analyzed using the programming language, R. After we collected the data and entered it into Microsoft Excel, the data was then prepared; the preparation involved eliminating the blank spaces in the data and setting them to NA, since R is case sensitive, capitalization errors that were introduced during data entry were also eliminated. After the data was cleaned, reliability and validity checks were done to ascertain that the data was fit for analysis. Finally, due to the binary nature of the dependent variable, a logit regression model was adopted in testing the hypotheses, also ANOVA, Chi-Square Tests and Descriptive statistics (cross tabulation) were used in the analysis of the data.

CONCLUSION

This chapter reviewed the process in which this research has been conducted using the quantitative approach. The literature review chapter was paramount to producing the questionnaire instrument by identifying the factors that affect intention to shop online. The questionnaire was tested for content validity and the data was analyzed using the software R. The technique employed in analyzing the data include: Descriptive Analysis (cross tabulation), Logistic Regression Analysis, ANOVA and Chi square test.

CHAPTER4: DATA ANALYSIS

INTRODUCTION

In the previous chapters, we laid down the foundation of this research as well as discussed the methodology and the tools and techniques that would be used in conducting this empirical research. The Hypothesis developed in chapter two has also been tested in this chapter, the aim of this chapter is to give evidence that would eventually help in understanding this research's objectives. The results in this chapters have been presented in the form of tables which will describe the frequencies, relationship, test of validity and reliability.

DATA DESCRIPTION

Cross Tabulation was used in identifying the sample demographic characteristics. The Demographics included gender, age, and education, and income and we divided it through by experienced and Non-experienced shoppers.

Among the 70 respondents that were surveyed, 46% have never shopped online. 44 (63%) were male and 25 (36%) were female. 34% of the respondents were in the age range 25-35 years followed by 20% which were 46-55 years. 96% of them have access to the internet and 61 out of 70 respondents access the internet at least once a day. 67 out of 70 respondents also reported to access the internet using mobile devices. 36% say they access the internet for the purpose of "Social Media

Networking(Instagram,facebook,twitter,etc)” which is closely (28%) followed by “File Sharing(emails)”. In regards to education, 78% have at least University Degree or above. And 62% had a monthly family income of 1000000 - 1499999 Congolese franc and above.

Variables	Total Respondents		Non Online Shoppers		Online Shoppers	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Gender						
Female	25	36%	11	34%	14	37%
Male	44	63%	20	63%	24	63%
NA	1	1%	1	3%	0	0%
Total	70	100%	32	100%	38	100%

TABLE 3: GENDER DEMOGRAPHICS

Variables	Total Respondents		Non Online Shoppers		Online Shoppers	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Age						
18-24	15	21%	10	31%	5	13%
25-35	24	34%	5	16%	19	50%
36-45	11	16%	7	22%	4	11%
46-55	14	20%	6	19%	8	21%
56+	6	9%	4	13%	2	5%
Total	70	100%	32	100%	38	100%

TABLE 4 AGE DEMOGRAPHICS

Variables	Total Respondents		Non Online Shoppers		Online Shoppers	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Education						
University						
Student	24	34%	10	31%	14	38%
Graduate	2	3%	1	3%	1	3%
High School	9	13%	5	16%	4	11%
Post Graduate	29	41%	13	41%	16	43%
None	6	9%	3	9%	2	5%
Total	70	100%	32	100%	37	100%

TABLE 5: EDUCATION DEMOGRAPHICS

Variables	Total Respondents		Non Online Shoppers		Online Shoppers	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Monthly Family Income (CDF)						
0 - 499999	19	27%	12	38%	7	18%
1000000 - 1499999	13	19%	2	6%	11	29%
1500000 - 1999999	11	16%	6	19%	5	13%
2000000 or more	20	29%	9	28%	11	29%
.500000 - 999999	7	10%	3	9%	4	11%
	70	100%	32	100%	38	100%

TABLE 6: MONTHLY FAMILY INCOME DEMOGRAPHICS

Variables	Total Respondents		Non Online Shoppers		Online Shoppers	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Access to the Internet						
Yes	67	96%	30	94%	37	97%
No	3	4%	2	6%	1	3%
	70	100%	32	100%	38	100%

TABLE 7: ACCESS TO THE INTERNET 1

Device for Accessing the internet	Mobile Device (Smartphone or tablet)	Desktop	Laptop	Game Console	I never use the internet
Frequency(n)	67	37	38	7	2
Device for Accessing the internet	Shopping	Social Networking (facebook, twitter,instagram,etc)	Entertainment (News, Blogs, youtube, etc)	File Sharing (Emails)	I never use the internet
Frequency(n)	67	37	38	7	2

TABLE 8: ACCESS TO THE INTERNET 2

ASSESSMENT OF RELIABILITY AND VALIDITY

Every research needs to have a way of ensuring fidelity. For this research, we have conducted both reliability and validity checks. Reliability conveys to us the consistency of our measurement while validity is concerned with if we are measuring exactly what we say we are measuring. (Jerry Buley, 2000)

We ran a correlation test between the independent variables, the items that are very correlated are suggested to be influenced by the same factors, and the once that are not correlated are influenced by different factors (Almahroos, 2012), All items correlated with a range of 0.57 to 1.00. Since the accepted correlation loading number is 0.4 (Stevens, 2002 as cited in (Almahroos, 2012)) therefore, the strength of the correlation is within the range of moderate to perfect.

