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The Integration of Web 2.0 Technologies in the Banking Communication system: An Investigation of Stakeholders' Perspectives on the Nature of Online Banking and Factors Influencing its Adoption

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DEDICATIONS

This doctoral research effort is dedicated

To my dear mother, FATIMA KERROUMI, for her unconditional love and
measureless support. I hope I have made you proud.

To my sisters HIND, SANAE, and SHAHRAZAD who never stop
believing in me.

To my beloved husband, FARID AMID, for his encouragement and support

To my wonderful children SARA and AYOUB the source of my strength
and inspiration

To my lovely nieces AYA and CAMELIA the dearest to my heart

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ABSTRACT

Web 2.0 technologies have enabled banks to remove the constraints of time and place, cut down costs, and enhance reach. However, despite the bank great efforts, some Moroccan customers are skeptical to adopt these technologies to communicate with their banks. The objective of this research is to investigate the perceptions and the implications of Web 2.0 technologies as effective communicative channels in the Moroccan banking sector as well as analyze the factors affecting bank customers' decision to adopt Internet banking (online banking) in Morocco, including the security aspect, usefulness, ease of use, and attitude. To achieve the research objective, a mixed-methods approach to data collection and analysis is employed to triangulate the data which is collected using a survey and semi-structured interviews. To analyze data collected both descriptive and inferential statistics are adopted using Statistical Package for Social Sciences (SPSS) and the Statistical Package Moment of Structure (AMOS). We developed a conceptual model based on the Technology Acceptance Model (TAM) with an added construct Perceived Risk (PR). The model was empirically tested and was further analyzed using Structural Equation Modeling (SEM). The analysis results indicated that the model has a good fit in the context of Internet banking adoption. The study empirically conclude that individual intention to adopt Internet banking is positively influenced by Perceived Usefulness, Perceived Ease of Use and Attitude; whereas, Perceived Risk shows an insignificant effect on attitude and adoption behavior. The results also reveal that Moroccan banking customers have a positive perception of Web 2.0 technologies and that these tools are the key to business communication excellence. The findings contribute to the literature of user acceptance of Information Technologies in a developing country, i.e. Morocco. Besides, the outcome provides useful information for bank management to develop sound strategies, improve their services, create solid digital relationship with their stakeholders, and increase the take-up of Internet banking services.

مقتضب

خلال العقد الماضي، ازدادت شعبية تقنيات الويب 2.0 وتوافرها وقوتها حول العالم. وغيرت حياتنا الاجتماعية والاقتصادية. القطاع المصرفي المغربي ليس بمعزل عن هذه التغييرات التي أحدثها الويب 2.0. حيث مكنت هذه الأدوات البنوك من إزالة قيود الزمان والمكان، وخفض التكلفة، وتعزيز الوصول إلى الزبناء. وعلى الرغم من الجهود الكبيرة التي يبذلها البنك، إلا أن العديد من العملاء المغاربة مترددون في اعتماد هذه التقنيات للتواصل مع بنوكهم. ونتيجة لذلك، أمست الحاجة ملحة إلى إجراء بحث للتحقيق في تصورات وآثار تقنيات الويب 2.0 كقنوات اتصال فعالة في القطاع المصرفي المغربي وكذلك تحليل العوامل التي تؤثر على قرار عملاء البنوك لاعتماد الخدمات المصرفية عبر الإنترنت في المغرب، بما في ذلك الجانب الأمني، نظرة العملاء، الفائدة، وسهولة الاستخدام. ولتحقيق هدف البحث، تم استخدام نهج الأساليب المختلطة لجمع البيانات وتحليلها لتثليث البيانات التي تم جمعها من خلال مسح ومقابلات شبه منظمة. والهدف الأساسي لتقنية التثليث هو الحصول على فهم دقيق للمسألة قيد البحث من وجهات نظر مختلفة.

تم تطوير نموذج مفاهيمي يعتمد على نموذج قبول التكنولوجيا (TAM) مع بناء إضافي للمخاطر المحسوسة (PR) كما تم اختبار هذا النموذج تجريبيا وتحليله بشكل أكبر باستخدام نموذج المعادلة الهيكلية (SEM).

وقد أشارت نتائج التحليل إلى أن النموذج مناسب بشكل جيد في سياق تبني الخدمات المصرفية عبر الإنترنت. وخلصت الدراسة إلى أن النية الفردية لاعتماد الخدمات المصرفية عبر الإنترنت تتأثر بشكل إيجابي بالفائدة المدركة، وسهولة الاستخدام ومواقف الزبناء؛ في حين تبنت أن المخاطر لها تأثير منخفض على السلوك وسلوك التبني. وكشفت النتائج أيضا أن عملاء البنوك المغاربة لديهم تصور إيجابي لتقنيات الويب 2.0 وأن هذه الأدوات تشكل مفتاح التميز في اتصالات الأعمال. وتساهم هذه النتائج في ترسيخ أدبيات قبول المستخدم لتقنيات المعلومات في دولة نامية كالمغرب. إلى جانب ذلك، توفر النتيجة معلومات مفيدة لإدارة البنك لتطوير استراتيجيات سليمة، وتحسين خدماتهم، وخلق علاقة رقمية قوية بين العميل والبنك.

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List of Abbreviations

AGFI	Adjusted Goodness of Fit
AMOS	Analysis of Moment Structure
ATM	Automatic Teller Machine
ATT	Attitude
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
DTPB	Decomposed Theory of Planned Behavior
EFA	Exploratory Factor Analysis
FL	Factor Loading
GFI	Goodness of Fit Index
IB	Internet banking
ICT	Information and Communication Technology
IDT	Innovation Diffusion Theory
IMF	International Monetary Fund
INT	Intention
IT	Information Technology
KMO	Kaiser-Meyer-Olkin Measure of Sampling Adequacy
MIS	Management Information System
MENA	Middle East and North Africa
NFI	Normed Fit Index
PEOU	Perceived Ease of Use
PR	Perceived Risk
PU	Perceived Usefulness
RMSEA	Root Mean Square Error of Approximation
RSS	Really Simple Syndication
SEM	Structural Equation Modeling
SME /SMI	Small and Medium Enterprises / Industries
SNS	Social Network Sites
SPSS	Structural Package for the social Sciences
TAM	Technology Acceptance Model
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology
WOM	Word- of -Mouth
WWW	World Wide Web

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Introduction

1. Research Background and Research Problem

Communication has tremendously evolved during the last decade and technology is, by far, the biggest factor. It has moved from the traditional methods of communication to digital communication. Communication is no more what it used to be. There have been many changes in information technology that something new seems to develop every single day. As a result, communication has become faster, easier, transparent, and more effective. All fields are now subject to the accelerated pace of change imposed by information and communication technology.

The emergence of new modes of communication and interaction has created new opportunities for sharing, exchanging, and maximizing information. Communities are today considered “digital natives”, “Net-generation”, and “Generation Media Multitasking” as they have grown up with digital technology and use these technologies in their everyday routines (Prensky, 2001). After the appearance of the Internet to the general public, it has undergone profound changes that were theorized under the name of Web 2.0, where Internet users have become active participants and no longer mere passive users of Internet content (O’Reilly, 2005). This means that Web 2.0 is surely and progressively shifting towards new paradigms, new business models, and new modes of relations between companies, groups of individuals, and learning institutions.

Web 2.0 technologies have deeply reshaped communication management. The development in technology and communication has gone hand-in-hand, and the emergence of Web 2.0 has resulted in the advancement of wireless communications to an unprecedented level. This shift to digital communication has changed the way people expect to find, share, and discuss information, and has opened whole new models for engagement and participation (O’Reilly, 2005).

Before the implementation of Web 2.0 channels, mass communication issues were dealt with through traditional avenues of communication with the general public. Advertising on television, in newspapers, magazines, on billboards, through fliers, and other promotional tactics were considered the norm. However, in the present age of digital communication, the time has been compressed by reducing the distance between different points in space, this has led people to feel that local, national, and global space become obsolete (Harvey, 1990); the world has become a “global village” (McLuhan, 1962). That is to say, the audience that was limited before is now endless as the control of message production and dissemination is shared by all users.

Now more than ever, modern businesses employ a host of Web 2.0 technologies to spread their messages among clients and to different segments of the market. They are also very active on social network sites to get immediate feedback from their customers, to gain competitive advantages, and to be able to connect with their stakeholders in real-time. Web 2.0 technologies have significantly opened up new possibilities for better communication that has become more dynamic and instant.

These fundamental changes were the result of the integration of Web 2.0 technologies within public and private organizations. Institutions and companies from different sectors need to be informed and equipped. The challenges related to these changes are huge. With the advent of Web 2.0, the pallets of services have expanded enormously: e-mail, instant messaging, search engines, telephony, teleconferencing, Website hosting, Blogs, forums, community sites, and Social Network Sites.

The Internet has significantly affected the process implemented by banks. It has changed from mortar-and-brick branches to cash dispensers, ATMs, phone banking, e-banking, online banking, electronic funds transfer, and mobile banking (Lee & Chung, 2009). Nowadays, customers can connect to banking services easily and quickly (Gu et al., 2009). Banking customers can get access to their accounts and general information on bank products and services through the use of the bank web site, pay bills, transfer money, make online purchases, pay taxes, and make investments without the intervention or convenience of sending letters, faxes, original signature and telephone confirmation (Thulani et al., 2009) and also without visiting the mortar-

and-brick branches. These technologies are already integrated into the customer social and business daily life and a great number of people are transmitting information to each other, as a result, these social channels have become part of vast disseminating and marketing platforms for any company that wants to improve its brand image, reach new potential clients and more importantly, promote products and services with no restrictions (Bakshy et al., 2012; Chen et al., 2009; Proença et al., 2010).

The Moroccan banking institutions are no exception to these changes. The Moroccan market structure has evolved tremendously to meet the changing environment that it has undergone some important IT changes. Morocco's banking sector is already the most highly developed in North Africa in terms of penetration indicators and among the most advanced in the wider MENA region. Consequently, they were forced to implement Web 2.0 tools in their marketing strategies so that they could gain competitive advantage, create awareness, expand their market share, improve customer satisfaction, and most importantly, enhance engagement with existing and potential customers. Moreover, banks have found that Web 2.0 social channels offer unprecedented access to people. They are employed as a novel and effective medium that facilitates direct engagement with their intended audience. In other words, they are great channels to diffuse financial information, to connect with their current and potential clients and build strong customer relationships. Twitter enhances the identity features of the banks' Twitter presence. YouTube facilitates social interaction (Susarla et al., 2012), and strengthen the bond with customers (Kapoulad and Mitic, 2012). RSS feeds are used to disseminate research and other content to their customers, last but not least, Facebook and LinkedIn are employed as business management tools to stay connected and transmit valuable updates and information to customers. Thus, Web 2.0 channels provide banks with the potential to build sound personal relationships by enabling fast and direct access to those customers who suffer from physical disabilities or time constraints to visit the branch thanks to the boundless availability of banking services through Internet/Mobile banking.

Despite the great benefits that Internet banking offers in terms of convenience and accessibility, some research has revealed that online banking is not fully embraced by

all customers for some reason. Therefore, there was a need to further investigate Moroccan banking customers' perception of Web 2.0 technologies and the factors that influence them to use these technologies while communicating with their banks and conducting their financial transactions.

The acceptance and use of information technologies is a subject that has received attention from researchers and practitioners in the field of computer science, information science and information systems, as they work from the perspective that a well-developed system will be used since the assumption of that good software solutions can bring competitive advantages to companies and/or individuals (Bueno, Zwicker and Oliveira, 2004; Saleh, 2004). According to Davis (1989), to further predict, explain, and modernize Information System (IS), there is a need to understand the reasons why users accept or reject them.

A survey of the existing literature in the area of Information Technologies (IT) and Internet banking (IB) reveals that there is a plethora of research that has been conducted to study and understand the customers' perception of Web 2.0 technologies and the determinants that influence the adoption and usage of new technologies, particularly online banking. These studies were conducted to help banks better formulate their banking strategies, disseminate information effectively, market their products at low cost, and increase Internet banking usage (Poon, 2007). However, according to literature, few studies were conducted in the Moroccan context. In other words, the literature on the main factors that influence IB adoption in Morocco is insufficient. Consequently, there is a dire need to investigate and provide deep insights into the concept of Web 2.0 and the factors that influence the Moroccan banking customer to adopt these technologies in banking communication.

Several theoretical models were developed and applied to study how customers perceive and adopt new Information Technologies (IT) in different countries and within different organizations. These models were based on different theories namely, Technology Acceptance Model (TAM- Davis, 1989), Theory of Planned Behavior (TPB- Ajzan, 1991), Theory of Reasoned Action (TRA- Fishbein and Ajzen, 1975), a Unified Theory of Acceptance and Use of Technology (UTAUT-Venkatesh et al.,

2003), Innovation Diffusion Theory (IDT- Moore and Benbasat 1996) and many others. Among the various theories proposed, the Technology Acceptance Model Theory (TAM) (Davis, 1989; Davis et al., 1989; Mathieson, 1991; Davis & Venkatesh, 1996; Yousafzai et al., 2007) is considered one of the most widely used by researchers to describe the acceptance of a particular technology by individuals, studying the influence of human factors in the adoption of new technologies. Moreover, the choice to adopt TAM was derived by its strong theoretical base as it has already been tested with different samples and in different situations, proving to be valid and reliable.

In addition to the Technology Acceptance Model Theory (TAM), the model developed includes perceived risk theory (PR). Customers usually perceive risks in conducting transactions over the internet, and particularly transactions that involve money. It is generally considered that perceived risk could be a determinant for Internet banking services adoption. People shun using these technologies because they feel that their financial and confidential information are not secured which means that consumers are more likely to use Internet banking services when they perceive no risk to their bank accounts and other confidential information (Sathye, 1999; Salisbury et al., 2001; Chen & Chang, 2005; Cheng et al., 2006). Moreover, the security of services and the safety of customer's sensitive data are important considerations in gaining customer trust to use Internet banking services.

Therefore, this research attempts to address a research model based on the Technology Acceptance Model (TAM) (Davis, 1989; Mathieson, 1991; Davis and Venkatesh, 1996) by adding Perceived Risk (PR) variables (Sathye, 1999; Featherman and Pavlou, 2003; Littler and Melanthiou, 2006; Cheng et al., 2006) to get a better understanding and to explain Moroccan banking customers' intention to use Internet banking. The model empirically explores and integrates the various advantages of online banking as well as the resistance factors influencing online banking adoption behavior in Morocco. To achieve the desired objective, Structural Equation Modeling Analysis (SEM) to data is conducted to reveal the strength and direction of the relationships among theoretical constructs. SEM allows conducting and combining a

vast variety of statistical procedures like multiple regressions, factor analysis, and many others, with the objective to find the relationship between measured variables and latent variables.

2. Rationale and Significance of the Study

Web 2.0 tools have become an integral part of our daily life; consequently, a lot of financial organizations have adopted Web 2.0 applications in their marketing strategies and in their internal and external communication to meet the customer expectations and requirements. The implementation of these in the banking system has transformed how communication is achieved across the globe. Today banks are aware of the importance of delivering secure and seamless cross-channel customer communication to improve and strengthen the customer experience and at the same time increase retention rates.

Communicating and conducting banking services through Web 2.0 technologies have changed people's lives all over the world. These technologies offer many advantages for users in terms of time-saving and the accuracy of information flow. Customers use online banking services to pay their bills, check their bank accounts, transfer money, download bank statement, order checkbooks and apply for loans (Yang, 2009). As a solid communicative channel to market their services and products, financial institutions have been able to overcome geographical barriers and time constraints by availing various products and services at lower costs anytime and anywhere.

Research has revealed that Internet banking is widely adopted in developed countries like the US, UK, and European countries with more than 80% of the population using internet banking (Ajimon, 2018), but it is still at its early stages in developing economies such as the case of Morocco. Only 37% of the Moroccan population has access to banking services (KANTAR TNS, 2018) and many of them are skeptical to adopt online banking. Therefore, understanding Moroccan banking customers' perception towards Web 2.0 technologies and the factors that influence the Moroccan customer adoption of Internet banking is both relevant, and timely.

A lot of academic research has been conducted by various researchers in different countries to figure out the determinants of Internet banking adoption. The majority of the studies concluded that the integration of these technologies faces special challenges in the financial sector mostly related to privacy and security issues (Pavlou, 2001; Featherman and Pavlou, 2003). As a result, there was a need to increase our understanding of the factors influencing internet banking acceptance among Moroccan banking customers in the light of the Technology Acceptance Model (TAM) (Davis et al., 1989; Mathieson, 1991; Davis and Venkatesh, 1996) and Perceived Risk Theory (PR) (Pavlou, 2001; Featherman and Pavlou 2003; Littler and Melanthiou, 2006; Cheng et al., 2006). Technology Acceptance Model (TAM) is adopted in the current research since it is considered as the most powerful and widely used model to predict individual acceptance of new technology. The TAM enables the explanation of user behavior across a wide scope of end-user information technologies (Davis, 1989). Besides, it has been applied in different contexts to investigate a wide range of information technologies (IT). Technology Acceptance Model (TAM) assumes that the usage of a system is directly influenced by behavioral intention to use it. Behavioral intention is influenced by the attitude towards using the system. Two particular constructs of consumer perception; perceived usefulness (PU) and perceived ease of use (PEOU), influence the attitude and behavioral intention of the adopter. Perceived Risk, on the other hand, is higher in online banking compared to traditional banking which includes face-to-face transactions. Drawing from perceived risk theory (PR), the model includes three facets – financial risk, performance risk, and security risk. Banking customers are afraid of phishing and information leakage which could happen because of unknowingly sharing sensitive files over Social Network Sites or transmitting email messages (Featherman and Pavlou 2003; Littler and Melanthiou, 2006; Cheng et al., 2006).

Now more than ever, Moroccan traditional banks are enforced to respond to the new changes in their clients' behavior thanks to the emergence of new technologies (smartphones, PC, Tablets, etc.) and also Web 2.0 channels. Mobile devices have become the main devices to access to the Internet. There are 76% of smartphone holders in Morocco. Besides, a lot of Moroccans (74.2%) are now better connected,

more autonomous, and consequently, have raised their requirement standards (ANRT, 2019).

This study investigates the Moroccan banking customer perception of Web 2.0 technologies and the impact these technologies have on the Moroccan banking communication. It starts by covering the concept of Web 2.0 and analyzing some of its applications such as Blogs, Wikis, Automated Information Feeds (RSS), and Social Network Sites (SNSs) that have reached a mass market and have revealed to be highly useful for information dissemination and effective communication. Afterward, the study provides a general overview of the historical evolution of the Moroccan banking institutions. Furthermore, it surveys the four most influential banks in Morocco namely: BCP Bank, Attijariwafa Bank, BMCE Bank, and CIH Bank. Subsequently, it explores the Web 2.0 phenomenon in the Moroccan banking context. Finally, it gives a granular description of different theories developed to understand and determine the factors influencing the adoption of new information technologies.

The findings of this study will contribute to the literature by formulating and validating the developed model based on the extended Technology Acceptance Model Theory (TAM) and Perceive Risk Theory (PR) and to confirm its strength in predicting customers' intention to use Internet banking (IB) in Morocco. Furthermore, the results broaden the understanding of decision-makers to implement successful distribution and marketing strategies, to enhance Internet banking adoption, to improve their methods for designing, evaluating as well as predicting their customers' responses. They will provide them with a better knowledge about the perception of Moroccan banking customers towards Web 2.0 technologies and their usage in banking communication. In addition to this, future researchers and scholars may use these study findings as a source for further research on the same area. Moreover, this study suggests some implications for policymakers, for government regulatory institutions, telecommunication companies, and mobile application developers, providing insights into online banking services as well as the factors that inhibit and/or motivate Moroccan banking customers to adopt these services.

3. The Objective of the Study, Hypotheses and Research Questions

We are now living in a world where Information and Communication Technologies are predominant in almost all sectors. Customers' expectations have changed with the technological advancements in Internet and communication and the global innovation of information technology has reshaped the financial industry. The explosion of wireless communication, with increasing capacity of connectivity and bandwidth in successive generations of mobile phones, has revolutionized communication worldwide (Castells et al., 2006b; Katz, 2008). These breakthroughs have made a significant impact on the flow of information in banking organizations, reconstructing their "analogue nature into digital" (Tumbas et al., 2011) through Web 2.0 technologies such as Blogs, Wikis, RSS feeds, Multimedia sharing and Social Network sites.

Web 2.0 technologies provide enormous benefits to banks and customers in terms of communication accuracy and cost effectiveness. This study aims to critically advance our understanding of the concept of Web 2.0 technologies in the banking industry as well as investigating the perceptions of Moroccan banking customers on the integration and use of Web 2.0 as a communicative medium with their banks. Moreover, because Internet banking has become one of the most profitable e-commerce applications over the last decade, there was a need to empirically validate the Technology Acceptance Model (TAM) and an added construct Perceived Risk (PR) for understanding and predicting the key factors that influence the intention to adopt Internet banking in the Moroccan context.

Therefore, the primary interest of this research is to investigate in depth the role of different Web 2.0 tools in achieving relevant communication between retail banks and their customers in Morocco. The second objective is to enrich the knowledge and understand the various factors influencing Internet banking services adoption in Morocco. A theoretical model is proposed to explain Moroccan customers' intention to use Internet banking with a focus on users' perceptions of ease of use, usefulness, and attitude towards Internet banking, as well as the perceived risk of using this new

technology to meet their banking needs. The objective of exploring this issue in the Moroccan context is to contribute to the knowledge about retail banking communication services and permit banks to better formulate their marketing strategies to increase Internet banking adoption in the future and consequently, expand their market share.

The main research objectives are:

- 1- To explore and understand the Moroccan customers' perceptions towards the implementation of Web 2.0 technologies in the Moroccan banking communication.
- 2- To identify how Web 2.0 technology can lead to effective communication.
- 3- To measure the impact of the Web 2.0 tools on banking- customer communication.
- 4- To identify the factors which motivate and/or hamper Internet banking adoption.

In this context, the present study addresses the following overarching research questions:

1. To what extent are Moroccan banking customers aware of and familiar with Web 2.0 technologies?
2. What good are Web 2.0 technologies to banking institutions?
3. To what extent does Web 2.0 technology adoption lead to effective communication, and which Web 2.0 technologies do Moroccan customers use the most?
4. What problems might Web 2.0 technologies solve?
5. What is the impact of Web 2.0 technology on bank communication?
6. What are the factors that influence Moroccan banking customers to get involved in Web 2.0 technologies as a medium to communicate with their banks?
7. What are the key motivators and inhibitors for consumers' acceptance of Internet banking?

Based on the above objectives, the following research hypotheses are formulated:

H1: - Customer's perception of Web 2.0 is influenced by the demographic characteristics of the users.

H2: - Web 2.0 sphere offers an effective communication arena for retail banking in Morocco.

H3: - Moroccan banking customers use Web 2.0 technologies as a social interaction network but not as a financial channel.

Hypotheses formulated with regards to the factors influencing Moroccan banking customers to adopt Internet banking:

▪ **Hypotheses based on Technology Acceptance Model Theory(TAM)**

H4a: Perceived Usefulness positively influences the Intention to use online banking.

H4b: Perceived Usefulness positively influences Attitude towards the use of online banking.

H5a: Perceived Ease of Use positively influences Attitudes towards the use of online banking.

H5b: Perceived Ease of Use positively influences the Perceived Usefulness of online banking.

H6: Attitude positively influences the intention to use online banking.

▪ **Hypotheses based on Perceived Risk Theory (PR)**

H7a: Perceived risk negatively influences the perceived usefulness of using online banking.

H7b: Perceived risk negatively influences Attitude towards the use of online banking.

H7c: Perceived risk negatively influences Intention to use of online banking

4. Research Methodology

The present study draws on both the positivist and the interpretivist approach to research. The research area is concerned with Web 2.0 tools as communicative channels in the Moroccan banking communication. This study makes use of the quantitative approach in the sense that the data collection and analysis are in a numerical format as well as qualitative since the study would result in a more open and detailed description of the data collected and would also provide the opportunity to deeply explore the issues under analysis and gain knowledge from experts in the field of Internet Banking and Web 2.0 technologies implementation in the banking communication. Therefore, this research study is built on the mixed methods approach, which is the combination of two different methods so as to provide a better understanding of the research problem and to achieve research objectives. The use of the mixed methods aims to achieve triangulation which enables to bridge the knowledge gap, assure the validity of the research, and help to increase the credibility of the results.

In order to collect Moroccan banking customer's information, a total of 200 questionnaires were administered randomly, plus 109 participants responded to the same questionnaire delivered through the Internet. However, 29 questionnaires that were not filled in properly and completely were taken out. Hence, the actual sample used for the current study is 280 respondents. The questionnaire consists of questions that are related to the respondents' demographic background, their perception towards Web 2.0 channels, and the factors that influence Internet banking services (see **Appendix. A**). The scale related to Internet banking factors has been adapted from previous Technology Acceptance Model (TAM) and Perceived Risk theory (PR) related research (Davis et al., 1989; Mathieson, 1991; Davis and Venkatesh, 1996; Featherman and Pavlou 2003; Littler and Melanthiou, 2006; Cheng et al., 2006). The probability simple random sampling strategy was used to create a sample that is accurately representative of the real life population of interest. Concerning the qualitative research, it consists of face-to-face semi-structured interviews that were addressed to four banking executive managers belonging to the most important

Moroccan bank institutions in terms of penetration, namely Attijariwafa bank, BCP bank, BMCE bank and CIH bank.

For the quantitative data analysis (survey), the statistical package for social sciences (SPSS) V. 20, and the Statistical Package Analysis Moment of Structures (AMOS V. 24) analysis are adopted in data analysis to measure the user's intention to adopt Internet banking services (Bagozzi et al., 1991). Structural Equation Modeling (SEM) approach is also adopted to analyze the structural relation between measure variables and latent variables through a vast variety of statistical procedures such as factor analysis, multiple regression, exploratory factor analysis, confirmatory factor analysis, path diagram, etc. The reliability of the model is verified and supported the validity of the model used for evaluating Internet banking acceptance; besides, both descriptive and inferential statistics were used to test the hypothesis and to answer the research questions and objectives. As far as the qualitative data analysis is concerned, a framework was developed to label data as well as patterns and connections are identified to answer research questions. Key answers are summarized and only those passages that are perceived to be related to key research issues are selected.

5. The Organization of the Thesis

This thesis comprises four chapters. The first chapter deals with the review of the literature. It aims to provide insights on Web 2.0 technologies, a general overview of the Moroccan banking system as well as the historical evolution of the Moroccan banking sector. It also discusses the theoretical models used in information systems and Internet banking in particular. This chapter provides a review of the literature on previous studies on Technology Acceptance Model (TAM) and Perceived Risk (PR) theory as this model is adopted in this research study.

Chapter two describes the methodology used in this study. It is devoted to the methodology to be adopted to achieve the research objectives of this dissertation. It includes some theoretical issues related to the research design and methods, data procedure and data analysis instrument. It also provides the appropriate statistical

analysis methods for data analysis. The measurement model is examined in order to assess internal consistency, indicator reliability, convergent validity and discriminant validity. Further, the structural model is tested; all are achieved to analyze structural relationship between measured variables and latent variables and find out the factors that influence Moroccan banking users' intention to adopt Internet Banking.

Chapter three is concerned with data analysis and interpretation. This chapter presents the findings of the qualitative and quantitative data. It also provides the results of testing hypothesis. Chapter four is devoted to the discussion, and interpretation of the results. This chapter presents the theoretical contributions and suggests some major implications for future research.

Chapter One:

Web 2.0 Technologies and Internet Banking Adoption: A Theoretical Review

Chapter one: Literature Review

The world today is experiencing an unprecedented emergence of new technologies in different areas, especially in the financial sector. These advances have reshaped how messages are disseminated. So in order to remain competitive, banks and financial institutions must develop and adapt their business strategies and models to fit the new wave of changes on the internet- the emerging Web 2.0 phenomenon. The web 2.0 technologies have had a significant impact on banking communication and the way services are delivered. For customers, these technologies offer better and fast access to many bank facilities 24 hours a day 7 days a week, while for banks, they significantly reduce waiting time and errors, cut down their costs, and ultimately improve customers' satisfaction. Bank customers are now able to access their accounts and also perform simple transactions via the Internet through their computers or laptops at home or at work at their convenience.

The following chapter presents a review of the relevant theoretical framework and the theories in the literature pertaining to the interests of this research. The first section addresses a review of Web 2.0 technology, its characteristics and implications in the context of financial services industry. The second section provides an overview of the evolution of the Moroccan banking system through history. Besides, it reviews the background of the three largest banks in Morocco. In addition, the third section covers the concept of Internet banking. It also reviews technology acceptance theories that have been conducted in the field of information systems, and the adoption of Online/ Internet banking. Furthermore, this section provides an overview of the existing literature and models that are related to Technology Acceptance Model (TAM), perceived risk theory (PR) and Internet banking (IB). Finally, the last section forms the conclusion of this chapter.

1.1. Web 2.0 Applications, Services, and Characteristics

Web 2.0 publicized in 2003 by Dale Dougherty from O'Reilly Media is considered as the second generation of the web. He suggested that the Web was in a period of rebirth or mutation, with a paradigm shift and evolution of business models. Nonetheless, the concept of Web 2.0 lacks a consensus on its definition. Constantinides and Fountain (2007) state that although the term Web 2.0 has been around for many years and has been open to many different interpretations, it still lacks a clear and articulate definition, while Mrkwicka et al., (2009) point out that Web 2.0 is an enabling *platform* that allows user *participation*, maximal *collective intelligence* and dynamic information sharing and creation. The Web 2.0 technologies offer the opportunity to assemble and manage a wide range of crowds all over the world with common interests in social interaction (Choudhury, 2014). In this respect, Musser and O'Reilly (2006) define the Web 2.0 on their website as follows:

Web 2.0 is the business revolution in the computer industry caused by the move to the Internet as platform, and an attempt to understand the rules for success on that new platform. Chief among those rules is this: build applications that harness network effects to get better the more people use them (para.3).

This clearly shows that Web 2.0 is first and foremost thought from the properties of the Internet and that the great number of users is one of the conditions of success of the applications. In other words, Web 2.0 holds important characteristics that gather “relationship” technologies, “participatory” media and a “social digital” technology. Web 2.0 is characterized by amazing features such as creative reuse, updates, collaborative content creation, and modification.

Sir Tim Berners-Lee, the father of the World Wide Web, questions whether one can use the term in a meaningful way, since many of the technology components of Web 2.0 have existed since the early days. It is just a new “a piece of jargon” (Berners-Lee and Fischetti, 1999; Faber, 2006). He saw no solid technological foundation for using such a term (Laningham, 2006) and thereby created parallel discussion against the

efficacy of its use. However, Web 2.0 is viewed to be the second generation of WWW, which compared to Web 1.0, focuses on active participation, collaboration, sharing ideas and knowledge. In this respect, it creates what Dybwad (2005) calls “...collaborative remixability - a transformative process in which the information and media we have organized and shared can be recombined and built on to create new forms, concepts, ideas, mashups and services” (Retrieved from personalization to globalization and back again, para.1). In other words, the information that once was received passively is now constantly reshaped, modeled and shared between all users. In the same line of argument, O’Reilly argues that Web 2.0 applications are more than a simple piece of jargon. According to him:

Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually- updated service that gets better the more people use it, consuming and remixing data from multiple sources, including users, while providing their own data and services in a form that allows remixing by others, creating network effects through an ‘architecture of participation’ on going beyond the page metaphor of web 1.0 to deliver rich user experiences (2005:13).

Web 2.0 offers a wide range of services where the user actively participates in the creation, production, and generation of content. It is about the “socialization of information” through Blogs, YouTube, LinkedIn, Facebook, and many others. Web 2.0 offers a better experience for the user than Web 1.0.

Moreover, Web 2.0 describes the evolution of the web into the ‘read-write’ web. Madden and Fox state that:

Web 2.0 has enjoyed such a constant morphing of meaning and interpretation is, in many ways, the clearest sign of its usefulness. This is the nature of the conceptual beast in the digital age, and one of the most telling examples of what Web 2.0 applications do: they replace the authoritative heft of traditional institutions with the surging wisdom of crowds (2006:2).

In this respect, O'Reilly (2005) states that “the central principle behind the success of the giants born in the Web 1.0 era which have survived to lead to the Web 2.0 era appears to be this, that they have embraced the power of the web to harness collective intelligence”(p.2). However, collective intelligence in Web 2.0 tools is questioned by Turban et al. (2008) due to the fact that content generated by users is not always accurate. According to these authors “although Web 2.0 harness the wisdom of a large percentage of users, it may harness the stupidity and ignorance of many others” (p.808).

Web 1.0		Web 2.0
DoubleClick	-	Google AdSense
Ofoto	-	Flickr
Akamai	-	BitTorrent
mp3.com	-	Napster
Britannica Online	-	Wikipedia
personal websites	-	blogging
evite	-	upcoming.org and EVDB
domain name speculation	-	search engine optimization
page views	-	cost per click
screen scraping	-	web services
publishing	-	participation
content management systems	-	wikis
directories (taxonomy)	-	tagging ("folksonomy")
stickiness	-	syndication

Figure 1-1 Explaining the difference between Web 1.0 and Web 2.0 (O'Reilly, 2005)

In this respect, **Figure 1-1** shows the difference between Web 1.0 and Web 2.0. Both Web 1.0 and Web 2.0 are about connecting people, but according to Barsky and Purdon “Web 1.0 was all about commerce” and “Web 2.0 is almost all about people” (2006: 65). Web 2.0 technologies utilize “collective intelligence, providing network-enabled interactive services giving users control over their own data” (Madden & Fox, 2006). In other words, the main difference between Web 1.0 and Web 2.0 is that the latter fosters collaboration and greater participation in content (Mclean, Richards & Wardman, 2007). In this sense, Nielsen (2007) considers four essential characteristics of Web 2.0. as rich internet applications: community features, social networks, and user-generated content, mashups, and advertising as the core of the business model. Whilst these are important aspects of the web experience, he sees them as secondary issues with the risk that central usability issues could be neglected. Moreover, Mclean, Richards, and Wardman (2007) state that Web 2.0 key elements include: Really

Simple Syndication (RSS) to instantly disseminate information. Blogs describe new trends, Wikis to share knowledge, and podcasts to make information available “on the move”. Consequently, Web 2.0 enables and facilitates the active participation of each user. They allow publishing and storing of information by individuals or a group of people in the form of texts, pictures, audio recordings, or videos.

Over the years, two defining elements of the Web 2.0 have emerged. The first is that Web 2.0 is a *platform*, with applications and files stored on the Web rather than on a user’s desktop; in this arrangement, the software is a service rather than a product. The second defining element of Web 2.0 is *participation*; the Web is now the participatory Web, the social Web, the read-write Web (Darwish, 2011). On that account, Web 2.0 technologies can refer to the portfolio of tools that allow users to collaborate, share information, and network with other users, a group of users and communities (Schneckenberg, 2009). Further, Web 2.0 technologies also include Social Networking Sites, Podcasts, Blogs, instant messaging, video conferencing, and collaborative discussion forums (Barnes et al., 2012). These applications can improve knowledge management and internal communication within an organization (Ajjan et al., 2012). However, according to Ajjan et al., (2012), the mere adoption of Web 2.0 technologies does not guarantee success; they rather need to be integrated and used for some time to achieve positive outcomes within an organization. Hence, the acceptance of these technologies is imperative for a successful integration within the organization’s strategy since they have become a prerequisite for today’s competitive environment and mandatory tools to keep in touch with existing customers and attract potential ones.

Academics and professionals suggest that the concept of Web 2.0 is not based solely on the evolution of technology but also on a socio-organizational logic. That is true in the sense that it gathers all users all over the world and from different cultural, social, ethnic, and political backgrounds to interact and respond on a huge number of issues such as discussing the reliability and authenticity of a product or service. Furthermore, the growth in prominence of social media and Web 2.0 technologies has had a dramatic impact on how people communicate (Thomas and Thomas, 2012). It

corresponds in theory to the extension of the paradigm network in Information Systems (IS) with a real migration from centralized systems to decentralized or distributed systems (Akoka, 1999). Thus, today's business communication environments are becoming increasingly decentralized, sophisticated, and immediate so as to achieve accurate and efficient dissemination of information. The emergence of Web 2.0 with its Wikis, Blogs, and Social Networking Sites is making communication a multimodal and collaborative experience. Over the last decade, the Internet provides easy access to up-to-date news and current events. It was made for everyone no matter what her/his interests are. For that reason, the majority of businesses have created their Web Pages in which products and services are displayed and through which customers can get all the information needed.

Social media platforms such as Facebook, MySpace, Twitter, LinkedIn, Google+ and Renren (a Chinese social network service similar to Facebook) have the potential to become important ingenious technologies for building cutting-edge models of management information system (MIS) (Christensen, 1997; Mutula, 2013). They have proved to be a remarkably convenient, cheap, and affordable avenue for bringing people together to share data, knowledge, and the generation of instant feedback. Today users are eager to get knowledge as well as being able to edit and contribute to it. Web 2.0 interactive platforms have completely changed the way users gather information. Business researchers such as Cooke and Buckley (2008) view Web 2.0 as a beneficial social computing tool because it allows the development of user's communities.

Countries all over the world are increasingly using Web 2.0 technologies to deal with a plethora of issues. Web 2.0 has become one of the widely used means for providing and sharing information. More recently, a major change has occurred in the way Web technology is being used, especially in financial institutions. It has become a tool for communicating, obtaining, and creating information. Thomas and Thomas (2012) argue that the beauty of new social and digital technologies is their immediacy, reach, and flexibility. Furthermore, Tyagi (2012) points out that besides technology, Web 2.0 challenges intellectual property and transforms consumers into active users creating

and recreating knowledge. The use of Web 2.0 tools (Wikis, Blogs, RSS feed, Social Networks, Podcasts, etc.) can support innovative marketing methods and create powerful images and a sense of credibility, confidence, assurance, and loyalty toward an organization (Bakshy et al., 2012). Many years ago, companies were able to control the information available in the market about them through strategically placed press announcements and good public relations managers. Today, however, firms have been more and more consigned to the sidelines as mere observers, having neither the knowledge nor the control to modify publically posted comments written by the consumer (Kaplan & Haenlein, 2010).

Furthermore, the Internet has helped to connect millions of computers and millions of users around the world (Tatnall et al., 2003). It has revolutionized the concept of information and its use, access, and management. Before, finding information was a tedious and complex process (Hicks and Graber, 2010). Today, not only do individuals and computers produce thousands of gigabytes of information in a minute, but this information is also networked collectively, which further increase the amount of information produced (Wesch, 2008). Hence, a large amount of information can be accessed in a glimpse by anyone anywhere through a variety of devices.

Certainly, we are living in a “cloud of ubiquitous digital information” in which information is no more presented but mostly created through participation and discussion (Wesch, 2008). Web 2.0 allows users to participate in this cloud, through five main characteristics: collaboration, creativity, conversation, community, and control (Hicks & Graber, 2010). People do not only consume content through downloading data but also contribute and produce new content by uploading. Users own the content that they create, access, and share with not only their family members, friends, colleagues, and acquaintances, but also with anyone else and this is because of the openness and devolution of the web. Moreover, it allows businesses to have a view of the customers’ attitudes and feelings towards their brands and, consequently, make any necessary adjustments to improve and ameliorate the product and/or the service if the clients are not satisfied with it. Thanks to the Web 2.0 multiplicity of tools that set the ground for creativity and socialization, they have not

only contributed to a boundary-crossing between all users but also have given rise to new ways for information organization, and knowledge generation.

In the same line of arguments, O'Reilly (2005) proposed a meme map to simplify the understanding of Web 2.0 (see **Figure. 1-2**). The meme map demonstrates the concept of Web 2.0 and its various aspects. The center of the map denotes the principles of Web 2.0. The green oval shapes represent the different tools of Web 2.0, and the pink oval shapes reveal the characteristics and the use of this technology.

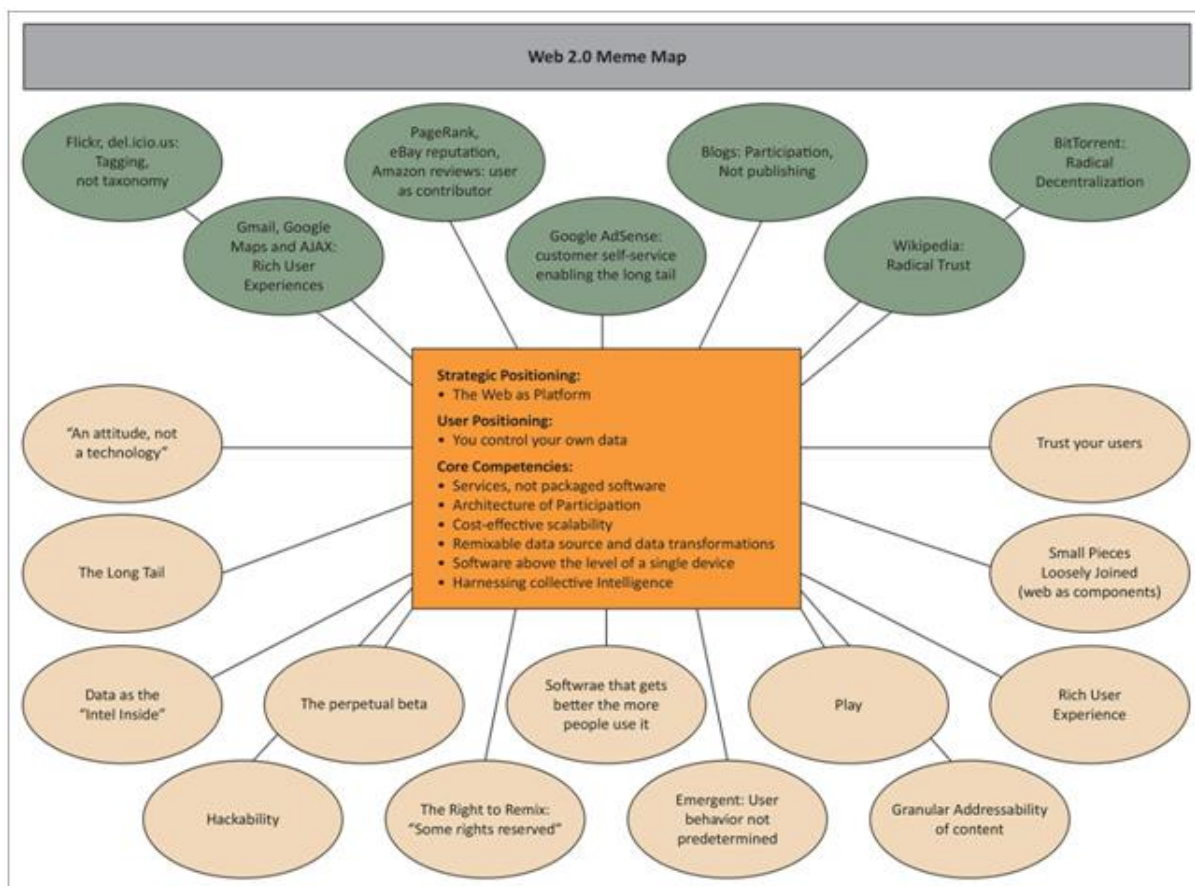


Figure 1-2. The Web 2.0 meme map. (O'Reilly 2005)

Source: O'Reilly, T., (2005). *What is Web 2.0?* Design patterns and business models for the next generation software. O'Reilly Media, Sebastopol, viewed 20 September 2017, from http://mpira.uni-muenchen.de/4578/1/MPRA_paper_4578.pdf

In the same vein, Web 2.0 technologies allow sharing, linking, collaborating, and inclusion of user-generated content. So users, rather than receiving data through static Web pages, are engaged collectively in a conversation that leads to the generation of

online content-collective intelligence. That is to say, every user knows something and what is known can be immediately shared or distributed through Web 2.0 social media applications. Moreover, these tools provide users with the technology to both produce and distribute information, collaborative writing (wikis), content sharing (text, video, and images), social networking (e.g., Facebook), social bookmarking (ratings, tagging), and syndication (RSS feeds) (Dawson, 2007; O'Reilly, 2005; Smart, 2006). Web 2.0 technologies help users develop a set of abilities that are directly associated with the 21st century communication skills.