	Perceived Usefulness	Perceived Ease of Use	Perceived Trust
Perceived Usefulness	1.0000000	0.5981059	0.7075096
Perceived Ease of Use	0.5981059	1.0000000	0.5733111
Perceived Trust	0.7075096	0.5733111	1.0000000

TABLE 9: CORROLATION COEFFICIENT ANALYSIS

Next step, we used the Cronbach's Alpha for reliability testing. This is used to check the scales' internal consistency between the constructs. (Gliem & Gliem, 2003), suggest that any score that is greater than 0.7 is acceptable for reliability testing. The overall α (raw_alpha) is 0.82 and it ranges from (lower_alpha)0.70 to 0.82(upper_alpha). Hence, the reliability of the data seems to be stable.

Raw_alpha	mean	Standard Deviation
0.82	13	2.5

TABLE 10: SUMMARY OF CRONBACH'S ALPHA ANALYSIS

HYPOTHESES TESTING

This section tests the various hypothesis proposed in chapter two by using the ANOVA, Chi square tests and the Regression Analysis approach called Logistic regression. Regression analysis is used to predict a dependent variable by using one or more independent variables. Logistic regression analysis in particular is used when the dependent variable is dichotomous (James et al, 2000).

The dependent variable (also known as response variable) in our research is “the intention to shop online in DRC”, and the independent variables are defined as “Perceived Usefulness(PU)”, “Perceived Ease of Use(PEOU)” and “Perceived Trust(PT)”. To further analyze the results, we moderated these independent variables with “experience” and “demographic characteristics”.

H1,H2 and H3 were modelled together in order to reduce the odds of generating an error as it is better to do fewer modeling than doing more. (G. James et al., 2000)states that every time you do a hypothesis test, you stand a chance of creating a false possible therefore creating room to generate results that are not correct. Also by fitting the variables together, we can examine how the variance in the outcome measure that they explain collectively (G. James et al., 2000).

Logistics regression was also used in testing H4 and H6. Since these two hypotheses involve interactive effects, dummy variables were introduced to the analysis. Dummy variables are used when the predictors are qualitative in nature (categorical variables). In the case of H4, these were prior experience and no prior experience and in the case of H6, these were Gender (Male and Female). As for H5 and H7, a chi square test was used in testing. The interpretation of this research,

is based (G. James et al., 2000) suggested standard of significance level where p value is significant if $p < 0.05$.

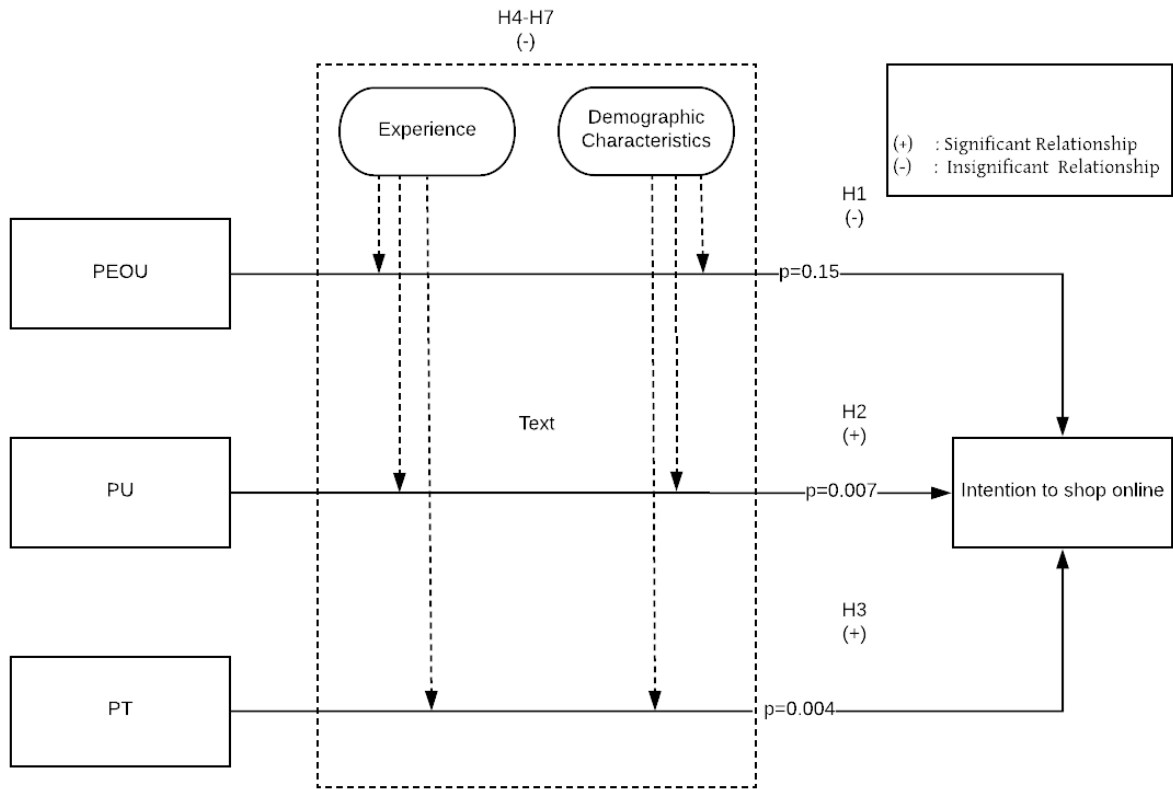


FIGURE 2: CONCEPTUAL MODEL SUMMARY

H1: Consumers perceived ease of use of online shopping will positively influence their intention to shop online

The logistic regression results show that there is no significant influence of perceived ease of use on a user's intention to shop online. When the dependent variable is intention to shop online and the independent variable is perceived ease of use (PEOU). ($\beta = 0.71$, p value = 0.15). Since $p > 0.005$, hence H1 was not supported.

H2: Consumers perceived usefulness of online shopping will positively influence their intention to shop online

The logistic regression results show that there is a significant influence of perceived usefulness on a user's intention to shop online. When the dependent variable is intention to shop online and the independent variable is perceived usefulness (PU), ($\beta = 1.55$, P value = 0.007). Since $p < 0.001$, hence the H2 is supported.

H3: Consumers perceived trust of online shopping will positively influence their intention to shop online

The logistic regression results show that there is a significant influence of perceived usefulness on a user's intention to shop online. When the dependent variable is intention to shop online and the independent variable is perceived trust (PT), ($\beta = 1.74$, P value = 0.004). Since $p < 0.001$, hence the H3 is supported.

H4: Factors that influence online shopping intention, affect people with prior experience and those with no prior experience differently.

When the dependent variable is intention to shop online and the independent variables are experience and its interaction to (PT, PU, PEOU, Intention), the (P value=0.00075). Since $p < 0.001$, hence H4 is supported. This indicates that the effect on PU, PT, PEOU and a user's

intention to shop online is modified by a user's prior experience with online shopping.

H5: Factors that influence online shopping intention influence people in different income categories differently

Since the $p > 0.05$, the chi square test results show that there is no significant influence of income on a user's intention to shop online. P value= 0.8 Hence, H5 is not supported.

H6: Factors that influence online shopping intention influence both men and women differently

Since $P > 0.005$, the logistic regression results show that there is no significant influence of income on a user's intention to shop online. p value = 0.38 Hence, the H6 was not supported.

H7: Younger people are more likely to shop online

Since $P > 0.005$, The chi square test result shows that there is no significant influence of age on a user's intention to shop online. $p = 0.058$. Hence the H7 was not supported.

SUMMARY OF HYPOTHESIS TESTING

Hypothesis	Supported	Not Supported
H1: Consumers perceived ease of use of online shopping will positive influence their intention to shop online		√
H2: Consumers perceived usefulness of online shopping will positive influence their intention to shop online	√	
H3: Consumers perceived trust of online shopping will positively influence their intention to shop online	√	
H4: Factors that influence online shopping intention, affect people with prior experience and those with no prior experience differently.	√	
H5: Higher income has a positive effect on intention to shop online		√
H6: Factors that influence online shopping intention influence both men and women differently.		√
H7: Younger people are more likely to shop online		√

CHAPTER 5: DISCUSSION AND CONCLUSION

INTRODUCTION

This final chapter summarizes the results gotten from the analysis chapter. We discuss the results in relation to the research objectives in Chapter one and then we conclude the thesis by highlighting some of the research limitations, managerial implications and recommendations for further research.

DISCUSSION

The correlation analysis shows that there is a strong positive relationship between the independent variables (Table 8). However, when the regression analysis was run, only Perceived Usefulness(PU) and Perceived Trust (PT) were found to be statistically significant predictors for intention to shop online in DRC. In addition to this, when moderated with experience, the analysis showed that there's a significant difference between how the independent variables influence people that have had prior experience with shopping online and those that have never shopped online. The analysis, however, did not show any differences among the defined demographic groups (age, monthly family income and gender).

RESEARCH PREPOSITION AND ANSWERS

The research question of this study was “What are the factors that influences a user’s intention to shop online in DRC?”. Although the list of factors that influence online shopping in developing countries is extensive, this research has adapted an extended version of the Technology Acceptance Model (TAM) to analyze online shopping intention in DRC. The analysis chapter shows that Perceived ease of use (PEOU) had no significant influence in Democratic Republic of Congo (DRC) customer’s intention to shop online, ($p=0.15$). This suggests that ease of use is not imperative to predicting a user’s intention to shop online. This result corresponds with previous research (Liat et al., 2014; Mandilasa, Karasavogloua, & M., 2013; Rahman, Hasan, & Floyd, 2013) where it was found that online users are influenced by usefulness but not ease of use . (Ayo et al., 2011) explains that the insignificance of PEOU may be because the country is still in its early adoption stages of e-commerce therefore it may be more difficult to predict perceived ease of use. This result, however, could signify that to the user, there are more pressing issues that influence their intention to shop online than that of PEOU. This result however, analogizes with the findings of (Hassan & Al-Ahsari, 2010; Hsieh, 2011; Ramayah & Ignatius, 2005) that suggest that PEOU influences intention to shop online.