Managers in organizations have started to integrate Web 2.0 technologies for improving communication within and outside their enterprises. They have taken advantage of their accessibility, ease of use, rich user experience, and potential in achieving various objectives. More than that, “many of the Web 2.0 technologies have been designed and promoted as social tools which are conducive to interaction, communication, and collaboration” (Gunawardena et al., 2009:4). The emancipatory and transformative potential of Web 2.0 in enterprises has helped to enhance the quality of communication and overcome time and distance barriers related to the dissemination of information with different components of the organizational system. As a result, the world is increasingly moving towards digital media and the role of Web 2.0 in businesses has become tremendous and vital. It has transformed the way how information is disseminated and how communication is achieved.

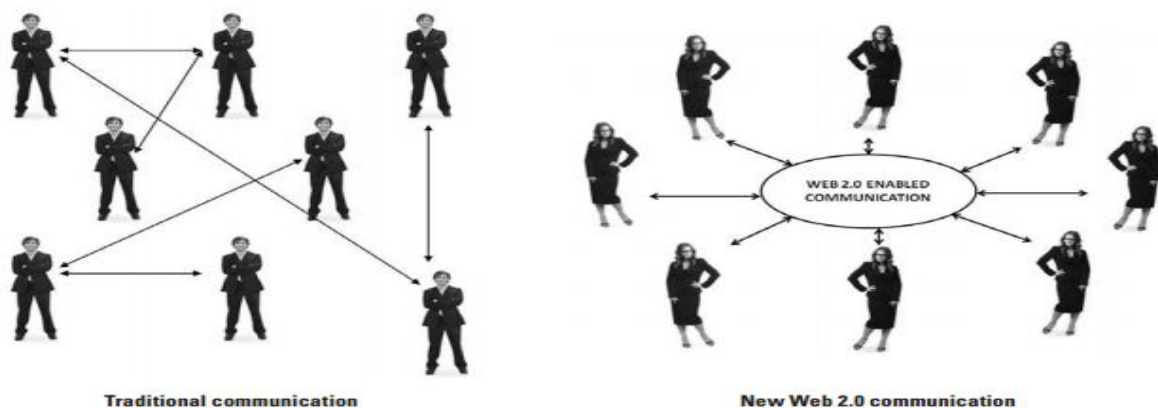


Figure 1-3. The impact of technological change on customer networks by Edwin Van Raalte (2009). Banking on Web 2.0 and Beyond: When Will We Meet the True Virtual Banker? *The Journal of Finance Services Technology*, 3(1), p.13).

Figure.1-3 above reveals that Web 2.0 word of mouth, which is powered by online Blogs, Social Networks, e-mails, online review sites, and customer-generated media, results in immediate communication and a global scope with interconnection with customers. This technological change provides a significant opportunity to influence consumers' behavior and engage them with the brand objectives and offers a better understanding of the clients' needs and expectations (Van Raalte, 2009).

Moreover, Web 2.0 contains masses of information on financial services and/or products. In this connection, Evans (2010), in his book *Social Media Marketing*, reveals that the "Social Web exposes the good, the bad, and the ugly, simultaneously raising up what works and putting down what doesn't without regard for the interests of any specific party"(p.1). Customers share their opinions on a wide array of services on Web 2.0 platforms (Facebook, Twitter, etc.). They write whether the recommended service meets the customer's expectations or not. The problem is that most of the time the outspoken customers are not the most qualified ones. Their views are very often bias or completely wrong and as a result, they cause substantial damage to these organizations; ruining their reputation. Unfortunately, a lot of customers trust word-of-mouth; they rely on first-hand experiences of their relatives, friends, or acquaintances rather than on professional advice. Customers are using these channels to share their personal experiences of customer service and purchasing processes.

In any case, Web 2.0 allows users to build and sustain social connections through various Internet applications and channels thanks to its characteristics. In this respect, Kim et al. (2009) present the key characteristics of Web 2.0 as collaboration, participation, social networking, rich user experience, interactivity, and semantics. They overview these characteristics as follows:

- ***The concept of the web as a platform:*** Web 2.0 is a "participation platform" and an "information source" for users of the Web (Musser and O'Reilly, 2006). Web 2.0 designates virtual place made up of digital services where the user is the center and the borders are unlimited. It allows socialization, articulation, combination, and internalization of knowledge. The platform represents another alternative to traditional two-way communication channels.

- ***Active participation and user initiative*** is a significant feature of Web 2.0. It enables users to share and create content as a result of the development of numerous technological tools to exploit the potential for content creation. (Kim et al., 2009; Darwish, 2011)
- ***Collective intelligence and content as core*** refers to the attempt to reach a higher level of agreement in the decision making by exploiting the intelligence emerging from a group (Bughin, 2007). It is the capacity of a group of users to generate results greater than one individual's ability. It is the process through which individual knowledge becomes collective and tacit knowledge becomes explicit (O'Reilly, 2005; Kim et al., 2009).
- ***Simplicity***: Web 2.0 technologies are attributed to being user-friendly and easy to use thanks to their simple interfaces that are customizable applications offering an unlimited number of features and value users suggestions (Constantinides and Fountain, 2007).
- ***Rich user experience***: Web 2.0 does not only fulfill users' needs and respond to their expectations but also produces positive user experience that is both easy and entertaining. Web 2.0 applications are more pervasive, dynamic, and interactive (O'Reilly, 2005; Constantinides and Fountain, 2007; Kim et al., 2009).

Thanks to these features, companies embracing social technologies are delivering better solutions and creating a consistent relationship with their suppliers and stakeholders who represent the new force and the new source of the company's future innovation. Hence, the norms for traditional methods of marketing and communication channels have undergone radical changes. Businesses are no longer limiting their sources for learning about new products and services through advertising and promotional information. They have extended their marketing strategies to Web 2.0 technologies/social Web, where consumers not only reveal and share their experiences with the brands' products and services but also benefit from others' experiences feedback. In short, they are influencing and are influenced. In addition to this, due to the widespread of information, the main core of the business

has been transformed during the digital. The Web 2.0 social technologies have reshaped the fundamental principles that characterize the relationship between the business and its customers (B2C), between other businesses (B2B), and between customers themselves.

The following section provides an overview of the most popular Web 2.0 applications that are commonly used and adopted. It presents some of the notable category types of Web 2.0 technologies mainly blogs, Wikis, RSS, and SNSs.

1.1.1. Types of Web 2.0 Technologies

Web 2.0 tools such as social networking sites have become a mainstream activity for internet users of all ages and from different cultural and social backgrounds all over the world. According to Darwish “Web 2.0 tools have exploded in number, creativity, and features”(2011:205).These tools have made interaction on the web possible, collaboration easier, and the creation of web content possible (Darwish, 2011). **Figure 1-4**below provides different Web 2.0 technologies such as Social Networking Sites, Wikis, Podcasts, YouTube, and RSS.

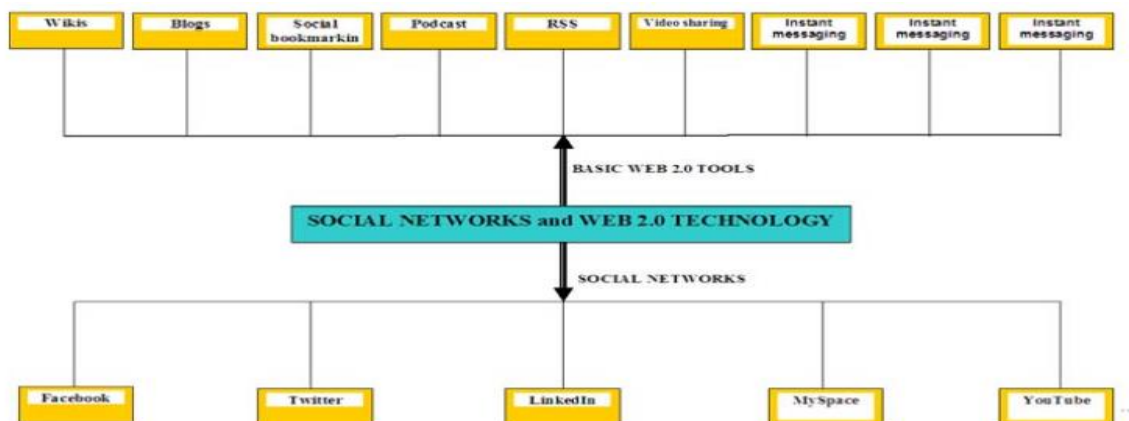


Figure 1-4. SNs and Web 2.0 Tools (Darwish, 2011, p.205)

This sub-section presents the most popular Web 2.0 applications as it is essential to know and understand what these tools are, what they can perform, and why they are viewed as essential elements for providing and sharing information.

1.1.1.1 Blogs

The term “Weblog” was first coined by John Barger in 1997 (Wortham, 2007), then it was broken into “wee” and “blog” by Merholz in 1999 (Merholz, 2002). Baker and Moore define weblogs or blogs as “...personal web pages, usually frequently modified, in which posts information about himself or herself or about topics of interest” (Baker & Moore, 2008, p.81). Baggetun and Wasson regard blogs as journals “a weblog is a web page that serves as a publically accessible personal or group journal for an individual or a group” (2006:454). The same authors elaborate on the idea that blogs can also be regarded as a “knowledge management system where knowledge elements are annotated and augmented by the readers” (p.455). On the other hand, Williams and Jacobs consider blogs as “a form of micro-publishing, easy to use, ... The “Killer app” that has the capacity to engage people in collaborative activity and knowledge sharing((2004:232). Unlike traditional Hypertext Markup Language (HTML) Web pages, Blogs offer the ability for a non-programmer to publish content, communicate, and interact regularly. Baoill (2004) reveals that “the essence of a blog can be defined by the format which includes small chunks of content referred to as posts, date-stamped, reverse chronological order, and content expanded to include links, text, and images” (p.3). Moreover, Lindahl and Blount (2003:114) define Weblog (blog) as:

a Web site that uses a dated log format to publish periodical information. The updates are frequent, usually daily, according to the site owner’s editorial purposes- or whims. Blogs contribute to Web content by linking and filtering evolving content in a structured way and by establishing interlinked communities— the blogosphere—connecting people through shared interests.

Because of this, interest in blogs and blogging has increased dramatically in recent years. They are easy to use, from any Internet connection point, blogging has become firmly established as a web-based communication tool (Baker & Moore, 2008; Hodkinson, 2007). They are notebooks, diaries on the web, where their authors express their feelings, state of mind, ideas in paragraphs called post and their readers are invited to comment on them. More than that, blogs are a kind of database where

information, photos, audio, or video recordings are stored and made available for others; hence, blog entries can take on the form of texts and/or multimedia.

The blogging phenomenon has evolved from its early origin as a medium for the publication of simple, online personal diaries, to “the latest disruptive technology the “killer app” that can engage people in collaborative activity, knowledge sharing, reflection and debate where complex and expensive technology failed” (Hiler, 2002 cited in Jacobs, 2004:233). Blogs enable users, with no technical skills, create, publish, and organize their web pages that contain dated content, entries, comments, discussion, etc. People can publish information which they collect from various resources and establish relations between them in blogs. These posts are organized chronologically and built-up gradually, the latest is the first on the list, while the earliest posts are available through a system of menus and links.

Since they are considered as web-based communication tools, blogs have emerged from early email lists and instant messaging communities to a means of informing a dedicated reader base about items of interest to the authors, news, and personal information. But the blog is more than that. It is also “a means of reaching a wider audience; an unknown mass of ‘netizens’, ready and willing to respond to the opinions and commentaries of bloggers” (Williams and Jacobs, 2004, p. 235).

Along with this, Tredinnick (2006) states that blogs are characterized by two interesting aspects;

Firstly, the greater ease of web publishing that they have introduced. The blog has been heralded as a fundamentally democratic medium allowing almost everyone with only a little technological savvy to participate in the discursive space of the Internet. The second is the collection of tools that have grown up around the blog to make the blogging process easier. In particular, tools to ‘blog’ web content – incorporate a summary of a particular webpage or article automatically into a blog including a hyperlink back to the point of origin – have been important to the way blogs have developed (p.230).

This means that Blogs are not only cheap and easy tools to publish content but also a way through which information is gathered, shared, and reused in a participatory manner and this is one of the most significant aspects of blogging culture.

Furthermore, a blog is a type of website or part of a website that is updated with new content (e.g., commentary, description of events, pictures, videos) by one or more individuals as needed, with entries typically displayed in reverse-chronologically order. At their optimum, blogs are interactive, allowing other people to respond to previous blog postings. It exposes the original blogger to a wide spectrum of bloggers within the “blogosphere” who can offer ideas or ask questions. Furthermore, bloggers can send messages to one another through graphical user interfaces (GUIs), making blogging an alternative type of social networking. Blogs might contain semiotic systems such as linguistics (e.g., text), visual (e.g., images, Webpages), audio (e.g., music, sound effects), and spatial (e.g., maps) (Onwuegbuzie and Frels, 2016).

According to Oravec (2002: 618) “blogs have also many dimensions that are adequate to the bloggers’ ‘unique voices’, empowering them, and developing their critical and analytical thinking”. The reason is that when they formulate an idea and stand by their opinions, they develop and sustain the feeling of self-confidence.

There are two basic blog styles; filters, and journals. The filter style is primarily comprised of links to other websites which relate to the blog. The journal style is a blog which is largely an on-line diary. Lindahl and Blount (2003) in the IEEE Computer Journal, describe the journalistic style of blogging as a “stream of consciousness” recalling James Joyce’s style of writing (Lindahl, 2003).

Moreover, linking is an important feature of blogging as it deepens the discussion and provides links to related topics. It facilitates the retrieval and referencing of information that is discussed in the blog (Anderson, 2007).

Another term used in blogging is blog-roll which refers to a list of blog links that a blogger may find relevant. This list is similar to the favorites or bookmarks in a web browser. Each blog can also be tagged by readers of the post. This tagging technique,

known as a Folksonomy is used in other Web applications such as Flickr and del.icio.us.

Revealing the tremendous potential of blogs, Eide and Eide (2005, para.3) in their blog *Brain of the Blogger*, label blogs as an “important and influential socio-cultural force”, listing the following most important positive characteristics:

- 1- Blogs can promote critical and analytical thinking. [...]
- 2- Blogging can be a powerful promoter of creative, intuitive, and associational thinking. [...]
- 3- Blogs promote analogical thinking. [..]
- 4- Blogging is a powerful medium for increasing access and exposure to quality information. [...]
- 5- Blogging combines the best of solitary reflection and social interaction. [...]

Blogs do not only give the bloggers an outlet to disseminate their ideas, attitudes and work in a very accessible way, but also enable instant feedback. This content is easy to share and comment. Besides, blogs allow businesses to build credibility and trust with minimal effort and expense, and foster relationship with potential and current customers by giving them a sense of the corporate standards, vision, and personality of the organization.

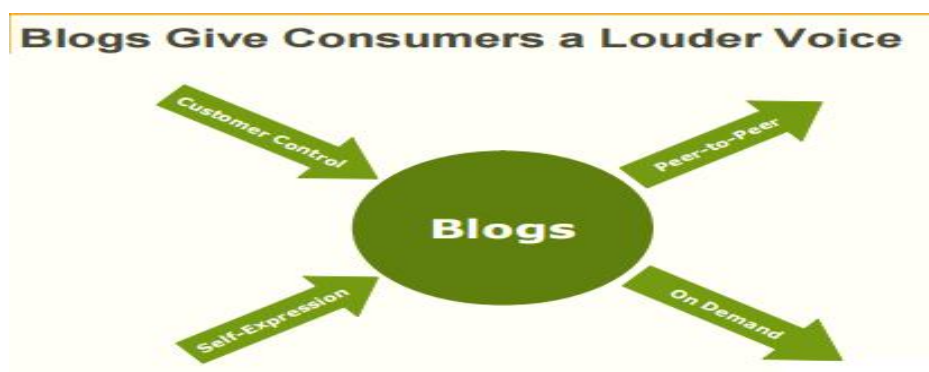


Figure 1-5. Blogs give consumers a louder voice

Figure 1-5.above reveals the power of the customers’ voice which is a process of collecting details and information from the customers about their needs, attitudes and expectations. As customers post countless reviews, opinions, and feedbacks about their personal experiences of customer service and purchasing processes, businesses use this information to assess their goals and future actions as well as updating and improving their products and/or services. Now they have a louder voice more than ever. Years ago, consumers spread the accounts of their experiences to a dozen of friends and family members mouth-to-mouth, today, however, customers’ experience is only limited by the number of friends or followers they have and also how many shares their posts achieve which is endless. That’s why it is primordial for businesses and financial institutions to be engaged digitaly and create a relationship with their current and potential clients for mutual benefit.



Figure 1-6.Blogs will change business (Baker & Green, 2005, May 2)
www.businessweek.com/go/08/blog.

The figure 1-6above was taken from a business journal where it clearly demonstrates the power of blogs in the sense that they are going to “shake up every business”, “catch up ..or catch you up”. In this regards, Baker and Green (2005) state in a direct and convincing way in the pages of *BusinessWeek* magazine: “You cannot afford to close your eyes to them, because they are simply the most explosive outbreak in the

information world since the Internet itself. And they are going to shake up just about every business”.

1.1.1.2 Wikis

Leuf and Cunningham (2001), creators of the original wiki concept, define wiki as “a freely expandable collection of interlinked Web pages, a hypertext system for storing and modifying information- a database where each page is easily edited by any user with a form-capable Web browser client” (p.14). A wiki is; therefore, a collection of Webpages that can be modified by anyone who has been given access to it. Some wikis are open to anyone with a web connection - others are tightly controlled by small project teams. Wikis enable groups to collaborate online where contributors can add and edit pages to the wiki and view changes made by other users and roll back to previous versions. It is a novel way of developing private and public knowledge bases, a net-based, hyper-textual and collective authoring tool. Hence, users can visit a wiki, read, add content, or update and organize content (text, image, video, link, etc.) or structure a wiki. The main strength of a wiki is that it gives people the ability to work collaboratively on the same document. Consequently, it develops collaboration and cooperation skills.

The most offspring is the online encyclopedia Wikipedia www.wikipedia.org. Wikipedia is, for the most part, editable by anyone in the world. It is, thus, more appropriate to offer Wikipedia’s definition: “A wiki is a page or collection of Web pages designed to enable anyone who accesses it to contribute or modify content. Wiki are often used to create collaborative websites and to power community websites”. Wikipedia, like many wiki type project, has readers, editors, administrators, professionals in the subject, software developers and system operators (Richle, 2006). They are meant to create open platforms where a huge number of users can share knowledge. Other examples of wiki sites are <http://www.twiki.org>, and <http://pbwiki.com>. **The Figure 1-7** below displays a Wiki Site: **Wikipedia**

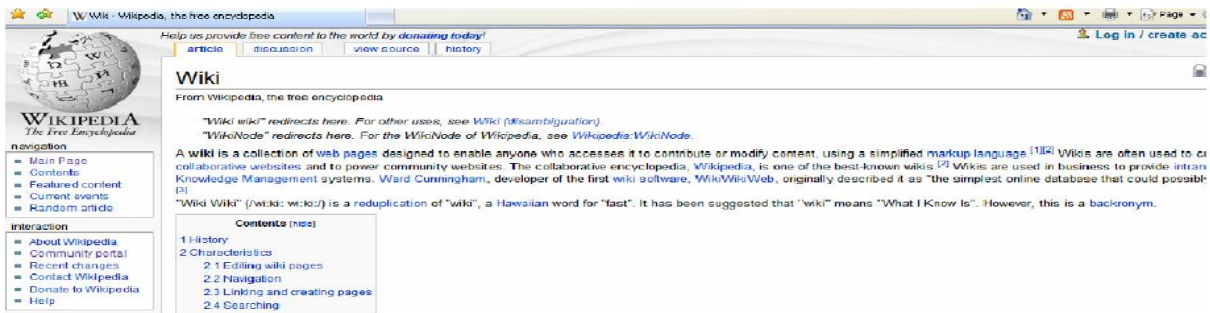


Figure 1-7. Wiki Site (source: Wikipedia.org) Retrieved on January 10, 20018, from <https://fr.wikipedia.org/w/index.php?search=wiki&title=Sp%C3%A9cial%3ARecherche&profile=advanced&fulltext=1&advancedSearch-current=%7B%7D&ns0=1>

In addition, “a wiki will typically afford a series of meta-features such as the history of a page (including a comparison of versions and rollback to earlier versions), notification of revisions, and discussion spaces assigned to particular pages. In this way, producing content and structure in the wiki can be accompanied by comments, discussion, and annotations. This is where the interdependent and collective orientation of the wiki emerges”. (Lund, 2008: 41). And because of the underlying paradigm, wikis are typically created and organized in an ad-hoc manner. As a result, effective navigation within a wiki usually depends on the extensive use of hyperlinks and robust search routines. Media Wiki, which powers Wikipedia and many other high-profile wikis, is the best known and most widely used wiki software.

In this context, Lytras et al. (2009: 252) summarize the attractive characteristics that favor Wikis’ use as follows:

- **Rapidness:** The Wiki pages can be rapidly constructed, accessed and modified in hypertext form.
- **Simplicity:** a simple markup scheme is used to format the wiki pages, instead of the complicated HTML.
- **Convenience:** links to other pages, external sites and images can be conveniently established by keywords.
- **Open source:** each member can create, modify and delete the wiki pages at will. Wiki content is not reviewed by anyone before publication, and is updated upon being saved.




- **Maintainability:** wiki maintains a version database, which records its historical revision and content, thus enabling version management.

Wikis can be employed in a variety of purposes and are quickly becoming an effective technology tool for collaborative group work online. They can be great social tools for classrooms, teams, community groups, or even be configured to provide easily updatable web sites for banking organizations by building up knowledge portal and creating awareness on banking concepts.

1.1.1.3 Really Simple Syndication (RSS)


RSS, originally Rich Site Summary, now stands for Really Simple Syndication. According to Simecet al., (2011:1593),

RSS is a format based on XML and is used for rapid distribution of various facilities. RSS can be considered as a service “what is new on the website” and usually comes in the form of a title list for certain website containing a brief description, for which it has become one of the most popular XML formats”.

It is a method by which web content can be easily and quickly distributed when it is changed or newly entered into a website or weblog. RSS is used to publish frequently updated digital content such as blogs, news, audios and videos in a standardized format. Sites with such newsfeeds generally show an icon:  ,  , or  , and their prevalence shows that RSS has become a useful adjunct to e-mail, avoiding the ever-increasing problem of spam. In other words, RSS allows the user to keep up with the events posted about one’s favorite news website in an easy to read format. RSS feeds the user with headlines, summaries, update notice and links back to articles in real time and in one place. In this respect, Tredinnick (2006: 230) explains that:

RSS is suite of web-content syndication protocols, the most widespread of which is Really Simple Syndication. RSS is a way of syndicating web content through the use of content feeds, which consist of XML marked-up files. RSS feeds usually combine either the lead paragraph, or a summary of an article published on the web or on a blog, on a hyperlink back to its source. Combined

with the RSS reader, or aggregator, RSS provides a means for users to keep track of updates posted across the web.

Therefore, RSS feed content is generally read using a type of software known as an RSS Reader, also known as an aggregator. Readers for RSS feeds work by storing the URLs of the websites that the subscriber wants to follow. The Reader stores URLs by having the subscriber put them in manually, or by the subscriber clicking on a RSS bottom  which can be found in most Internet browser windows now. The Reader then checks the subscribed websites regularly for updated and downloads them. RSS allows information from a site to be displayed as a continuous stream of information. Users are notified every time that content is updated or modified which is beneficial to users who would like to be continuously informed about new subjects or issues that matter to them as soon as they are published.

Because of its convenience and low cost information delivery, banks are now offering their news and content in RSS format so that customers can easily subscribe directly to their information and remain automatically updated with the latest information and news without having to browse the Web page “manually”. However, even though RSS is present in the market for many years now, it is relatively a new term to many internet users, especially in developing countries. The reason for this is a low awareness of customers towards the great potential of RSS, but it is just a question of time before it becomes widespread.

1.1.1.4 Social Network Sites

Social Network Sites (SNSs) have become one of the most popular Internet applications of the decade. They are defined as “social networking technologies that facilitate or enable communication and collaboration between individuals and groups through the use of cloud-based technologies” (Parry, Thompson & Patridge, 2014, p.246). Similarly, Boyd and Ellison (2007) elaborate on the same idea and state that SNSs are “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those

made by others within the system” (p. 211). For Richter and Koch, social networking services/sites (SNSs) “are application systems that offer users functionalities for identity management and enable furthermore to keep in touch with other users.”(2008, p. 87).

Social Network Sites (SNS) have achieved phenomenal success since the launch ofSixDegrees.com in 1997 (Jim, 2008). For example, Boyd and Ellison argue that SNS have allowed users to “create profiles, list their friends and, beginning in 1998, surf the friends list” (2008: 214). Since that time, SNSs have become very popular specially Facebook, LinkedIn, Twitter, Google+ and MySpace. These sites have evolved into much larger and broad-based platforms with user memberships numbering in hundreds of millions. They are offering users endless forms and variety of content generation and content sharing which has resulted in an extremely diversified and chaotic environment. Social media applications, therefore, “allow users to converse and interact with each other; to create, edit and share new forms of textual, visual and audio content, and to categorize, label and recommend existing forms of content” (Selwyn, 2012:3).

Over the last decade, social network sites have changed the way Internet is experienced by almost all users, especially the banking industry. Banks are more competitive than ever before. They are using social channels as a way to better understand the specific wants and needs of their clients. They can also get a sense for what additional product offerings consumers are interested in and draft changes to existing policies based on what customers are unhappy about (Nadkarni, 2013). Now the Internet is no more a one-way broadcast delivery system, it is instead a *many-to-many* connectivity. SNSs users go online to “share and rate, mash-up and remix and friend and trend” (Selwyn, 2012:4). The way in which the Internet is imagined in 2018 is certainly very different to that of 10 years earlier.

Brian Solis (2008) launched the Conversation Prism few years ago (**Figure1- 8**). It is a visual map of the social media landscape. The graphic chart is designated to help in understanding the evolvement of social media and to illustrate the dominant and

promising social networks such as Facebook, Twitter, LinkedIn, MySpace, etc., and organize them by how they are used in everyday life.

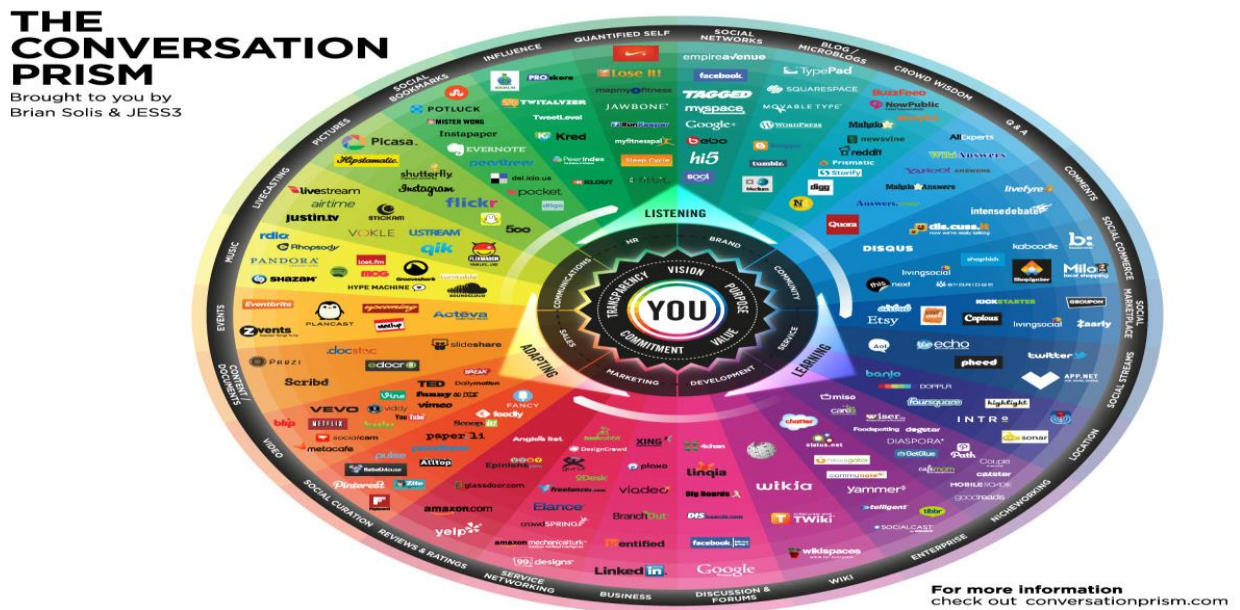


Figure 1-8 : The conversation Prism by Brian Solis and Jess.
<https://mashable.com/2017/07/11/conversation-prism-brian-solis-update-2017/>

Today more than ever, organizations are using social network sites to widen and deepen their engagement with customers. It is a breakthrough in communication that is revolutionizing the traditional one-way communication where the message is controlled and delivered by the company. Now the consumer is an active participant in the creation of the message and has access to unlimited data in an interactive two-way communication with unlimited number of other consumers (Fitzgerald, 2007).

Williams and Williams make a profound statement - “The introduction of social media tools may be the most revolutionary change to communication since the introduction of the Internet” (2008: 35). Moreover, Fitzgerald summarizes the effects of the new SNSs on businesses today as:

It’s not just who you know. It’s also who they know, and what they know. Online social networks have the potential to connect you to a vast world of

people and resources, and they've gone from fad to fact of business life (2007: 54).

SNTs have greatly transformed the way people communicate both at the personal and the professional level. It is no doubt that these channels have widely influenced most organization business approach thanks to their viral nature. Banks, among many other organizations, have seized this opportunity to reach a wider target of audience and strengthen the brand experience. Through these channels, banks communicate with their customers in a more convenient and more cost effective manner.

Social Network Sites evolution as illustrated in **Figure 1-9** shows the ongoing popularity of some websites while other sites have failed to live up to the users' expectations and were closed down. Social media technologies that provide personalized and interactive services based on users' interest and activities on the web have experienced a higher growth such as Facebook (relationships), YouTube (sharing), Twitter (conversation), and Instagram (pictures).

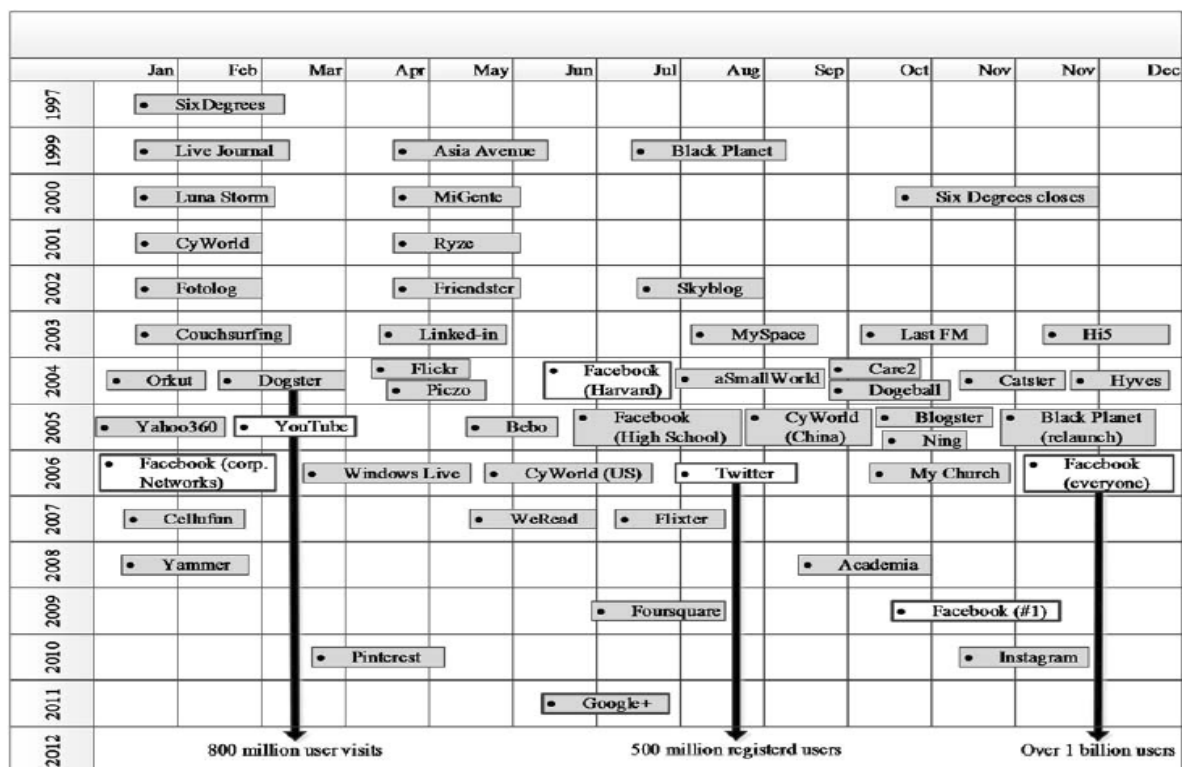


Figure 1-9 : Evolution of Social Media sites 1997-2012 (adapted from Boyd & Ellison, 2007)

The above **Figure1-9** reveals three leading social media technologies that prevail in terms of users' number, namely Facebook, Twitter and YouTube. Therefore, the following discussion will focus mainly on them for their ability to provide enhanced reach to businesses, and the resulting benefits they provide to communicate with the public while focusing on their uniqueness and their appeal to both organizations and consumers.

1.1.1.4.1 Facebook

In early 2004, Facebook was created. According to Hirschorn (2007), "Facebook was started by Mark Zuckerberg, 23, while he was a student at Harvard in 2004. The general concept was to digitize the legendary (Harvard) freshman-year "Facebook", and allow students not only to gawk at one another's photos but also flirt, network, [and] interact" (p.154). At first, Facebook was limited to college students at Harvard, but later the Facebook phenomenon spread like wildfire when opened up to all college students. In the same vein, Boyd & Ellison (2008) affirm, "As Facebook began supporting other schools, those users were also required to have university email addresses associated with those institutions, a requirement that kept the site as an intimate, private community" (p. 218). According to Facebook.com statistics (January 22, 2018) the number of active Facebook users has reached 2.07 billion worldwide (**Fig. 1-10**), making it the most dominant social media technology by which people develop their personal network online, foster their relationship and offer an amazing opportunity to work and trade thanks to its affordance and reach.

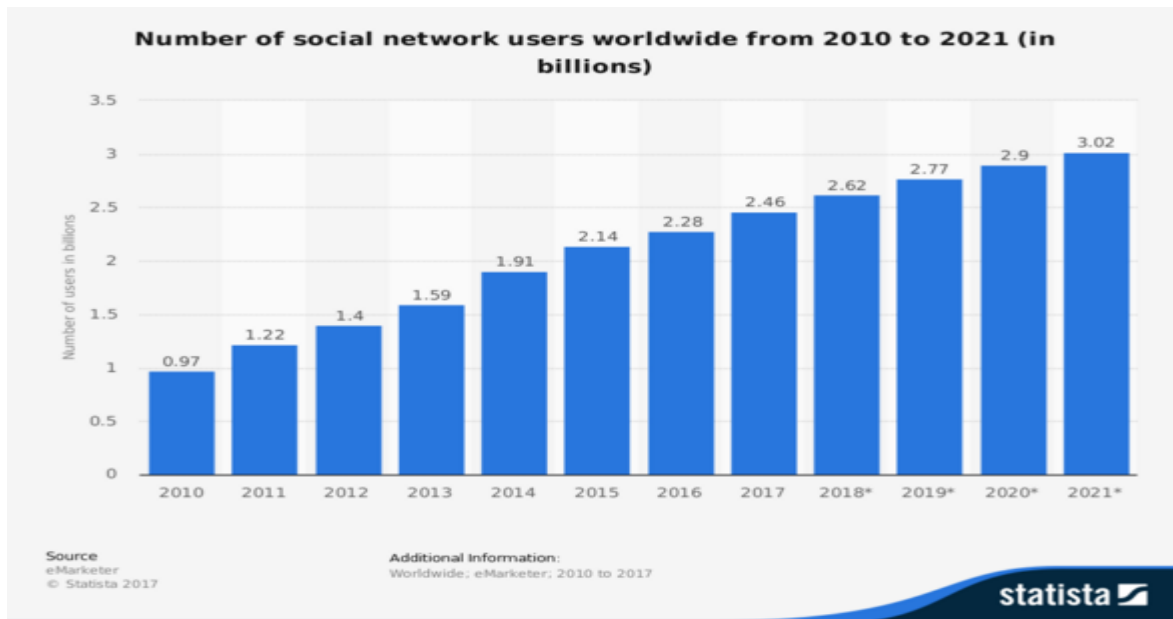


Figure 1-10. The number of social network users worldwide from 2010 to 2021 (Statista 2017)

Facebook users create a profile; add other users from all over the world as friends, and exchange messages, photos, videos, and comments. More than that, Facebook users may join common interest user groups organized by workplace, school, or other characteristics to share common knowledge and talk about shared interests. Besides its simplicity, Facebook has a secure browser connectivity which is brought about highly motivated user participation. Robards (2012) states that “Facebook’s functionality invites users to articulate the more mundane, inconsequential goings-on of everyday life” (p.391). In 2011, Facebook introduced updates to Facebook profiles allowing businesses and brands to offer “robust features” (Facebook, 2011) including a page administration panel and enabling administrators to mention people within comments on Page postings, as well as a comment view for photo albums. This activity subsequently led to the introduction of the “verified page” to strengthen the credibility of a page against a proliferation of “fake accounts” (Facebook, 2013).

These changes have helped players to promote the benefits of businesses to build a strong and credible social media presence in order to create an online community. The old techniques of business communication consisted of who could yell the loudest and reach as many ears/eyeballs as possible with the least amount of cost (Paine, 2007). Now the success of your message is not measured by reach and frequency but about

how deep and wide your network is (Paine, 2007). Thanks to these features, Facebook has become an effective technology supporting social relationships both personally and professionally. Businesses in general and financial institutions in particular find this tool a great channel to communicate with their current customers and an excellent means of wooing new clients who are driven by their need to receive verifiable and credible content.

1.1.1.4.2 Twitter

Twitter emerged in 2006 as a micro blogging service, evolving to become a key tool in “participatory or citizen journalism” (Kwak et al., 2010: 300). It is an online news and social networking site where people communicate in short messages (called tweets). Twitter users follow others or are followed which is not the case of most online social networking sites, such as Facebook or MySpace. The relationship of following and being followed requires no mandatory reciprocation. Common practice of responding to a tweet has evolved into well-defined markup culture: RT stands for retweet, “@” followed by a user identifier address the user, and “#” followed by a word represents a hash tag. This well-defined markup vocabulary combined with a strict limit of 140 characters per posting conveniences users with brevity and conciseness in expression. The re-tweet mechanism empowers users to spread information of their choice beyond the reach of the original tweet’s followers. (Kwak et al., 2010:591).

Twitter's homepage self-defines Twitter as: "... a service for friends, family, and co-workers to communicate and stay connected through the exchange of quick, frequent answers to one simple question: What are you doing?" It is, therefore, a new medium of information sharing; an information network that brings people closer to what is important to them. According to Twitter official page, the present motive of Twitter is to “help people to create and share ideas and information instantly, without barriers” (Twitter, 2015).

1.1.1.4.3 YouTube

YouTube, founded in 2005, is the world's most popular online video community. It allows users to discover, share, and watch originally-created videos (YouTube 2005). It is considered as a distribution platform to facilitate communication using rich media content. Millions of users around the world have created accounts on the site that allow them to upload videos that anyone, anywhere, anytime can watch. Every minute of every day, more than 35 hours of video is uploaded to YouTube. It is this non-stop activity on YouTube that is increasingly attractive to business as a means to convey a message to a wider audience (Senadheera et al., 2011) and at a fraction of the cost of airing the same message using conventional advertising media channels. Through subscribing to a specifically dedicated business YouTube channel, users become part of it and are able to interact with other subscribers which allow some businesses to get immediate audience's feedback about their products or services.

So far in this section, the concept of Web 2.0 is reviewed. This section defines the term of Web 2.0 technologies and gives a description of its main characteristics. It also discusses the diversity of Web 2.0 applications such as Blogs, Wikis, automated information feeds (RSS), and social network sites. These applications have reached a mass market and have transformed the way people communicate both at the personal and the professional level. The purpose of this section is to set the ground of this study which is concerned with Web 2.0 technologies implementation in the Moroccan banking communication. Moreover, the following section presents and discusses the historical evolution of Moroccan banking institutions as well as the background of the three largest banks in Morocco in terms of penetration, namely BCP bank, BMCE bank, and Attijariwafa bank.

1.2. The Moroccan Banking System

The banking sector has specific environmental characteristics in all countries that directly affect its business. It is a strategic sector in any economy. It is a preeminent funding hub for economic agents. The banking systems are vast, complex and evolving. They develop in a reinforced competitive environment; they are also driven

by technological innovation and must generate profit that is compatible with the survival of banking institutions. And at a time of globalization, most industrialized and developing countries have to substantially modify their banking organization. Morocco, a country largely open to the outside has not escaped the rule.

In twenty years, the banking sector of Morocco has been cleaned up, liberalized and modernized through a process of reforms initiated by the Government, in close collaboration with the World Bank and the IMF in particular. They have enabled the revision of the Banking Act ensuring the autonomy of banking supervision, the establishment of procedures for the reorganization of credit institutions in difficulty or the restructuring of state banks. Due to globalization, technology revolution and deregulation, the world of banking has undergone profound changes in terms of unification of the legal framework, introduction of the principle of universality, the abolition of compulsory credit framework, progressive liberalization of interest rates, boosting the money market and strengthening prudential rules. These deep changes have made the Moroccan banking industry more adapted to the needs of both society and business and capable of contributing more actively than in the past to the growth of its economy. They have also put the banking sector in a competitive dynamic determined by market forces.

Today Morocco's banking sector is considered as one of the best developed ones in Africa because of the rapid rise of penetration and also the major improvement in macroeconomic fundamentals that the sector has known. Morocco's banking institutions include some of Africa's largest banks, and several have become major players on the continent and continue to expand their footprint. According to the IMF's 2016 Financial System Stability Assessment on Morocco, "Moroccan banks comprise about half of the financial system with total assets of 140 percent of GDP-up from 111 percent in 2008" (p.8). This indicates that the Moroccan banks have reached levels comparable to high income countries.

1.2.1. The Historical Evolution of the Moroccan Banking Sector

The structure of the Moroccan banking sector as it currently stands has been shaped by history. The Moroccan banking industry is the product of many changes and reforms it has gone through that has been gradually built up in the country.

Over the years, various banking and financial institutions have emerged to meet the specific needs of the country. Three main phases have influenced its evolution, namely:

- A phase stretching from 1802 to 1912;
- A Protectorate phase from 1912 to 1956;
- A post-colonial phase from 1956 to the present day.