H2, shows that there is a strong significant relationship ($p\text{-value}=0.007$) between perceived usefulness (PU) and Intention to shop online. This finding is in line with (Lee, Park, & Ahn, 2001). Regarding H3, it also shows that there is a significant relationship between perceived trust and a user’s intention to shop online ($p\text{ value} = 0.004$). A notable mention is that 96% of the population surveyed are internet users. Therefore, this sample is largely classified with several internet users. Which as described by (Helen), 2010; B. D. Gefen et al., 2003; Yu

et al., 2005) could greatly influence a user's PT in relationship to intention to shop online as they are familiar with the dynamics of the internet.

MODERATING FACTORS

By using moderating factors in our analysis, the aim was to check for variations in the relationship between the factors that influence online shopping and intention to shop online in regards to their experience with online shopping. H4 shows a significant difference between people that have shopped online and those that have never shopped online. This is consistent with (Gefen, Karahanna, & Straub, 2003) findings, which explains that customers with more experience, perceived e-commerce to be more useful, easier to use, and trustworthy and therefore were more inclined to make a purchase than customers with no experience shopping online.

As for interactions with Demographic Characteristics, (Age(H5), Income (H6), Gender(H7)), the models showed that there is no apparent significance between them ($p=0.8$), ($p= 0.38$), and ($p=0.58$) respectively. This result is inconsistent with previous research, which suggest that Demographic characteristics have been known to explain consumer's intention to shop online in developing countries (Raymond & Raymond, 2015; Touray et al, 2015). This result has put this research in line with researchers that postulate that Demographics have no effect in a customer's perception of online shopping and their intention to shop online. An explanation for this insignificance can be gotten from the study of (Chen, 1985) where it suggests that men and women generally share the same interest in computers provided they are of the same educational level and by looking at educational distribution in Table 4, we see that both

men and women in the sample seem to be equally educated. The findings from this hypothesis further supplements (Kazadi,2013), which suggests that gender has no significance in ICT adoption in DRC.

PRACTICAL IMPLICATIONS

The findings of this study suggest important practical implication for managerial decisions in terms of marketing and platform development. Firstly, to increase a user's intention to shop online in Democratic republic of Congo(DRC), Trust and Usefulness of the platform need to be emphasized.

When developers are developing e-commerce platforms in DRC, they should bear in mind to use designs and functionalities that encourage and highlight the usefulness of the system. An example being developing e-how guides to assist customers who are new to online shopping(Aldhmour & Sarayrah, 2016). Customers should also be educated on the many advantages of online shopping through marketing. (Baraghani, 2007) suggests that a "Push Strategy" be adopted to access potential adopters. The Push Strategy involves rigorous advertising through not only digital channels (such as web pages) but also offline channels such as "word of mouth" (referral programs), leaflets and brochures. Emphasis should be placed on expressions such as "time saving", "convenience", "Portable", "Easily accessible".

In terms of trust, stakeholders need to ensure that trust is built between online stores and customer in both technical (e.g. providing secure infrastructure through policies and technologies) and non-technical (e.g. Brand Building) terms. The online platform needs to be

built up to par with standard secure websites, to ensure the user's identity safety when shopping online and making online transactions (Anggraeni & Lay, 2015; Werker, 2017) . Furthermore, since the internet is an open playground, Business Executives need to ensure that their prices are competitive with other online retailers and offline retailers to reassure the users that they are getting reliable deals by shopping online(Lawrence & Tar, 2010).

Business Executives can also emulate the steps some other developing countries with striving e-commerce adoption rates have taken to enhance potential customer's trust. An important feature of the solutions most of these other developing countries have used to curb the issue of lack of trust in online shopping, is by borrowing some traditional shopping processes that customers are already familiar with and applying them to online shopping. An example is that of Nigeria's Pay on delivery(POD) payment method (Chiejina & Olamide, 2014) which borrows the face-to-face money exchange process of traditional shopping.

The POD payment method allows users to successfully place an order online without having to pay for the order until the item has been received at their doorstep (see Figure 3.). When order is received, they examine it and ensure that it is in good shape then payment can be made. This method has also been proven to be one of the factors that have fueled users trust of online shopping in India. (Vijay Pawar, 2014).