1.2.1.1. Before the Protectorate

The first banks in Morocco were in fact trading houses whose financial transactions (limited to deposits, withdrawals and foreign exchange transactions) represented only one branch of their overall activity. Their development began with the reopening of Morocco to the foreign trade in 1822/1823 intervening after a period of retreat of 65 years. There opening of international trade, motivated essentially by the country's need for foodstuffs of prime necessity, provoked greed, rivalry, and conflict between the colonial powers of the nineteenth century.

The influence of European financial institutions was employed first through their representatives, most of them Jews settled in Tangier, who created the first banks in Morocco. The Moses Issaac Nahon Bank, created in 1860, represented French-Spanish interests (especially the Crédit Lyonnais, the Banque de Paris and Pays-Bas). During the same period, Morocco saw the emergence of other foreign banks “the National discount counter of Paris”; the bank of “West Africa” (English) and “Berliner Orient Bank” (German). The arrival of these banks was favored by two factors: On the one hand, the tradition of openness of the country on the outside and on the international trade; On the other hand, the excessive indebtedness of Morocco with regard to these main creditors (France, Spain and England).

However, the development of the banking sector would really begin only when the Act of Algeciras, signed in 1906 by the delegates of twelve European countries, the United States of America and Morocco, established the State Bank of Morocco which would be effectively created, in Tangier, in 1907 as a public limited company whose capital was divided among the signatory countries, except the United States. In addition to commercial operations, the State Bank of Morocco, in 1911, had the privilege of issuing fiduciary money throughout the Kingdom by taking charge of the minting of silver coins of the “Hassani” type and issuing the first bank notes. Hence, it assumed the role of financial agent of the Moroccan government.

1.2.1.2. Under the Protectorate

It is a phase that extended from 1912 to 1956, which dedicated the integration of the Moroccan economy to that of the metropolis and recorded the surge of French banks on Morocco. The establishment of the protectorate in 1912 deflected the regime of the open door which was the only advantage of the protecting power; but definitely sowed the hand of France on the finances of the kingdom.

To integrate the Moroccan economy with that of the metropolis, France had to undertake a whole series of monetary and financial measures: The first action was to respond to the control of the State Bank of Morocco. Thus, in 1919, it proceeded to the repurchase of the shares of Germany, Austria-Hungary, Russia and England. The second action undertaken was to put an end to the monetary pluralism that prevailed at that time (Rial Hassani, Pesetas, Algerian Francs, and French Francs) and to integrate Morocco into the Franc zone.

In terms of the organization of the banking activity under the Protectorate, the banking activity was not regulated as such. It was not until March 31st, 1943, to see the first legislation governing the profession, inspired by the French banking law of June 13, 1941, supplemented by decrees in 1954 and 1955. This settled the first Milestone of banking organization and regulation in Morocco.

All the major French banks were represented in Morocco by branches fully supervised and controlled by parent companies. These banks were concentrated in Casablanca; as

indeed the Spanish banks were on Tangier. It is necessary to add a number of specialized financial organizations created under the protectorate:

- The Regional Agricultural Banks (1919);
- The Real Estate Loans Fund of Morocco (1919);
- Central Bank Guarantee (1949);
- The Moroccan Market Fund (1950).

1.2.1.3. After the Independence

In the aftermath of Morocco's independence in 1956, the foundations of a national banking system were put in place. Since then, Morocco has achieved great efforts to strengthen and regain its financial sovereignty by using the banking sector as a monetary policy instrument for the reconstruction of its economy and its insertion in the circuit of globalization. Hence, the Moroccan banking system has been deeply transformed and restructured to face the new era.

In this respect, Ouriqua (April 11th, 2009), in his article *Historique du Secteur Bancaire Marocain*, highlights three features that have marked, in a significant way, the configuration of the national banking and financial landscape.

- The Bank of Morocco was established by the Dahir No. 1-59-233 of June 30, 1959 to replace the State Bank of Morocco and ensure the function of Central Bank. This later was established as a public institution endowed with civil personality and financial autonomy. This institution was entrusted with the privilege of the issue of fiduciary money, as well as the mission of ensuring the stability of the currency and to ensure the proper functioning of the banking system.

In order to meet the development objectives and specific financing needs to most important economic sectors, the state has created specialized financial institutions and restructured some existing ones. So, in 1959, *Caisse de Dépôt et de Gestion* (CDG), *Fonds d'Équipement Communal* (FEC), *Caisse d'Épargne Nationale* (CEN), *Banque Nationale pour le Développement Économique* (BNDE) and *Banque Marocaine du Commerce Extérieur* (BMCE) were created.

In 1961, *Crédit Agricole bank and Credit Populaire* were restructured. Then in 1967, *Crédit Immobilier* and *Hôtelier* replaced the *Caisse de prêts immobiliers du Maroc*, which was reorganized in accordance with the provisions of the Royal Decree Law of 17 December 1968. This period was also characterized by the reduction in the banks number which was reduced from 69 to 26 between 1954 and 1961, as a result of the merger and disappearance of certain financial institutions.

- The second important step in the establishment and consolidation of the Moroccan banking system began with the promulgation of Royal Decree No. 1-67-66 of April 21, 1967 on the Banking and Credit Act, the main Contributions consisted of a more precise definition of the activity of the banks, the delimitation of the powers of the supervisory and supervisory authorities and the constitution of more appropriate regulations. This law made a clear distinction between commercial or deposit banks and specialized financial institutions (FSOs).
- From July 1993, a major reform took place which is related to the exercise of the activity of the credit institutions and their control. A new concept was introduced that was largely inspired by the international experience, namely that of the universal bank. Under this law, banks can exercise and market all banking products and services. This notion canceled the specialization that has hitherto been established between commercial banks and specialized financial institutions. Afterwards, panoply of legal texts, which aimed at the international opening of the Moroccan financial sector and its environment, followed between 1993 and 2003. (Retrieved on 6th, 2018 from <http://z.ouriqua.over-blog.net/article-30143784.html>; my own translation from French into English).

Moreover, in 2015, *Bank Al Maghreb*, Morocco's central bank, passed the first banking law since 2006, aiming to modernize the financial sector, promote electronic payments and accelerate mobile money adoption. Two measures took effect in 2016 that influenced the digital banking in particular and the digital economy in general.

The first measure was the recognition of digital currencies such as *Bitcoin* or *Ether* and the use of normal currencies used digitally such as in digital wallets like *PayPal*. The second measure was the introduction of the concept *payment institutions*. The law allows new players that are non-bank institutions, such as telecom operators, to apply for a payment institution license that permits them to offer cards and other payment solutions, such as mobile money to their loyal customers to use for their purchasing. With these facilities, users are able to transfer money, make bill payments, to any mobile account in the country, and, therefore, gain access to convenient and secure electronic payment services that are free of charge. The banks will also benefit from this reform as they will be able to acquire more customers and reduce the costs. These measures have opened up the doors to the international market and paved the way to a more modernized banking system(Oxford Business Group, 2019).

Today Morocco's banks are some of Africa's largest, and several have become important on the continent and continue to expand their footprint. According to Oxford Business Group, "The Report: Morocco 2018", Morocco's banking sector is "the most highly developed in North Africa in terms of penetration indicators and is also among the most advanced in the wider MENA region".

The following section presents a review of the three largest banks in Morocco in terms of penetration and footprint expansion. This section also provides an overview of the main activities and services offered by these banks

1.2.2. Background of Morocco's Three Largest Banks

Morocco has a well-developed diversified banking sector in Africa, where penetration is rising rapidly since 2007. Morocco has some of Africa's largest banks, and several have become major players on the continent and continue to expand their footprint. The sector has several large homegrown institutions with international footprint, as well as several subsidiaries of foreign banks. With a network comprised of 19 banks, 6388 branches and 7235 ATMs, the Moroccan banking sector is among the most structured in its region. This study focuses on the three largest banks in Morocco, namely Attijariwafa Bank, BCP Bank, and BMCE Bank.

1.2.2.1. BCP Bank

Banque Centrale Populaire(BCP) was introduced in Morocco by the Dahir of May 25, 1926. The Group's organizational and commercial model is based, from the outset, on the concepts of mutuality and cooperation. It draws its strength from the distinctiveness of its values of solidarity and mutuality, values imprinted on its organization and its functioning which are unique in Morocco. Thus, the first Popular Banks of cooperative type and regional vocation were created in the main cities of the Kingdom.

In the aftermath of the independence, the government, in the framework of the establishment of the first steps of the Moroccan banking and financial system, proceeded to the recasting of the *Crédit Populaire du Maroc* (CPM), through the Dahir of February 28, 1961, dedicating it to the development of handicrafts and the SME / SMI. This reform has also strengthened the CPM's organizational model, now based on the existence of *Banque Populaire Régionale*, a central entity: *Banque Centrale Populaire*, and a federating body: the CPM Steering Committee.

BCPG is made up of *Banques Populaires Régionales* (BPRs) that are co-operative in intent; Popular Bank, the central body, which is a limited-liability company listed on Casablanca stock-exchange; specialist subsidiaries; foundations, banks and representative offices abroad. Group BPCE offers its customers a full range of products and services, including deposits and savings, placement, payment, financing, insurance and investment solutions.

Banque Populaires Régionales are co-operative in form. It is that dimension that marks the institutional distinctiveness of the group within the Moroccan banking system, in particular through the following special features: – BPR capital is held by their client members and by *Banque Centrale Populaire*; – the Group of members is represented by the Supervisory Board, which is tasked with monitoring and checking the BPR's activities. **Figure 1-11** represents the historical changes that the *Groupe Banque Populaire* has seen since its creation in 1926.

THE GROUP'S HISTORY IN A FEW DATES

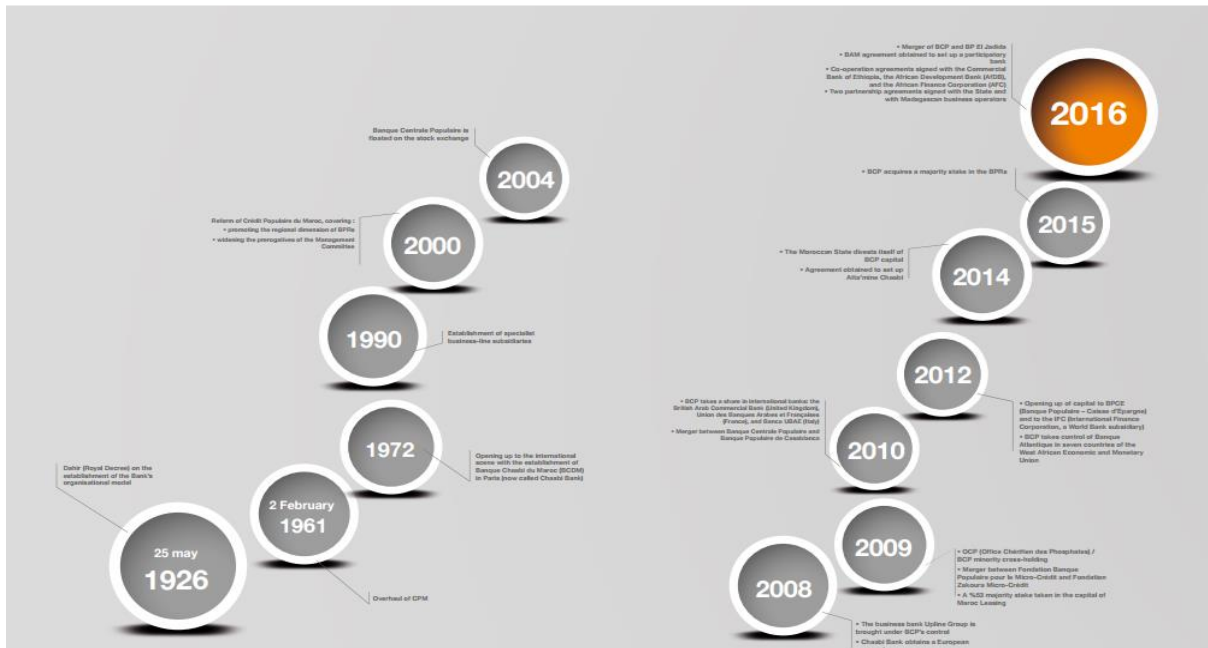


Figure 1-11 : Changes that Popular Bank has undergone since its creation in 1926. (2017 Annual Report) [www.marketscreener.com/%2FBANQUE-CENTRALE-POPULAIRE-6498628%2Fpdf%2F855783%2FBanque%2520Centrale%2520Populaire Annual-Report.pdf&usg=AOvVaw1MrUjfpH88AwBdV_C956o](http://www.marketscreener.com/%2FBANQUE-CENTRALE-POPULAIRE-6498628%2Fpdf%2F855783%2FBanque%2520Centrale%2520Populaire%20Annual-Report.pdf&usg=AOvVaw1MrUjfpH88AwBdV_C956o)

Today the *Group Banque Centrale Populaire* is considered as one of the largest banks in the country with over 4.5 million customers, 1,250 branches and 1,449 ATMs. It has confirmed its position as historic leader by collecting more than 2 billion MAD in deposits from Moroccans living in Morocco and from Non-Resident Moroccans.

CHAABI DOC NET

Outsourcing support activities is modifying the structures of Moroccan businesses. The business line of document archiving is growing exponentially in the professional landscape of several financial players, administrations, etc.

For a number of years now, Groupe Banque Populaire has had a specialist sector called Chaabi Doc Net, which has as its main missions:

- Archiving and conserving all documents, information-technology supports, and other items that contain information;
- Digitising, indexing, and transferring, in physical, analogue, or digital form, all documents or archiving supports;
- Analysis, consultancy work, and management in relation to documents and archiving spaces; and
- Using all information-technology systems that optimise the management of remote application searches by clients.

In respect of financial year 2016, the key facts of Chaabi Doc Net's activity are:

- Opening up Chaabi Doc Net to an external clientele in order to widen its client base;
- Setting up a suitable pricing policy for better competitiveness in the market;
- Setting up an information system to optimise flow control and to manage container movements;
- Maintaining ISO 9001 version 2008 quality certification granted by Bureau Veritas; and
- Reinforcing the security system across all the company's operational sites.

Figure 1-12 : Chaabi Doc Net of Groupe Banque Populaire(Ibid.)

Moreover, Group Banque Centrale Populaire has launched Chaabi doc Net in 2003. It is a subsidiary that specializes in document archiving. **Figure 1-12** states the main missions and activities of Chaabi doc Net: It opens the door to external customers, optimizes the flow, controls and manages container movement, sets up a suitable pricing policy for better competitiveness in the market, and, most importantly, reinforces the security system across all the company's operational sites. Chaabi doc Net is considered as a big step in the digitalization of BCP bank. According to Group Banque Centrale Populaire bank annual report 2017, Chaabi doc Net's activity was market by:

- widening the company's client base to the external non-group market;
- Setting up a suitable tariff policy for better competitiveness;
- Transferring containers to a new site;
- Maintaining the ISO 9001:2008 quality certification awarded by Bureau Veritas (p.105).

Moreover, BCP bank has established a CRM (Customer Relationship Management) approach that is meant to tailor its offer to its clients' expectations. This new approach has the objective of improving the client knowledge in terms of financial information, risk factors, assets, commitments, and equipment rate (the Group *Banque Centrale Populaire*, Annual report 2017).

1.2.2.2. BMCE Bank

One of the largest banks in Morocco, *Banque Marocaine du Commerce Extérieur SA*, *BMCE Bank SA*, was established in 1959. It operates both domestically and internationally through its network of branches. In Morocco it has 5.5 million customers who are serviced by 14,800 employees. There are 630 branches including 27 business centers, and 690 ATMs. BMCE offers a range of financial, investment and insurance products and services to individuals, professionals and corporate clients, among others. The Bank's portfolio of products includes accounts, credit cards, as well as short and long term loans, savings, investment, among others. *Banque Marocaine*

du Commerce Exterieur SA operates through five business divisions: Morocco bank, business bank, specialized financial services, international activities and other activities. It also exercises through a number of subsidiaries, including wholly owned *Maroc Factoring, BMCE Capital, BMCE Capital Bourse and Casablanca Finance Market*, among others.

According to **Figure 1-13** below, BMCE bank is the first bank to establish International operations in Paris, in Sub-Saharan Africa, East Africa and Southern Africa. It is also the first bank to issue GDRs in 1996 and a Eurobond in 2013. Furthermore, it is the first bank to be listed on three stock markets namely Casablanca, London and Luxemburg. As well as the 1st Moroccan bank to open a representative office in Beijing, China in 2000.



Figure 1-13 : BMCE prominent achievements in 2016. Retrieved on November, 2018 from <https://www.bmce-intl.com/download/Rapport-Annuel-2016--Grupo-BMCE-Bank-of-Africa-942.pdf>

1.2.2.3. Attijariwafa Bank

Created in 2004 through the merger of two long established Moroccan banks, *Banque Commerciale du Maroc* (founded in 1911) and *Wafabank* (founded in 1904), Attijariwafa bank is the largest financial institution in the kingdom, the second largest

company listed in Casablanca Stock Exchange, and the 5th bank in Africa by total assets (AWB bank 2018).

Attijariwafa bank is a leading banking and financial Group in North Africa, WAEMU (West African Economic and Monetary Union) and EMCCA (Economic and Monetary Community of Central Africa). In addition to its banking activity, the Group provides a wide range of financial services through several subsidiaries: insurance, mortgage, consumer credit, fast transfers, leasing, factoring, stock brokerage, asset management, M&A and market advisory... (Figure 1-14)

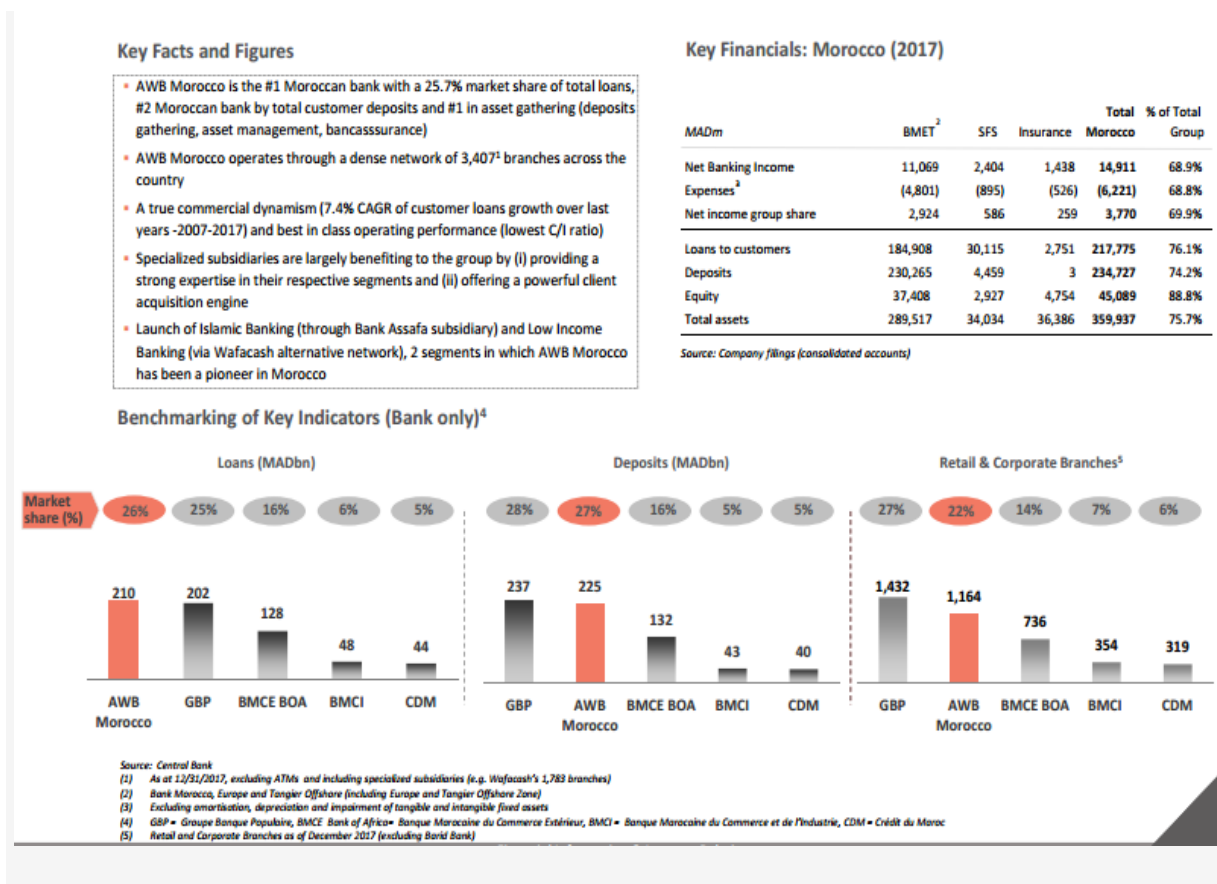


Figure 1-14 : AWB Morocco is the leading Bank in Morocco and the Engine of the Group. Retrieved from <https://www.attijariwafabank.com/en/annual-report-2017>

Globally, AWB bank operates a network of 4,306 branches and had 19,754 employees as of 31 December 2017 managing more than 9.1 million customers. The Group generated a Net Banking Income of MAD 21.6 billion in 2017. Mohamed El Kettani, Chairman and Chief Executive Office Attijariwafa Bank Group, states in his message in the Annual report and corporate social responsibility report 2017 that “today’s world requires us to be faster, simpler, more flexible and more reliable, all at the same

time” (p.5). Moroccan banks have undergone many changes to assist their customers by taking into account changes in their behavior, needs, expectations, and by adapting to their lifestyle.

1.3. Exploring the Web 2.0 Phenomenon in the Moroccan Banking Context

Since the beginning of this millennium, we have noticed the influence of Web 2.0 technologies on different areas, particularly on the banking sector. These technologies have opened up new possibilities and horizons for banks. Through these channels, banks have been able to ameliorate their performances, respond and heighten customer expectations and, most importantly, improve customer services (Poon, 2007).

In fact, banking is an information-intensive business that has traditionally been strongly dependent on information and communication technologies to be efficient and more competitive (Shih and Fang, 2004). Since it is a high-volume industry, and it provides an increasingly wide innovative range of services and products, the benefits for financial institutions are monumental. Besides, the nature of the Internet as a channel for banking service delivery has more advantages than other channels thanks to its interactive power and borderless source of information (Shah and Siddiqui, 2006).

Web 2.0 has significantly changed many aspects of banking communication. Online banking, online bill payment, and online account information and transactions, for instance, have grown substantially. Banks have developed these online services with the aim of improving the efficiency of the branch network as well as reducing the traditional wicket work (standardized operations). They are trying to make full use of the huge opportunities that web 2.0 technologies offer.

Moreover, the interactive applications of Web 2.0 have altered the way financial services users are gathering information about different institutions and their available services. These platforms facilitate banks' interaction with their stakeholders such as

customers, public institutions, and other businesses. Today the masses have largely moved online and are gathering into a handful of dominant social networks and digital platforms such as Facebook, Twitter, Instagram, LinkedIn, YouTube, RSS, e-mail newsletters, Blogs, Wikis, and Google plus. Through these, banks can create brand communities in the form of brand fan pages where it is possible to develop an interactive relationship by liking or commenting on the bank's post which enable them to communicate promptly with customers. These social channels have transformed Moroccan banking communication since the integration of these tools has made the Moroccan financial system more dynamic and effective and has offered a broad range of services that heighten to the customers' expectations.

Nonetheless, banks are not only looking to gain a competitive advantage, but are also trying to mitigate the threats posed by social media, such as when people share highly sensitive information publically. More than that, banks are adopting social media channels (Facebook, LinkedIn, Twitter, etc.) for retail customer interaction so as to be able to respond to unhappy customers who turn to public channels to express their frustration with the services they have received.

Today Moroccan banks are aware of the power and the influence of digital technologies and the necessity of integrating them not only in their marketing strategies, but also in the heart of their organization communication. Web 2.0 technologies are now fully integrated into the banking Customer Relationship Management (CRM) systems. They play a tremendous role in achieving successful interaction and solid relationship with the customer.

Most Moroccan banks have now exploited the potential of Web 2.0 in dealing with their customers. Currently, the majority of banks have created their own official websites to provide information and enable standards transactions, while limiting real communication to face-to-face contact in branches and contact centers. Thanks to these new technologies, new possibilities for better communication are opened up. **Table 1-1** provides details of Web 2.0 tools used by banks and the benefits they generate as well as their limits.

Table 1-1. Web 2.0 Tools

Tool	Bank usage	Advantages	Limits
Forums: virtual spaces for discussion and interaction	<ul style="list-style-type: none"> -A great amount of information - Content creation - Audience retention - Knowledge base creation 	<ul style="list-style-type: none"> -Possibility to intervene via the moderator (for the management of a forum by the sign) -Proximity felt by the consumer -Community-based support 	<ul style="list-style-type: none"> -Definition of blurred responsibilities -Circulation of erroneous information / rumors -Demanding marketing by competitors (troll)
Blogs: a regularly updated website containing entries, a bit like a diary. Posts are labelled with the time, date and name of the poster or "blogger".	<ul style="list-style-type: none"> - Create opportunities for sharing - The launch of new services - Expansion into new markets - Develop and strengthen relationship with existing and new customers - Build brand awareness 	<ul style="list-style-type: none"> ▪ Possibility to guide the debates by choosing a specific theme of interest 	<ul style="list-style-type: none"> ▪ Visibility
Chat: instant messages with many users.	<ul style="list-style-type: none"> - Remote maintenance with a customer advisor - Sustain customer loyalty - Prompt response to clients 	<ul style="list-style-type: none"> ▪ Interactivity ▪ Time saving ▪ Structure gain ▪ Possibility to outsource the service 	<ul style="list-style-type: none"> ▪ Immediate information
Social networks: websites allowing user to create their own profile page and share their similar interests with other Web users. The interest is to be able to create and manage a list of contacts	<ul style="list-style-type: none"> - Attract new clients - Customer feedback - Faster and easier communication - Recruitment of new employees - Word-of-mouth/evangelism marketing 	<ul style="list-style-type: none"> -Possibility to create your page and to distil exclusive information - Track your competitors - Personification of the brand 	<ul style="list-style-type: none"> ▪ Hacking risk ▪ Security issues ▪ Bad publicity ▪ Rumors
Virtual communities: a computer-based simulated environment which forms an online community where users interact with each other.	<ul style="list-style-type: none"> ▪ Build loyalty ▪ Virtual space 	<ul style="list-style-type: none"> ▪ Possibility to make viral or tribal marketing ▪ Proximity of values between the brand and consumers 	<ul style="list-style-type: none"> ▪ Risk of boycott ▪ Misinformation ▪ Competitors sabotage
Wikis: software both web page composition system, collaborative work tool and discussion area. all users can edit pages or enrich them	<ul style="list-style-type: none"> ▪ Construction of basic knowledge, FAQ (Frequently Asked Questions), ... by customers and for customers 	<ul style="list-style-type: none"> ▪ Creation of collective knowledge ▪ Business interest 	<ul style="list-style-type: none"> ▪ Control of information ▪ Internal resources mobilization
RSS feeds: a particular text file whose content is automatically generated based on website updates	<ul style="list-style-type: none"> ▪ Dissemination of timely information and promotional offers ▪ Increase productivity ▪ Effective marketing tool 	<ul style="list-style-type: none"> ▪ Circulation, relevance and updating of information ▪ Syndicate content automatically ▪ Spam free ▪ Increase productivity 	<ul style="list-style-type: none"> ▪ Not widely adopted yet ▪ Difficulty to track the source
Widget: small program mainly serving as advertising medium but providing immediate and varied information	<ul style="list-style-type: none"> ▪ Attract new customs ▪ View real-time account movements ▪ Share price 	<ul style="list-style-type: none"> ▪ Permanent presence in the customer's mind ▪ Display of information chosen in real time ▪ Added value of some functions 	<ul style="list-style-type: none"> ▪ Pertinence of information ▪ Utilized current tools.

There is a general agreement that loyalty towards the brand associated with a positive attitude, a desire to develop an everlasting and strong relationship and the ability to resist the voice of competition are essential to the success and continuity of the company. For instance, Oliver (1997:392) points out: “a deep commitment to buy again a product or service that he or she prefers, in a repetitive way in the future, despite situational influences and marketing efforts likely to induce a change of behavior”. The factors that may explain the clients’ commitment are multiple and can be contingent on different elements such as the sector of activity, the degree of involvement of the client, and the customer experience. It is logical to assume that in the banking sector, customer’s loyalty is driven on rational rather than emotional feelings. Satisfaction, trust, security and commitment identified by Morgan and Hunt (1994) represent interesting levers for action in the banking sector.

Web 2.0 is clearly a means to maintain contact between the bank and the customers through chat, virtual community, and other forums. This may contribute to strengthening the credibility, integrity, and caring dimensions of customer trust and loyalty (Gurviez and Korchia, 2002). The tools presented in **Table 1- 1** can largely help in achieving the above mentioned objectives. They can directly influence the three markets identified by Christopher, Payne and Ballantyne (1991) in their *relationship marketing* design; 1) the current and potential customer market, 2) the reference market (customer’s recommendations), and 3) the influence market (financial analysts, customer group, press, state and shareholders). The impact that forums, Blogs, SNSs, and other Web 2.0 technologies have on the reference market and the market of influence has not been yet clearly measured; however, the important development of these tools on the Net suggests that their impact on the engagement of the customers could be significant as the activity deployed by a user within social space made available by bank clients could lead to the strengthening of their commitment. Active participation in social networks increases loyalty among existing customers and attracts new ones (Winer, 2009).

Furthermore, marketing through Web 2.0 social channels is considered relevant for banks looking to develop relationships with millennial Y consumers (Campbell et al.,

2014). In today's world, companies rely on tribal and viral marketing to promote their products and services. They identify consumers as groups who have common social collective behaviors, way of thinking, experiences and lifestyle. Then they cultivate these customers into brand advocates (Cova and Cova, 2006). Given the interactive and engaging interactive nature of social network sites, Web 2.0 marketing is a great tool to build solid relationship with this market segment. The active presence of banks in social media channels can help reach younger customers and offer them an interactive opportunity to learn about banking services and products.

Thanks to their characteristic, users adopt Web 2.0 applications as they offer the possibility of co-creating, finding, sharing, and evaluating information online (Chua and Banerjee, 2013). They also enable them to express their attitudes, to react and engage in discussions about common topic of interests (Stone, 2009).

It can be said that Web 2.0 platform offers endless opportunities for the banking sector; an open-mind, collaborative, favorable to the free flow of information and characterized by strong and fast relations between the Net surfers can definitely serve the objectives stated by the bank. Nevertheless, Web 2.0 benefits can easily turn into risk since these tools can quickly be hijacked. Therefore, banks have to train advisors to develop new skills and reorganize their working time so that they can intervene instantly on these virtual communication spaces (Capgemini, 2007).

In Morocco, the banking sector has undergone a profound digital transformation. Banks websites offer several Blogs covering general information about different issues that matter to the users in terms of sustainable development, political issues, and most importantly financial efficiency and even specific Blogs that respond to students' needs; the Net generation. They also offer YouTube videos about the bank services, Facebook and LinkedIn pages, and the ability to contact the bank through Twitter. Based on Kpeiz statistics (2017), **Fig.1-15**, BMCE bank, already ranked among the largest private companies in the world, won the first place with 1,275,550 interactions on Facebook. *Jesuisjeune.ma*, the initiative and youth ally launched by BMCE bank, ranks second and has 842,294 interactions thanks to its dynamic and vibrant page. BMCI Group BNP Paribas ranked 3rd with 212 211 interactions not far

from CIH bank, it is operating particularly in the real estate and tourism sector, which generated 187 474 interactions. Crédit du Maroc bank with 121,575 reactions followed by the SO HIT of Société Générale Maroc occupy the 5th and the 6th places respectively. CFG bank and Al Barid bank are represented to a lesser degree but manage to collect 63,119 and 21,578 interactions.

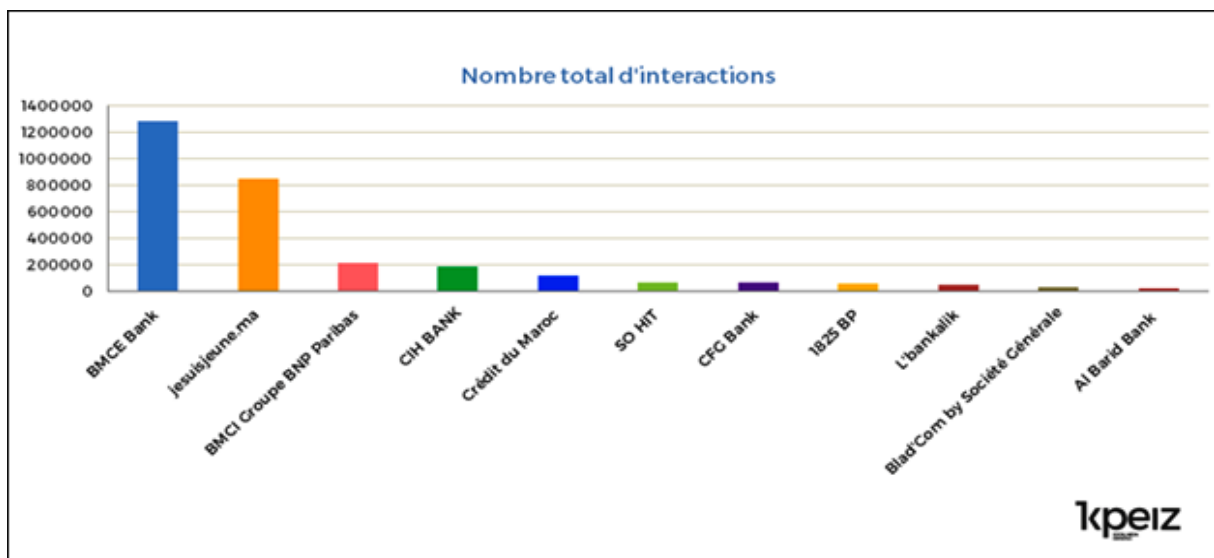


Figure 1-15. Social Network Interaction by different Moroccan banks. (Aouididi, 2017)

In Morocco, the phenomenon of the digitalization of banking services is accelerating at a fast pace and the market is becoming more professional. There are banks that make it their main battleground. Most Moroccan banks have structurally implemented IB in their banking structure and have made it an axis of evolution towards a new model of banks. This is the case of the most influential banks in Morocco that are Attijariwafa bank, BMCE Bank, Popular Bank, CIH and many others.

Recently the Moroccan banking sector has known the launch of many digital bank credit institutions and the acceleration of the digitalization of banking services. For example, Attijariwafa bank has launched the “Banka Lik” (the bank is for you) which is an online bank where the banking account opening is done remotely and freely for the users of this service, customers do not have to move to deposit a check or make money transfer or payment transactions. Through “Attijarinet”; a mobile application, users are able to have access to their bank accounts online, pay their bills online, pay

taxes online, transfer money online, and getting a loan online. In addition, with AWB's Automatic Cash Express, it is possible to make a certain amount of money available to someone who does not have a bank account by sending him a mobile phone message with a code that he receives in the same way. The amount of money can be withdrawn at any ATM by dialing the said code.

Another example of the digitalization of the Moroccan banks is BMCE which launched "BMCE Direct" on the beginning of 2012. This service provides the bank's customers with information and transaction services, such as account consultation, domestic and international transfer, credits, transaction notices and unpaid invoices. CIH bank has also launched "We Pay" whose objective is to encourage the use of electronic payments and reduce the circulation of cash, which currently constitutes more than 80% of customers' transactions. This application allows CIH bank clients supply cash in branches or by debit card, to charge by account in branches or via the CIH Net and/or CIH Mobile area as well as the transfer of money from "We Pay" to another "We Pay". The application also allows bill payments (Water, electricity, taxes, etc.) as well as phone recharges and Jawaz recharges (motorways). On the other hand, the Popular Bank created a Facebook page and a website for its product 18-25 years old. Thanks to the digitalization, in 2016, BCP Group's net income grew by 5.3%. The latter amounted to 2.6 billion dirhams, the fourth largest capitalization of the Casablanca Stock Exchange. "Improving the service and digitization allows new entrants," still recognizes Laidi El Wardi, Chief Executive Manager (CEO) of retail banking at BCP. "There will be no additional cost for the customer", he says. With all these facilities, banks anticipate the needs of customers and want to meet them by reducing the obligations of many operations of daily life (Ollivier, 2017).

Another good illustration of the implementation of Mobile banking in Morocco is Wafacash, which was founded in 1991. It is the leader of the Moroccan international transfer market. With a network of more than 1,800 branches in Morocco and with more than 3,000 employees, Attijariwafa Bank's subsidiary offers around twenty products and services, including international, domestic, and manual transfers as well as innovative services, such as the prepaid card, the economic bank account or the

cash e-payment with its "Pay Cash" service. Samira Khamlichi, CEO of Wafacash states:

With JIBI, Wafacash continues its historic mission for high-tech services that will improve the daily life of the Moroccan banking customer. JIBI, our payment account, allows us to maintain our role of "disruptor" in the national market and to facilitate access to basic financial services to the widest segment of the population. All these are in line with the national goals for fighting against the informal, improving financial inclusion, and economic and social development of our country (Barma, 2018, para.4).

JIBI is considered as the first payment account in the Moroccan market. Its main objective is to promote financial inclusion and mostly important to limit the circulation of cash in Morocco. The president of Wafa Cash said that "90% of commercial transactions in Morocco are in cash that is two billion dirham circulating in cash, which costs the country 0.7 % of its GDP" (Barma, 2018, para.5).

As far as SNSs are concerned, Steinman and Hawkins (2010) state that the viral feature of social media makes it fantastic for business environment. Advertisers have carried out their promotions through social media to take high attention and participation and to maximize their brand exposure. Firms try to reach their marketing objectives through social media at lower costs (Murdough, 2009). According to Weinberg (2009), the main advantage of social media marketing is cost-related in the sense that the majority of SNSs are free to access, create a profile, and post information which is not the case of traditional marketing campaigns. The viral nature of social media means that information is accessible to anyone and these individuals can spread the news within their own network of 'friends'; thus, reaching an unlimited number of people in a very short period of time (Weinberg, 2009). In addition to its cost effectiveness, SNSs have created new forms of social interaction. People spend the majority of their time online whether for work purposes or for entertainment (Riegner, 2007, cited by Adilova, 2017). SNSs have become widespread and viral as they are the most popular Internet destinations (Adilova, 2017). Consumer behavior studies reveal that individuals are greatly influenced by everything that is posted on

the net. Information shared online can affect their ways of living and influence their attitudes and decisions (Huang et al., 2009). Other studies also show that users trust recommendations from their social network (Awad et al., 2006; Weiss et al., 2008). Consequently, businesses are making great efforts to deepen their connections with consumers to get a great audience and encourage continuous interaction with the brand. They try to drive purchase intent to persuade engagement with their official website content and utility.

Twitter is considered as the most commonly employed corporate social media venue, but corporate Facebook pages have increasingly more “likes” than Twitter accounts have “followers”. Twitter and Facebook websites are driven by different missions. Twitter is in one hand an excellent platform for companies to communicate instantly with stakeholders; on the other hand, Facebook is a suitable tool for creating communities among stakeholders.

The benefits of using Web 2.0 technologies can be summarized as follow:

- Driving down the costly method of communication and increasing efficiencies.
- Enhancing revenue growth thanks to the increased transparency, trust, and convenience.
- Developing and improving banks’ services by using customers’ immediate feedback.
- Launching more innovative products and services that meet the requirements of the customer.
- Better access to information.
- Strengthening the relationship with the customer.

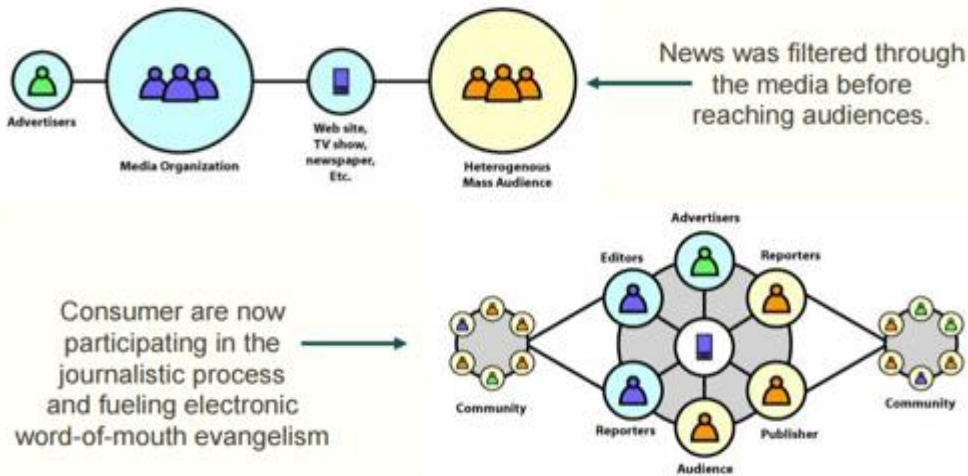


Figure 1-16 : Changing Marketing Model.

The Moroccan banking marketing strategies have known significant changes during the past few years. These were brought about by the interaction between first of all the customers' needs, the competitive pressure and mostly important the overwhelming technological innovation. The evolvement of Moroccan banking service delivery has occurred as customers are shifting toward "technology-based self-service" as an alternative to the traditional "inter-personal service encounter". This evolution has benefited both the bank, as it decreases cost and spreads their wings to connect with a huge number of people, and the customer who is offered boundless convenience (Farquhar and Panther, 2007). As seen in **Fig. 1-16**, consumers are now more involved in the journalistic process. Besides, banks and many other business companies have integrated the evangelism marketing where satisfied customers help them build their reputation. These customers become voluntary advocates and actively spread the word on behalf of the company since a lot of customers often turn to their friends and acquaintances for recommendations before they purchase the products or adopt a service. Furthermore, Internet banking will guarantee a quality customer experience. It is a wireless service delivery channel that offers increased value for customers by providing anytime, anywhere access to banking services (Lee & Chung, 2009). Some banks are already in their second or third wave of digitization of services in which

agencies must be completely redesigned. This digitization imposes a sound articulation between different channels.

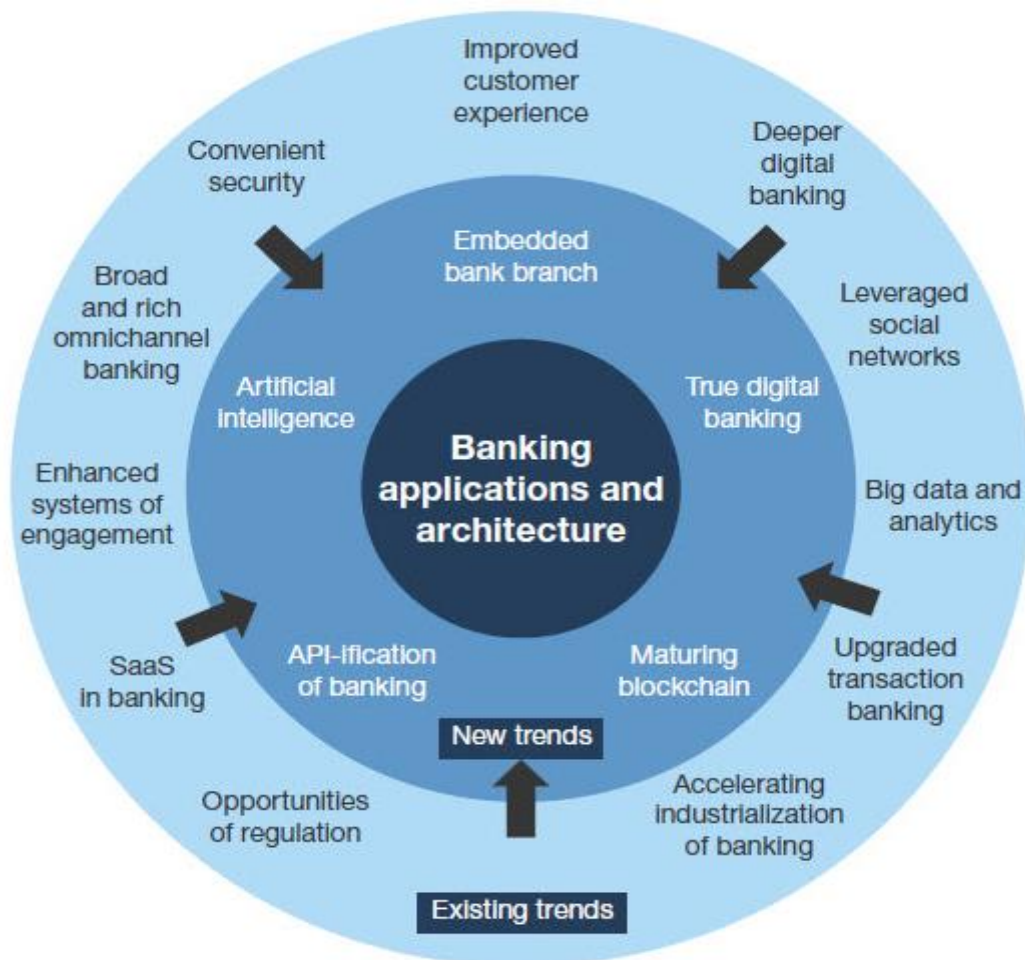


Figure 1-17. Five Trends Will Influence Banking Applications and Architecture in 2017 And Beyond. (Hervier, 2016).

According to Jost Hoppermann, Forrester analyst, application developers should be aware of the five trends presented in **Figure. 1-17**. These trends represent the cornerstone of the banking technology use agenda. Banks need to change the way they design, develop, select, and deploy banking applications to meet the requirement of the new millennium and stay competitive. Banks have to adopt *API applications* that allow them to collaborate with third players so as to offer better products, services and experiences to their clients. *Artificial Intelligence* (AI) will improve interaction with customers, decrease cost, provide accurate information and strengthen data security. *Embedded banking* allows businesses to have their own software to perform financial

operations; that is integrating the bank's payment services into the company's life (applications and platform). The fourth trend is *digital banking*. It refers to the full digitalization of banks and all its activities, programs and functions. Today the digital transformation of financial institutions is a main source of growth and competitiveness. The fifth trend concerns *the block chain* which is a powerful technology that enables Bitcoin, Lite coin, Doge coin, and other virtual currencies to be open, anonymous and secure. Integrating Block chain would be a great step in increasing profitability and value and reducing fraud in the financial world (Hervier, 2016; Patnaik, 2019).

The implementation of Web 2.0 tools has revolutionized all facets of banking industry and has transformed financial services in depth. They provide a lot of avenues for banks, provide better experience, and build solid brand relationship. Therefore, banks have to be creative, they need to develop new skills, practices and policies so as to communicate, engage and manage their brand effectively. From the consumer point of view, the evolution is obvious: we can consult our bank statements online, do all kinds of financial transactions, and be able to benefit from a loan without delay; access to information now has become immediate. In this regard, O'Reilly explains that "Web 2.0 changes websites from static into dynamic and from company controlled into user controlled content with so called many-to-many communications" (p.1). Similarly, Edwin Van Raalte (2009) elaborates on the same idea and states that with Web 2.0 in the banking world, two-way communication is established and users are empowered to communicate with their bank as well as between peers. Web 2.0 has a particular impact on the banking sector. Indeed, this latter is particularly concerned by the digital transformation because of the strategic importance of its information system, but also because of its interaction with its customers.

Having access to data from any device (computer, laptop, smartphone, tablet, etc.) is one of the main concerns of organizations beyond the digitization of services. Such services imply a profound transformation of the IT infrastructure. The data must be convertible in a unique and accessible format. In addition to meeting the expectations of customers, such an organization also allows to interact with the customer in real

time. By analyzing its profile and needs, the bank can offer relevant services to the customer and resolve concerns in seconds. Another element that may explain the reluctance of financial services to develop their digital infrastructure is that of cybersecurity. Data security is at the heart of banking business concern.

With the rise of digital in this sector, the integration of innovative communication technologies into banking processes has become essential to designing and implementing a forward-looking business model. Today, strict regulatory requirements, optimization of investment costs and new customer needs are driving companies in the sector to rethink their communication models to meet the criteria of quality, speed and data security. Today customers expect a strong interactivity and continuity of service from their bank. In fact, when everything is available on the web 24 hours, 7 days a week, it has become more and more unconceivable for customers to comply with the restricted schedule of the banks which are not often reconcilable with the customer professional activities. Since the 1990s, this need for inter-activity has led to the creation and deployment of call centers or customer's services. Now it is illustrated by the online consultation of bank websites reinforced first by the development of household equipment then by the development of smartphones, and related mobile applications.

However, banks should develop long-term digital strategies aimed at optimizing business processes while reducing costs so as to meet each client's expectations and anticipate their future needs. Banking institutions need highly developed interfaces, global availability and absolute fail-safe to ensure the success of communication processes. According to Punia and Choudhary (2017), "Web 2.0 possesses the capability to lift banking services and offerings to great height. It can expand product variety and customization, accelerate service delivery, tap new pools of revenue, and deepen customer relationships". (p.5495)

Therefore, to seamlessly connect mobile, Web, call centers and agencies, banks have reorganized their processes and IT infrastructure. Investments begin to evolve, going from the front end to the back end and transforming the core of the IT system. And to do that, banks have to respect three essential criteria: centralization of the clients'

data, using simplified technologies and processes so as to act in real time, and creating a single client vision so that counselors can access the entire history of the relationship bank-customer.

This section has dealt with the evolution of the Moroccan banking system through history. It has given an overview of the major phases that had influenced and reshaped the banking industry, namely before and during the protectorate phase and after the independence. In twenty years, the Moroccan banking sector has been rehabilitated, liberalized and modernized through a reform process that have enabled it to become the most advanced in the MENA region. This section has also provided a general overview of the background of the three most developed banks in Morocco (BCP bank, BMCE bank and Attijariwafa Bank). Along with that, the present section has explored the Web 2.0 phenomenon in the Moroccan banking context. Therefore, for the sake of precision, in the following section, the literature on Internet banking will be reviewed. It will also provide a comprehensive review of the concepts, applications and development of technology adoption models and theories including Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned behavior (TPB), Theory of Diffusion of Innovation (DIT), Perceive Risk Theory (PR), etc.

1.4. Internet Banking Adoption

With the increasing penetration of both Web 2.0 technologies and Internet banking, Morocco is witnessing significant changes regarding how financial transactions are performed. Moroccan Banks are developing new strategies to meet the requirement of this new emerging digital market. Thanks to the implementation of Internet banking, the majority of the Moroccan banks are able to offer lower operational costs, improve customers' banking services, retain customers and expand their market share. Internet banking facilities enable financial institutions as well as bank customers to access their accounts, conduct transactions and get useful information on financial products and services.

Therefore, this section is divided into three subsections. The first subsection describes and discusses the concept of Internet banking. The second one provides a general description of the most relevant acceptance technology theories and models particularly the ones that can explain banking customers' acceptance of Internet banking, namely Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), and Perceived Risk Theory (PR). Finally, the last subsection reveals previous research conducted to explain consumers' adoption of Internet banking.

1.4.1. Internet Banking – Conceptualization and Definition

In this new modern era, the breakthroughs in information technology (IT) and the emergence of Web 2.0 channels have been dramatically shaping the way people communicate as well as financial organizations manage their businesses and deliver their services. Years ago, banking was traditionally something that was performed in the non-virtual world. People would go to their bank branch to withdraw money, transfer funds, get a loan, and sort out their finances. Clients would speak to staff members and interact directly with people in an office. However, these kinds of premises are rapidly changing and becoming obsolete. Internet banking, also called Online banking, is gaining momentum and getting more and more sophisticated on a daily basis. It is viewed as an online revolution of the brick-and-mortar traditional banking services. Now bank customers are offered the greatest expediency for performing banking transactions via the Internet (Furst, Lang, & Nolle, 2000; Patnasingam, Gefen, and Pavlou, 2005). IB provides new services such as viewing account details, funds transfer, balance enquiry, loan details, bill payments, enquiry about credit card, purchase goods and make buy and sell orders for the stock exchange, or receive portfolio and price information with just the push of a button (Laukkanen, 2007).

Internet banking or online banking (often used interchangeably) is generally defined as an application of m-commerce that enables customers to access bank accounts through the Internet to conduct financial transactions such as checking account status,

transferring money, making payments, or selling stocks (e.g., Alafeef et al., 2012; Harma and Dubey, 2009; Lee and Chung, 2009). It is also defined by Pikkarainen et al. (2004:224) “as an internet portal, through which customers can use different kind of banking services ranging from bill payment to making investment”. Shih and Fang (2006) view Internet banking as “... a sort of information system that uses emerging techniques such as the Internet and the World Wide Web, and has changed how customers perform various financial activities in computer-generated universe” (p.62). Besides, Chang (2003) and Sullivan and Wang (2013) consider Internet banking “as a “process innovation” through which customers conduct their banking transactions without the need to visit the brick-and-mortar bank.

IB, therefore, involves the setting up of a web page by the bank so as to provide clients with information about its products and services and allows account holders to access their account data via the Internet. As per the Internet and Mobile Association of India's report on online banking 2006 as cited in Pannu and Tomar (2010:117), "There are many advantages of online banking. It is convenient, it isn't bound by operational timings, there are no geographical barriers and the services can be offered at a miniscule cost."

Moreover, Akturan and Tezcan, 2012; Masrek et al., 2012; Shih et al., 2010 cite Internet banking as an innovative communication channel in which the customer interacts with a bank through a device by using Internet platforms to provide financial institutions with a wide range of potential benefits that are convenient and more accessible. That is to say, Internet banking is a new type of information system that uses innovative resources of the Internet and Web 2.0 technologies to enable customers to conduct financial operations and communicate in the virtual space.

Brett King, in his 2012 publication of BANK 3.0, *Why Banking Is No Longer Somewhere You Go but Something You Do*, points out that:

The bank customer behavior had changed into four stages. These stages are the social media stage, the mobile devices stage, the mobile payment stage, and the

final stage; banking is no longer considered as a place to go, but something you do.

Today a great number of banking customers are performing banking transactions through their bank's website and/or on their mobile apps. With Web 2.0 channels, consumers are changing their behaviors and are looking for a more user-friendly networked banking experience that offers a great level of trust, security, transparency, convenience and interactivity.

In the same line of argument, Pikkarainen, et al., (2004) point out that there are two major reasons behind the proliferation and the advancement of Internet banking. First, compared to the traditional banking channels, Internet banking provides low cost savings. Second, with the implementation of Internet banking, there is a reduction of branch networks which means a reduction in staff cost. Moreover, Chan (2001) considers convenience as one of the most important benefits of the implementation of Internet banking. Baldock (1997) reveals that the implementation of Internet banking would remove the constraints of time, place and form. The reason is that transactions can be conducted from anywhere and anytime as long as they have access to a computer, smartphone and Internet connection as banks would be 'open' 24 hours, 7 days a week (Chan, 2001; Johnson et al., 1995; Jeon and Rice, 1997; Baldock, 1997). In addition, research has shown that online banking is the cheapest delivery channel for many banking services (Koenig-Lewis, Palmer, & Moll, 2010; Robinson, 2000). A number of studies have identified advantages to bank customers, including cost and time savings as well as "spatial independence benefits" (Koenig-Lewis et al., 2010). Turban et al. (2000) elaborate on the same idea and indicate that Internet banking is extremely beneficial to customers thanks to the savings cost, time and space it offers, its quick response to complaints, and its delivery of improved services. Web 2.0 technologies, thus, offer a wide variety of benefits for banks and their consumers, from cost saving to improving customer satisfaction (Suh and Han, 2003) and is an important tool in the highly competitive banking industry (Yang, Cheng, and Luo, 2009).

Observing the current situation in Morocco, it can be said that the electronic-based Internet banking is evolving at high speed. There are many Internet platforms available in almost if not all reference banks. Since the end of the year 2016, the usage of Internet banking services by Moroccan banking customers has been increasing. According to the report of Bank Al Maghreb (BAM) 2017 on bank supervision, 56% of the 35.74 million of Moroccan residents were banked. In addition, the telecom regulator published that at the end of 2017 there were 43,916,000 mobile subscribers. By June 30, 2018, this figure rose to 44,027,000 subscribers and according to data from Digital in Morocco (2018), 63% of Moroccan citizens are Internet users, and 56% are internet mobile users. This shows the wide spread of Internet and also the availability of smart phones among Moroccan citizens which have become an indispensable business tool for conducting Internet banking operations without the constraints of time and space.

Nevertheless, according to Punia and Choudhary (2017), a great number of banking customers are skeptical to use Internet banking and prefer to use the traditional channel to deal with their banking transactions due to safety issues, fear of change, and lack of connectivity to the Internet. In traditional banking the customer visit the branch in person to conduct financial transactions and operations. He/she seeks face-to-face interaction and personal advice. Despite the fact that services provided are limited in time and space, they are characterized by high level of security. Online banking, on the other hand, is considered as a powerful “value added” tool that attracts new customers, retains old ones and builds up brand loyalty. It helps in eliminating costly paper handling and teller interactions in an increasingly competitive environment. It is a new system that has permitted banking activities to be performed anywhere and anytime; it has removed the traditional time and geographical barriers.

In the same vein, Internet banking has opened the doors for a free and immediate interaction between the customer and the bank. Today the client can express his/her satisfaction or dissatisfaction towards a service through the bank website or through social media platforms and get a prompt feedback. Thanks to the Internet, online banking has made the banking experience simpler and cost effective for both the

customer and the bank. It has offered a host of value added services available at a click of finger. Internet banking benefits both the bankers and the customers alike. It allows customers:

- *Less waiting time:* Internet banking or online banking has tremendously reduced customers' waiting time; customers are no longer required to wait in the long and tiring lines to request a financial transaction or statement. Customers can access their bank account details in a convenient, flexible and instantaneous way. Customers can open an account, view their account balances, obtain monthly/yearly statements, check recent transactions, apply for a bank loan or a mortgage without personally visiting any local branch of their bank, etc. (Venkatesh and Davis, 1996; Tan and Teo, 2000; Pikkarainen, et al., 2004; Poon, 2007).
- *Ease and convenience:* Internet banking has made banking transactions faster and more convenient. It is considered as more convenient in terms of ease of use and access (Calisir and Gumussoy, 2008). It enables customers to execute their financial transactions within the comfort of their homes as well as tracking their spending whenever and wherever they want (Pikkarainen, 2004; Poon, 2007; Tan and Teo, 2000; Venkatesh and Davis, 1996).
- *24/7 availability:* thanks to Internet banking, customers don't need to wait for timing of bank branches; they can access their banking facilities and services all around the clock. Internet banking is not bound by operational timings. Customers can manage their banking affairs whenever and wherever they want. (Nath et al. 2001; Tan and Teo, 2000)
- *Self-service channel:* Internet banking offers a self-service channel to their customers where they don't rely on tellers and the bank's staff to avail their services (Eriksson and Nilsson, 2007).
- *Dodge fees:* it is considered as the greatest benefit. Internet banking is cheap for customers. Online banking services cost less than traditional brick-and-mortar ones. Karem (2008) compared the costs associated with traditional

branch banking and internet banking to customers and he found that online banking charges are much less than those of traditional banking.

In addition to the benefits offered to the customer, IB also allows banks:

- *Increased profitability:* for bankers, Internet banking has considerably reduced the administrative costs and paperwork related to banking transactions. This has significantly increased the profit margins of commercial banks by lowering their operating costs. (Nath et al., 2001)
- *Cost effective:* more and more customers adopt Internet banking which helps the banks to cut down their workforce and reduce the administrative costs bear by the banks. Many studies show that electronic banking has successfully reduced operating and administrative cost and fees (Singh, 2013; Sullivan and Wang, 2013; Nath et al., 2001; Bradley and Stewart, 2003).
- *Create brand awareness and enhance reach:* through the Internet, banks can reinforce the brand image in the mind of their customers. Customers experience a brand privilege while using a product or service and also when interacting with the bank (Carraher et al. (2006). IB provides opportunities for the bank to develop its market by attracting new customers from Internet users (Suganthi et al. 2001; Dannenberg and Kellner, 1998). Web 2.0 channels help banks to communicate collaboratively with the bank current and potential customers, in receiving feedback, product definition, product development, or any forms of customer service and support. Web 2.0 tools have become major players in strengthening brand loyalty and credibility.

Therefore, it can be concluded that Internet banking offers a plethora of advantages for both customers and banks. Previous researchers have empirically found that Internet banking provides banks with competitive advantages by improving the quality of customer services and reducing the operational costs (Jourdan and Katz, 1999, Furst et al., 2000a). It has a positive impact on customer satisfaction (Karjauloto, 2003). It is cost effective, convenient and accessible (Nath et al. 2001; Bradley and Stewart, 2003; Gerard and Cunningham, 2003). Internet banking channel is not

limited by operational timings and most importantly there is no geographical boundaries. The sky is the limit for the advantages of Internet banking.

Nonetheless, in spite of the benefits mentioned above, the literature has revealed that the cost of implementing Internet banking in developing countries which suffer from a shortage in information technology infrastructure is high as the integration of a new technology demands a high investment budget in terms of hardware and software requirements (Chircu and Kauffman, 2000). Besides, implementing Web 2.0 technology as a business channel requires complex understanding, professional expertise, and serious investment in training for internal employees (ibid). The third obstacle is related to security, privacy, and trust of Web system (Gerrard and Cunningham, 2003; Polatoglu and Ekin, 2001; Rotchanakitumnuai et al., 2003; Sathye, 1999). Customers often worry about the security of the system and the reliability of Internet services because they fear data breaches when using these technologies for financial transactions (Aladwani, 2001; Black et al., 2001; Gerrard and Cunningham, 2003; Sathye, 1999). Most customers are not satisfied with the infrastructure of Web security systems. They are worried that technology-based service delivery systems will not work appropriately and adequately and thus cause incomplete transactions (Walker et al., 2002; Rotchanakitumnuai and Speece, 2003). In a report of Internet and Mobile Association of India (IAMAI – 2010-11) it was found that clients are reluctant to perform financial transactions through the bank web site due to security concerns (43%); preference for face-to-face transactions (39%); lack of knowledge about online transactions (22%); lack of user friendliness environment (10%); and lack of this facility in current bank (2%). In addition, M-C Lee (2009) show that the intention to use IB is negatively affected by the security and privacy concerns. Consequently, security and trust of the website are primordial to achieve IB successful implementation and adoption.

1.4.2. Types of Internet Banking

In recent years, traditional brick and mortar banks have introduced different services that are conducted via the Internet. These services allow bank customers to shop online, pay bills and taxes, send, receive, and monitor money in their accounts. In other words, clients can conduct almost all their financial operations online.

According to Mu Yibin (2003), there are three functional levels of internet banking that are currently employed in the financial market: informational, communicative and transactional.

Informational Internet banking: as its name suggests is the fundamental level of Internet banking. It doesn't permit customers to communicate or view their bank accounts. It only provides customers with basic information about the services and the products that are provided by the bank. It is only meant for marketing purposes and customers do not have access to the bank's main computer system which means that there is no interaction between the customer and bank's application system. Therefore, the risk is relatively low as informational systems typically have no path between the server and the bank's internal network.

Communicative online banking allows communication and interaction between the customer and the bank. However, it is generally limited to inquire and update account, and request a loan or mortgage, exchange rate, interest rate, investment funds information, etc.

Transactional internet banking offers all the benefits of a brick-and-mortar bank which includes activities such as deposits, withdrawals, funds transfers, bills payment, credit cards payments, fund investments and updates. It permits bank customers to execute their financial transactions online. This type is considered as the highest architecture and demand strong control.

1.4.3. Technology Acceptance Models and Theories

Since the beginning of the new millennium, the breakthroughs in IT have revolutionized the banking industry and have transformed the traditional way of delivering services and communicating into new and modern techniques with technological support. For that reason, a lot of research has been conducted to investigate and predict the factors that influence the acceptance and use of these technologies - IB. A number of models and frameworks have been developed to explain users' adoption or rejection of new technologies and these models have introduced factors and offered new insights that can affect users' adoption. The most well-known theoretical models which have attempted to explain and predict the relationship between users' beliefs, attitudes and intentions include *Theory of Reasoned Action* (TRA- Fishbein and Ajzan, 1975), *Theory of Planned Behavior* (TPB- Ajzen, 1991), and *Technology Acceptance Model* (TAM- Davis, 1989). The following section provides an overview of the main theories and models regarding users' acceptance of technology. **Figure 1-18** provides an overview of these theories. All technology acceptance theories are designed to measure the degree of individual acceptance and satisfaction toward the use of an IT but from different angles and perspectives.

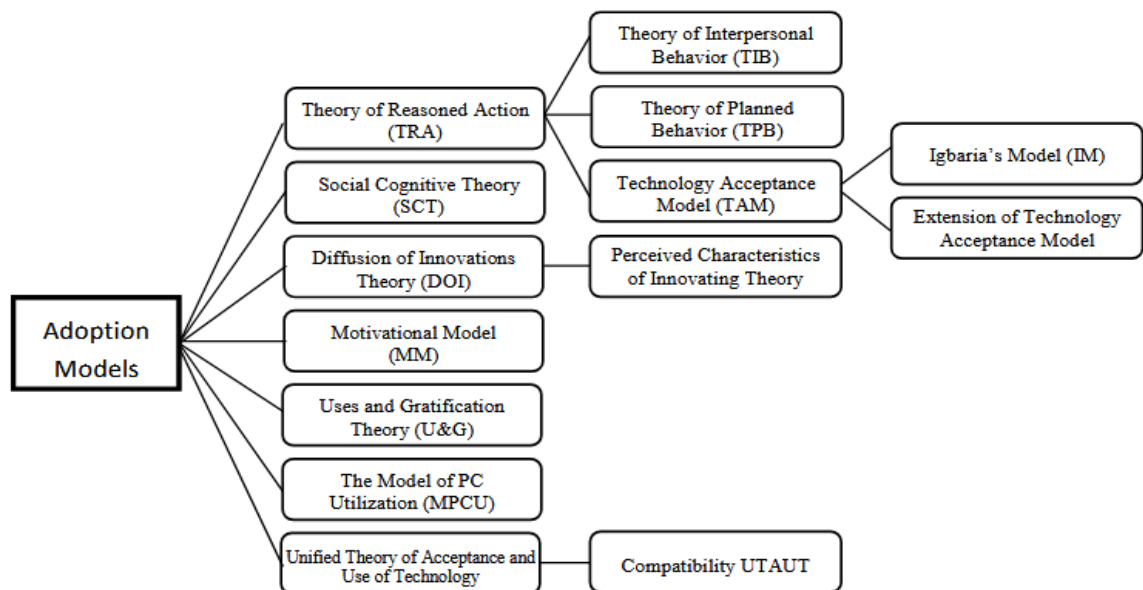


Figure 1-18.An overview of adoption / acceptance Models (Taherdoost, H. 2018).

1.4.3.1. Innovation Diffusion Theory (IDT)

Diffusion of Innovations Theory, developed by E. M. Rogers in 1962, is one of the oldest social science theories that are meant to study any kind of innovations (Tornatzky and Klein, 1982). It seeks to explain how, why, and at what rate a new idea, behavior, product or technology spreads through a specific population or social system. Rogers (1962) proposes four major factors for determining individual behavior, namely innovation, communication channels, time, and social systems. Rogers defines *diffusion* as “the process in which an innovation is communicated through certain channels over time among the members of a social system” while *Innovation* “as an idea, act, or instrument that is new to an individual or a group of people” (p. 5). *Communication* is a process that leads to create and share information with others in order to get a common understanding. This reveals that innovation, communication channels, time, and social system are the four key components of the diffusion of innovations theory. Adoption of a new idea, product, or technology does not happen simultaneously in a social system; it is a process whereby some individuals are prone to adopt the innovation more than others based on some characteristics. In the same respect, Rogers (2003) indicates that there are five innovation attributes which influence individuals’ behaviors and explain the rate of innovation adoption. These attributes are: relative advantage, compatibility, complexity, trialability, and observability. Moreover, according to IDT, there are five established adopter categories: innovators, early adopters, early majority, late majority and laggards which is clearly demonstrated in **Figure 1-19**.



Figure 1-19. Adopter Categorization on the basis of Innovativeness (Rogers, 2003: 282)

First of all, Innovators are those who are willing to experience new ideas or new products. Second, early adopters are considered as role models whose attitudes influence positively the innovation adoption and decrease uncertainty about the innovation in the diffusion process. Although the early majority do not possess the leadership role of the early adopter, they are, yet, very important in the innovation-diffusion process as they have a good interaction with other members of the social system. Concerning late majority, they are uncertain about the innovation and its outcomes; so they will adopt the innovation after feeling safe and being persuaded by their peers. Laggards are more skeptical about innovations than late majority. They tend to take their decision after scrutinizing all the benefits of the innovation before adopting it (Roger, 2003).

Moreover, Rogers (2003) relates the newness characteristic of an adoption to three stages (knowledge, persuasion, and decision) of the innovation-decision process. This process is described as “an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation” (Rogers, 2003:172). **Figure 1.20** below describes the five stages involved in the innovation-decision process, namely knowledge, persuasion, decision, implementation, and confirmation.

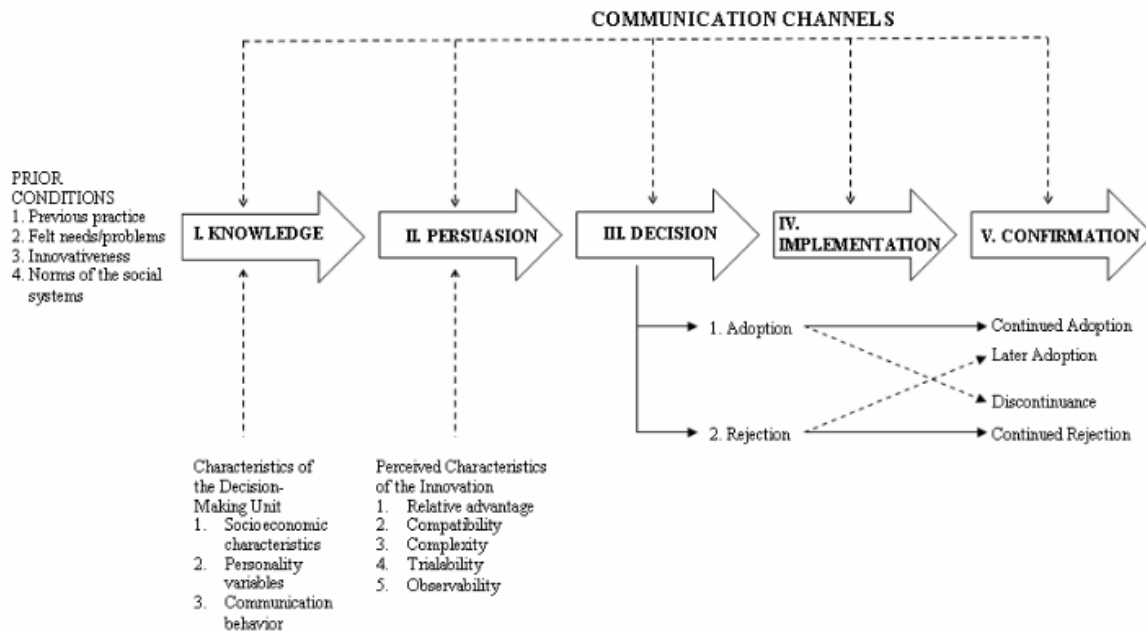


Figure 1-20. A model of five stages in the Innovation-Decision Process (Rogers, 2003: 21)

In the first stage of the Innovation-decision process, the individual seeks information about the innovation. The persuasion stage is when the individual develops a positive or negative attitude towards the innovation. In this stage, the individual is involved more sensitively with the innovation. He/she is more likely affected by their peers' subjective evaluation of the innovation. At the decision stage in the innovation-decision process, the individual chooses to adopt or reject the innovation. At the implementation stage, the innovation is put into practice. However, the outcomes of the innovation can bring uncertainty at this stage. The last stage of the innovation-decision process is the confirmatory stage. In this stage, the individual looks for support for his/her decision. According to Rogers (2003) "this decision can be reversed if the individual is exposed to conflicting messages about the innovation" (p.189). Therefore, individual's attitude toward the innovation is fundamental at the confirmation stage. It may lead to later adoption or discontinuance.

1.4.3.2. Theory of Reasoned Action (TRA)

In spite of being firstly developed for sociological and psychological research by Fishbein and Ajzen in 1975, Theory of Reasoned Action has become a foundation to investigate Information Technology (IT) usage behavior (Kuo, Roldan-Bau and

Lowinger, 2015). The Theory of Reasoned Action (TRA) is considered as one of the most popular theories used. It is a well-established model that has been used broadly to predict and explain human behavior in various domains. In this theoretical model, the person's intention about performing a behavior is determined by social pressures or "subjective norms", which arise from the individuals' perception of what others will think about them performing the behavior in question (Valler and, Deshaies, Cuerrier, Pelletier, and Mongeau, 1991) and also by their attitude towards performing that behavior (Ajzen 1988; Fishbein and Ajzen 1975). Hence, both personal attitude and social or "normative" factors exert a direct influence on behavioral intention, which are the strongest predictor of actual behavior (**Figure 1.21**). All other factors in the external environment influence behavior only indirectly, through their influence on attitudes and subjective norms.

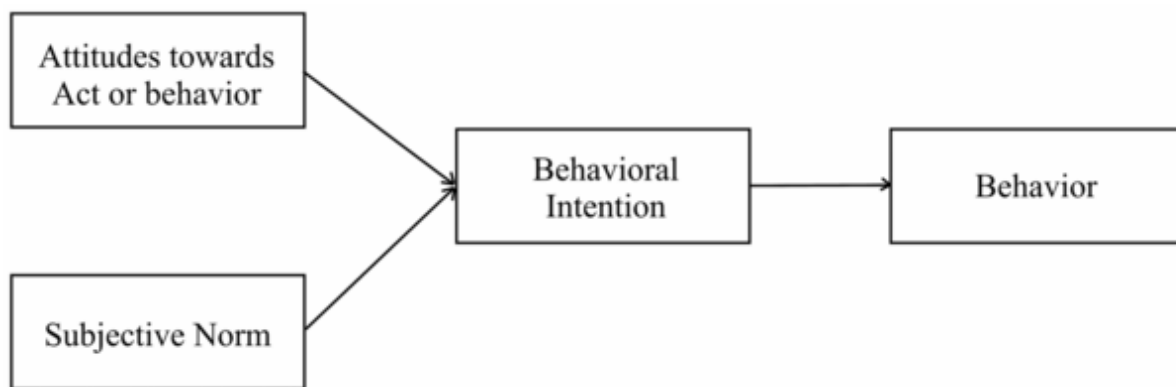


Figure 1-21. The Theory of Reasonable Action (Fishbein & Ajzen, 1975/1980)

1.4.3.3. Theory of Planned Behavior (TPB)

Ajzen (1991) developed the Theory of Planned Behavior (TPB) as an extension of the TRA. TPB includes a new variable: Perceived Behavioral Control (PBC) which refers to the control that users perceive when their behavior is limited and under no volitional control. This construct determines behavioral intention of the user's attitudes towards that behavior as shown in **Figure 1.22**. The first two factors are similar to Theory of Reasonable Action; both TRA and TPB assume that person's Behavioral Intention affects individual's behavior. However, TPB postulates that

Perceived Behavior Control for individual's actions is an independent determinant of behavioral intention along with attitude towards the behavior and subjective norm (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980; Ajzen, 1991).

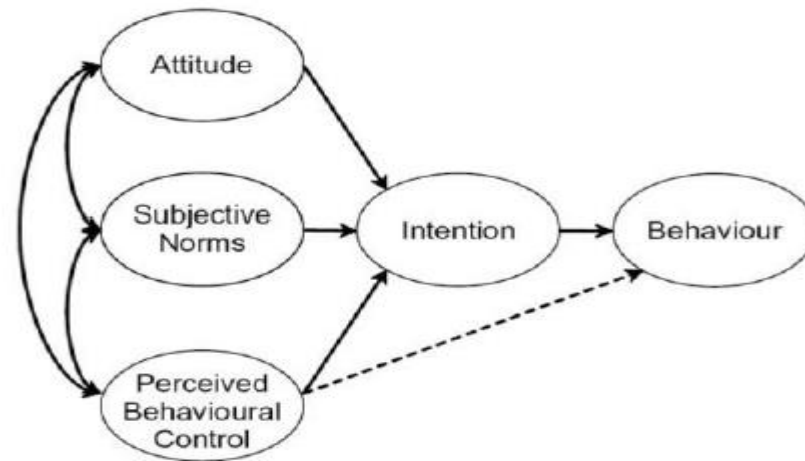


Figure 1-22. The Theory of Planned Behavior (Ajzen, 1991, p. 182)

1.4.3.4. Decomposed Theory of Planned Behavior (DTPB)

From the TPB, Taylor and Todd (1995) developed the Decomposed Theory of Planned Behavior (Decomposed TPB). They indicate that a better understanding of the relationships between the belief structures and antecedents of intention requires the decomposition of attitudinal beliefs. According to this model, attitude, subjective norm, and perceived behavioral control are the key elements that explain the reasons why individuals behave in a certain manner. Todd and Taylor (1995) argue that the decomposed model of the TRA and TPB has better explanatory power than the pure TRA and TPB models.

Attitude is about the perceptions that individuals hold towards a particular innovation. It is decomposed into three variables which include relative advantage (Perceived usefulness), complexity (perceived ease of use), and compatibility with innovation diffusion theory on personal perception of technology innovation. The perceived usefulness refers to the degree to which the users believe that using a specific application system will increase their job performance. The perceived ease of use refers to the degree to which users believe that using a specific application system is

easy and convenient. Compatibility is perceived as the extent to which the technology complements the already existing activities, past experiences and current values of individuals. Moreover, subjective norms are about the social influences that motivate an individual to start using a particular technology (Ajzen, 1991). Concerning perceived behavioral control, Taylor and Todd (1995) identify two important factors that influence the adoption of technologies: self-efficacy and facilitating conditions. Self-efficacy is mostly related to what individuals believe they can do with the skills they possess. Facilitating conditions, on the other hand, reflect the availability of resources such as time, money, and other specialized resources needed to engage in a behavior (Taylor & Todd, 1995).

Similarly, Suoranta and Mattila (2004) argue that decomposed theory of planned behavior offers a comprehensive approach to understanding the factors affecting a person's decision to use Information Technology (IT).

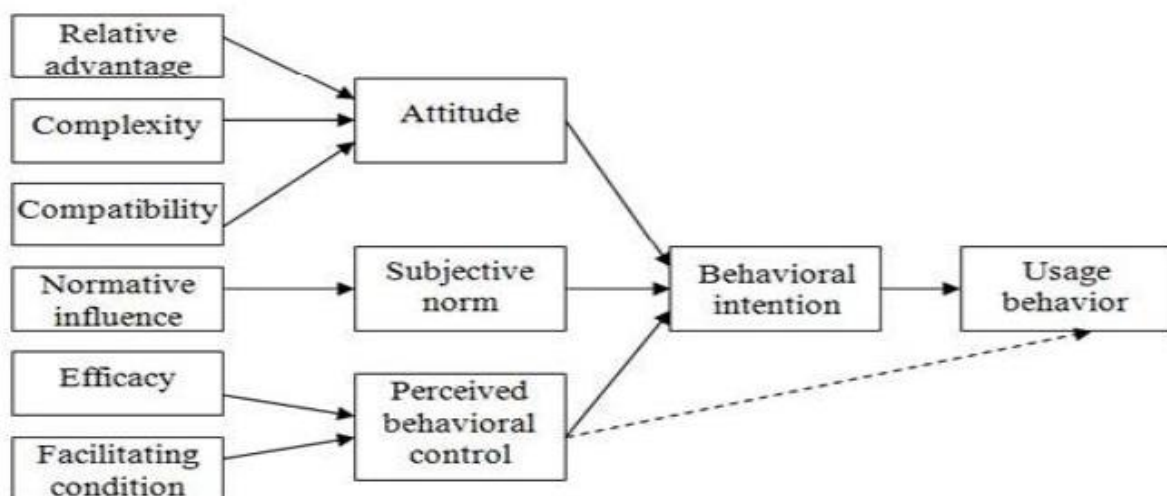


Figure 1-23. Decomposed Theory of Planned Behavior (Shih & Fang, 2004, p:217)

1.4.3.5. Technology Acceptance Model (TAM)

There is a plethora of theories and models that have been used to explain the reasons behind the adoption of technology in different areas of research and several studies focusing on adoption of mobile services have their roots in Technology Acceptance Model (TAM). This later is considered as one of the most popular research models to

predict use and acceptance of information systems and technology by individual users thanks to its robustness, simplicity, and applicability in explaining and predicting the attributes that affect users' adoption towards new technologies (Lu, Yu, Liu, & Yao 2003; Marangunic and Granic, 2015; Rauniar, Rawski, Yang, and Johnson, 2014; Venkatesh and Davis, 2000).

TAM has been utilized in many online contexts to measure user perceptions of system use, and the probability of adopting an online system (Teo et al.,1999; Gefen and Straub, 2000; Moon and Kim, 2001; Pavlou, 2001). Hence, with the increasing number of global banking groups offering and improving online banking services (American Banker, 2002), it is primordial to identify and test the key motivators and inhibitors for consumers' acceptance of Internet banking in Morocco.

Originally Technology Acceptance Model (TAM) was developed to test and explain why users accept or reject information technology (Davis et al., 1989). Since then, it has been extended to e-mail, voice mail, database management systems (DBMS; Szajna, 1994), personal computers (Igarria et al., 1995), the World Wide Web (Gefen and Straub, 2000), and telemedicine technology (Chau and Hu, 2001), among others. According to Mathieson (1991)and Szajna (1996) (as cited in Yousafzai et al., 2010) the widespread popularity of the TAM can broadly be attributed to three factors:

- (a) it is parsimonious, IT-specific, and designed to provide an adequate explanation and prediction of a diverse user population's acceptance of a wide range of systems and technologies within varying organizational and cultural contexts and expertise levels;
- (b) it has a strong theoretical base and a well-researched and validated inventory of psychometric measurement scales, making its use operationally appealing;
- and (c) it has accumulated strong empirical support for its overall explanatory power(pp.1177-1178).

Introduced by Fred Davis in 1986, Technology Acceptance Model (TAM) has emerged as a powerful and parsimonious model (Yousafzai, Foxall, and Pallister, 2007a, 2007b). TAM is also considered as the most widely applied and validated model for various contexts and across a variety of technologies (Venkatesh and Davis,

2000). Depicted in **Figure 1.24**, the TAM is developed based on The Theory of Reasoned Action (TRA) which suggests that social behavior is motivated by the attitude and intention to use a technology (Fishbein and Ajzen, 1975). According to TRA, individuals often behave as they intend to do within available context and time. This means that a person's acceptance of a technology is determined by his/her voluntary intention to use that technology. Intention, in turn, is determined by the person's attitude toward the use of that technology and his/her perception concerning its usefulness. Therefore, TAM adopts causal linkages between two key beliefs, i.e. perceived usefulness and perceived ease of use, the attitude and intention, as well as actual technology adoption behavior (Davis et al., 1989). Besides, it uses TRA's constructs to explain how external variables influence the inner beliefs, attitude, behavioral intention of users, and the actual usage of technology.

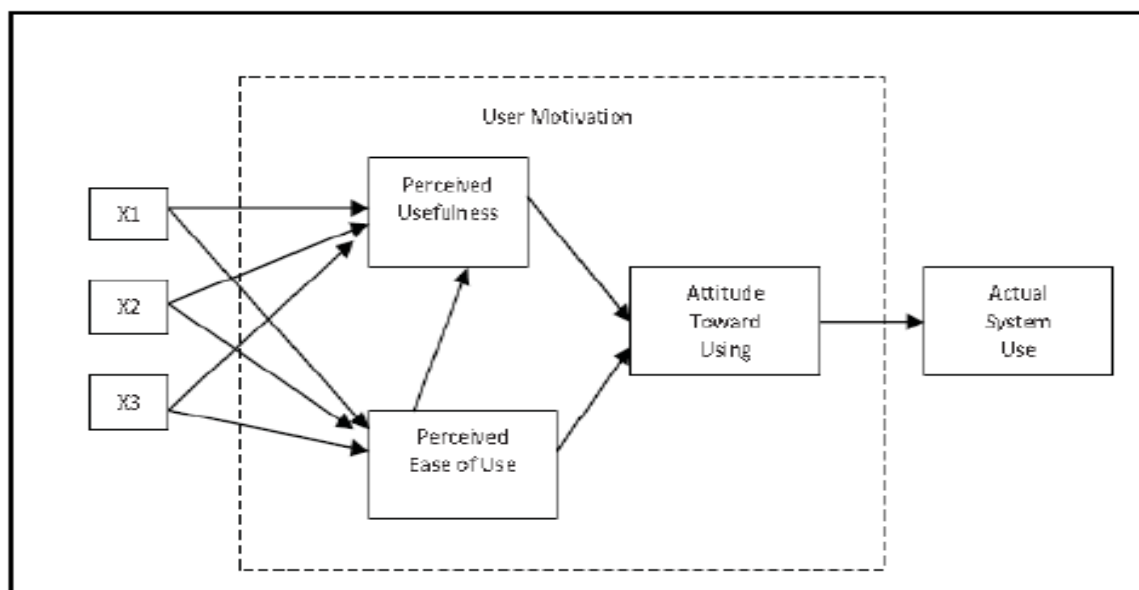


Figure 1-24. Original Technology Acceptance Model TAM (Davis, 1986, p.24)

The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it, notably: Perceived Usefulness (PU) and Perceived Ease (PE). These two predictors are the main determinants of the attitude towards a new technology. Research has provided empirical support to show that PU and PEOU play critical roles in predicting and

determining the usage behavior in technology acceptance situations (Horton, Buck, Waterson, and Clegg, 2001; Karahanna and Straub, 1999; Moon and Kim, 2001; Teo, Lim and Lai, 1999; Venkatesh et al., 2003; Venkatesh and Davis, 2000). They provide better measures for predicting and explaining system use.

According to Davis (1989), *Perceived Usefulness (PU)* is “the extent to which a person believes that using a particular system will enhance his or her performance” (p.26). That is having a useful function. In the context of internet banking, PU refers to the customer’s perception about internet banking in terms of increased efficiency and convenience in performing banking transactions. Prior research has revealed that Perceived Usefulness has a significant positive influence on Intention to adopt technology (Luarn & Lin, 2005; Cheong and Park, 2005; Chiu et al., 2005; Wang et al., 2003; and Venkatesh and Morris, 2000). As a result, usefulness is revealed to be one of the major factors that push customers to use Internet banking.