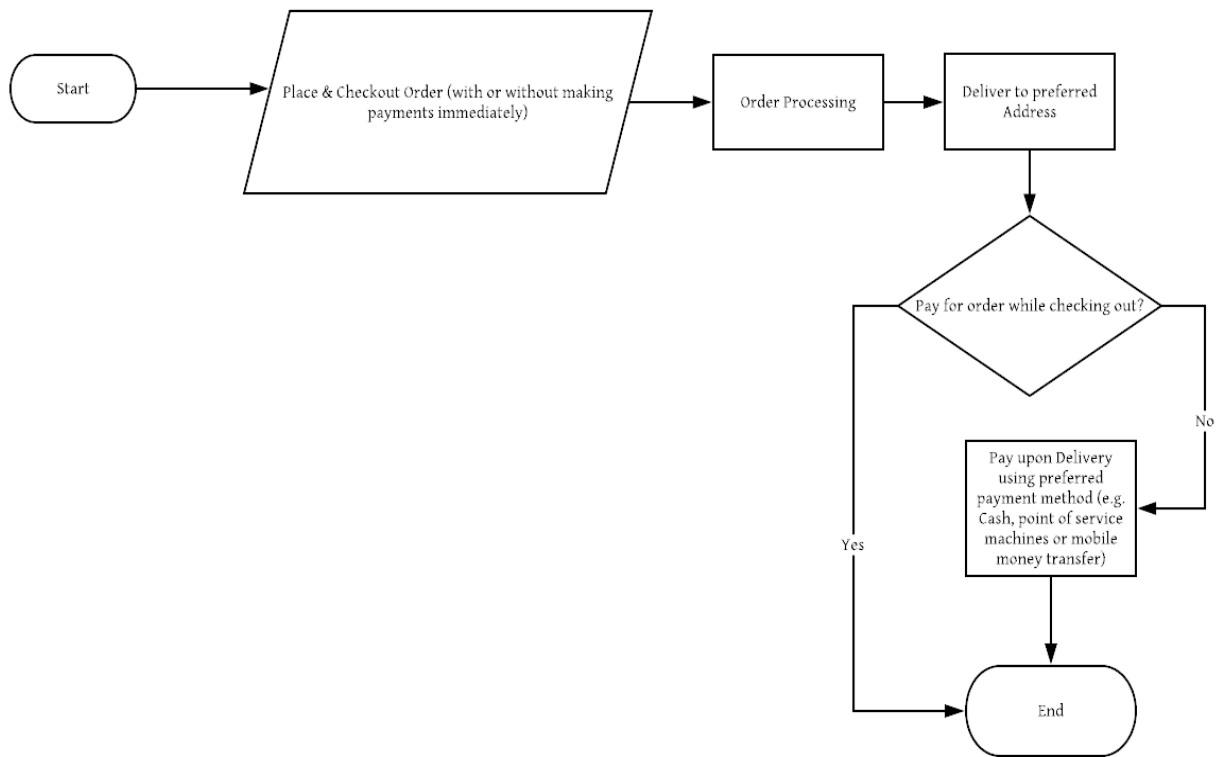


FIGURE 3: PAY ON DELIVERY PROCESS

A similar method used in curbing trust, is that which is used by Taobao, a Customer to Customer(C2C) e-commerce platform (similar to eBay) which is owned by China’s e-commerce giant, Alibaba. Taobao uses Alipay which is a trusted third party payment service also owned by Alibaba. In this process, the buyer makes payment through AliPay then the seller is notified that payment has been made. Seller then sends order to buyer. When buyer confirms receipt and satisfaction with the order, AliPay releases the payment to the seller (Cheung & Yang, 2016). (See Figure.4)