Davis (1989) also defines *Perceived Ease of Use (PEOU)* as “the extent to which a person believes that using a particular system will be free of effort” (p. 26). In the context of Internet banking, the websites should be more user-friendly and contain clear and detailed instructions. Thurow (2002) states that in order to design a seamless website, the designer have to respect the following rules: “the website should be easy to read, easy to navigate, easy to find, consistent in layout and consistent in design” (p.7). Hence, customers are likely to use Internet banking if it is easy to use. Moreover, research has shown that there is a positive relationship between PEOU and intention to adopt Internet banking (Ramayah et al., 2009; Lee, 2009; Wu and Wang, 2005 and Wei et al., 2009).

In the same line of thought, *Attitude (ATT)* construct measures the feeling of favorableness or unfavorableness towards using the technology (Davis, 1989). It usually refers to the degree of preference that is derived from the usage of a product or information technology services (Wang and Scheepers, 2012).

Hence the goal of TAM is to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range of

end-user computing technologies and user populations while at the same time being both parsimonious and theoretically justified (Davis, Bagozzi, and Washaw, 1989).

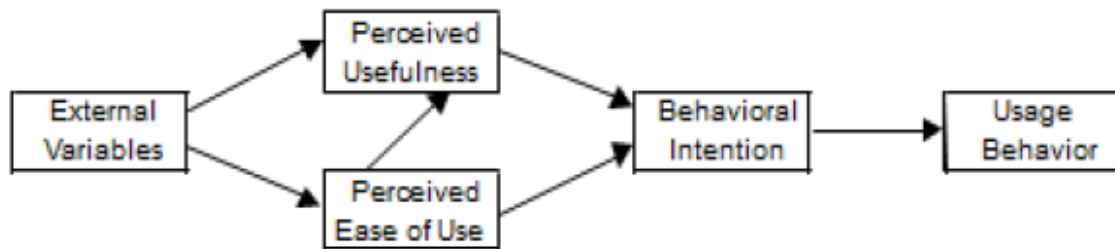


Figure 1-25. Final Version of Technology Acceptance Model (TAM) (Venkatesh & Davis, 1996)

The final version of Technology Acceptance Model (TAM) was formed by Venkalesh and Davis (1996) as shown in **Figure 1.25**. It reveals that Perceived Usefulness (PU) and Perceived Ease-of-Use (PEOU) have a direct influence on behavior intention, thus eliminating the Attitude construct.

In 2000, Venkatesh and Davis proposed TAM2. It provides more detailed explanations for the reasons why users found a given system useful at three stages: pre-implementation, one-month post-implementation and three-month post-implementation. TAM2 theorizes that “users’ mental assessment of the match between important goals at work and the consequences of performing job tasks using the system serves as a basis for forming perceptions regarding the usefulness of the system” (Venkatesh and Davis, 2000 as cited in Lai, 2017:27).

Venkatesh and Bala (2008) combined TAM2 (Venkatesh and Davis 2000) and the model of the determinants of PEOU and developed an integrated model of technology acceptance which is TAM3. The research model suggests that PEOU to PU, computer anxiety to PEOU and PEOU to behavioral intention are moderated by experience. **Figure 2.26** represents TAM, TAM2, TAM3 and the differences between each model.

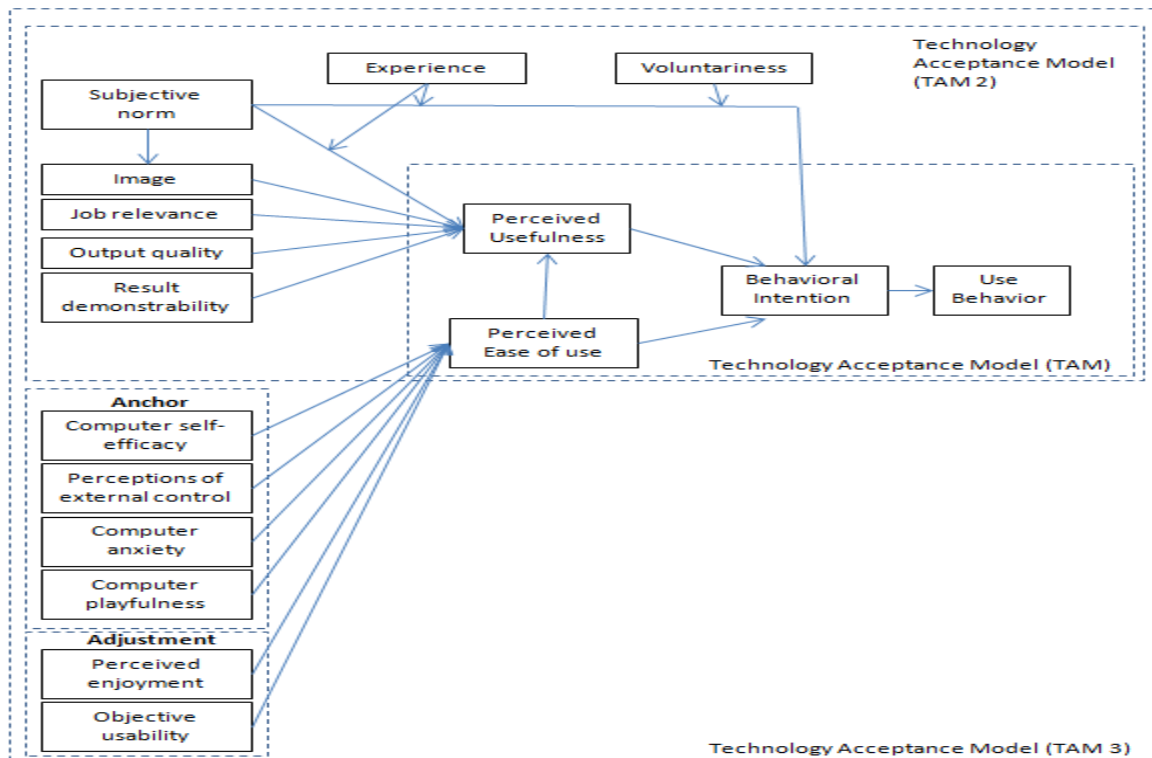


Figure 1-26. Technology Acceptance Models TAM, TAM2, Vs TAM3 (Boughzala, (2014).

1.4.3.6. Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT was proposed by Venkatesh et al. (2003). This theoretical model incorporates elements across eight models of IT acceptance: the TRA, TAM, TPB, IDT, SCT, Motivational model(MM), combined TAM and TPB (C-TAM-TPB), and Model of Personal Computer Utilization (MPCU). UTAUT focuses on four key constructs to determine users' behavioral intention to use a technology, namely performance expectancy, effort expectancy, social influence, facilitating conditions (Venkatesh et al., 2003). These four constructs have been used in a lot of research to explain behavioral intention towards IT usage (Curtis et al., 2010; Ghalandri, 2012; Marchewka et al., 2007). However, gender, age, experience, and voluntariness of use are just moderating variables assumed to influence the four major variables on usage intention and behavior.

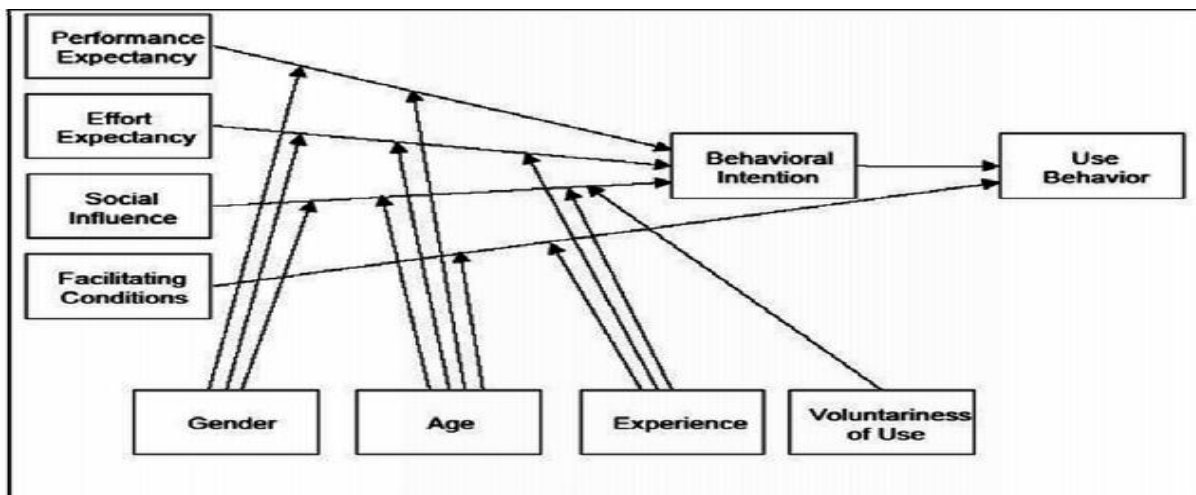


Figure 1-27. UTAUT Model (Venkatesh et al., 2003)

Despite incorporating a great number of constructs, UTAUT suffers from significant constraints, including lack of parsimony and high complexity which makes it difficult to assess (Bagozzi, 2007). Besides, many researchers argue that UTAUT was developed to explore mandatory use of technology; therefore, its ability to explain the voluntary use of technology, such as mobile banking is somehow limited (Van der Haijden, 2006).

Recently, Venkatesh et al. (2012) proposed an extension of the UTAUT model (UTAUT2) by introducing hedonic motivation, price value and habit as exogenous variables to make the model more appropriate in the context of consumer technology use.

1.4.3.7. Perceived Risk Theory

Perceived Risk (PR) has been used to explain customer behavior since the 1960s (Forsythe & Shi, 2003). For Bauer (1960), perceived risk is focused on a sense of loss. Dowling defines risk as “the situation where the decision maker has a prior knowledge of both the consequences of alternatives and their probabilities of occurrence”(1986:194). Moreover, PR is commonly thought of as a feeling of uncertainty regarding possible negative consequences of using a product or service (Featherman and Pavlou, 2003). In the same vein, Bauer (1967) argues that PR is a combination of uncertainty plus seriousness of outcome involved.” (p.13).According to Arrow (1950), Humphreys and Kenderdine (1979), and Taylor (1975), Perceived

risk is strongly related to the uncertainty that clients feel about “future outlay”. Moreover, Cunningham (1967) defines risk as the amount that would be lost if the consequences of an act were not favorable, and the individual’s subjective feeling of certainty that the consequences will be unfavorable. In a similar strain, Mitchell (1999) reveals that the classical decision theory describes risk as reflecting variation in the distribution of possible outcomes, their likelihoods and subjective values. Besides, Sayers et al., (2002) describe risk as a combination of the chance of a particular event, with the impact that the event would cause it to happen. In addition, Shin (2010) points out that perceived risk is considered as a fundamental concept of consumer behavior and is used most of the time to explain consumers’ risk perceptions. Perceived risk significantly influences consumer behavior since people tend to avoid making mistakes and being scammed. In this sense, risk measures uncertainty towards possible negative results; it may include all the negative consequences of a consumer behavior that cannot be predicted or anticipated.

For these reasons, security has been widely recognized as one of the most prominent barriers to the adoption of Internet Banking (Aladwani, 2001; Daniel, 1999; Kuisma, 2007; Lee, 2008). It has been studied and used since the early 1960s; similarly, considerable research has examined the impact of risk on traditional consumer decision-making processes (Karjaluoto et al., 2014; Lee, 2009; Lin 2008). Additionally, Pavlou (2003) finds that when subjects perceive that there are little behavioral and environmental uncertainties, they can perceive more control over online transactions, which can increase the use of the online channels. In Internet Banking, Lee (2008:2) defines perceived risk as “the subjectively determined expectation of loss by an internet banking user in contemplating a particular online transaction”. That is to say, if the risk perceived is low, customers could consider using online platform transactions. Moreover, Altan and Karasioglu (2004) point out that customer’s resistance to use internet banking is mainly determined by their distrust of the services and their feeling that their confidentiality is not secured.

Furthermore, Lee (2009) examined a host of antecedents that influence the adoption of internet banking in Taiwan and found that the intention to use online banking is

negatively affected by security, privacy, and financial risks. Nevertheless, Karjaluoto et al., (2014) found a negative relationship between perceived risk and attitude (Akturan and Tezcan, 2012; Kuo and Yen, 2009) and intention to adopt mobile technology (Thakur and Srivastava, 2014), especially in the technology acceptance context. Furthermore, Chen (2005) considers perceived risk as an important variable in online banking and payment services, especially in developing countries, which have fragile telecommunication network.

In Internet Banking, security is one of the most important challenges, because customers are not enthusiastic to use the Web for their financial transactions (Aladwani, 2001; Black et al., 2001; Gerrard and Cunningham, 2003; Sathye, 1999). Perceived risk has been frequently identified as a key barrier to adopting online and mobile services (Featherman and Pavlou, 2003; Gefen et al., 2003; Lee and Turban, 2001). It influences negatively the adoption of internet banking (Tan and Teo, 2000). Customers feel strong insecurity concerns to use Internet channels for financial transactions such as data leakage, phishing, hacking, etc. (Black et al., 2001; Greaves et al., 1999; Jones et al., 2000; Madu and Madu, 2002), and they are not satisfied with the infrastructure of Web security systems (Black et al., 2001; Gattiker et al., 2000) as security violation may result in numerous problems such as destruction of operating systems, or disruption of information access (Min & Galle, 1999). Along with this, Yousafzai, Pallister and Foxall (2003:7) define perceived securityas:

customers' perceptions of the degree of protection against the aforementioned threats. In the context of Internet banking, security threats can either be through network, or data transaction and transmission attacks or through unauthorized access to the account by means of false authentication.

The increasing security concerns among banking customers specially in developing countries which have fragile infrastructures, continue to be a concern for users and an impediment for potential internet banking users(Juwaheer et al., 2012; Oni & Ayo, 2010; Tan and Teo, 2000). Prior research has found that perceived security favorably influences individuals' intention to use internet banking (Cheng et al., 2006).

Customers who use mobile devices such as smartphones, tablets, lap tops for banking transactions are often anxious about security issues; they are reluctant to make online purchases or transfer funds because they are prone to hacking, loss and misuse (Laukkanen et al., 2007; Yousafzai et al., 2003). Therefore, perceived risk is higher in online banking compared to traditional banking which includes face-to-face operations and transactions.

1.4.3.7.1. Perceived Risk Facets of Internet Banking

Cunningham (1967) identified two major dimensions of perceived risk; performance risk and psychological risk. He broke performance risk into three types: economic, temporal, and effort; and broke psychological risk into two types: psychological and social. Cunningham (1967), Jacoby and Kaplan (1972), Stone and Mason (1995), and Berman and Evans (2010) state that perceived risk is usually measured as a multidimensional phenomenon that holds six facets: 1) financial, 2) performance, 3) psychological, 4) physical, 5) social, and 6) time. Litter and Melanthiou (2006) mention also six types of risk perceived by customers of Internet banking, but instead of the Physical dimension, they include security risk facet.

Since Internet banking context does not incur any threat to human life, the measures of physical safety risk are; therefore, not included in this study. Besides, the measures of time, social and psychological are also excluded as they positively influence users to adopt internet banking. Consequently, the current research investigates three types of risk, namely security risk, financial risk and performance risk, and the details of these three risks related to online banking are described as follows:

1.4.3.7.1.1. Security Risk

Security, in the context of this research, concerns the security bank system which is provided through mobile banking applications. Security is defined as a potential loss due to fraud or a hacker compromising the security of an online bank user. Both fraud and hacker intrusion not only lead to users' monetary loss, but also violate users' privacy, a major concern of many Internet users. Furthermore, security risk occurs

when customers worry that money transferred from their accounts or their private financial information can be seen by others without their permission which creates security risk (Litter and Melanthiou, 2006). Security is considered as a primordial factor that hampers users to adopt Internet banking. It is an imperative concern and is highly significant when making online financial transactions or e-payments.

1.4.3.7.1.2. Financial Risk

Financial risk is defined as the potential for monetary loss due to transaction error or bank account misuse (Lim, 2003). According to Kuisma et al., (2007), many customers are afraid of losing money while performing transactions or transferring money over the Internet. Online banking transactions lack the assurance provided by the traditional setting through formal proceedings and receipts. Hence, consumers find difficulties in asking for compensation when transaction errors happen (Kuisma et al., 2007).

1.4.3.7.1.3. Performance Risk

Performance risk refers to the loss that is due to deficiencies or malfunctions of online banking websites. Customers are often apprehensive that a breakdown of system servers or disconnection from the Internet will happen when performing online transactions since these may result in unexpected losses (Kuisma et al., 2007). According to Littler and Melanthiou, (2006), performance risk arises when the money is not transferred on time, when customers cannot access their bank web page easily, and also when the web-based services don't meet customers' expectations and requirements.

The most important facet of customer risk perceptions is the security of the services offered on the internet. Altan and Karasioglu (2004) state that the main reason for the customers deciding not to use internet banking is lack of trust of the services. According to a study conducted by Sathye (1999), 73% of banking customers avoid the adoption of online banking because they are concerned about safety and security

of transactions over the internet. In this study, an attempt is made to investigate the impact of perceived risk on attitude toward internet banking usage. The findings revealed that PR has a negative impact on customers' attitude towards IB adoption. In several studies a significant negative impact of risk perception on the attitude towards online shopping was found (Jarvenpaa et al., 2000; Laforet and Li, 2005; Teo and Liu, 2007; Featherman and Pavlou, 2003).

Ample research has been conducted to explain adoption and usage of Internet banking services across various countries. **Table 1-2.** summarizes the main empirical and theory-based Internet banking studies and the conclusions derived by each research and their predictive power in explaining intention and usage of Internet banking services. The table also indicates that TAM, TPB/DTPB and IDT were frequently employed to investigate what influences mobile banking adoption. King and He (2006) termed the TAM model as “the most powerful, versatile, and robust with highly reliable predictive capabilities in various contexts” (p.741). Hence, it is confirmed that extended TAM is effectively and widely applicable in both developed and developing countries to predict intention to adopt technology successfully.

Table 1-2. Summary of previous research on Internet banking adoption

Theories	Main Findings	Authors
TPB and DIT	Attitudinal (relative advantage, compatibility with respondent's values, experience, needs, trialability and risk) and perceived behavioral control factors as the major determinants of intention to adopt Internet banking among business firms in Singapore.	Tan & Teo (2000)
IDT and DTPB	Relative advantage, trialability, number of banking services, and risk significantly influence mobile banking adoption	Brown at al. (2003)
TAM	Perceived usefulness and Information on the website were the main factors influencing Internet banking adoption. 268 private banking customers in Finland.	Pikkarainen et al. (2004)
DTPB	The adoption of Internet banking is encouraged by attitudinal factors (features of the web site and perceived usefulness) and impeded by a perceived behavioral control factor (external environment), but not by subjective norms.	Bussakorn & Dieter (2005)
Attitude, Motivation and Behavior	Awareness, confidential and security, past experience with computer and new technology are salient factors influencing mobile banking adoption	Laforet & Li (2005)
Extended TAM	Perceived self-efficacy, financial costs, credibility, easy-of-use, and usefulness remarked influence on intention to adopt	Luarn & Lin (2005)

		mobile banking 180 respondents surveyed at an e-commerce exposition and symposium in Taiwan	
TAM and Perceived Web Security	and Perceived Web Security	Perceived Ease-of-use and perceived Web Security as independent variables, perceived usefulness and attitude as intervening variables and Intention to use as the dependent variable. 203 respondents randomly selected from the yellow pages in Hong Kong	Cheng et al. (2006)
IDT		Personal characteristics of mobile banking users were found to be important determinants of their adoption decision. 300 randomly selected respondents from Malaysia.	Ainin et al. (2007)
TAM		Perceived usefulness, easy-of-use, credibility, amount of information, and normative pressure significantly influence the adoption of mobile banking 156 respondents obtained via convenience sampling in Malaysia	Ainin et al. (2008)
TAM and some extra important control variables		Perceived usefulness and perceived ease-of-use, resistance to change, trust, age, gender, education and income were the major factors that influence attitude towards online banking usage.	Al-Somali, Gholami & Clegg (2009)
Perceive perceived benefit, and TPB	Risk, TAM and TPB	Perceived security risk, financial risk, perceived behavioral control, subjective norm, attitude, perceived benefit and perceived usefulness influence intention to use Internet banking. 368 banking users in Taiwan.	Lee (2009)
TAM and theory of resistance to innovation		The cost barrier and perceived risk are highest rejection motives, following are unsuitable device, complexity, lack of information 3585 respondents collected through an online survey in Brazil	Cruz et al. (2010)
TAM, TPB and IDT		Usefulness, social norms, risk influences the intention to adopt mobile banking. 881 samples drawn from the population of Singapore.	Riquelme & Rios (2010)
TAM, IDT and DTPB		Relative advantages, visibility, compatibility, and perceived easy-to-use significantly affects attitude, subjective norms, and perceived behavioral control significantly affects intention. 666 respondents surveyed on an online questionnaire in Brazil.	Puscel et al. (2010)
TAM and IDT		Perceived usefulness, compatibility, and risk are significant factors, while perceived costs, easy-to-use, credibility, and trust are not salient factors. 263 young people in Germany.	Koenig-Lewis et al. (2010)
TAM and TPB		Subjective norm is the most influential factor, the following is perceived usefulness and self-efficacy 195 questionnaires collected via online survey in Thailand	Sripalawat et al. (2011)
IDT and TAM		Perceived relative advantage, ease of use, compatibility, competence, and integrity significantly influence attitude, which in turn lead to adoption. 368 participants in Taiwan	Lin (2011)

TAM	Perceived usefulness, easy-of-use, image, value, self-efficacy, and credibility significantly affect intentions toward mobile banking usage. 325 usable questionnaires gathered from MBA students in India	Dasgupa et al. (2011)
TAM	Self-efficacy plays a prominent role in influencing the Internet banking intention to use in South Korea. While only 4.8 percent of usage is explained by intention	Lee & Chung (2011)
DIT	Relative advantage, compatibility, and observability have positive impact on adoption. Trialability and complexity have no significant effect on adoption. 330 actual mobile banking users in Saudi Arabia.	Al-Jabri & Sadiq (2012)
TAM	Perceive ease of use has a significant positive influence on perceived usefulness, and both PU and PEOU positively influence attitude. Attitude significantly influences Intention to use online banking. 300 Moroccan banks' customers.	Echchabi (2012)
IDT	Perceived relative advantage, perceived ease of use, perceived compatibility and perceived trialability have a significant effect on customers' acceptance of Internet banking. 1286 respondents in Yemen.	Al-Ajam & Md Nor (2013)
TAM, Quality and Experience factors	All the sixth dimensions (behavioral intention, attitude, perceived usefulness, experience perceived of use and quality) have a positive impact on the value of mobile banking services 238 customers of the Jordan banks.	Alsamydai (2014)
TAM, PR, P cost, compatibility with life style, perceived credibility and trust	PU, PEOU, need for interaction, PR, perceived cost, compatibility with life style, credibility and trust significantly impact m-banking adoption. 361 bank clients in Iran.	Hanafizadeh et al. (2014)
TAM	Beliefs, security, privacy and infrastructure are significant factors affecting IB adoption. 12 males and 8 females focus group discussion in Nigeria.	Agwu, A. M. (2015)
TAM3	Consumer's use behavior is influenced by PU, not PEOU. The moderator effect result in experience had a positive moderator effect on objective usability to PEOU. 307 respondents in Taiwan.	Chen et al. (2016)
UTAUT and TAM	Hedonic motivation of mobile banking users was identified as the most important factor motivating customers to adopt mobile banking, whereas security had a negative relationship with hedonic motivation. 480 respondents among generation Y in Thailand.	Boonsiritomachai & Pitchayadejanant (2017)

1.4.4. Research Model and Hypotheses

Understanding the main factors that influence Internet banking adoption in Morocco is a key element for both banks and customers. If banks get to know customers' concerns, they will definitely be able to increase online banking usage in the future by dressing up the situation, creating the right policies and actions, better formulating their marketing strategies, and providing adequate services that meet the customers' needs and expectations. In this investigation, a conceptual model is developed that combines the Technology of Acceptance Model (TAM) with Perceived Risk (PR) so as to explain and determine the factors that hamper and/or encourage Internet banking adoption among Moroccan banking customers.

Among the theoretical models that were developed to describe technology acceptance, TAM is the most widely adopted by a lot of researchers, with more than 7000 citations, as reported by Google scholar citations in 2010 (Bradley, 2012, pp.19-36). It is the most used framework in predicting information technology adoption (Legris, Ingham and Collette, 2003; Dillon and Morris, 1996; Lee, Kozar and Larsen, 2003). According to Yousafzai et al., (2010), TAM popularity is mostly due to three aspects: Firstly, TAM can explain and predict accurately IT adoption by individuals in different situations. Secondly, TAM contains a well-built theoretical literacy base and high validity and reliability measurement scales. Thirdly, TAM has been the subject of many empirical studies. It has been widely used by many researchers to describe the acceptance of a particular technology and the findings of which support its overall explanatory power.

1.4.5. Related Literature in Technology Acceptance Model

In many studies, many antecedent variables have been added to the TAM constructs namely Perceived Usefulness (PU), Perceived Ease of Use (PEOU) and Attitude (ATT) so as to strengthen the model (Kental et al., 2005; Moon and Kim, 2001; Sabah et al., 2009; Lewis et al., 2010; Edwin et al., 2006; Al-Somali et al., 2009). For instance, Kental et al., (2005) added the construct of trust as antecedent to TAM variables. Their research revealed that trust has a positive influence on both PU and

PEOU. Moon and Kim (2001) added playfulness variable as an intrinsic motivation factor in the acceptance of the World Wide Web. Sabah et al., (2009) used social influence and awareness of services as control variables that affect PU, while computer self-efficacy and quality of Internet connection influence PEOU. They found that these variables correlated significantly with PU and PEOU. Aldas-Manzano et al., (2009) introduced the role of the product involvement and found that product involvement plays an important role in increasing PEOU. Lewis et al., (2010) indicated that compatibility and risk are significant indicators for the adoption of Mobile banking services. Compatibility was identified as an important antecedent for PU, PEOU and credibility while trust and credibility are crucial in reducing the overall perceived risk of mobile banking. Moreover, Edwin et al., (2006) adopted PEOU and Perceived web security as independent variables, PU and attitude are intervening variables, and intention to use as the dependent variable. They found that PU and web security are major determinants of customer's intention to use IB services, while PEOU is a significant secondary determinant of customer's intention. Al-Somali et al., (2009) investigated the acceptance of online banking in Saudi Arabia. Their findings show that awareness of online banking and its benefits, the social influence and computer self-efficacy have significant effects on perceived usefulness and perceived ease of use of online banking acceptance. Khalfan et al., (2006) attempted to figure out the factors that influence Internet banking in Oman. They found that the issues of security and data confidentiality have been a major barrier in adoption of Internet banking. Nasri and Charfeddine (2012) conducted a study about the factors that affect Internet banking adoption in Tunisia. They use TAM and TPB. Their model employed security and privacy, self-efficacy, government support, and technology support, in addition to perceived usefulness, perceived ease of use, attitude, social norms, perceived behavioral and intention to use Internet banking. These factors have various effects on IB adoption. Abdul Hamid et al., (2007) conducted a comparative analysis of IB in Malaysia and Thailand. The results revealed that both countries provide basic services offered by commercial banks. Belief on lack of effort on educating the customers about IB further affected the usability of IB in both countries. Cruz et al., (2010) studied the factors that deter mobile banking usage in Brazil. Their findings

concluded that most customers never use mobile banking services. They identified risk, cost, complexity, and lack of understanding about the relative advantages of these services as the main barriers to using mobile banking services. Wessels and Drennan (2010) conducted a study to find out the factors that hamper IB usage as well as the effects of user's attitude on the intention of use. Findings of this study show that perceived usefulness, perceived risk, cost, and compatibility have significant effect on the adoption of mobile banking. In this study, attitude toward mobile banking was considered as a moderating variable. Kenig-Lewis et al., (2010) investigated the barriers of mobile banking among young users in England. The results showed that compatibility, perceived usefulness, and risk are significant factors affecting the adoption of Mobile banking. Compatibility not only has a strong positive influence on mobile banking adoption but also it is also the most important independent variable affecting perceived ease of use, perceived usefulness, and credibility. The variables of trust and credibility were identified as having significant effect on reducing the total perceived risk. Zhao et al., (2010) integrated both trust and perceived risk in their model to study internet banking services in China. The results indicated that there is a significant relationship between trust and perceived risk and that both are crucial in explaining the Internet banking usage intention.

The theory of Technology Acceptance Model (TAM) is important to the current research as it aims at predicting and highlighting the reasons why Moroccan banking clients adopt or reject the use of Internet banking services. The relevance of this model lies on the fact that it is both specific and parsimonious and it displays a high level prediction power of technology use. More than that, TAM helps in clarifying the factors that influence positively or negatively the use of Web 2.0 technologies in customers' interaction with their banks. However, TAM key factors, namely Perceived ease of use (PEOU) and perceived usefulness (PU) cannot sufficiently measure the factors that influence the use of online banking in Morocco. There is another variable which could influence online banking adoption that is not present in the TAM and should be considered. So, in order to strengthen the model, the current research employs a theoretical model based on the Technology Acceptance Model

(TAM) with an added construct Perceived Risk (PR) mainly because the security and reliability of transactions over the internet is a burning issue and it is a pre-condition factor that customers consider before adopting internet banking. Some banking customers avoid electronic banking since it is perceived as being easily susceptible to fraud which can damage consumer's confidence of the online system as a whole. Therefore, according to TAM and PR model, it can be postulated that:

1- Hypotheses about TAM

H4a: - Perceived Usefulness positively influences the Intention to use IB.

H4b: - Perceived Usefulness positively influences Attitude towards the use of IB.

H5a: - Perceived Ease of Use positively influences Attitudes towards the use of IB.

H5b: - Perceived Ease of Use positively influences the perceived usefulness of IB.

H6: - Attitude positively influences the intention to use IB.

2- Hypotheses about Perceived Risk

H7a: Perceived risk negatively influences the perceived usefulness of using IB.

H7b: - Perceived risk negatively influences Attitude towards the use of OB.

H7c: - Perceived risk negatively influences Intention towards the use of OB.

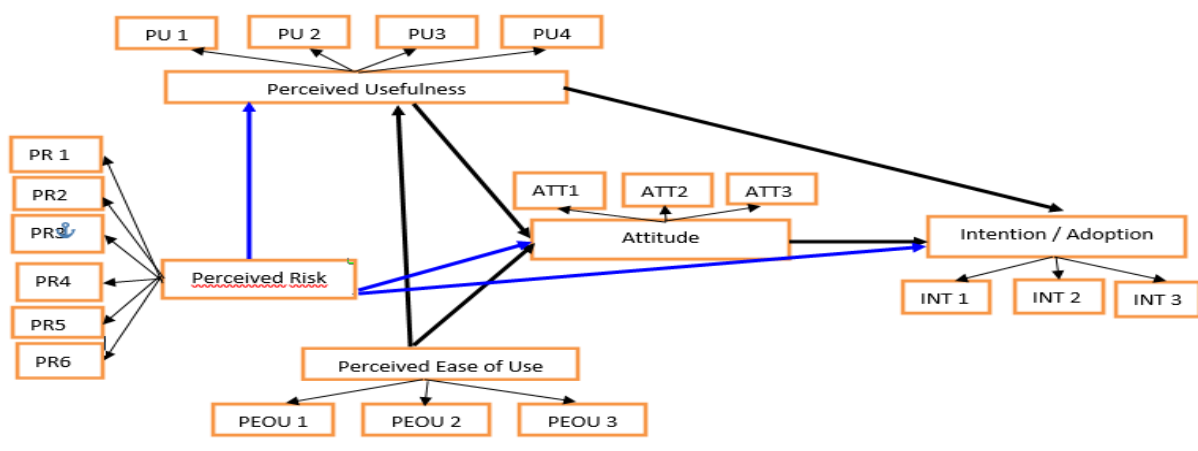


Figure 1-28. Hypothesised research model of Perceived Risk (PR), Perceived Ease of Use (PEOU), Perceived Usefulness (PU), and Attitude (ATT) on Internet banking Intention and Adoption.

Therefore, to investigate the effects of PR, PU, and PEOU on both consumer ATT and adoption INT, a research model was proposed, as illustrated in **Fig. 1. 28**. The model suggests that both PU and PEOU have a positive effect on ATT and INT, whereas, PR is negatively related to both endogenous variables ATT and INT and a negative effect on PU.

1.5. Summary

The previous chapter has been devoted to cover major aspects related to Web 2.0 technologies and Technology Acceptance Model theories in the Moroccan banking sector. The first section has provided a granular description of the key elements of this research as well as a salient investigation of the motivators and inhibitors that lead to an effective communication between the Moroccan banking institutions and the Moroccan customer.

Concerning Web 2.0 technologies, a definition has been provided and a thorough description of the most important Web 2.0 tools has been presented. The chapter also has covered the effect they might have on banking communication. Accordingly, a historical account of the development of the Moroccan banking system was presented so as to clarify the major phases that have reshaped the Moroccan financial sector. The second section has empirically validated the Technology Acceptance Model (TAM) and Perceived Risk theory for exploring the key factors that influence Internet/Mobile banking adoption in Morocco.

Since years back, many studies have been conducted in the field of IT adoption in many developed and developing countries such as North America, Europe, Asia and some African countries. These studies have given evidence for a number of variables that influenced consumer attitude and behavior intention to adopt IB. However, little attention has been given to IB in the Moroccan context; for this reason, this study was conducted to reveal what may deter Moroccan banking customers to adopt IB and

Web 2.0 technologies to communicate with their banks. This study is with no doubt going to create an overall understanding of IB adoption in Morocco.

All in all, the previous chapter has set the foundation of the thesis. It has clarified the role and the importance of Web 2.0 technologies as an effective medium for financial institutions to communicate with and respond to the banking customers' needs. In addition to that, a theoretical model (TAM & PR) was proposed to explain customers' use of Internet/Online banking in Morocco. The next chapter is about the research methodology which aims to set the methodological ground for this study.

Chapter Two: Research Methodology

The previous chapter on the literature review presented and discussed the background of Web 2.0 technologies and the integration of these technologies in the Moroccan banking communication. It also provided a thorough description of the most important historical phases that have influenced the development of the Moroccan financial system. In addition to this, it presented the different theories that have been adopted to understand and study the factors affecting individuals' decision to use information technology (IT). However, a granular investigation was given to two information System theories: Technology Acceptance Model (TAM) and Perceived Risk (PR) so as to model how Moroccan banking users come to accept and use Web 2.0 technologies and Internet banking as a medium to communicate with their banks.

The present chapter describes and discusses the research process used in the conduction of this study. It states the research topic, problem and objectives. Drawing on the theoretical framework articulated in the previous chapter, it discusses the selection of the appropriate research approach, data collection techniques, sampling procedure and data analytical tools. Besides, it illustrates the research validity, reliability, triangulation and ethical considerations.

This chapter also addresses and justifies the selection of a particular research methodology for collecting data as well as the selection and the implementation of adequate tools to analyze them. It also presents and discusses the rational and significance of the study. Moreover, this chapter outlines and justifies the appropriateness of the research methodology adopted as well as addressing the methodological issues involved.

2.1. Research Topic, Purpose, Objectives, and Hypotheses

The last two decades of the third millennium constitute a new era characterized by digitalization, inhabited by the *digital natives*. Tasks which would take time to be conducted are now performed in seconds. Owing to this new era, people's expectations

have changed with the technological advancements in Internet and communication and the global innovation of information technology has reshaped the financial industry. These breakthroughs have made a significant impact on the flow of information in banking organizations, changing their analogue nature into digital, through Blogs, Wikis, Multimedia sharing and Social Networking Sites. In this context of change, Web 2.0 technologies provide enormous benefits to banks and customers in terms of effective communication and the ease and cost of transactions. This study aims to investigate and understand the concept of Web 2.0 technologies in banking industry as well as examine the perception of Moroccan banking customers on the integration and use of Web 2.0 technologies as a communicative medium with their banks. Moreover, given that Internet banking has become one of the most profitable e-commerce applications over the last decade, there was a need to empirically validate the Technology Acceptance Model (TAM) and an added construct Perceived Risk (PR) for understanding the key factors that influence the intention to adopt Internet banking in the Moroccan context.

2.2. Research Questions and Hypotheses

This study addresses the phenomenon of Web 2.0 technologies in the Moroccan banking communication. The main objective of this study is to explore, uncover, and better understand the perceptions and the implications of Web 2.0 technologies as effective communicative channels in the Moroccan banking sector. The first objective of this research is to investigate in depth the role of different Web 2.0 tools in achieving a relevant communication between retail banks and their customers. The second objective is to explore the factors influencing Internet banking adoption and propose a theoretical model to explain Moroccan customers' intention to use Internet banking with a focus on users' perceptions of ease of use, usefulness and attitude towards Internet banking, and the perceived risk of using this new technology to meet their banking needs. These two objectives are addressed in the context of the retail banking in Morocco. The investigation of these issues in the Moroccan context aims to contribute to the knowledge about retail banking communication services and

provide insights and suggestions that would hopefully inform banks to better formulate their marketing strategies to increase IB adoption in the future.

The main research objectives that this study aims to achieve are:

- 1- Explore and understand the customers' perception towards the implementation of Web 2.0 technology in the Moroccan banking communication.
- 2- Identify how Web 2.0 technologies can lead to effective communication.
- 3- Measure the impact of the Web 2.0 tools on banking- customer communication.
- 4- Identify the factors that influence Internet banking adoption by the Moroccan banking customer.

The research questions are formulated as follows:

- 1- To what extent are Moroccan banking customers aware of and familiar with Web 2.0 technologies?
- 2- What good are Web 2.0 technologies to banking institutions?
- 3- To what extent does Web 2.0 technology adoption lead to effective communication, and which Web 2.0 technologies do Moroccan customers use the most?
- 4- What problems might Web 2.0 technologies solve?
- 5- What is the impact of Web 2.0 technology on bankcommunication?
- 6- What are the factors that influence Moroccan banking customers to get involved in Web 2.0 technologies as a medium to communicate with their banks?
- 7- What are the key motivators and inhibitors for consumers' acceptance of Internet banking?

Based on the research objectives and questions articulated above, the following research hypotheses are formulated:

H1: - Customer's perceptions towards Web 2.0 are influenced by the demographic characteristics of the users.

H2: - Web 2.0 sphere offers an effective communication arena for retail banking in Morocco.

H3: - Moroccan banking customers use Web 2.0 technologies as a social interaction network but not as a financial channel.

Five hypotheses are formulated with respect to the factors that influence Moroccan banking customers to adopt Internet banking:

- ***Hypotheses about Technology Acceptance Model (TAM)***

H4a: Perceived Usefulness positively influences the adoption to use online banking.

H4b: Perceived Usefulness positively influences attitude towards the use of online banking.

H5a: Perceived Ease of Use positively influences attitudes towards the use of online banking.

H5b: Perceived Ease of Use positively influences the perceived usefulness of online banking.

H6: Attitude positively influences the intention to use online banking.

- ***Further three hypotheses are articulated with respect to Perceived Risk. They are stated as follows:***

H7a: Perceived risk negatively influences the perceived usefulness of using online banking.

H7b: Perceived risk negatively influences Attitude towards the use of online banking.

H7c: Perceived risk negatively influences Intention to use of online banking.

The research objectives, questions, and hypotheses have been shaped and substantiated by the theoretical framework presented in chapter one. They also constitute the guidelines and line of thought governing the research methodology used in this study.

The following section of this chapter presents the main research procedures and opted to achieve these research objectives, answer research questions, and confirm or disconfirm these research hypotheses as well as the philosophy underlying these procedures.

2.3. Research Methodology

Methodology is a general research strategy that describes the way how research should be undertaken. It helps to ensure the consistency between the chosen approaches, techniques, and underlying philosophy. Saunders uses the onion metaphor to describe the steps or the stages that construct an effective methodology. This research onion consists of six layers and proceeding with the layers needs the previous layer to be complete. According to Saunders, every research process starts with the research philosophy which is the outer layer of the research onion. A lot of people consider the outer layer of an onion as being useless and with no importance; however, the outer layer in the research onion is of high significance. Sahay (2016) who is a great admirer of Saunders ‘Research Onion’ states that the outer layers of the onion “form the root and the middle layers the building blocks of the research” (p.2); it is analogous to architectural plan for building constructions. The outer layer is followed by the research approach, then by the research strategy, next research choice. The fourth layer is time horizon and the last layer concerns data collection methods. **Figure 2.1** below presents Saunders’ research onion. The layers of the onion research are salient to the development and organization of a suitable and coherent research design.

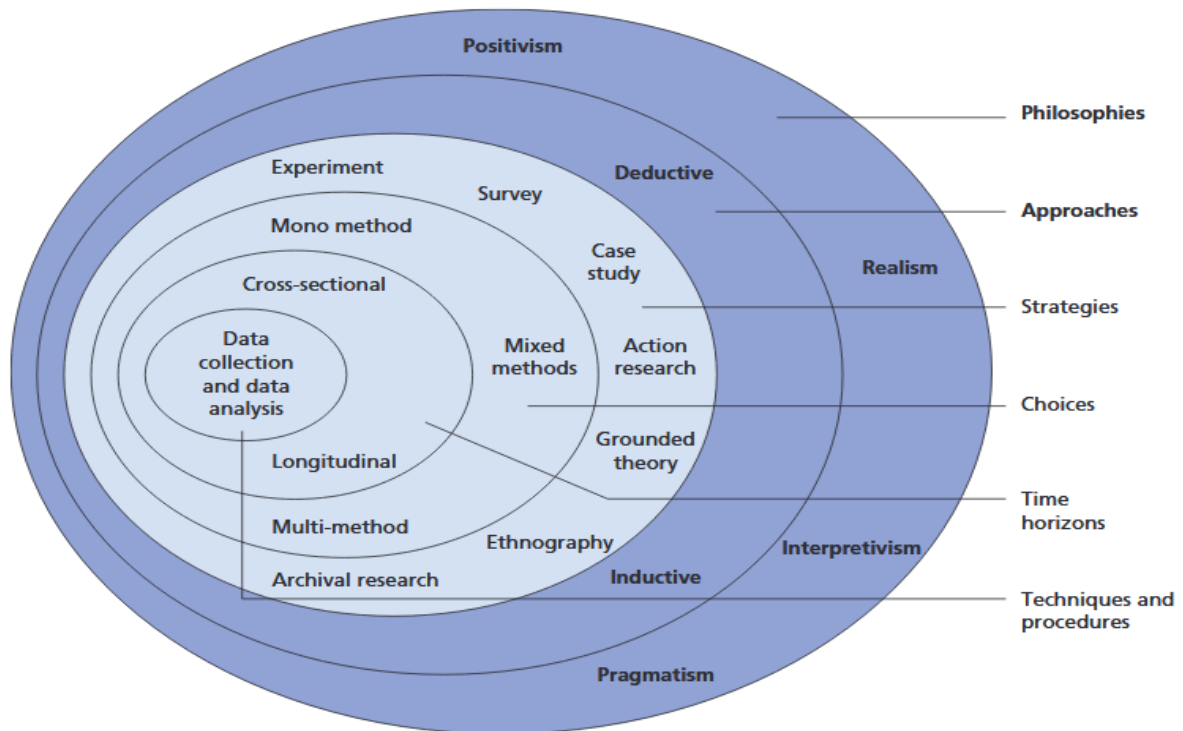


Figure 2-1. The Research Onion. (Saunders, M., Lewis, P., & Thornhill, A., 2008)

2.3.1. Research Philosophy

Research philosophy, which is the first layer in Saunders research Onion, is concerned with the development of knowledge and the nature of that knowledge (Saunders, Lewis and Thornhill, 2007). There are three main schools of thought regarding research philosophy; namely Positivism, Interpretivism and Realism.

Positivism, which falls within objectivism epistemology, has its roots in natural sciences and is concerned with discovery of laws that can be generalized. It is based on the idea that science is the only way to learn about the truth. Positivism depends on quantifiable observations that lead to statistical analyses. In other words, studies with positivist paradigm are based purely on facts and consider the world to be external and objective (Remneyi, 1998). This suggests that insights provided by positivist researchers may have high quality standard of validity and reliability (Cohen, 2007) and be generalized to the large scale of population (Johnson and Onwuegbuzie, 2004). Furthermore, positivism approach uses methodologies and methods of collecting and

analyzing data that are based on evidence and statistics. Within this perspective, the research findings may be generalized; that is to say, the results found may be replicated on many different populations and sub-populations (Johnson and Onwuegbuzie, 2004). More importantly, the findings of research can be reliable and support researchers to make scientific assumptions (Johnson, 2014). Indeed, Dörnyei (2007) finds that reliability can be estimated by statistical analysis via identifying the internal consistency or correlation among the variables, using Cronbach's alpha reliability coefficient. Besides, it is worth mentioning that validity of research results is one of the most important elements of this approach.

Realism is generally defined by Philips (1987:205) as “the view that entities exist independently of being perceived or independently of our theories about them”. Schwandt adds that “scientific Realism is the view that theories refer to real features of the world. ‘Reality’ here refers to whatever it is in the universe that causes the phenomena we perceive with our senses” (1997:133). In other words, according to Realism philosophy, there are social factors that influence people's actions and perceptions without being aware of these forces. Hence, Realism suits the study of human behavior in order to investigate individual's perception of social constructs and meanings.

Interpretivism, also known as social constructivism, is the philosophy that believes reality is a subjective matter to be studied in contrary to positivism and realism that believe in nature of reality. Interpretists believe that reality is not objectively determined, but is socially constructed (Husserl et al., 1997). Myers (2008) points that interpretive researchers assume that access to reality is only through social constructions such as language consciousness, shared meanings, and instruments” (p:39). That is to say, when people are placed in their social contexts, there is a greater opportunity to get a deeper understanding of their own activities, perceptions, and feelings (Hussey & Hussey, 1997). Therefore, Interpretivism is a research philosophy well suited for complex business environments in which it is necessary to comprehend the intentions, motivations and actions driving the research project. According to Remneyi, interpretivism can “be regarded as observing the details in a situation to

either discover the reality or to understand the reality behind details of the situation” (1998:86). The goal of the interpretivist research is to provide a subjective deep understanding and knowledge of the phenomena within its complexity of the context and interpret the meanings in human behavior in social context rather than to generalize these results to other people or other contexts and predict causes and effects (Neuman, 2000; Hudson and Ozanne, 1988; Cohen, Manion and Marison, 2011). For these reasons, research outcomes are undoubtedly influenced by the researcher’s own interpretation, beliefs, cultural background, etc., which may cause some biases.

This study follows both the positivism and the interpretivism approach. The research area is concerned with banking communication channels which is a complex business context. It is important to understand the motives, the meanings, the reasons and other subjective experiences which are time and context bound (Hudson and Ozanne, 1988; Neuman, 2000). This study draws at first on the interpretivism research philosophy. It is about looking at the depth information involved in an issue. It is intended to aid in understanding and interpreting people’s perceptions, processes and assumptions of using Web 2.0 technologies within a specific organizational context. Qualitative approach is adopted because there is a use of words such as ‘how’, ‘what’ or ‘why’ which are best addressed by qualitative rather than quantitative methods, and it works well with research environments that require some exploration (Creswell, 1998). More than that, qualitative research affords the ability to contextualize theory (Myers, 2009), such as the case in this study. Web 2.0 applications in the context of Internet banking can be contextualized within an actual real-world environment. For all the reasons mentioned above, it was appropriate to conduct semi-structured interviews to be able to probe for further information and to provide an excellent way of identifying in-depth information and better insights about the issue under study. On the other hand, positivism research philosophy is also adopted in this study in order to understand the phenomenon under investigation and predict the causes and the effects of this behavior through data collection and interpretation. Positivism depends on quantifiable observations that lead to statistical analyses; therefore, a quantitative methodological approach (survey approach) is used for primary data collection which aims to measure, quantify, explain and predict the extent to which Web 2.0

technologies are implemented in the Moroccan banking communication, how these technologies are perceived by customers, and the factors influencing IB adoption among Moroccan banking customers in an objective way.

2.3.2. Research Approach

There are two primary research approaches: Qualitative and Quantitative (Cresswell, 2003). Quantitative research is a common method of gathering data and feedback. It is a structured way of collecting and analyzing data by relying on counting and statistical analysis to derive results. In this respect, Bogdan and Biklen (1998:4) note:

Charts and graphs illustrate the results of the research, and commentators employ words such as ‘variables’, ‘population’, and ‘result’ as part of their daily vocabulary...even if we do not always know just what all of the terms mean...(but) we know that this is part of the process of doing research. Research, then as it comes to be known publicly, is a synonym for quantitative research.

Quantitative research allows the researcher to understand the concept to be studied and to measure facts by constructing an instrument to be administered in a standardized manner and predetermined procedures in a way that ensure replicability or repeatability of the results; hence, validity and reliability.

On the other hand, qualitative research provides a subjective overview to explain or describe phenomena in context-specific settings, such as “real world setting where the researcher does not attempt to manipulate the phenomenon of interest” (Patton, 2001:39). It is about looking at the depth information involved in an issue. For example, Flick (2009:1) explains that qualitative research contributes “to a better understanding of social realities and to draw attention to processes, meaning, patterns and structural features” (2009:1). Qualitative research is also described by Strauss and Corbin as “any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification” (1990:17). It is, thus, the kind of research that generates findings that “unfold naturally” (Patton, 2001: 39).

Qualitative research is rather an attempt to interpret meanings, emotions, behaviors and/or perceptions by “analyzing concrete cases in their local particularity and starting from people’s expressions and activities in their local contexts” (Flick, 2009:30). In this sense, Creswell (1998:15) interprets the qualitative approach as

an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem [where] the researcher builds a complex, holistic picture, analysis words, reports detailed views of informants, and conducts the study in a natural setting.

This research study draws on the qualitative approach along with the quantitative one so as to aid in understanding the Moroccan banking customers’ perceptions, processes and assumptions of using Web 2.0 within the Internet banking context.

There is also a second typology of research approach according to Saunders (2003) which is the deductive and inductive approach to research.

A Deductive approach tests a theory or a hypothesis against data. It usually begins with forming hypothesis and theories which are later tested by the research strategy developed for this purpose. Deductive approach is mostly applied to research areas where pre-defined theories are available and these are tested empirically.

An inductive approach is concerned with the generation of new theory emerging from data. Its main purpose is to focus on exploring new phenomena or looking at previously researched phenomena from different perspectives (Saunders, Lewis, and Thornhill, 2012). It generates theory directly out of the data. That is to say, in an inductive approach to research, the study starts with collection of empirical data. The analysis of the results contributes to an understanding to reality and generates theories. It is, thus, a bottom-up approach to research.

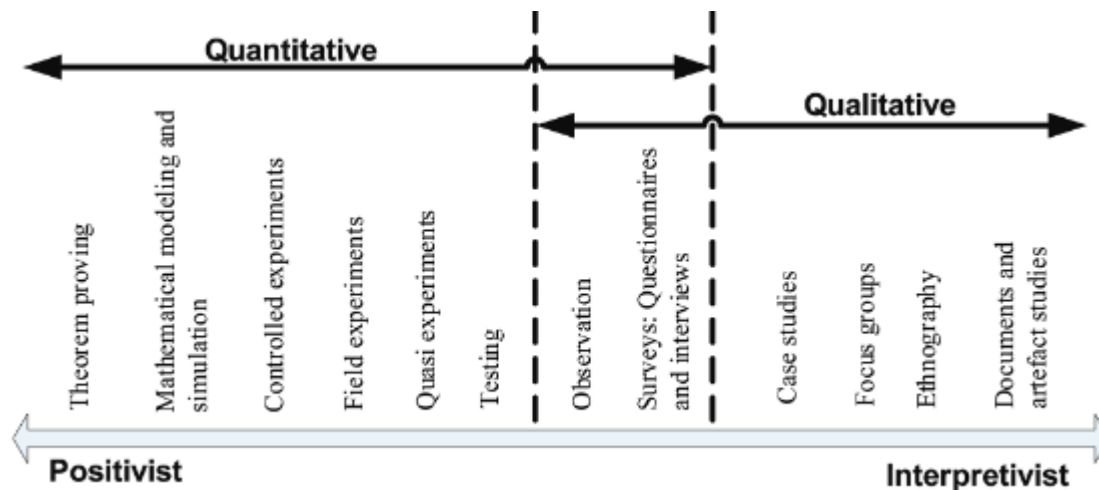


Figure 2-2 Research Methods /Strategies (De Villiers, 2005a)

Taking into consideration what has been stated above, this research study is quantitative since the data collection and analysis are in a numerical format and qualitative as the study adopts a more open and detailed description of the data collected and provides the opportunity to explore new issues uncovered in the fieldwork stage. As a result, this research paper is built on the mixed methods approach, that is, the mixture of both qualitative and quantitative approaches in the research process. The use of qualitative and quantitative approaches in combination provides a better understanding of the research problem and answers the research questions. In this context, Greene and Caracelli note that “having a conversation between different methods and the paradigms that they represent promotes more comprehensive, insightful and logical results than either paradigm could obtain alone” (1997b:10). Besides, the goal of mixed methods research is not to replace either of these approaches but rather to draw from the strengths and minimize the weaknesses of both in a single research study. In this line of argument, Burke and Onwuegbuzie (2004:15) state that “mixed methods research offers great promise for practicing researchers who would like to see methodologies describe and develop techniques that are closer to what researchers actually use in practice”. According to Onwuegbuzie and Leech (2004a), mixed methods research can also “help bridge the schism” between quantitative and qualitative research. Furthermore, Sechrest and Sidani (1995, p.78) point out that both qualitative and quantitative research methodologies

“describe their data, construct explanatory arguments from their data, and speculate about why the outcomes they observed happened as they did”. This research study also takes a deductive approach since there are predefined questions to be answered and a theoretical model to be tested by data analysis.

2.3.3. Research Design

A research can have multiple purposes or may be part of a project of research that measures two or all three purposes. According to Rowley, a research design is “the logic that links the data to be collected and the conclusions to be drawn to the initial questions of a study; it ensures coherence” (2002:18). In other words, research design can be considered as a map that reveals the directions to take from the research questions to the conclusions derived. Social research project can be classified into three categories: exploratory, descriptive and explanatory.

Exploratory research aims essentially to formulate problems and develop hypotheses that can explain the occurrence of specific phenomena. It is also a valuable mean to gain a better understanding of an issue by gathering all possible information regarding research subject. (Saunders et al., 2012)

Descriptive research as the name suggests involves describing an issue, a context or a situation. In other words, it provides an accurate and valid representation of the factors or variables that are relevant to the research questions. The descriptive research can prove the hypothesis may be provided by the exploratory research (Saunders et al., 2012).

Explanatory research or causal research is effective in the sense that it identifies covariance between variables. It helps analyze and explain the causal relationship between variables (Yin, 2003).

This present research study combined the qualities of exploratory, explanatory and descriptive research since there is a search through literature to provide insights about the research problem, to obtain new perceptions, to develop hypothesis and to prove these hypotheses. This research study also tries to analyze the cause and effect

relationships between variables that influence customers' adoption of Internet banking in the Moroccan context.

2.3.4. Research Strategy

The research strategy is the third layer of Saunders's research Onion (Saunders, Lewis and Thornhill, 2007). The research strategy introduces the main components of the research such as the research topic area and focus, the method of collecting data, the research design and the research objectives. It is the "general plan of how the researcher will go about answering the research questions" (Saunders et al. 2012:90).

According to Saunders (2007), there are seven research strategies, namely: experiment, survey, case study, action research, grounded theory, ethnography and archival studies (Saunders, Lewis and Thornhill, 2012).

The process of diagnosing, planning and taking action is the central theme of Action research. However, Ethnography strategy is deeply rooted in the inductive approach and it is time consuming. Its major purpose is "to describe and explain research subjects just the way it would provide a description or explanation to the subjects". As for Archival research, it records and documents data that can be new or old. Moreover, case studies are widely used in conducting a research. They may offer insights that other approaches cannot offer. In this regard, Rowley states that "case studies have often been viewed as a useful tool for the primary, exploratory stage of a research project, as a basis for the development of the more structured tools that are necessary in surveys and experiments" (2002:16).

As Saunders, Lewis, and Thornhill (2012) emphasize the choice of research strategy is guided by research questions and objectives. Similarly, the extent of existing knowledge, the availability of amount of time, as well as the researcher's philosophical underpinnings is also important. **Table 2-1** (based on Yin, 1994:6) summarizes the different kinds of research questions and methods that are most appropriate. "Who", "what" and "where" questions can be investigated through documents, archival analysis, surveys and interviews.

<i>Strategy</i>	<i>Form of research question</i>
Experiment	How, why
Survey	Who, what, where, how many, how much
Archival analysis	Who, what, where, how many, how much
History	How, why
Case study	How, why

Table 2-1 Research Questions and Methods (Yin, 1994, p.6)

Accordingly, both survey strategy and case study are used in this research. Survey strategy is used to collect a great deal of quantifiable data from a larger population of interest as well as to obtain their personal beliefs and attitudes about the under investigated issue (Saunders, Lewis and Thornhill, 2012). A case study is also adopted so as to “investigate a contemporary phenomenon within its real life context” (Yin, 200:13).

2.3.5. Research Choice

Saunders defines three methods of research considering the data collection and analysis procedure (see **Figure 2.3**). Mono method is the use of one single method of data collection that is either qualitative or quantitative techniques of data collection and analysis. Multiple methods is when more than one technique of data collection and analysis is used. It combines quantitative data collection and analysis with qualitative ones.

Multiple method research or mixed methodology is widely considered as the third methodological movement with quantitative and qualitative approaches. Johnson, Turner and Onwuegbuzie (2007, p.123) state:

Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.

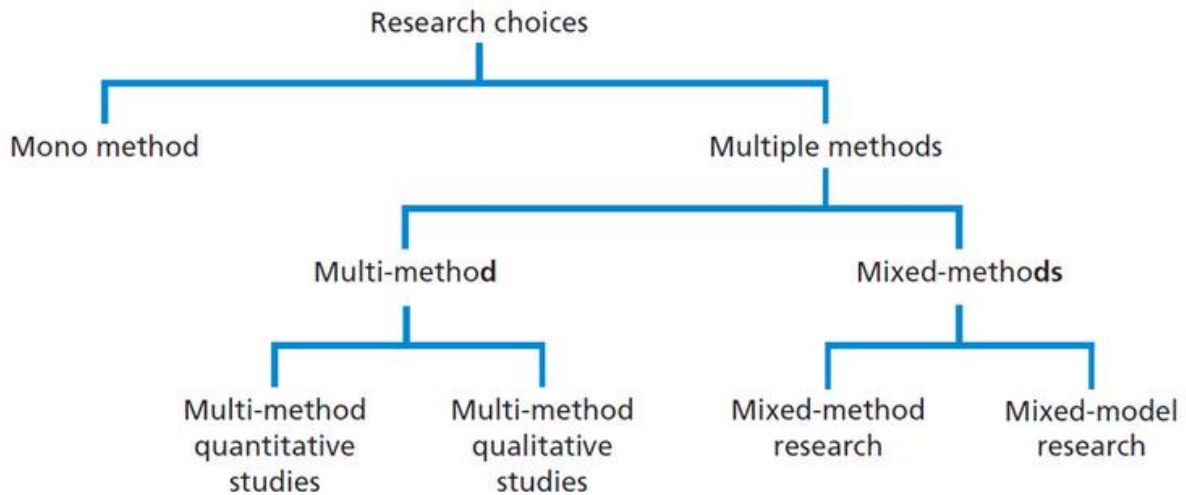


Figure 2-3. Research Choice (Saunders et al., 2016., p152)

In the same context, Greene and Caracelli (1997b) note that mixed methods research design promotes “comprehensive, insightful, and logical results than either [interpretivist or post-positivist] could obtain alone” (p.10). The overall objective of mixed methods research is to expand and strengthen the research conclusions and to answer accurately the research questions. Venkatesh, Brown and Bala (2013) argue that the strength of mixed-methods research is based on its applicability to gaining understanding and elucidating complex organizational and social phenomena. This strongly implies engaging in such research to “provide right insights into various phenomena and develop novel theoretical perspectives” (p.22). Venkatesh et al. (2013) also state that mixed methods research uses both quantitative and qualitative methods concurrently or sequentially where findings from one approach inform the other in a more effective way. Therefore, mixed methods research is about heightened knowledge and validity.

In the present research study, a mixed methods approach is adopted. Quantitative technique is used to collect quantitative data with the use of a questionnaire, whereas qualitative technique is used to get a deeper understanding of issues under investigation through the use of semi-structured interviews. Both research approaches are used to complement each other and for triangulation in ways that offer better opportunities for answering the research questions, understanding the research

problem, checking the reliability of the data, and strengthening the research conclusions.

In the same line of thought, Greene, Caracelli and Graham (1989: 259) distinguish the following five purposes for using a mixed methods research:

1. *Triangulation* seeks convergence, corroboration, correspondence of results from different methods in order to enhance credibility;
2. *Complementarity* seeks elaboration, enhancement, illustration, clarification of the results from one method with the results from the other method;
3. *Development* seeks to use the “results from one method to help develop or inform the other method”. The development is broadly constructed to include sampling and implementation, as well as measurement decisions; (Green et al., 1989: 259).
4. *Initiation* seeks the discovery of paradox and contradiction, new perspectives of frameworks, the recasting of questions or results from one method with questions or results from the other method;
5. *Expansion* seeks to “extend the breadth and range of inquiry” by using different methods for different inquiry components (Green et al., 1989: 260).

Drawing on these insights from the literature, the present study adopts the mixed methods approach use of survey data with a semi-structured interview so as to diverse viewpoints which helps to shed light on the issue under analyses; therefore, the triangulation method to data analysis is adopted. The triangulation method takes advantage in using two different methods to research so as to get an accurate picture of the issues under investigation. Its main goal is to reduce the pitfalls and increase the advantages. Furthermore, mixed-methods approach helps in covering different aspects of the phenomenon under scrutiny since one single method is not enough to tackle the research precisely at the level of data collection and interpretation.

2.3.6. Data Collection Techniques and Procedures

After having peeled away all Saunder's research onion layers (Saunder, Lewis and Thornhill, 2012), the core layer is finally reached which deals with data collection and data analysis. All the decisions made through the previous layers (research philosophy, approaches, strategies, and methods, etc.) help in identifying data collection and analysis methods which are the last measures to take in the research to infer findings.

The present study is carried out through the use of two types of data collection namely qualitative and quantitative approaches. They are used in order to capture different dimensions of the same phenomenon. The use of both methods provides deep understanding of the investigated issue from different perspectives allowing the validation of data through cross verification from two different sources.

2.3.6.1. Questionnaire

Concerning the quantitative data collection, a questionnaire is designed to collect information from Moroccan banking customers. The data collected is then analyzed by Statistical Package for the IBM Social Sciences Program SPSS (version 20.). Structural Equation Modeling (SEM) technique is also adopted to analyze structural relationships between variables through the use of AMOS (Analysis of a Moment structure). In this context, SEM analysis provides overall tests of model fit and individual parameter estimate tests simultaneously so as to estimate the multiple and interrelated dependence in one analysis. In other words, the purpose of SEM is to examine a set of relationships between one or more exogenous variables (Independent variables) and one or more endogenous variables (dependent variables). AMOS is a statistical software that is particularly used for SEM, path analysis, and confirmatory factor analysis. In the same vein, Patton reveals that quantitative method involves the "use of standardized measures so that the varying perspectives and experiences of people can be fit into a limited number of predetermined response categories to which numbers are assigned" (2001:14).

The questionnaire was delivered through two different channels. An online questionnaire was delivered to bank customers taking into consideration the characteristics of the respondents as they have easy access to the Internet either on their mobile phones or computers as well as hard copies of the questionnaire that were handed out randomly to respondents to fill in. The questionnaire is divided into three sections and it consists entirely of closed questions since they are easier to collect and analyze, and also to obtain more accurate information about the respondents.

While conducting research, ethical issues were taken into consideration by maintaining respondents' confidentiality and giving them assurance that the data collected would be used only for research purposes.

2.3.6.2. Interview

Interviews are advantageous in offering “the possibility of modifying one’s line of enquiry, following up interesting responses and investigating underlying motives in a way that postal and other self-administered questionnaires cannot” (Robinson, 1993:229). According to Yin, interviews are “guided two-way conversations” which permit the interviewer to ask the interviewee questions that are related to the research area in a smooth way (Yin, 2003). It is a way to collect data from individuals through conversations. Kvale (1996:14) regarded interviews a “... an interchange of view between two or more people on a topic of mutual interest, sees the centrality of human interaction for knowledge production, and emphasizes the social situatedness of research data”.

There are three main types of interviews as a method of collecting data, which include: structured, semi-structured, and unstructured.

A structured interview is sometimes called a standardized interview. It introduces some rigidity to the interview. Corbetta (2003:269) states that structured interviews are “...interviews in which all respondents are asked the same questions with the same wording and in the same sequence”. In this type, the interviewee is left with little freedom to make any modifications since it is usually composed of pre-determined

closed questions, and consequently, this interview is referred to as a closed situation (Johnson, 1994).

Semi-structured interview is mostly used in qualitative analysis. In this type of interview, the order of the questions can be changed depending on the direction of the interview. Besides, additional questions can be added which gives the researcher the opportunity to probe for the interviewee's opinion and attitude. Thus, the interviewer with semi-structured interview is able to probe or ask more detailed questions of respondents' situations and not only stick to the interview guide which is essential for this study in uncovering the underlying causes of the effects of Web 2.0 technologies on Moroccan banking communication and the factors that influence the adoption of Internet banking by Moroccan banking customers.

Unstructured interview is a rather flexible conversation. There is no need to follow a detailed interview guide where the interviewees are encouraged to speak openly and frankly. This type of interviews is useful as it helps in collecting background data when there is scarce knowledge about the research topic. However, the interviewer may be bias and ask inappropriate questions and the interviewee may talk about irrelevant issues.

In order to collect data and gain knowledge from experts in the field of Internet banking and Web 2.0 technologies in banking communication, a semi-structured interview has been carried out. This type of interviews meets the objectives of the current research. It helps in understanding the hidden and “the physically unbound social realities as well as the identities and meanings that cut across, lie outside, or transcend the work setting” (Lindlof & Taylor, 2002: 173-174). The semi-structured interview will have a series of questions that are flexible in nature and doesn't follow a fixed linear path which will give the interviewees a certain freedom to express themselves. Schensul et al. (1999:149) point out that “semi-structured interviews combine the flexibility of the unstructured, open-ended interviews with the directionality and agenda of survey instruments to produce focused qualitative, textual data at the factor level”. The semi-structured interview is adopted in this research to explore the interviewees' answers for deeper interpretations and provide explanatory

devices for identifying the role of Web 2.0 tools in today's banking-customers' communication and banking service-delivery. It allows a more holistic and profound view about social relationships. Moreover, the use of a semi-structured interview could make up for what the quantitative method might skip or not be able to cover.

2.3.6.3. Sampling and Measurement

Concerning the qualitative data collection, a comprehensive interview agenda was developed and four executive banking managers belonging to Attijariwafa bank, BMCE bank, BCP bank and CIH bank respectively were chosen for the formal face-to-face semi-structured interview. This interview structure was used during the interview process and is presented in **Appendix B**. The small sample size of the interviewees was primarily chosen to be able to concentrate on producing in-depth data that gets at the real experiences, thoughts, and attitudes of participants. Moreover, all interviewees were asked almost the same questions but in different order and wording so as to achieve a more natural style of conversation and to probe for further information.

In the case of quantitative data collection, a questionnaire was designed to collect data from Moroccan people who have a bank account. The questionnaire was distributed online to collect answers from internet users plus questionnaire papers were distributed randomly to different Moroccan banking customers.

2.3.6.3.1. Measurement Instrument Development

The questionnaire: The questionnaire has been distributed to Moroccan persons having a bank account. Items selected for the constructs were mostly adapted from prior research in order to ensure content validity and reliability. A pilot study was also conducted among 31 randomly selected Moroccan banking respondents for the refinement of the instrument.

A total of 200 questionnaire papers were distributed randomly, plus 109 participants responded to the same questionnaire delivered through the Internet. However, 29 questionnaires that were not filled in properly and completely were taken out. Hence, the actual sample used for the current study is 280 respondents.

The questionnaire is organized into three sections, comprised of 45 questions. The first section contained 7 questions intended to collect respondents' demographic variables and gather basic information about the participants' characteristics including gender, age, education level, occupation, and bank. The sixth and the seventh questions are meant to ask respondents whether they have access to the Internet and from where it is done. This section includes nominal scales. The second section requests responses about customers' perception towards Web 2.0 technologies as a communicative medium in banking services and also usage patterns in mobile banking. It holds 19 questions varying from nominal scales to 5 Likert Scale. The third section is meant to evaluate five constructs of Perceived Usefulness (PU), Perceived Ease of use (PEU), Perceived Risk (PR), attitude (ATT) and Adoption/Intention as listed in **Table 2-2**. In the third section the respondents rate the questionnaire items by the extent to which they agree with each statement. Each item in the third section is scored on a seven-point Likert Scale 1 (strongly disagree) to 7 (strongly agree). Items to measure Perceived usefulness and Attitude are adapted from the measurements defined by Cheng et al. (2006) and Lai and Li (2005), Perceived Ease of Use and Intention to use are adapted from the measurements defined by Cheng et al. (2006) and Lai and Li (2005), Perceived Risk (PR) constructs are adapted from the measurement defined by Littler and Melanthiou (2006), Cheng et al. (2006), and Featherman and Pavlou (2003). Minor modifications have been made to fit the context of Internet banking.

Table 2-2. Constructs and Corresponding Items

Constructs	Item Sources
<i>Perceived Usefulness</i> <ul style="list-style-type: none"> • Online banking is useful • Web 2.0 technologies implemented by the bank save my time and enable me to accomplish my tasks more quickly • Online banking is better for tracking spending. • Online banking offers a wide range of banking services and investment opportunities 	Chen et al. (2006)
<i>Perceived ease of use</i> <ul style="list-style-type: none"> • Web 2.0 applications are not complex • With online banking I don't have to visit the bank • It's easy to use online banking services for handling my banking transactions. 	Chen et al. (2006) Lai and Li (2005)
<i>Perceived risk</i> <ul style="list-style-type: none"> • Online banking provides insecure transactions • I don't feel secure sending sensitive information across the online banking • I don't feel totally safe providing personal privacy information over the internet banking • when I transfer money over the Internet, I'm afraid of losing money because of carelessness such as improper account number entry • I'm worried to use online banking because other people may be able to access my account. 	Featherman & Pavlou (2003) Littler & Melanthiou (2006) Cheng et al. (2006)
<i>Attitude</i> <ul style="list-style-type: none"> • Using online banking has a lot of advantages • Using mobile banking is beneficial • Using online banking is a wise / good idea 	Chen et al. (2006)
<i>Intention / Adoption</i> <ul style="list-style-type: none"> • I would use the online banking for my banking needs • Using online banking for handling my banking transactions is something I would do • I would see myself using the online banking for handling my banking transaction 	Chen et al. (2006) Lai and Li (2005)

Both the questionnaire and the semi-structured interviews were initially developed in English, based on the literature, and the final versions were translated to French by the author of this research. The French versions are reviewed by a university professor who is fluent in both French and English. Thereafter, a back-translation of the instruments is performed. Finally, the back-translation texts are compared with the original ones and differences between them is rigorously pretested, using a sample of

respondents in the pilot study so as to establish conceptual, linguistic and functional equivalence before the instruments are administered.

The semi-structured interview: the qualitative research consisted of face-to-face semi-structured interviews that were addressed to four banking executive managers belonging to the most important Moroccan bank institutions in terms of penetration, namely Attijariwafa bank, BCP Bank, BMCE and CIH.

All interviews were conducted in French language. (Quotes in the discussion were translated into English by the author). Tape recording and extensive notes were taken during the interviews. The verbal and non-verbal responses of the respondents during the interview were also taken into account as part of the feedback. The duration of each of these interviews were approximately forty-five minutes and were conducted on a one-to-one basis. Key issues mentioned from each interview were highlighted and common issues mentioned by the interviewees were combined. To identify key motivators and inhibitors for Internet banking, and assess the impact Web 2.0 has on the bank competitiveness and communication, a qualitative content analysis is used for paraphrasing the range of significant issues.

Moreover, as this research focused on decision making process of Web 2.0 technologies from an organizational perspective, the interviewees are chosen from the top management which include Executive managers and Senior managers, e-CRM managers, and a head of ICT department. The reason for this choice is that they influence decision-making process associated with Web 2.0 adoption within the communication strategy and culture of the organization.

2.3.6.3.2. Sampling Plan

After having defined the research problem and stating the methods by which the research was conducted, it is crucial to clarify the selected target population from which the sample will be derived. The attempt to describe the nature of an entire population is one of the crucial objectives of scientific research and in many cases the chance of getting a census is almost impossible due to time and budgets constraints and also information processing facilities. In some areas of research where the entire

population is sufficiently small, the researcher can include the entire population in the study and gather data from all the members of the sample. However, in other cases, as this research sample, where the target population is too large to attempt to survey all its members, a small sample is used to represent the population and its characteristics. According to Saunders et al. (2007), there are generally two types of sampling, namely probability sampling and non-probability sampling:

The sample in the *probability method* is chosen in a way that each member of the population has a known non-zero probability of being selected. In other words, every item in the population has an equal chance of being included in the sample which is a very robust method of sampling since the results derived from the sample can statistically be projected for the whole population. There are three main types of probability sampling methods: random sampling, systematic sampling, and stratified sampling (Saunders, Lewis and Thornhill, 2012).

Non-probability sampling is usually associated with case study research design and qualitative research. The sample in non-probability is selected in a way that the chance of each member of the population to be selected cannot be determined and generalized. There are four main types of non-probability sampling: convenience sampling, judgment sampling, quota sampling, and snowball sampling (Saunders, Lewis and Thornhill, 2012).

Since it is practically impossible to send a survey to every Moroccan banking customer to gather information, a simple random technique derived from probability sampling method is used to derive data. This method allows creating a sample that is accurately representative of the real life population of interest. Besides, random sampling is the most straightforward probability sampling strategy. It is often associated with survey and experimental research strategies (Saunders et al., 2012). Gravetter and Forzano state that “the logic behind simple random sampling is that it removes bias from the selection procedure and should result in representative sample” (p.146). Consequently, it ensures representativeness of the sample and also generalizability of the results to the target population.

2.3.6.3.3. Validity and Reliability

According to Saunders et al. (2012), Validity and Reliability should be taken into consideration to ensure the quality of the collected data.

2.3.6.3.3.1. Validity

Validity concerns the degree to which a question measures what it is intended or claimed to measure. “It is concerned with the meaningfulness of research components” (Drost, 2011, p.114). According to Saunders et al. (2000), the concept of validity means that the findings truly represent the phenomenon that is claiming to measure and to approximate the truthfulness of the results. Validity is one of the main concerns with research "any research can be affected by different kinds of factors which, while extraneous to the concerns of the research, can invalidate the findings" (Seliger and Shohamy 1989:95).

There are five types of validity: statistical validity, external validity, construct validity, external validity, content validity and internal validity.

STATISTICAL VALIDITY is the null hypothesis that is tested statistically to determine the factors that affect the results. It pertains to the relationship being tested. Statistical validity refers to “inferences about whether it is reasonable to presume covariance given a specified alpha level and the obtained variances” (Cook and Campbell, 1979, as cited in Drost, 2011:115). So in order to draw scientific conclusions, the research hypotheses are computed through SPSS tests.

EXTERNAL VALIDITY is the extent to which you can generalize your findings to a larger group or other contexts. If your research lacks external validity, the findings cannot be applied to contexts other than the one in which you carried out your research.

CONSTRUCT VALIDITY refers to the extent of which a concept, idea, or behavior is well translated or interpreted into a functioning and operating reality (Trochim, 2006). Haynes (1995) states that “construct validity is the degree to which an assessment

instrument measures the targeted construct” (p.239). In order to achieve construct validity, convergent and discriminant validity must be examined.

- *Convergent validity* arises when “considering two constructs hypothesized to be related and the correlation between the two constructs should be higher in order to contend test validity” (Thanasegaran, 2009:38). Carlson and Andrew (2012) confirm that convergent validities above 0.70 are recommended, whereas those below 0.50 should be avoided.
- *Discriminant validity* assumes that items do not correlate highly with other construct items that are theoretically supposed not to correlate.

CONTENT VALIDITY is defined by Bollen (1989) as a “qualitative type of validity where the domain of the concept is made clear and the analyst judges whether the measures fully represents the domain” (p.185). Hence, content validity is a qualitative means of ensuring that indicators assess the relevant and major aspects of the concept as defined by the researcher. Haynes et al., (1995) state that content validity refers to “the degree to which elements of an assessment are relevant to and representative of the targeted construct for a particular assessment purpose” (p.238).

To ensure data collection content validity and to investigate the feasibility and the clarity of the two data collection instruments, some measures are taken into consideration before conducting the main survey:

Pre-test: in order to validate the designed questionnaire and improve its effectiveness and also to examine whether it captures precisely what it is meant to capture, a pre-test is done by handing the questionnaire in to some experts in the field of research (three experts) to ponder whether the questions asked are clearly worded and easily understood, to identify the mistakes and undesirable trends that might have crept into the questionnaire, and also to determine which elements need to be included in order to provide answers to the specific aspects of the research. As a result, the instrument has confirmed content validity.

Pilot test: the pilot test is an essential step in the research process as it enables the researcher to amend and refine the data instruments used namely the semi-structured

interview and the questionnaire. Munn and Denver (1990) define piloting as “a relatively informal exercise of trying out the questionnaire to see how it works and to get the bugs out of the questions” (p.30). This permit the researcher to modify, delay or supplement elements at the designed collecting data instruments. Thus, piloting is a necessary academic way to get feedback about the effectiveness, readability, and the appropriateness of the questions.

Therefore, after performing a pre-test and the questionnaire was reviewed, it was handed out to a smaller subset of the target population (31 Moroccan banking customers) who were selected randomly. A hard copy of the questionnaire was distributed to the participants who were asked to comment on the length of the instrument and the format, to check the wording of the scales, completeness, sequencing and to identify ambiguous items in the questionnaire that could lead to misinterpretation. Following respondents’ feedback and suggestions about the phrasing and the overall structure of the questionnaire, the instrument was slightly reedited to strengthen clarity and completeness. Therefore, the questionnaire has confirmed content validity.

Concerning the semi-structured interview, the pilot study was initially conducted with two executive banking managers from two different financial institutions who helped greatly in improving the quality of the instrument such as addressing the ambiguity and vagueness represented in the interview agenda. They also helped in finding out about the reliability and the relevance of the questions to be asked and the needed time to conduct the interview. In-depth wh. questions were implemented (how, why, to what extent, etc.)in order to elicit maximum information about the investigated issue.

INTERNAL VALIDITY refers to whether the effects observed in a study are due to the manipulation of the independent variables and not some other factors. So, in order to test the validity of the internal consistency of the measures (Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Perceived Risk (PR), Attitude (ATT), and Intention (INT)), we applied them to a sample of 31 randomly selected members of the study community. The Pearson correlation coefficient was calculated between the

scores of each paragraph and the total score and the scale they belong to are as follows:

1- The coefficient of correlation between the degree of each paragraph of the measure (PU) and the total score of the scale:

Table 2.3 shows the correlation coefficient between the degree of each paragraph of the measure (PU) and the total score of the scale so as to ensure that each paragraph of the scale measures the same concept as measured by the scale:

Table 2.3. The coefficient of correlation between the degree of each paragraph of the PU scale and the total score of the scale

		<i>PU1</i>	<i>PU2</i>	<i>PU3</i>	<i>PU4</i>
<i>PU</i>	Pearson Correlation	.903**	.949**	.929**	.821**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	31	31	31	31

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

It is evident from **Table 2.3** that all the parameters of the PU measure have strong correlation coefficients and statistical function with the total score of the scale at the mean level (0.01). The correlation coefficients ranged between (0.821 - 0.949) which means that it has excellent validity.

2- The coefficient of correlation between the degree of each paragraph of the measure (PEOU) and the total score of the scale:

Table 2-4. The coefficient of correlation between the degree of each paragraph of the PEOU scale and the total score of the scale

		<i>PEOU1</i>	<i>PEOU2</i>	<i>PEOU3</i>
<i>PEOU</i>	Pearson Correlation	.862**	.897**	.926**
	Sig. (2-tailed)	.000	.000	.000
	N	31	31	31

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

Table 2-4 also reveals that all the parameters of the PEOU measure have strong correlation coefficients and statistical function with the total score of the scale at

the mean level (0.01). The correlation coefficients ranged between (0.862 - 0.926) which means that it has excellent validity.

3- The coefficient of correlation between the degree of each paragraph of the measure (PR) and the total score of the scale:

Table 2-5 The coefficient of correlation between the degree of each paragraph of the PR scale and the total score of the scale

		<i>PR1</i>	<i>PR2</i>	<i>PR3</i>	<i>PR4</i>	<i>PR5</i>
<i>PR</i>	Pearson Correlation	.829**	.871**	.895*	.825**	.848**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	31	31	31	31	31

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

Table 2-5 shows that the parameters of the PR measure have good correlation coefficients and statistical function with the total score of the scale at the mean level (0.01). The correlation coefficients ranged between (0.825 - 0.895) which means that it has good validity.

4- The coefficient of correlation between the degree of each paragraph of the measure (ATT) and the total score of the scale:

Table 2-6. The coefficient of correlation between the degree of each paragraph of the Attitude scale and the total score of the scale

		<i>Att1</i>	<i>Att2</i>	<i>Att3</i>
<i>Attitude</i>	Pearson Correlation	.945**	.951**	.935**
	Sig. (2-tailed)	.000	.000	.000
	N	31	31	31

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

From **Table 2-6**, it is noticed that all the parameters of the ATT measure have strong correlation coefficients and statistical function with the total score of the scale at the mean level (0.01). The correlation coefficients ranged between (0.935 - 0.951) which means that it has excellent validity.

5- The coefficient of correlation between the degree of each paragraph of the measure (adoption) and the total score of the scale:

Table 2-7. The coefficient of correlation between the degree of each paragraph of the Adoption scale and the total score of the scale

		<i>Adoption1</i>	<i>Adoption2</i>	<i>Adoption3</i>
<i>Adoption Intention</i>	Pearson Correlation	.975**	.968**	.974**
	Sig. (2-tailed)	.000	.000	.000
	N	31	31	31

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

It is clear from **Table 2-7** that all the parameters of the Adoption measures have strong correlation coefficients and statistical function with the total score of the scale at the mean level (0.01). The correlation coefficients ranged between (0.968 - 0.975) which means that it has excellent correlation.

2.3.6.3.3.2. Reliability

In the present study, reliability has to do with the degree of certainty that contributes to the quality of doing research. It addresses the question of whether the results are consistent (Edward & Asher, 1995). In the same context, Joppe (2000:1) defines reliability as:

The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable.

Joppe’s definition implies the idea of repeatability of results and the importance of an accurate representation of the population under observation. That is, a measurement is said to be reliable or consistent if it was to be repeated by using the same subjects under the same conditions. Kirk and Miller (1986) identify “three types of reliability referred to in quantitative research, which relate to: (1) the degree to which a measurement, given repeatedly, remains the same (2) the stability of a measurement

over time; and (3) the similarity of measurements within a given time period” (Kirk & Miller, as cited in Golashani, 2003:598). Moreover, Reliability in questionnaire studies relates to the ability of the tool to produce the same results if we test it more than two-three times.

- **Reliability Test**

In order to verify the stability of the measures (PU, PEOU, PR, ATT, and Intention), we apply them to a sample of 31 individuals randomly selected from the study community. The results of the Cronbach’s Alpha coefficients are calculated for the sum of paragraphs of each scale.

The Cronbach’s Alpha coefficient is commonly used to measure reliability of the questionnaires. That is, how closely related a set of items are as a group. Hair et al., (1998) state that alpha and construct-reliability values greater than or equal to 0.70 and a variance-extracted measure greater than 0.50 indicate sufficient scale and factor reliability. In other words, high value denotes high internal consistency in all variables.

Cronbach’s scores are calculated to assess the internal consistency reliability of the questionnaire. All the results presented in **Table 2-8** show that the questionnaire is reliable in terms of internal consistency.

Table 2-8. Reliability of the model factors by Cronbach’s Alpha Coefficient

	<i>Cronbach's Alpha</i>	<i>N. of Items</i>
<i>PU</i>	.922	4
<i>PEOU</i>	.876	3
<i>PR</i>	.908	5
<i>ATT</i>	.939	3
<i>INT</i>	.971	3

Table 2-8 shows the results of Cronbach’s alpha coefficients for each factor with reliability analysis. The Cronbach’s alpha α value in this study range from 0.876 to

0.971 which represents a strong internal consistency among the items of the questionnaire.

2.3.6.4. Data Analysis tools

The data gathered in the present study are analyzed using the most appropriate statistical techniques. Descriptive statistics such as frequencies, means, and standard deviations are calculated for all dimensions and statements. Cronbach's alpha coefficient (α) is computed to ensure the reliability of all measurement scales as well as the overall questionnaire.

Furthermore, in order to answer the research questions of the present study, analyses and interpretations are assisted by the statistical package for the IBM Social Sciences program (SPSS), version 24 and AMOS which is the analysis of mean and covariance structures. In this study Structural Equation Modeling (SEM) is applied to understand how TAM and PR model factors can predict customers' Intention to adopt mobile banking services in Morocco. SEM, which is one of the most popular statistical methodologies available to quantitative social scientists, is an extension of factor analysis. SEM is a methodology designed primarily to test substantive theory from empirical data. Hox (1995:1) define SEM as:

The structural equation model implies a structure for the covariance between the observed variables...It provides a very general and convenient framework for statistical analysis that includes several traditional multivariate procedures, for example factor analysis, regression analysis, discriminant analysis, and canonical correlation, as special cases. Structural equation models are often visualized by a graphical path diagram. The statistical model is usually represented in a set of matrix equations.

Moreover, SEM is composed of two major elements: 1) a structural model which describes the relationship between the endogenous (dependent variables) and exogenous latent variables (independent variables) allowing the researcher to evaluate the strength of the causal effects between these variables, and 2) a measurement model

which describes the relationship between latent variables and the observed variables (confirmatory factor analysis).

Concerning qualitative data analysis, a content analysis technique is adopted. Content analysis has been defined by Stemler (2000) as, “a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding” (p.1). In the same vein, Holsti (1969) offers a broad definition of content analysis as, "any technique for making inferences by objectively and systematically identifying specified characteristics of messages" (p. 14). Moreover, Krippendorff (2004) defines content analysis as “a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use” (p.215). These definitions stress on the inferential nature of content analysis. Based on existing theories and previous research, conclusions are drawn from the samples where special attention is given to context and meaning (White & Marsh, 2006). Content analysis is a rich and meaningful technique since it relies on coding and categorizing data.

2.4. Summary

The main objective of this chapter is to set out the research methodology and to provide the appropriate statistical analysis methods chosen for the analysis of data. It elucidates the choice of research methods for gathering, approaching, and analyzing the present study data as well as clearly describes the different steps taken in the research process.