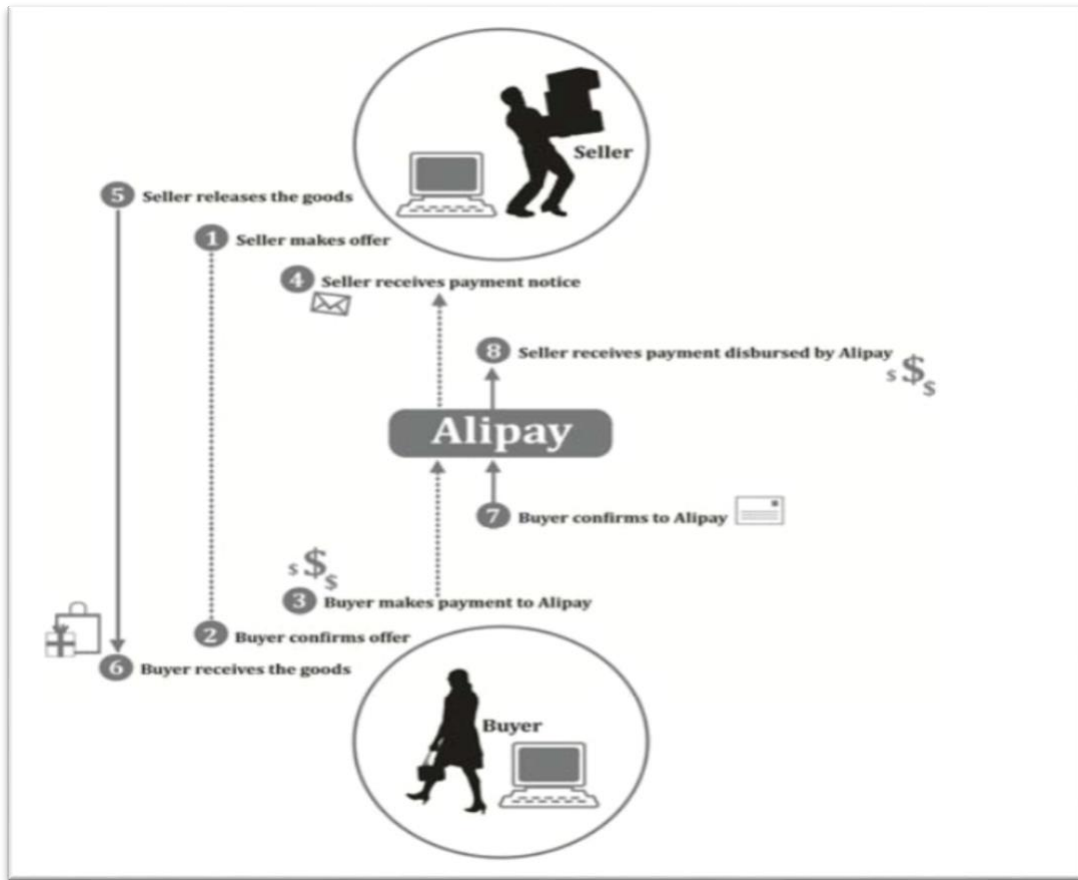


FIGURE 4: TAobao's ALIPAY PAYMENT PROCEDURE

Reprinted from "The E-commerce Revolution-Ensuring trust and consumer rights in China

By M.Cheung and C.Yang, 2016. Retrieved from <http://ieeexplore.ieee.org/document/7539867/> Copyright 2016 by IEEEExplore

Finally, although there have been little to no empirical research to test the viability of this method, e-retailers in some other developing countries like China, have tried to help the adoption potential and new online shoppers by making available e-commerce locally. That is, adapting a similar model to UK's Argos digital stores. In this case, local offline digital stations are situated in different areas (mostly rural areas) and local ambassadors are employed with the jobs of promoting e-commerce in their communities and assisting community members in placing orders online (GlobalTimes, 2015). This approach introduces a trusted middle party

and helps online retailers attack popular barriers e-commerce especially that of usefulness and trust. In the case of DRC, since mobile money transfer presently involves a third party, the person at the kiosk facilitating these mobile money transfers can as well be the local ambassador running the digital store.

LIMITATION

Every research comes with its own limitations and this one happens to have a few. The most significant one being the deficit of literature on e-commerce in Democratic Republic of Congo(DRC). Therefore, this made it very difficult for us to pinpoint a starting point for the research.

Other than a scarcity in the literature, another problem encountered was the inability of the principal investigator to travel to DRC to monitor the data collection process. This was due to some political instability in DRC at the period when this study was conducted. To get the data for the research, the help of students from the University of Kinshasa had to be employed. Also, time was limited for the data collection process as we had just 3 weeks to collect the data.

Consequentially, due to the time limitation, we were only able to gather a sample size of (n=70). Also, since this research only made use of a single data collection method, there are concerns about generalization of the results from this study. However, given that this is one of the first research of its kind in the context of Democratic Republic of Congo(DRC), we intend to conduct further studies with a larger sample size and we also invite other researchers to conduct further studies with larger sample sizes of not only samples drawn from Kinshasa (as was done in this research) but also, samples from more cities in DRC.

Additionally, asking users about their intention to shop online does not exactly provide any information on their actual shopping behaviors. (Davis, 1989) explains that perception is very difficult to assess; “this subject assessment could inevitably lead to biases because people cannot be absolutely rational”. Nevertheless, perception could be used in making inferences on how intentions to shop online could be translated into actual shopping behavior(Blaise, 2016).

RECOMMENDATIONS FOR FURTHER RESEARCH

This research has provided a lot of directions for further research endeavors on e-commerce adoption in DRC. As this was a user focused research, we did not empirically investigate the infrastructure conditions in DRC which is a very important factor in e-commerce adoption. Although, from our survey, we found out that 96% of the sample use mobile devices to access the internet, it is still not enough to determine if the country has adequate infrastructure to facilitate the adoption of online shopping. According to (Budhiraja & Sachdeva, n.d.; Naidoo & Klopper, 2005), some of the factors that have been known to influence facilitating conditions of e-commerce in countries include: Network Access, Networked Policy, Networked Economy, Networked society, and Network Learning. Therefore, this is an important area for further research.

Additionally, to get a better understanding of factors that influence e-commerce in DRC, it is suggested that a mixed method research approach be used in conducting the study. This can start by conducting qualitative focus group interviews where the researcher can get a better understanding of the issues that affect e-commerce adoption in DRC and then a

conceptual model for e-commerce in DRC can then be developed and tested. This would allow for a more generalizable result in understanding online shopping adoption in DRC.