Concerning the methodology, the present research has used a mixed methods approach which is the combination of the qualitative and quantitative approaches as this was deemed the most relevant for this study. The interpretivism methodology, which is a subjective approach, is qualitative in nature; it provides an excellent way of identifying in-depth information about the research subject, while the positivism methodology focuses on numerical data collection to explain users’ behavior. To check the validity of the research findings the triangulation method was employed,

that is combining a qualitative design (interviewing) with a quantitative design (a survey) so as to get at the same research questions and looking for convergence in research findings (Greene, 2007).

The chapter has also presented the research design used, reviewed the purposes of the study that guide the research and the corresponding hypothesis, the sample and the sampling procedure, the data collection and the analysis tools, the sources and the procedure of data collection as well as the statistical methods employed in testing the research hypothesis and questions.

It has dealt with data collection techniques and procedures in which the questionnaire and the semi-structured interviews have been conducted. The questionnaire is used as a quantitative technique to collect data from Moroccan banking customers, while the semi-structured interviews are used for qualitative research. The data collected from the quantitative method are analyzed by SPSS V.20. SEM technique is also adopted to analyze structural relationships between variables through the use of AMOS.

All the aforementioned have been achieved to respond to the requirements of the research questions and to offer a broader understanding of the phenomenon of Web 2.0 applications in the context of Internet banking, and to help in identifying the perception of the Moroccan banking consumer towards using Web 2.0 technologies as a medium to communicate with their banks and the factors that influence them to adopt Internet banking. The next chapter deals with the analysis and interpretation of data as well as the presentation and discussion of the results.

Chapter Three: Data Analysis and Interpretation

The two previous chapters have focused on the presentation and the discussion of the theoretical and methodological framework. Chapter two on the research methodology has focused on the description of the data collection and analysis procedures as well as the presentation and the discussion of the methodological issues raised. The present chapter concentrates on the analysis of data and the interpretation of the results obtained so as to answer the research questions. It proceeds through the analysis of the data collected through the questionnaire and the semi-structured interviews. Then, it presents the statistical analysis techniques used, namely frequency distribution, percentages, the means, standards deviation, Chi-square test, structural equation modeling.

This chapter is divided into two sections. The first section deals with the findings obtained from the questionnaire while the second one deals with the results obtained from the analysis of the semi-structured interviews data.

3.1. Findings of the Questionnaire

Demographic characteristics are important attributes pertaining to a population. Example of these, include gender, age, educational qualification, and profession. These variables result in differences among individuals, and these differences influence their attitudes and choices. It is well established that demographic characteristics have a significant impact on customer's attitude and behavior regarding the use of a technology (Sathye, 1999; Jayawardhena & Foley, 2000; Mattila, 2001; Karjaluoto, 2002; Mattila et al., 2003; Akinci et al., 2004).

3.1.1. Internal Reliability of the Questionnaire

The reliability or internal consistency of the data was administered by means of Cronbach's alpha. This procedure was meant to measure the scaled items so as to achieve construct validity and to reveal how closely related a set of items are as a group. All the results show that the questionnaire is reliable in terms of its internal consistency. The Cronbach's alpha α value in this study range from 0.876 to 0.971 which represents a strong internal consistency among the items of the questionnaire.

3.1.2. Findings of the Demographic Characteristics of the Respondents

A total of 200 questionnaire papers were distributed randomly; however, 29 questionnaires were taken out as they were not filled in properly and completely, plus 109 participants responded to the same questionnaire delivered through the Internet. Hence, the actual sample used for the current study is 280 respondents. All respondents were Moroccan bank customers. The study concentrated on the perception of Moroccan bank customers on the implementation of Web 2.0 technologies in banking communication and the factors that influence the use of Internet banking among these customers.

The first section of the questionnaire includes nominal scales. This part of the questionnaire was used to collect basic information about the respondents' demographic characteristics including gender, age, educational level, profession, bank and access to Internet and from where it is done. The descriptive statistics of the respondents' demographic characteristics were analyzed and displayed in the form of frequencies and percentages in **Table 3-1**.

Table 3-1. Descriptive statistics of the respondents' demographic characteristics

<i>Measure</i>	<i>Value</i>	<i>Frequency</i>	<i>Percentage (%)</i>
GENDER	Male	142	50.7
	Female	138	49.3
AGE	18-25	51	18.2
	26-35	90	32.1
	36-45	72	25.7
	46- 55	47	16.8
	+55	20	7.1
EDUCATION	Primary education	12	4.3

LEVEL	Baccalaureate	16	5.7
	Technician, bac level	21	7.5
	Bac +2	41	14.6
	Bachelor's degree	68	24.3
	Master's degree	67	23.9
	PhD	45	16.1
	No diploma	10	3.6
PROFESSION	Student	40	14.3
	Civil servant	128	45.7
	Liberal profession	15	5.4
	Private sector employee	52	18.6
	Very small enterprises	16	5.7
	Artisan	14	5.0
	Retired	9	3.2
BANK	Unemployed	6	2.1
	Attijariwafa Bank	53	18.9
	BCP Bank	90	32.1
	CIH	28	10.0
	BMCI	11	3.9
	BMCE	51	18.2
	Credit Agricole	3	1.1
	Al Barid Bank	6	2.1
	Credit du Maroc	16	5.7
	Soci�te General	20	7.1
	Umnia Bank	1	.4
Bank Assafa	1	.4	
Internet Access	Yes	270	96.4
	No	10	3.6
Access to Internet is mostly done	Home	217	77.5
	Work	21	7.5
	Public Places	33	11.8
	No answer	9	3.2

From **Table 3-1** above, the respondents' gender ratio is almost even between males and females. 142 respondents are men, this comprises 50.71% of the study participants and the number of female participants' accounts for 138 participants which comprise 49.20% of the total number of participants in this study. This means that both females and males are equally presented in the sample for this study. Therefore, none of two gender categories has been under-represented. Concerning the respondents' age, the responses indicate that the majority of the population is from a relatively younger generation; people from age group (26-35) were 32.1%, respondents from age (36-45) are 25.7%, respondents from age group (18-25) are 18.2%, while those aged between (46-55) are 16.8% and only 7.1% are over 55 years old.

On the basis of the educational qualification in **Table 3-1**, the majority of the respondents are well educated; 24.3% holds a BA degree, followed by Master degree holders at 23% and PhD holders at 16.1%, and the lowest category is primary education at 4.3% and respondents with no diploma constitute 3.6%. As far as the occupation of the respondents is concerned, the largest 45.7% of the total sample are civil servants followed by the next largest 18.6% represented by the private-sector employees, 14.3% represented by students, 5% are artisans, 3.2% are retired and 2.1% are unemployed.

The questionnaire also collected information about the Internet access of the respondents and the bank they are with. The Internet use of the respondents indicates that almost all the respondents (96.4%) have access to Internet and it is mostly done at home (77.5%) more than at work (7.5%) or in public places (11.8%). **Table 3-1** highlights the fact that the majority of the respondents 79.2% are whether with BCP Bank (32.1%), Attijariwafa Bank (18.9%), BMCE Bank (18.2%) or CIH (10%). These banks constitute the most powerful banks in Morocco in terms of penetration, meanwhile the lowest number of respondents are with Société General 7.1%, Credit du Maroc 5.7%, BMCI 3.9%, Al Barid bank 2.5%, Credit Agricole 1.1%, Umnia bank 0.4% and Assafa bank 0.4%.

3.1.3. Findings of the Second part of the Questionnaire

The second section of the questionnaire covers 19 items (≠8 through ≠20) dealing with Moroccan banking customers' perception towards Web 2.0 technologies.

Table 3-2 : Do you use Web 2.0 technologies

Do you use Web 2.0 technologies (Blogs, Wikis, Podcasts, Social Networks,...)?	Frequency	Percent
Yes	256	91.4
No	24	8.6
Total	280	100.0

Table 3.2 above reveals the findings of the item “the use of Web 2.0 technologies” by Moroccan banking customers. A total of 256 respondents out of (n=280) representing

91.4% of those who use Web 2.0 technologies, while only a total of 24 respondents out of (n=280) representing 8.6% don't use Web 2.0 technologies for social communication. This means that the majority of the respondents use Web 2.0 technologies in their daily life.

Table 3-3 : The most Web 2.0 channel used

Which of the following Web 2.0 channels do you use?	Frequency	Percent
Blogs	18	6.4
Wikis	4	1.4
RSS filters	2	.7
Social networks	227	81.1
Podcasts (YouTube, ..)	5	1.8
No answer	24	8.6
Total	280	100.0

Table 3.3 above demonstrates the findings of the item “the most used Web 2.0 tool by Moroccan banking customers”. A total of 227 respondents out of (n=280) representing 81.1% use Social Network Sites to connect with their friends, relatives and acquaintances. However, only 29 respondents out of (n=280) representing 10.3% use the other Web 2.0 tools such as blogs, Podcasts, RSS Filters and Wikis. It can be deduced that social network sites are the most used Web 2.0 channels by Moroccan banking customers.

Table 3-4.knowledge and skills to use Web 2.0 technologies

I have the knowledge and skills required to use Web 2.0 technologies	Frequency	Percent
Strongly Agree	118	42.1
Agree	99	35.4
Neither agree nor disagree	35	12.5
Disagree	11	3.9
Strongly Disagree	17	6.1
Total	280	100.0

Table 3-4 above indicates the finding of the item “knowledge and skills to use Web 2.0 technologies by Moroccan banking customers. A total of 217 respondents out of

(n=280) representing 77.5% “strongly agree” (cumulative percentage of “Strongly agree” and “agree”) that they possess the knowledge and the required skills to use Web 2.0 technologies, while just 28 respondents out of (n=280) representing 10% don’t know how to use Web 2.0 technologies. However, only 35 respondents out of (n=280) representing 12.5% are neutral.

Table 3-5. Web 2.0 improves communication efficiently and saves time and money

Web 2.0 technologies allow me to improve communication efficiently since it saves me time and money.	Frequency	Percent
Strongly agree	136	48.6
Agree	90	32.1
Neither agree nor disagree	32	11.4
Disagree	11	3.9
Strongly disagree	11	3.9
Total	280	100.0

Table 3.5.above reveals that the majority of the respondents 226 respondents out of (n=280) representing 80.7% state (cumulative percentage of “strongly agree” and “agree”) that Web 2.0 tools improve communication effectively, save time and reduce cost. A total of 22 respondents out of (n=280) representing 7.8%“Disagree” (cumulative percentage of “disagree” and “strongly disagree) about the above statement. However, 99 respondents out of (n=280) representing 32.1% neither agree nor disagree to the provided statement.

Table 3-6. Web 2.0 tools increase work efficiency; it gives faster access to information

Web 2.0 tools increase my work efficiency because it gives me faster access to information I am looking for	Frequency	Percent
Strongly agree	132	47.1
Agree	87	31.1
Neither agree nor disagree	29	10.4
Disagree	17	6.1
Strongly Disagree	15	5.4
Total	280	100.0

Table3-6. above shows that 219 respondents out of (n=280) representing 78.2% “agree” (cumulative percentage of “strongly agree” and “agree”) on the fact that Web 2.0 technologies increase their work in an efficient way since they give them fast access to information they are looking for. While only a total of 32 respondents out of (n=280) representing 11.5% disagree (cumulative percentage of “disagree” and “strongly disagree”). They don’t share the same view. They believe that Web 2.0 tools don’t allow them fast access to information and don’t affect their work.

Table 3-7. Bank social profile

Has your bank a social profile (Facebook, LinkedIn, Twitter, MySpace, etc.)?	Frequency	Percent
Yes	111	39.6
No	57	20.4
I do not know	112	40.0
Total	280	100.0

Table 3-7.reveals that 111 respondents out of (n=280) representing 39.6% confirm that their banks have a social presence on the net. On the other hand, 112 respondents out of (n=280) representing 40% have no idea if their banks have a social profile or not while 57 respondents out of (n=280) representing 20.4% assert that their bank has no social profile.

Table 3-8. Do you use Web 2.0 technologies to communicate with your bank?

Do you use Web 2.0 technologies to communicate with your bank?	Frequency	Percent
Yes	120	42.9
No	160	57.1
Total	280	100.0

Table3.8.presents the respondents’ view towards their access to banks websites for banking communication and transactions. 160 respondents out of (n=280) representing 57.1% do not use web 2.0 technologies to communicate with their banks. While 120 respondents out of (n=280) representing 42.9% confirm that they use web 2.0 tools to communicate with their banks. This reflects that more than half of the respondents do not use web 2.0 applications to communicate with their banks.

Table 3-9. The most used Web 2.0 technology to communicate with the bank

which of the following Web 2.0 technologies do you use to communicate with your bank?	Frequency	Percent
Blogs	6	2.1
Wikis	3	1.1
RSS filters	4	1.4
Social networks 5(Facebook, LinkedIn, Myspace, ...)	102	36.4
Podcasts (YouTube, ..)	5	1.8
No answer	160	57.1
Total	280	100.0

Table 3.9 above reveals the most Web 2.0 tools used by customers to communicate with their banks. A total of 102 respondents out of (n=280) representing 36.4% use social networks as a medium to communicate with their banks. While 2.1% use Blogs, 1.1% use Wikis, 1.8% use Podcasts and 1.4% use RSS Filters. According to these results SNSs remain the most used channels by Moroccan banking customers.

Table 3-10. Tools to communicate with the bank

Which of the following medium do you use to get in touch with your bank?	Frequency	Percent
Social media	9	3.2
E-mail	1	.4
Mobile Banking application	71	25.4
Bank Website	96	34.3
Visit the Branch	89	31.8
Call the Customer Service	14	5.0
Total	280	100.0

Table 3.10 above shows that a total of 96 respondents out of (n=280) representing 34.3% use their bank web site to communicate with their banks. 89 respondents representing 31.8% visit the branch and 71 respondents representing 25.4% use mobile banking application. And only 14 respondents out of (n=280) representing 5% call the customer service. Therefore, mobile banking applications and Bank websites are becoming vital components of ordinary banking streams in Morocco.

Table 3-11. Online Banking services

Do you use your online banking services?	Frequency	Percent
Yes	198	70.7
No	82	29.3
Total	280	100.0

Table 3.11 above shows the use of online banking service. A total of 198 respondents out of (n=280) representing 70.7% use online banking services, while only 82 respondents out of (n=280) representing 29.3% don't use online banking services which reveals that the majority of the respondents use online banking services.

Table 3-12. Mobile Banking Application

Which mobile application are you connected to?	Frequency	Percent
AttijariWafa banque	43	15.4
CIH Mobile	27	9.6
BMCE Direct	35	12.5
Société Générale	15	5.4
BMCI Mobile	12	4.3
CAM Mobile	1	.4
CREDIT du Maroc	11	3.9
CHAABI NET	48	17.1
EL BARID BANK	5	1.8
Assafa mobile	1	.4
No Answer	82	29.3
Total	280	100.0

Table 3.12 above indicates which Mobile Banking Applications Moroccan banking customers are connected to. 48 respondents out of (n=280) representing 17.1% are connected to Chaabi Net, followed by 43 out of (n=280) representing 15.4% are connected to Attijarinet, 35 respondents out of (n=280) representing 12.5% are connected to BMCE Direct, and 27 respondents out of (n=280) representing 9.6% are connected to CIH Mobile. The other respondents are connected to Societe Generale with 5.4%, Credit du Maroc with 3.9%, Al Barid bank with 1.8% and CAM Mobile and Assafa mobile with .4% respectively.

Table 3-13. Tools used to connect with the bank

Which tool do you use to communicate with your bank?	Frequency	Percent
Computer / lap top / Tablet	11	4.0
Smart phone	184	65.7
ATM / Visit the Branch	25	8.9
No Answer	60	21.4
Total	280	100.0

Table 3.13.above shows the different channels that customers use to connect with their banks. A total of 184 out of (n=280) representing 65.7% use their “smart phones” to have access to their Mobile banking application. While a total of 25 respondents out of (n=280) representing 8.9 % use “ATMs/visit the branch”, and a total of 11 respondents out of (n=280) representing 4% use their “Computer /Lap top/ Tablet”. The majority of the respondents prefer to connect with their banks via mobile phones rather than visiting the brick-and-mortar bank.

Table 3-14. The frequency of Online banking usage

How often do you use online banking?	Frequency	Percent
Daily	48	17.1
3 -4 per week	76	27.1
1 – 2 per month	57	20.4
Rarely	14	5.0
Only when notified with new operations	6	2.1
No answer	79	28.2
Total	280	100.0

Table 3.14 above, shows how frequently Moroccan banking customers use Online Banking. A total of 76 respondents out of (n=280) representing 27.1% use online banking 3 to 4 times per week. A total of 57 respondents out of (n=280) representing 20.4% use online banking once a month. The number of participants who use online banking daily yields a 17.1% response rate while the number of those who rarely use online banking services is 5% of all the participants. And only 2.1% use online banking “only when notified with new operations”.

Table 3-15. Financial Online Banking Features

Which features of online banking do you use?	Frequency	Percent
Balance enquiry/ e-statement	254	91.7
Open an account	4	1.1
Transfer money	134	47.7
Apply for a loan	76	27.1
Online Bill paiement	164	58.7
Stock Transactions	2	.9
Purchasing	110	39.4
No answer	79	28.2

Table 3.15. presents the different types of financial transactions performed by customers in their respective banks. The highest number of customers prefer to balance enquiry in accounts; a total of 254 respondents out of (n=280) representing 91.7% use “balance enquiry/ e-statement”. Followed by 164 respondents out of (n=280) representing 58.7% “online bill payment”. A total of 134 respondents out of (n=280) representing 47.7% “transfer money”. A total of 110 respondents out of (n=280) representing 39.4% make online “purchasing”. 76% of the respondents “apply for loans”. The least used feature is making “stock transactions” with only 0.9% of the respondents.

Table 3-16. Satisfaction with Online Banking services

How satisfied are you with your bank’s online services?	Frequency	Percent
Very satisfied	40	14.3
Somewhat Satisfied	99	35.4
Neutral	40	14.3
Dissatisfied	23	8.2
Very Dissatisfied	10	3.6
No answer	68	24.3
Total	280	100.0

Table 3.16. above shows the extent to which Moroccan banking customers are satisfied with their bank’s online services. A total of 139 respondents out of (n=280) representing 49.7% are “Satisfied” (cumulative percentage of “very satisfied” and

somewhat satisfied”), while a total 33 respondents out of (n=280) representing 11.8% are “Dissatisfied” (cumulative percentage of “dissatisfied” and very dissatisfied”). Therefore, almost half of the respondents are satisfied with their bank’s online services.

Table 3-17. How satisfaction and non-satisfaction is expressed

How do you express your satisfaction / dissatisfaction with your online banking services?	Frequency	Percent
Visit the Branch	106	37.9
Call the Customer services	9	3.2
Talk about it in a blog	8	2.9
Talk about it through SNSs	34	12.1
Do Nothing	63	22.5
No Answer	60	21.4
Total	280	100.0

Table 3.17.above shows the findings of the question “How do you express your satisfaction/dissatisfaction with your online banking services?”. A total of 106 respondents out of (n=280) representing 37.9% “visit the branch”, while a total of 63 respondents out of (n=280) representing 22.5% “do nothing”. A total of 34 respondents out of (n=280) representing 12.1% “talk about it through Social Network Sites”. Only 3.2% of the respondents “call the customer service” and 2.9% of respondents “talk about it in a Blog”.

Table 3-18. The Use of Web 2.0 Technologies is Beneficial

The use of Web 2.0 technologies by Moroccan banks is beneficial for you as a consumer.	Frequency	Percent
Strongly Agree	112	40.0
Agree	76	27.1
Neither agree nor disagree	27	9.6
Disagree	5	1.8
Strongly disagree	22	7.9
No Answer	60	21.4
Total	280	100.0

Table 3.18.above reveals the findings for the item “The use of Web 2.0 technologies by Moroccan banks is beneficial for you as a customer”. A total of 188 respondents out of (n=280) representing 67.1% out of (n=280) “agree” (cumulative percentage of “strongly agree” and “agree”), While a total of 32 respondents out of (n=280) representing 11.4% out of (n=280) disagree (cumulative percentage of “disagree” and “strongly disagree”). The majority of the respondents believe that the implementation of Web 2.0 technologies by Moroccan banks is advantageous.

Table 3-19. Web 2.0 technologies are best used as a social interaction network but not as a financial transaction channel.

Web 2.0 technologies are best used as a social interaction network but not as financial transaction channels.	Frequency	Percent
Strongly agree	41	14.6
Agree	63	22.5
Neither agree nor disagree	51	18.2
Disagree	43	15.4
Strongly disagree	22	7.9
No answer	60	21.4
Total	280	100.0

Table 3.19.above shows the findings for the item “Web 2.0 technologies are best used as social interaction network but not as a financial transaction channel.”. A total of 104 respondents out of (n=280) representing 71.1% out of (n=280) “agree” (cumulative percentage of “strongly agree” and “agree”), While a total of 65 respondents out of (n=280) representing 23.3% out of (n=280) disagree (cumulative percentage of “disagree” and “strongly disagree”). Despite its benefits, Web 2.0 is considered more as a social interaction network rather than a financial transaction channel.

3.1.4. Findings of the Demographics Research Hypotheses

This section has to do with the findings of the demographics hypothesis in relation to customer’s perception towards Web 2.0 technologies usage. The hypothesis set for this section is as follow: “There is a predictive link between demographics variables

and Web 2.0 channels as an effective communicative medium between customers and their banks”. Cross-tabulation, a quantitative research method, is used to examine relationships within data that may not be readily apparent. It helps in understanding the correlation between different variables. The Chi-square Test is also used along with Cross-tabulation for testing the relationship between gender, age, educational level, and profession variables and the perception towards Web 2.0 technologies perception and usage. If the P-value is less than or equal to the significance level ($P\text{-value} \leq \alpha$), the null hypothesis (H_0) is rejected and can be concluded that there is a statistically significant association between variables. However, if the P-value is larger than the significance level, the null hypothesis (H_0) is retained as there is not enough evidence to conclude that the variables are associated.

3.1.4.1. Gender factor

Gender is examined to determine whether it impacts the usage of Web 2.0 technologies in banking communication.

Table 3-20. Gender * do you use Web 2.0 technologies?

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.459 ^a	1	.227
N of Valid Cases	280		

It can be revealed from the above **Table 3.20** that the chi-square value is (.227) with an indication level of (1.45) which is a value that is not statistically significant since the p-value is higher than the theoretical significance level ($p < 0.05$). This indicates that there is a negative and non-statistically significant connection between gender variable and “the use of Web 2.0 technologies”. This suggests that the null hypothesis is retained.

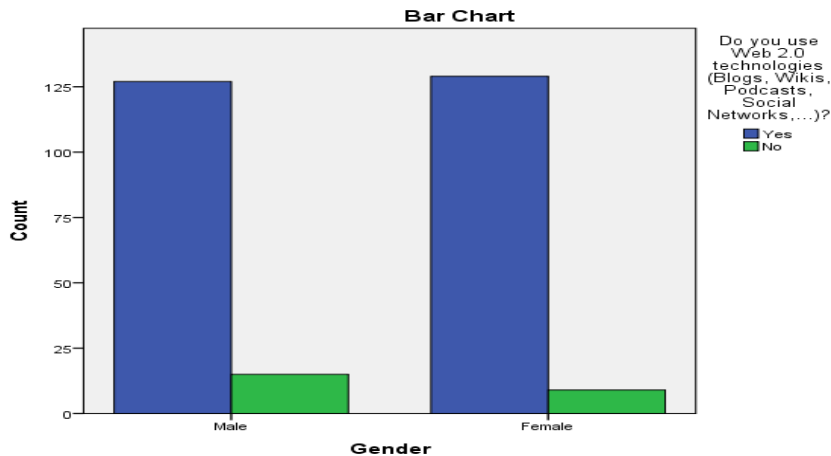


Figure 3-1. Gender*the use of Web 2.0 technologies

The results displayed in **Fig. 3.1.** show that there is a roughly equal number between Male and female who use Web 2.0 technologies which reveals that both females and males are aware of and familiar with Web 2.0 technologies and use them for their social interaction.

Table 3-21. Gender * I have the knowledge and skills required to use Web 2.0 technologies.

Chi-square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.527 ^a	4	.474
N of Valid Cases	280		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.42.

It can be revealed from the above **Table 3.21** that the chi-square value is (.474) with an indication level of (3.52) which is a value that is not statistically significant since the p-value is higher than the theoretical significance level ($p < 0.05$). This indicates that there is a negative and non-statistically significant connection between gender variable and “having knowledge and skills to use Web 2.0 technologies”. This suggests that the null hypothesis is retained.

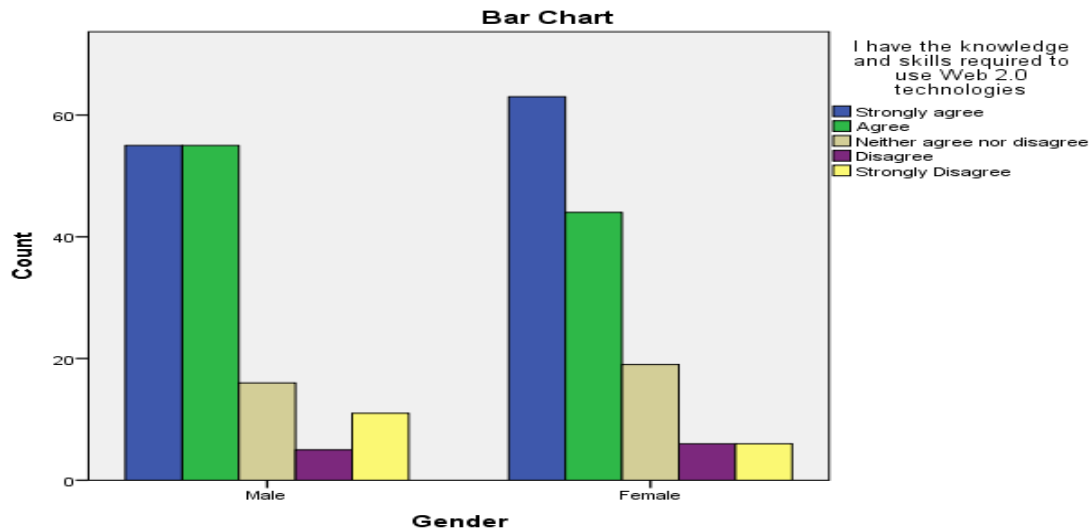


Figure 3-2. Gender* I have the knowledge and skills required to use web 2.0 technologies

The results displayed in **Fig. 3.2** show that there is a slight difference in gender's opinion. Females are more technology literate than their males' counterparts. Females confirm having the knowledge and adequate skills to use Web 2.0 technologies.

Table 3-22. Gender * Web 2.0 technologies improve communication efficiently since they save time and money

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.442 ^a	4	.168
N of Valid Cases	280		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.42.

It can be revealed from the above **Table 3.22** that the chi-square value is (0.16) with an indication level of (6.442) which is a value that is not statistically significant as the p-value is higher than the theoretical significance level ($p < 0.05$). This indicates that there is no statistically significant relationship between gender variable and the fact that Web 2.0 technologies influence communication effectively which suggest that the null hypothesis is retained.

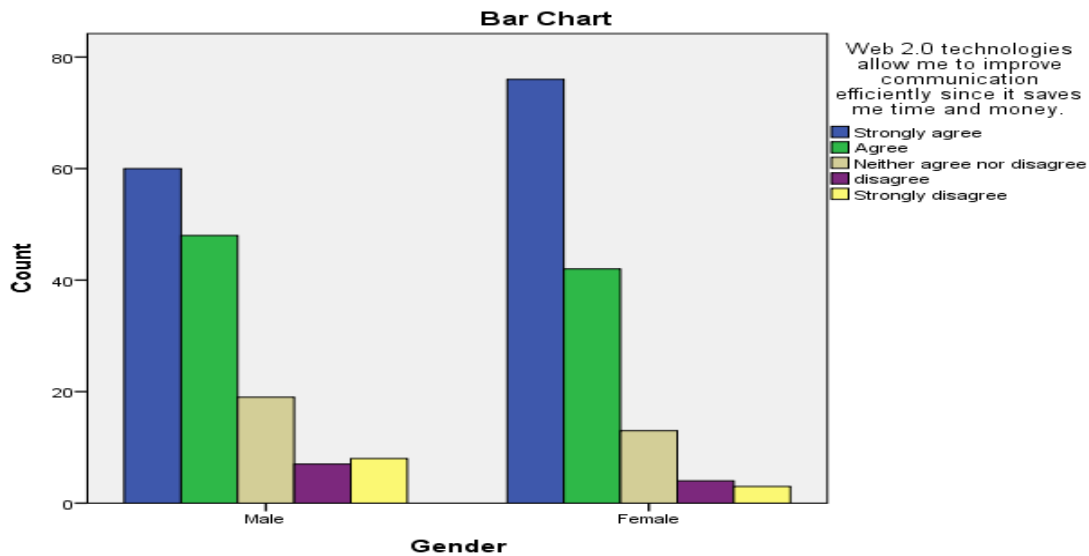


Figure 3-3. Gender* Web 2.0 technologies improve communication efficiently since they save time and money.

The **Figure 3.3** above reveals that both males and Females similarly agree that web 2.0 technologies permit them to improve their communication efficiently and save their time and money.

Table 3-23 Gender* Social media increases my work efficiency because it gives me faster access to information I am looking for.

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.420 ^a	4	.077
N of Valid Cases	280		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.39.

As **Table 3.23** indicates, the chi-square value is (0.77) with an indication level of (8.420) which is a value that is not statistically significant as the p-value is higher than the theoretical cut-edge alpha required ($p < 0.05$). This indicates that there is no statistically significant relationship between gender variable and the benefits of 2.0 technologies which suggest that the null hypothesis is retained.

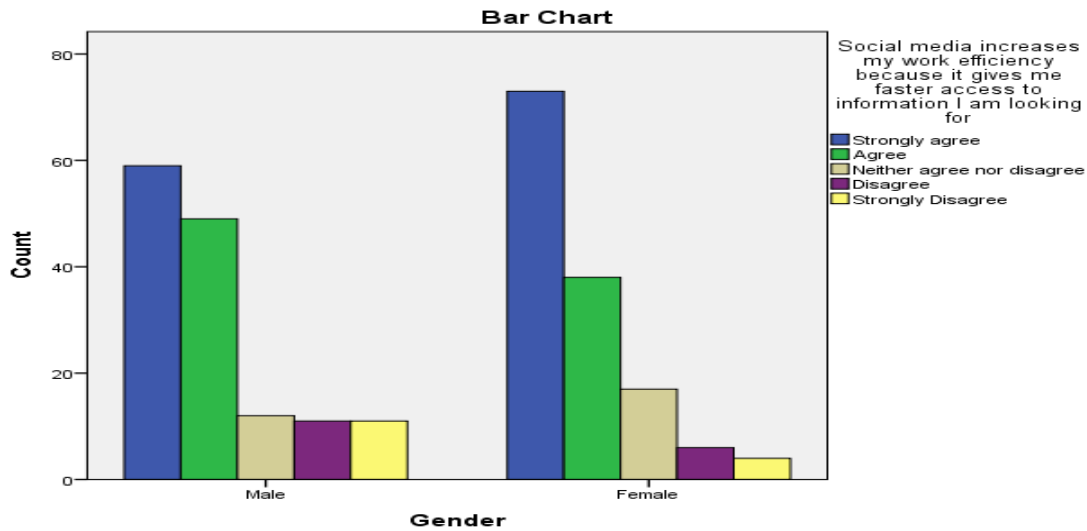


Figure 3-4. Gender* social media increases my work efficiency because it gives me faster access to information I am looking for.

Both male representing 76% and female representing 80.4% in **Figure 3-4** believe that social media increases their work efficiency as it gives them faster access to information they are searching.

Table 3-24 Gender * the bank social profile is meant to develop effective one-to-one communication with the customers.

Chi Square Test			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.109 ^a	4	.540
N of Valid Cases	280		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 3.94.

As **Table3.24** indicates, the chi-square value is (0.54) with an indication level of (3.109) which is a value that is not statistically significant as the p-value is higher than the theoretical cut-edge alpha required ($p < 0.05$). This indicates that there is no statistically significant relationship between gender variable and the statement that the bank social profile is meant to develop effective one-to-one communication with the customers; therefore, the null hypothesis is retained.

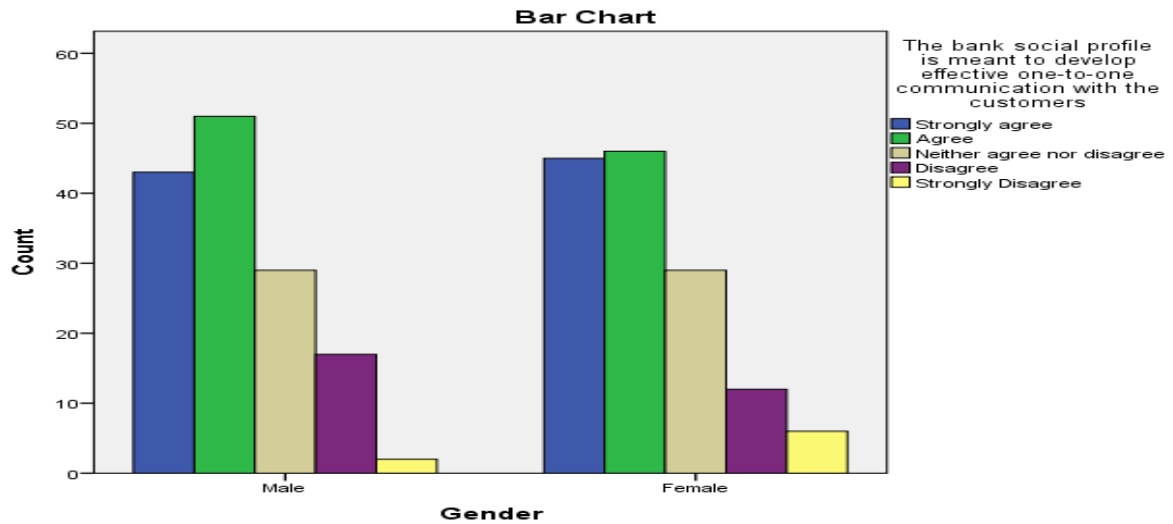


Figure 3-5. Gender * The bank social profile is meant to develop effective one-to-one communication with the customers

From the above **Fig 3.5**, both males and females agree upon the idea that the bank social profile is efficient in building a transparent and visible relationship between the bank and its clients.

Table 3-25. Gender * the use of Web 2.0 channels to communicate with the bank

Chi-Square Test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.743 ^a	1	.098
N of Valid Cases	280		

As **Table 3.25** indicates, the chi-square value is (.098) with an indication level of (2.743) which is a value that is not statistically significant as the p-value is higher than the theoretical cut-edge alpha required ($p < 0.05$). This indicates that there is no statistically significant relationship between gender variable and the use of Web 2.0 applications to communicate with the bank; therefore, the null hypothesis is retained.

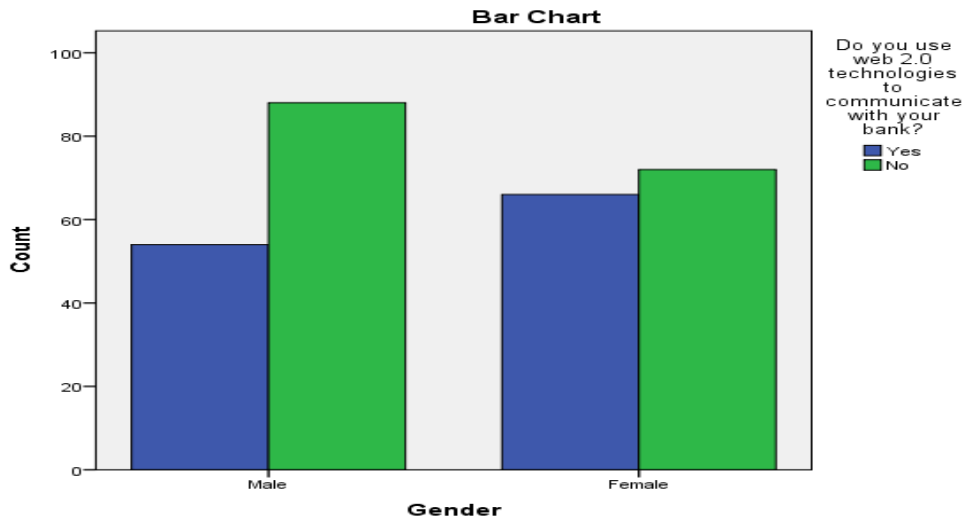


Figure 3-6. Gender* The use of Web 2.0 technologies to communicate with the bank

The majority of males' respondents representing 88 out of 142 don't use Web 2.0 technologies in their communication with their banks and only 54 out of 142 do. Concerning Females attitude towards the use of Web 2.0 tools, 66 out of 138 respond positively while 72 out of 138 denied using these technologies to communicate with their banks.

Table 3-26 . Gender * the use of Online Banking services

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.344 ^a	1	.246
N of Valid Cases	280		

Table 3.26 shows that the chi-square value is (.246) with an indication level of (1.344) which is a value that is not statistically significant as the p-value is higher than the theoretical cut-edge alpha required ($p < 0.05$). This indicates that there is no statistically significant relationship between gender variable and the use of online banking services. Thus, the null hypothesis is retained.

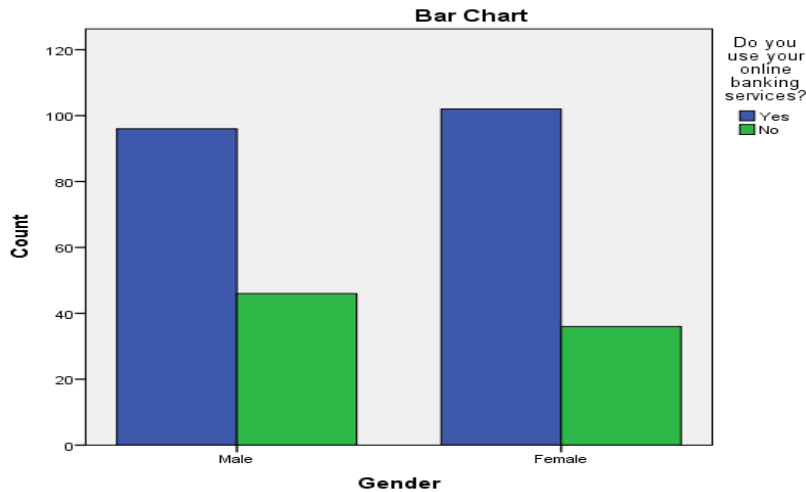


Figure 3-7. Gender * The use of online banking services.

The relationship between gender and online banking adoption is demonstrated in **Figure 3.7**. Females use online banking services more than males. These results are not consistent with the prior research which demonstrated that males are more likely to adopt technological innovations than females (Venkatesh and Morris, 2000).

Table 3-27 Gender * The use of Web 2.0 technologies by Moroccan banks is beneficial

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	5.496 ^a	4	.240
N of Valid Cases	280		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 2.46.

As **Table 3.27** indicates, the chi-square value is (0.24) with an indication level of (5.496) which is a value that is not statistically significant as the p-value is higher than the theoretical cut-edge alpha required ($p < 0.05$). This indicates that there is no statistically significant relationship between gender variable and the benefits of 2.0 technologies which suggests that the null hypothesis is retained.

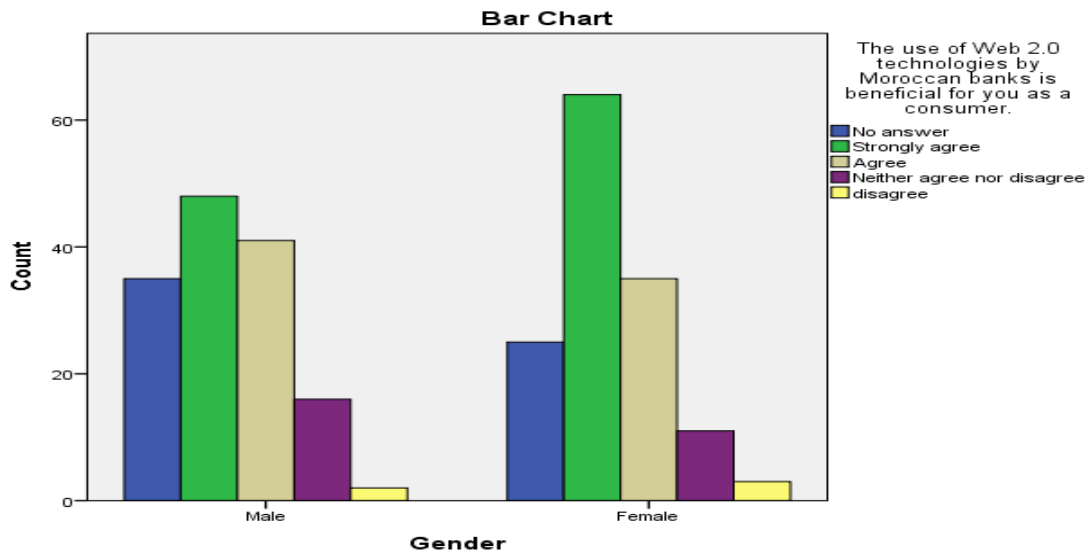


Figure 3-8. Gender* The use of Web 2.0 technologies by Moroccan banks is beneficial.

As seen in the **Figure 3-8** above, females representing 109 out of (n= 280) believe that the implementation of Web 2.0 technologies by the Moroccan banking institutions is beneficial and presents a lot of advantages more than males representing 89 out of (n=280) do.

Table 3-28. Gender * Web 2.0 technologies are best used as social interaction network but not as a financial transaction channel.

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.078 ^a	5	.215
N of Valid Cases	280		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.84.

Table 3.28.above reveals that the chi-square value is (0.21) with an indication level of (7.078) which is a value that is not statistically significant as the p-value is higher than the theoretical significance level ($p < 0.05$). As a result, there is no statistically significant relationship between gender variable and the fact that Web 2.0 technologies are better used as a social interaction network but not as a financial transaction. This suggests that the null hypothesis is not rejected and the result of the data analysis show that there are not any statistically significant differences.

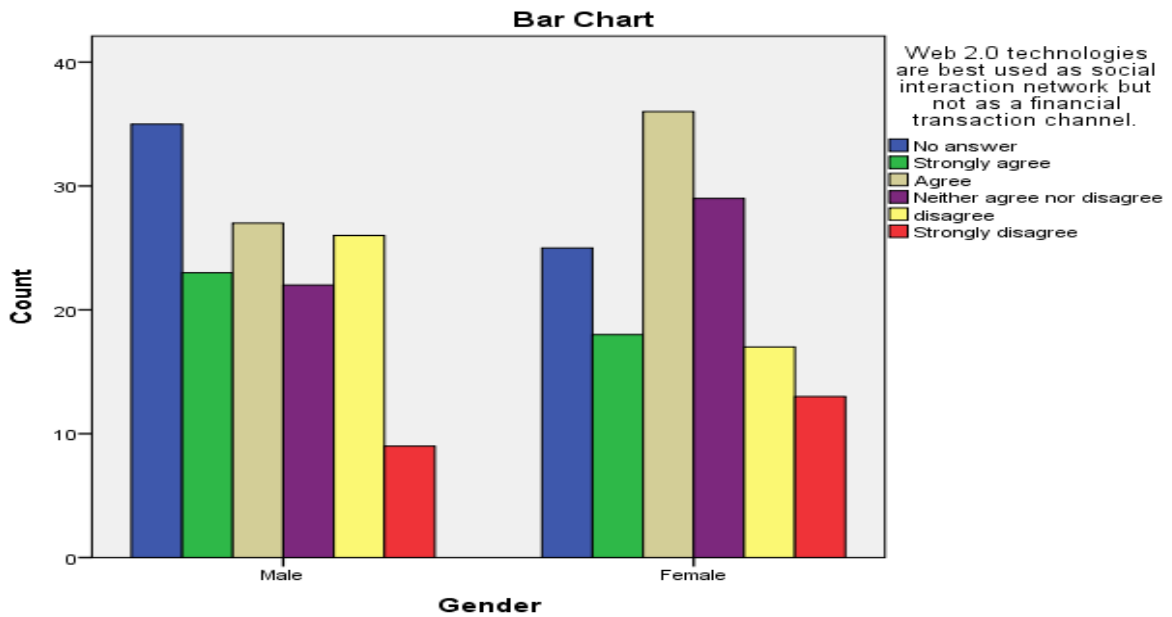


Figure 3-9. Gender* Web 2.0 technologies are best used as social interaction network but not as a financial transaction channel.