Finally, as a suggestion, the perception constructs of perceived ease of use and perceived usefulness and perceived trust should be investigated further by considering the type of products that are intended to be purchased or by the channels by which the shopping is facilitated (m-commerce versus e-commerce). Also, the moderating construct “experience” can be further analyzed individually with these perception constructs in order to estimate which of these factors varies the most in terms of experienced shoppers versus non-experienced shoppers. Therefore, giving better insights on how best to attract new shoppers. In addition to this, other adoption models can be tested in DRC in order to find out more variables that could potentially affect e-commerce adoption in DRC.

CONCLUSION

This thesis has been carried out in several phases from laying the background of the research, understanding of existing literature, the methodology use in conducting the research, instrument development and validation, data collection, analysis and interpretation.

The Analysis showed that Perceived Usefulness(PU) and Perceived Trust (PT) have a high correlation with a user’s intention to shop online and it showed that these factors vary depending on whether or not the person has had prior experience with shopping online. Although this research has provided very valuable insights on user’s intention to shop online in DRC, it is no doubt that there were several limitations in this study which have been listed in the limitations section and with that stated, we call on researchers to conduct further empirical research on DRC so as to get a better understanding of e-commerce adoption in the country.

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APPENDICES

APPENDIX A: ETHICS APPROVAL

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Université d'Ottawa **University of Ottawa**
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Ethics Approval Notice

Health Sciences and Science REB

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Type of Project: Master's Thesis

Title: Technology Adoption in Africa: A Case Study of eCommerce Adoption in Democratic Republic of Congo (DRC)

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Special Conditions / Comments:
N/A

APPENDIX B: QUESTIONNAIRE, ENGLISH

1) Do you have access to the internet?

Yes	No
-----	----

2) How Often do you access the internet?

- a) Everyday
- b) More than once a day
- c) Once a week
- d) Once a month
- e) I never use the internet

3) What do you access the internet for? _____

- a) Shopping
- b) Social Networking (Facebook, instagram, twitter etc)
- c) News/Blogs
- c) File Sharing (Emails)
- e) I never use the internet

4) With what device, do you use in accessing the internet? (Tick one or more than one)

- a) Mobile (Smartphone or tablet)
- b) Desktop

- c) Laptop
- d) Game Console or Smart TV
- e) I never use the internet

5. Have you ever shopped online?

Yes	No
-----	----

6. Kindly Tick the answer that best applies to you:

Online shopping is clear and understandable

Online shopping is easy to use

I am comfortable with making online payments (including mobile payments)

I do not have knowledge on how to shop over the internet

Online shopping (will) improve my shopping productivity

Online shopping (will) help me shop better

I understand the advantages of shopping online over traditional shopping

Online shopping would give me a better chance at knowing the correct price of a product before making a purchase

I can trust a company that is online

There is a high-risk shopping online

It will cost me more to shop online

I feel that making payment online (Including mobile payment) will be(is) secure

I will shop online (soon)

Profile

1. What is your Gender?

- a) Male ___
- b) Female ___
- c) I prefer not to say _____

2. Age: 18-24 25-35 36-45 46-55 56+

3. Highest Level of Education

- a) High School
- b) College
- c) Undergraduate
- d) Graduate
- e) None

4. Monthly Family Income (Congolese francs)

- a. Less than 499999

- b. 500000 to 999999
- c. 1000000 to 1499999
- d. 1500000 to 1499999
- e. 2000000 or more
- f. I prefer not to answer

5. Shopping Habits (please check the one that best applies to you)

- a) I usually shop in the local market
- b) I usually travel to large urban center/shopping malls for shopping
- c) I usually travel overseas for shopping
- d) I usually shop online
- e) I never buy anything

6. How often do you shop in general?

- a) More than once a month
- b) Once a month
- c) More than once every three months.
- d) Once every three months.
- e) Others, please indicate: _____

APPENDIX C: QUESTIONNAIRE, FRENCH

1) Avez-vous accès à Internet?

Qui	Non
-----	-----

2) Avec quelle fréquence accédez-vous à Internet?

- a) Tous les jours
- b) Plus d'une fois par jour
- c) Une fois par semaine
- d) Une fois par mois
- e) Je n'utilise jamais internet

3) Pour quoi avez-vous accès à Internet? _____

- a) Faire du shopping
- b) Réseaux sociaux (Facebook, Instagram, Twitter, etc.)
- c) Divertissement (Nouvelles, Blogs, pour écouter de la musique et regarder des vidéos sur Youtube etc)
- d) Partage de fichiers (e-mails)
- e) Je n'utilise jamais internet

4) Quel appareil, utilisez-vous pour accéder à Internet? (Cochez une ou plusieurs unités)

a) Mobile (Smartphone ou tablette)

b) Bureau

c) Ordinateur portable

d) Console de jeu ou Smart TV

e) Je n'utilise jamais internet

5) Avez-vous déjà acheté en ligne?

Qui	Non
-----	-----

6. Veuillez cocher la réponse qui vous convient le mieux:

Les achats en ligne sont clairs et compréhensibles

Le magasinage en ligne est facile à utiliser

Je suis à l'aise avec faire des paiements en ligne (y compris les paiements mobiles)

Je ne sais pas comment faire des achats sur Internet

Le magasinage en ligne améliorera ma productivité

L'achat en ligne (va) m'aider à mieux magasiner

Je comprends les avantages du magasinage en ligne par rapport aux achats traditionnels

Les achats en ligne me donneront une meilleure chance de connaître le prix correct d'un produit avant de faire un achat

Je peux faire confiance à une entreprise en ligne

Il y a un magasinage à haut risque en ligne

Ça me coûtera plus cher de faire des achats en ligne

Je pense que le paiement en ligne (y compris le paiement mobile) sera (est) sécurisé

Je vais faire des achats en ligne (bientôt)

Profil

1. Quel est votre sexe?

a) Homme ____

b) Femme ____

c) Je préfère ne pas dire _____

2. Âge: 18-24 ans 25-35 36-45 46-55 56+

3. Plus haut niveau d'éducation

- a) Lycée
- b) Collège
- c) Premier cycle
- d) Diplômé
- e) Aucun

4. Revenu mensuel de la famille (francs congolais)

- a) Moins de 1000
- b) 1000-10 000
- c) 10 000 à 20 000
- d) 20 000 - 30 000
- e) 30 000 ou plus

5. Habitudes d'achat (veuillez cocher ce qui vous convient le mieux)

- a) Je fais habituellement mes achats sur le marché local
- b) Je me rends habituellement dans un grand centre urbain ou dans des centres commerciaux
- c) Je voyage habituellement à l'étranger pour faire du shopping
- d) J'achète habituellement en ligne
- e) Je n'achète jamais rien

6. Avec quelle fréquence faites-vous vos achats en général?

a) Plus d'une fois par mois

b) Une fois par mois

c) Plus d'une fois tous les trois mois.

d) Une fois tous les trois mois.

e) Autres, veuillez indiquer: _____

APPENDIX D: STATISTICAL ANALYSIS TABLES

	Estimate	Std. Error	z value	Pr (> z)
(Intercept)	-8.0805	3.2004	-2.525	0.01157*
Perceived Usefulness	-0.3381	0.2354	-1.436	0.15096
Perceived Ease of Use	0.4414	0.1642	2.688	0.00719**
Perceived Trust	0.5546	0.1905	2.911	0.00360**

TABLE 11: REGRESSION ANALYSIS H1/H2/H3

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Exponential Coefficient

(Intercept)	Perceived Ease Of Use	Perceived Usefulness	Perceived Trust
0.0003095214	0.7131341979	1.5549215308	1.7413076529

TABLE 12:REGRESSION ANALYSIS H4

Residual Df	Residual Deviation	Df Deviance	Pr(>Chi)
66	58.726		
62	39.613 4	19.113	0.0007469 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Coefficients:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-9.883066	6.759474	-1.462	0.1437
Perceived Ease of Use	-0.391579	0.382708	-1.023	0.3062
Perceived Usefulness	1.067788	0.464202	2.300	0.0214*
Perceived Trust	-0.004713	0.319138	-0.015	0.9882
Ever Shopped Online Yes	1.684549	9.153018	0.184	0.8540

Perceived Ease of Use: Ever Shopped Online Yes	0.437697	0.585819	0.747	0.4550
Perceived Usefulness: Ever Shopped Online Yes	-1.496546	0.643371	-2.326	0.0200*
Perceived Trust: Ever Shopped Online Yes	1.372793	0.709494	1.935	0.0530 .

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Exp(Coefficients)

(Intercept)	(Perceived Ease of Use)	Perceived Usefulness	Perceived Trust	Ever Shopped Online Yes	Perceived Ease of Use: Ever Shopped Online Yes	Perceived Usefulness: Ever Shopped Online Yes	Perceived Trust: Ever Shopped Online Yes
5.103156e-05	6.759890e-01	2.908939e+00	9.952978e-01	5.390020e+00	1.549135e+00	5.390020e+00	3.946358e+00

TABLE 13: CHI SQUARE TEST H5

X-squared = 1.6734, Df = 4, p-value = 0.7955

Monthly. Family. Income	INTENTION	
	NO	YES
0 - 499999	9	10
1000000 - 1499999	4	9
1500000 - 1999999	3	8
2000000 or more	7	13
500000 - 999999	3	4

TABLE 14: ANOVA H6

Analysis of Deviance Table

Gender

	Resid. Df	Dev	Df	Deviance	Pr(>Chi)
1	65	55.893	-	-	-
2	61	51.691	4	4.2011	0.3795

TABLE 15: CHI SQUARE TEST H7

X-squared = 9.1468, Df = 4, p-value = 0.05753

18-24	25-35	36-45	46-55	56+
15	24	11	14	6

AGE	INTENTIONS	
	NO	YES
18-24	3	12
25-35	6	18
36-45	7	4
46-55	6	8
56+	4	2