Gender factor has no statistic significant difference. Both male 51.2% and female 49.8% equally prefer to use Web 2.0 technologies only for their social and personal interaction rather than a financial transaction channel.

3.1.4.2. Age Factor

Age is examined to determine whether it impacts the usage of Web 2.0 technologies in banking communication.

Table 3-29 Age * The use of Web 2.0 technologies

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	28.973 ^a	4	.000
N of Valid Cases	280		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 1.71.

The results displayed in **Table 3.28** above reveals that the chi-square value is (0.00) with an indication level of (28.973) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). As a result, there is a strong statistically significant relationship between gender variable and the use of

Web 2.0 technologies. Therefore, the null hypothesis is rejected. This means that the use of Web 2.0 channels is more popular among younger users. This is consistent with previous research.

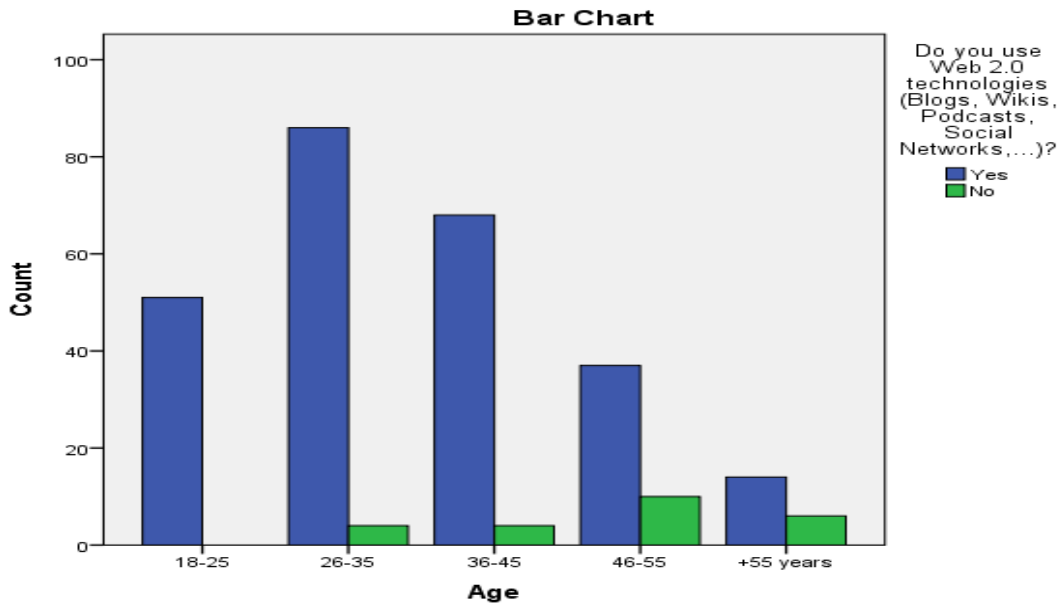


Figure 3-10. Age * The use of Web 2.0 technologies

Age factor has a high statistic significant difference. User who belong to 18-25, 26-35 and 36-45 age group are the most users of Web 2.0 technologies. These young users are more technology savvy than the respondents who are more than 46 years old.

Table 3-30 Age * I have the knowledge and skills required to use Web 2.0 technologies.

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	28.121 ^a	16	.031
N of Valid Cases	280		

a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is .79.

Table3.29 indicates that the chi-square value is (0.03) with an indication level of (28.121) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a statistically significant relationship between age variable and the knowledge and skills to use Web 2.0 technologies which suggests that the null hypothesis is rejected.

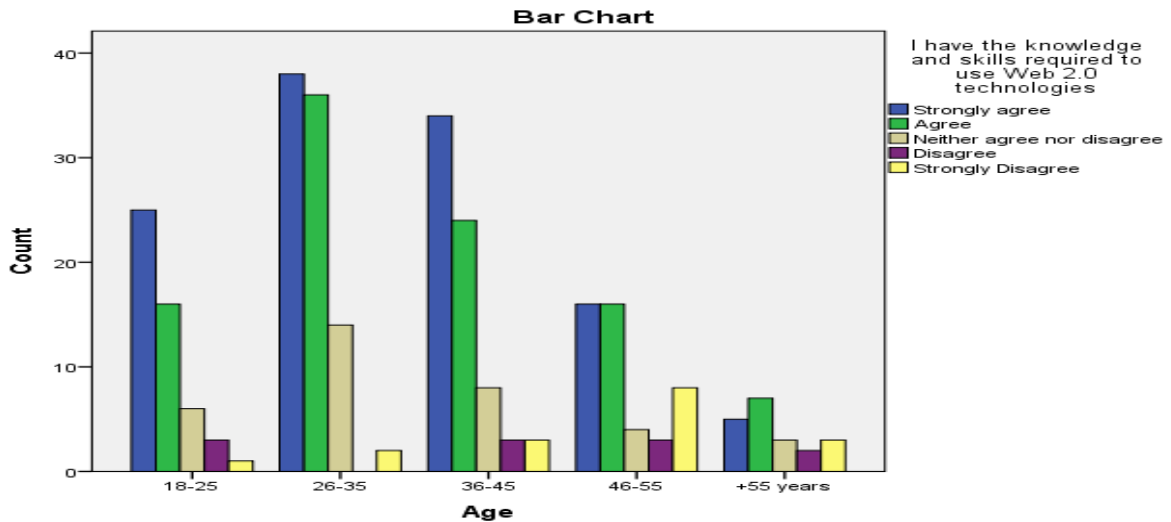


Figure 3-11. Age* I have the knowledge and skills required to use Web 2.0 technologies.

As shown in **Fig. 3-11** the majority of the respondents 69.7% are aged between 26- 35 and 55.3% are aged between 36-45 acknowledge that they possess the knowledge and the skills to use Web 2.0 technologies. Therefore, they represent the generation Y who are more technologically savvy due to the fact that they were born within information age and are prone to use media every day, anywhere and from any device.

Table 3-31. Age * Web 2.0 technologies allow me to improve communication efficiently since they save me time and money.

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26.754 ^a	16	.044
N of Valid Cases	280		

a. 11 cells (44.0%) have expected count less than 5. The minimum expected count is .79.

It can be revealed from **Table 3.30** that the chi-square value is (.044) with an indication level of (26.754) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a statistically significant relationship between age variable and the fact that Web 2.0 technologies improve communication efficiently. Hence, the null hypothesis is rejected.

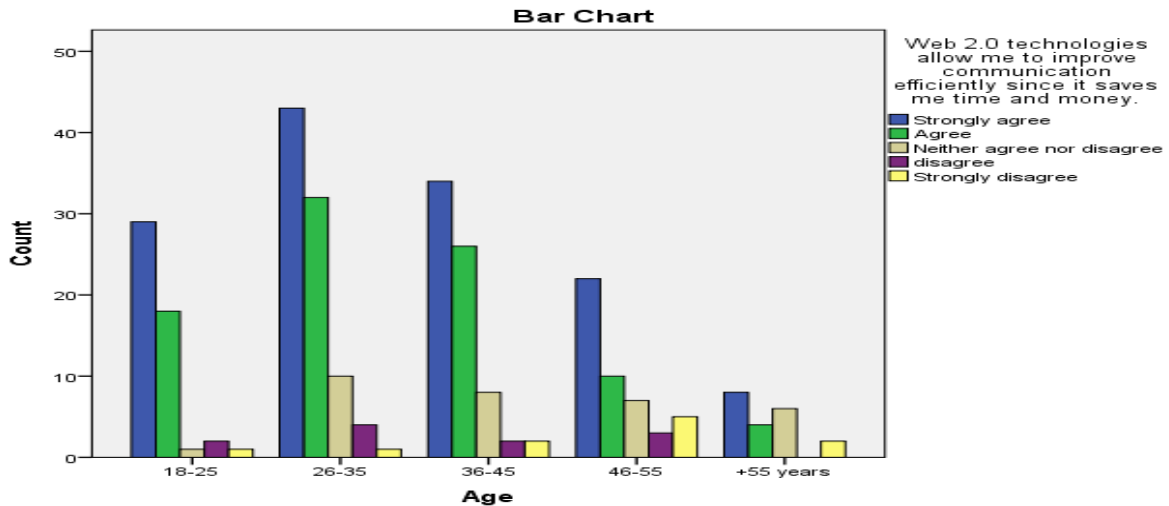


Figure 3-12. Age* Web 2.0 technologies improve communication efficiently since they save time and money.

It can be noticed from **Fig. 3.12** that the majority of respondents 72.6% who belong to 26-35 age category believe that Web 2.0 technologies improve communication efficiently, followed by 58.1% of respondents belonging to 36-45 age group then 18-25 age group who also believe that Web 2.0 technologies is beneficial as they improve communication and permit to save time and money.

Table 3-32 Age * Social media increases work efficiency as it gives faster access to information

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.365 ^a	16	.428
N of Valid Cases	280		

a. 11 cells (44.0%) have expected count less than 5. The minimum expected count is 1.07.

It can be revealed from **Table 3.31** that the chi-square value is (0.42) with an indication level of 16.365 which is a value that is not statistically significant as the p-value is higher than the theoretical cut-edge alpha required ($p < 0.05$). This indicates that there is no statistically significant relationship between age variable and the fact that Web 2.0 technologies increase work efficiency which suggest that the null hypothesis is retained.

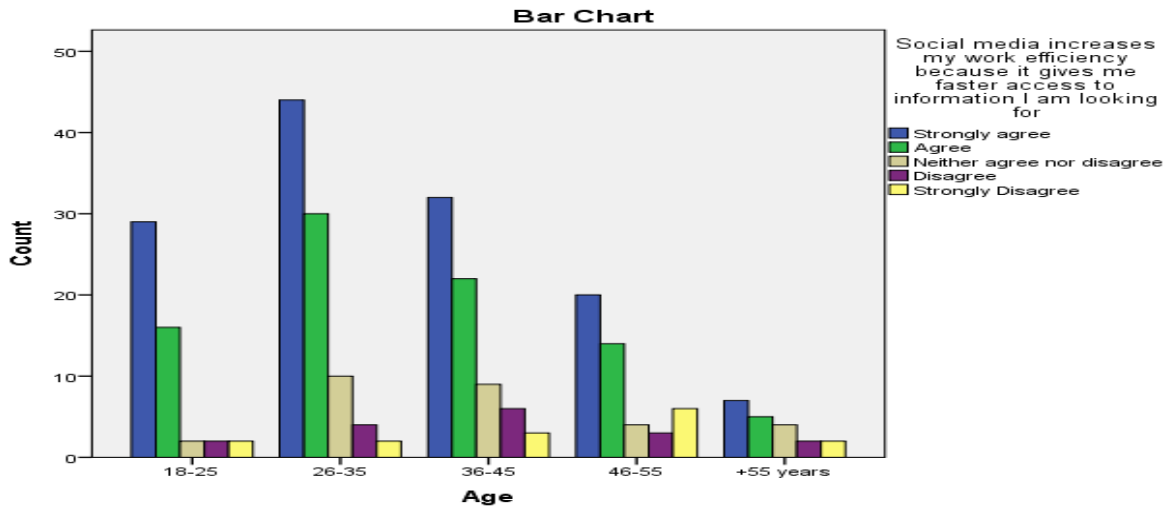


Figure 3-13. Age* Social media increases work efficiency because it gives faster access to information

The results in the figure above reveal that the majority of Moroccan banking customers belonging to different age groups consider that social media increases their work and gives them fast access to information they search. Therefore, social media is adopted by young people and seniors; it is no longer reserved to the Net generation or the so-called technophile generation.

Table 3-33. Age* the bank social profile is meant to develop effective one-to-one communication with customers

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	21.465 ^a	16	.161
N of Valid Cases	280		

a. 8 cells (32.0%) have expected count less than 5. The minimum expected count is .57.

Table 3.32 shows that the chi-square value is (0.16) with an indication level of (21.465) which is a value that is not statistically significant as the p-value is higher than the theoretical cut-edge alpha required ($p < 0.05$). This indicates that there is no statistically significant relationship between age variable and the fact that the bank social profile is meant to develop one-to-one communication with the customers which suggest that the null hypothesis is retained.

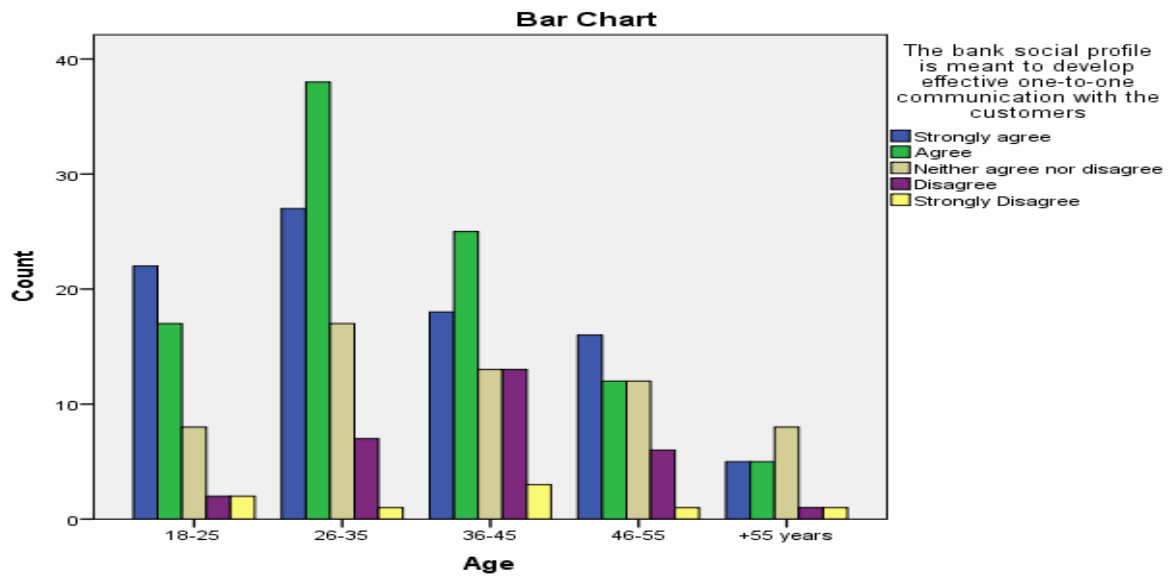


Figure 3-14. Age * The bank social profile is meant to develop one-to-one communication with customers.

The majority of the respondents who opined that the bank social profile is meant to develop one-to-one communication with the clients belong to both age categories: 26-35 with 49.5% and 36-45 with 47.5%. Hence, Moroccan banking customers are aware of the importance of communicating with their banks through their social web pages.

Table 3-34. Age * The use of Web 2.0 to communicate with the bank.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.935 ^a	4	.294
N of Valid Cases	280		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.57.

The results in **Table 3.34** show that the chi-square value is (0.29) with an indication level of (4.935) which is a value that is not statistically significant as the p-value is higher than the theoretical cut-edge alpha required ($p < 0.05$). This indicates that there is no statistically significant relationship between age variable and the use of Web 2.0 technologies with the bank; thus, the null hypothesis is retained.

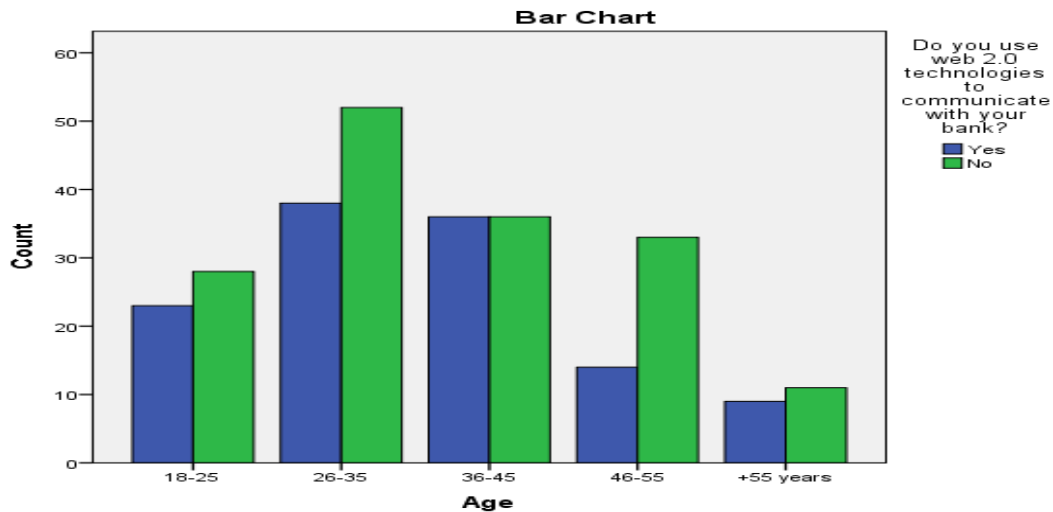


Figure 3-15.Age * The use of Web 2.0 technologies to communicate with the bank.

The majority of the respondents do not use Web 2.0 technologies in their interaction with their banks. Even younger customers who are technology savvy prefer to use Web 2.0 technologies in their social life but not when dealing with their banks.

Table 3-35 . Age * The use of online banking services

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.543 ^a	4	.032
N of Valid Cases	280		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.86.

It can be interpreted from **Table 3.35**.that the chi-square value is (0.032) with an indication level of (10.543) which is a value that is not statistically significant as the p-value is higher than the theoretical significance level ($p < 0.05$). This indicates that there is no statistically significant relationship between age variable and online banking services usage by Moroccan banking customers. Thus, the null hypothesis is retained.

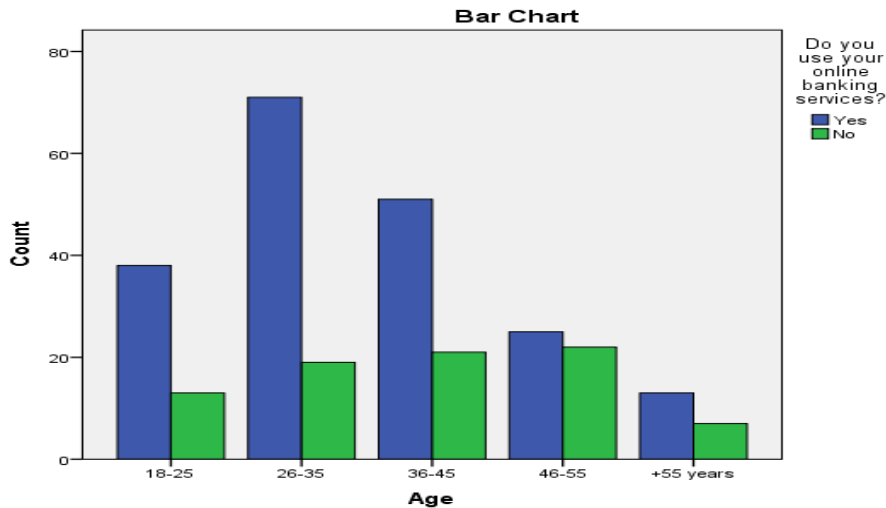


Figure 3-16. Age * Online Banking adoption

As seen in **Fig. 3.16** the majority of the respondents are adopting online banking services. The highest percentage of users is noticed among the respondents aged between 26-35, followed with those belonging to 36-45 age group, then those belonging to 18-25 age group.

Table 3-36. Age * The use of Web 2.0 technologies by Moroccan banks is beneficial

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.638 ^a	16	.193
N of Valid Cases	280		

a. 9 cells (36.0%) have expected count less than 5. The minimum expected count is .36.

It can be interpreted from **Table 3.36** that the chi-square value is (0.19) with an indication level of (20.638) which is a value that is not statistically significant as the p-value is higher than the theoretical significance level ($p < 0.05$). This indicates that there is no statistically significant relationship between age variable and the benefits of Web 2.0 technologies usage by Moroccan banking institutions. Thus, the null hypothesis is retained.

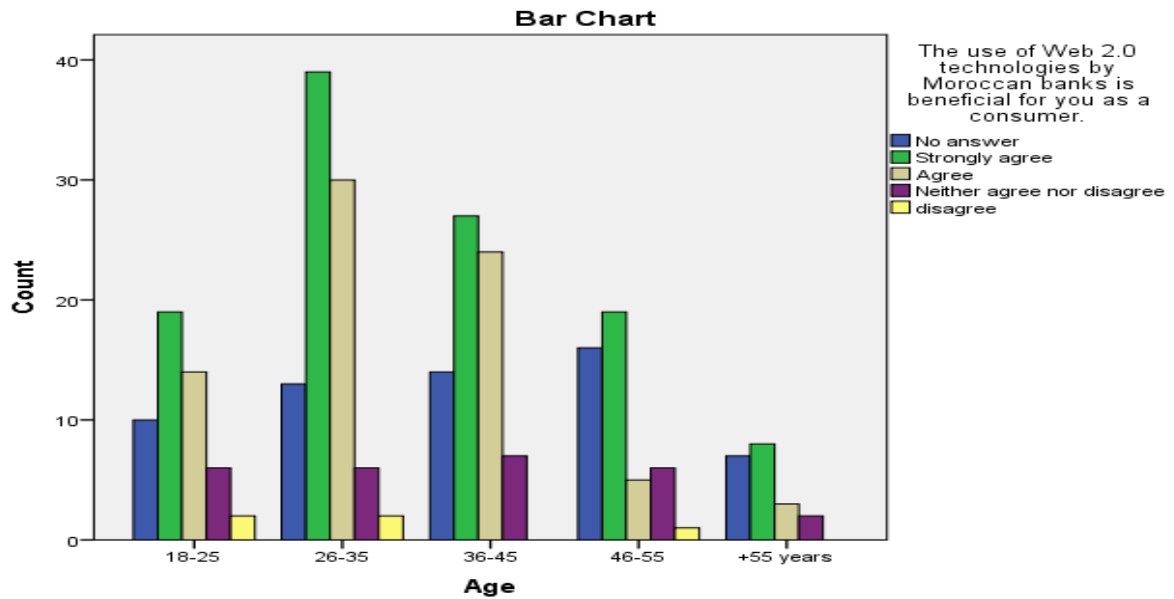


Figure 3-17. Age* The use of Web 2.0 technologies by Moroccan banks is beneficial

The majority of the respondents who consider the implementation of Web 2.0 technologies by Moroccan banking institutions is beneficial for them as consumers belong to both age categories: 25-35 with 60% and 36-45 with 48.3%.

Table 3-37. Age * Web 2.0 technologies are best used as social interaction network but not as financial transaction channels.

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	21.197 ^a	20	.386
N of Valid Cases	280		

a. 8 cells (26.7%) have expected count less than 5. The minimum expected count is 1.57.

It can be revealed from **Table 3.37**, that the chi-square value is (0.38) with an indication level of (21.197) which is a value that is not statistically significant as the p-value is higher than the theoretical significance level ($p < 0.05$). This indicates that there is no statistically significant relationship between age variable and the statement that Web 2.0 technologies are better used as a social interaction network rather than a financial transaction. Thus, the null hypothesis is retained.

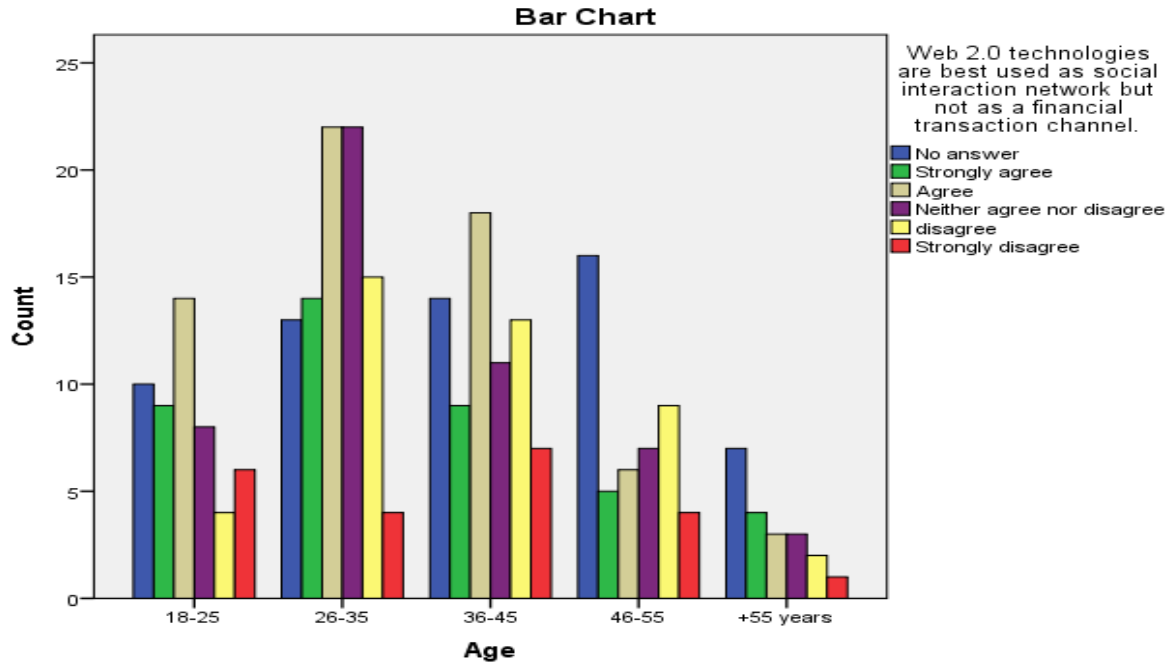


Figure 3-18. Age* Web 2.0 technologies are best used as social interaction network but not as a financial transaction channel.

As seen in **Fig. 3.18**, the majority of the respondents from (26-35) and (36-45) age categories prefer to deal with Web 2.0 technologies for their personal and social interactions but are hesitant to use them as financial transaction channels.

3.1.4.3. Educational Qualifications Factor

Educational level is examined to determine whether it impacts the usage of Web 2.0 technologies in banking communication and online banking adoption.

Table 3-38. Educational Qualifications * The use of Web 2.0 technologies

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	45.696 ^a	7	.000
N of Valid Cases	280		

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is .86.

The above **Table 3.38** reveals that the chi-square value is (0.00) with an indication level of (45.696) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a strong

statistically significant relationship between educational qualifications variable and the use of web 2.0 technologies. Thus, the null hypothesis is rejected.

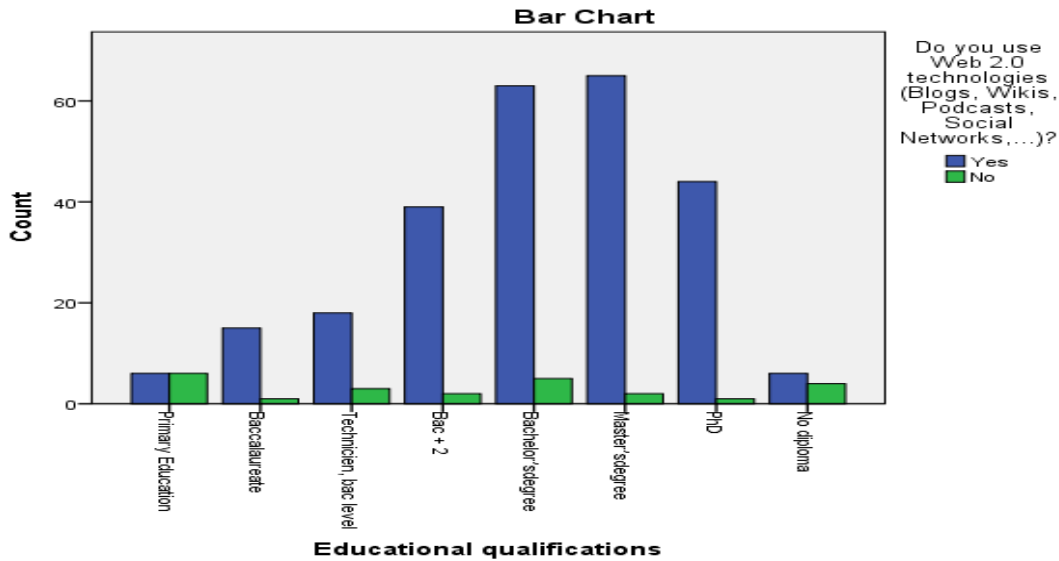


Figure 3-19. Educational qualifications * The use of Web 2.0 technologies.

The results in **Fig. 3.19** above reveal that respondents with high educational qualifications use Web 2.0 technologies. The majority of the respondents hold a BA degree and a Master degree.

Table 3-39. Educational Qualification * the bank social profile is meant to develop effective one-to-one communication with customers

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	37.110 ^a	28	.116
N of Valid Cases	280		

a. 22 cells (55.0%) have expected count less than 5. The minimum expected count is .29.

Table 3.39.demonstrates that the chi-square value is (0.11) with an indication level of (37.110) which is a value that is not statistically significant as the p-value is higher than the theoretical significance level ($p < 0.05$). This indicates that there is no statistically significant relationship between educational qualifications variable and the statement that “the bank social profile is meant to develop effective one-to-one communication with customers”. Thus, the null hypothesis is retained.

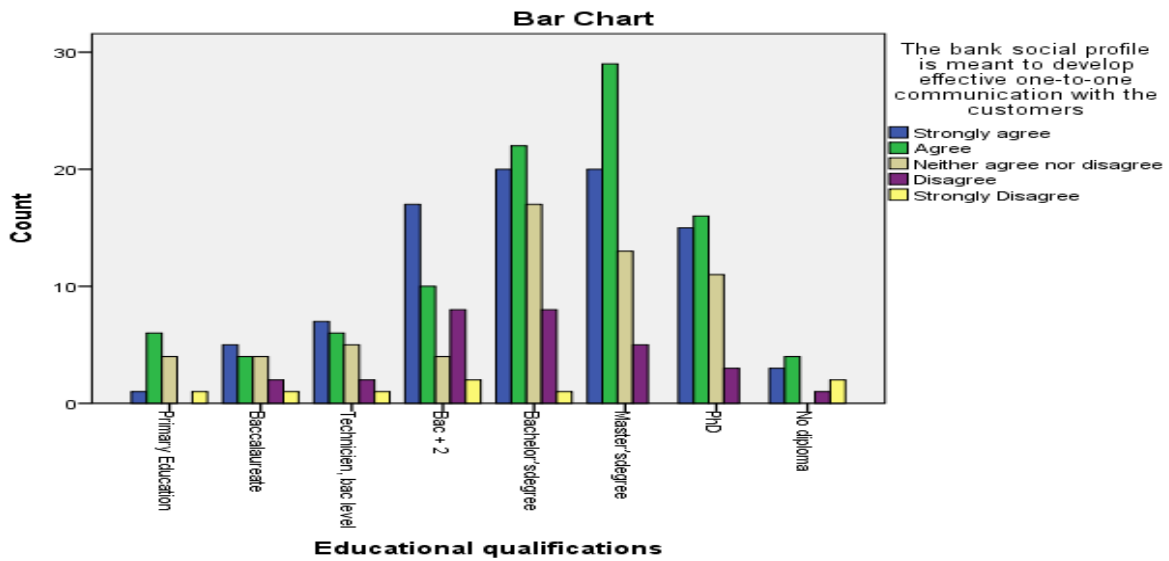


Figure 3-20. Educational qualifications * The bank social profile is meant to develop effective one-to-one communication with customers

Fig. 3.20 above indicates that respondents holding Bac+2, Bachelor degrees, Master degrees and PhD believe that bank social profile can contribute in an effective communication between the bank and the stakeholders.

Table 3-40. Educational Qualifications * The use of Web 2.0 technologies to communicate with the bank

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.718 ^a	7	.205
N of Valid Cases	280		

a. 1 cells (6.3%) have expected count less than 5. The minimum expected count is 4.29.

Table 3.40 demonstrates that the chi-square value is (0.205) with an indication level of (9.718) which is a value that is not statistically significant as the p-value is higher than the theoretical significance level ($p < 0.05$). This indicates that there is no statistically significant relationship between educational qualifications variable and the use of Web 2.0 technologies in customers' communication with their banks. Thus, the null hypothesis is retained.

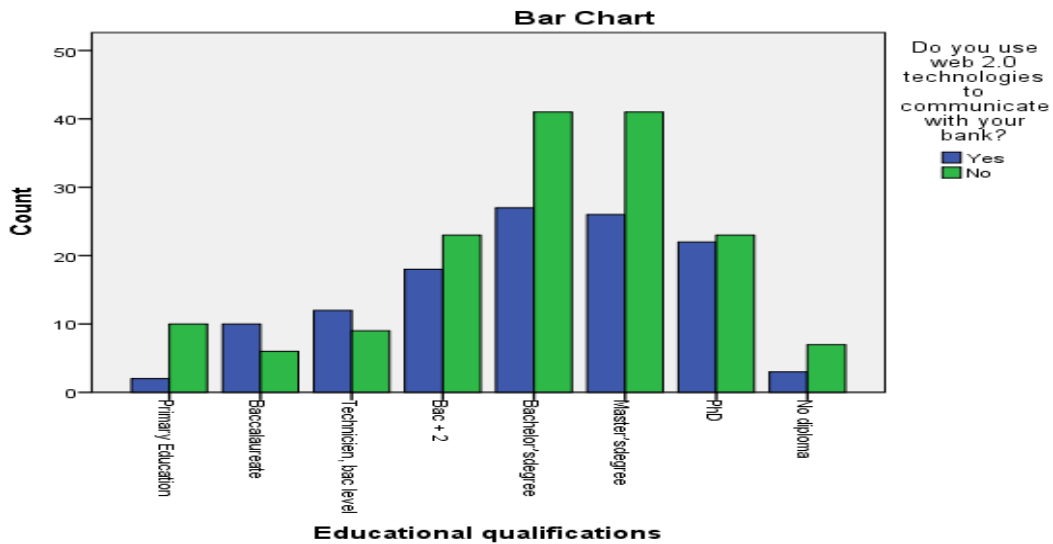


Figure 3-21. Educational Qualifications* The use of Web 2.0 technologies to communicate with the bank.

The majority of the respondents don't use Web 2.0 technologies as a communicative medium between them and their banks. However, Bachelors, technicians and even Ph.D. holders are using social channels to communicate with their banks.

Table 3-41. Educational Qualification * The use of Online Banking services

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	35.307 ^a	7	.000
N of Valid Cases	280		

a. 3 cells (18.8%) have expected count less than 5. The minimum expected count is 2.93.

Table 3.41 reveals that the chi-square value is (0.00) with an indication level of (35.307) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a strong statistically significant relationship between educational qualifications variable and the use of Online Banking services. Thus, the null hypothesis is rejected.

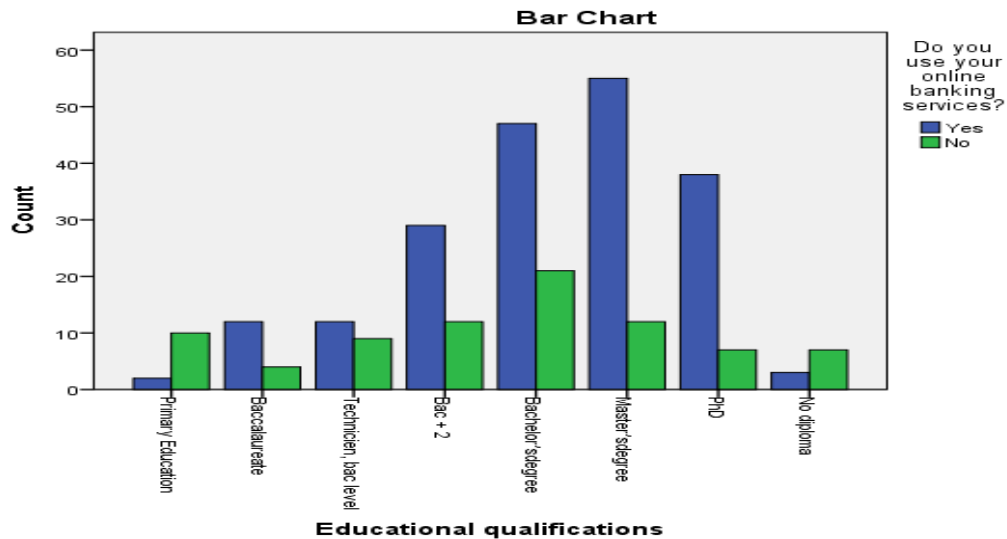


Figure 3-22. Educational Qualifications * The use of Online Banking services.

Fig. 3.22 above indicates that respondents with different educational qualifications use Online banking services except those with no qualifications.

Table 3-42 . Educational qualifications* I have the knowledge and skills required to use Web 2.0 technologies.

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	130.075 ^a	28	.000
N of Valid Cases	280		

a. 23 cells (57.5%) have expected count less than 5. The minimum expected count is .39.

Table 3.42 reveals that the chi-square value is (0.00) with an indication level of (130.075) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a strong statistically significant relationship between educational qualifications variable and the statement that “I have the knowledge and skills required to use Web 2.0 technologies”. Thus, the null hypothesis is rejected.

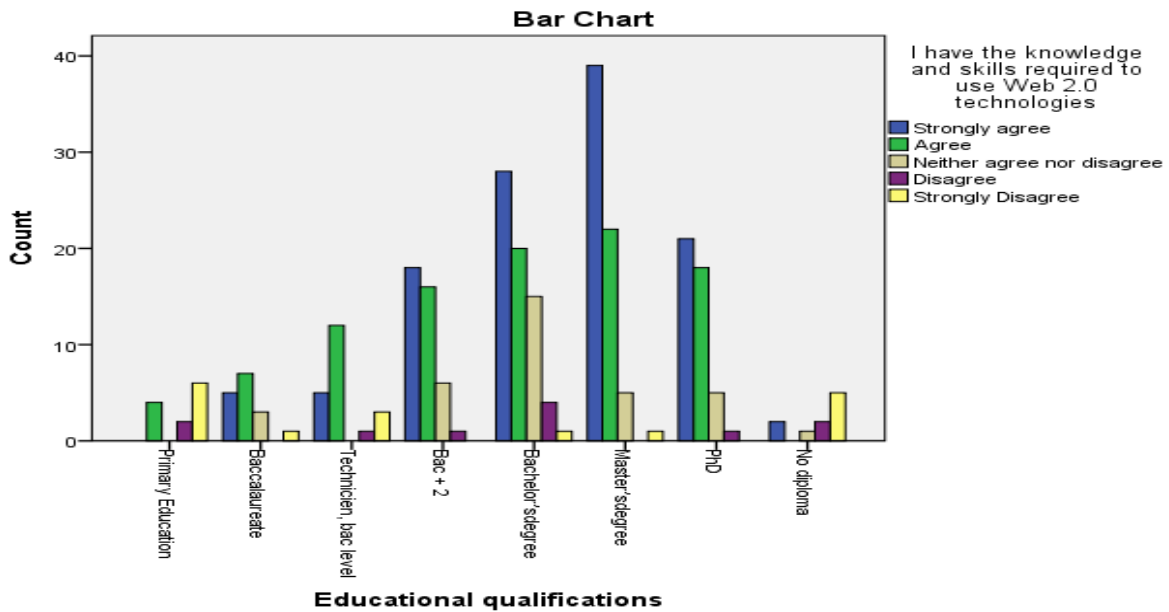


Figure 3-23. Educational Qualifications * I have the knowledge and skills required to use Web 2.0 technologies.

Fig. 3-23 above indicates that respondents with high educational qualifications state that they have the necessary skills and knowledge to use Web 2.0 technologies. 52.7% of the respondents hold a BA degree and 51.9% have a Master degree.

Table 3-43 Educational qualifications * Web 2.0 technologies allow me to improve communication efficiently since they save me time and money.

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	126.969 ^a	28	.000
N of Valid Cases	280		

a. 24 cells (60.0%) have expected count less than 5. The minimum expected count is .39.

Table 3-43 presented above reveals that the chi-square value is (0.00) with an indication level of (126.969) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a high statistically significant relationship between educational qualifications variable and the statement that Web 2.0 technologies improve communication efficiently. Thus, the null hypothesis is rejected.

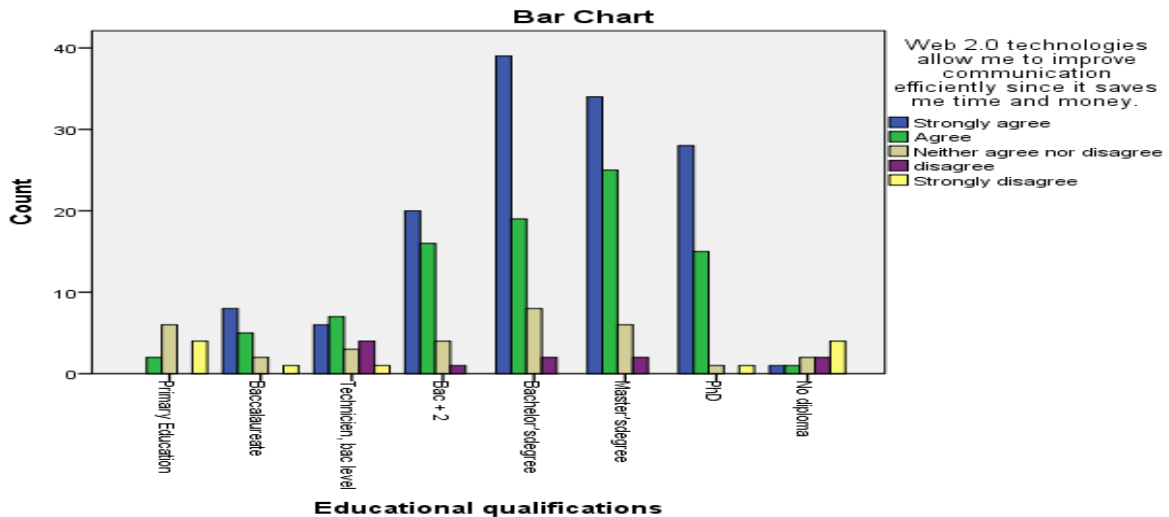


Figure 3-24. Educational qualifications * Web 2.0 technologies allow me to improve communication efficiently since they save me time and money.

It can be revealed from **Fig; 3-24** that the respondents who believe that Web 2.0 technologies improve communication efficiently hold high degrees. 54.9% of the respondents are BA holders, 54% have a Master degree and 36.4% have a Ph.D.

Table 3-44 . Educational qualifications * Social media increases my work efficiency because it gives me faster access to information I am looking for

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	74.178 ^a	28	.000
N of Valid Cases	280		

a. 26 cells (65.0%) have expected count less than 5. The minimum expected count is .54.

Table 3-44 above shows that the chi-square value is (0.00) with an indication level of (74.178) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a statistically significant relationship between educational qualifications variable and the fact that “social media increases work efficiency”. Thus, the null hypothesis is rejected.

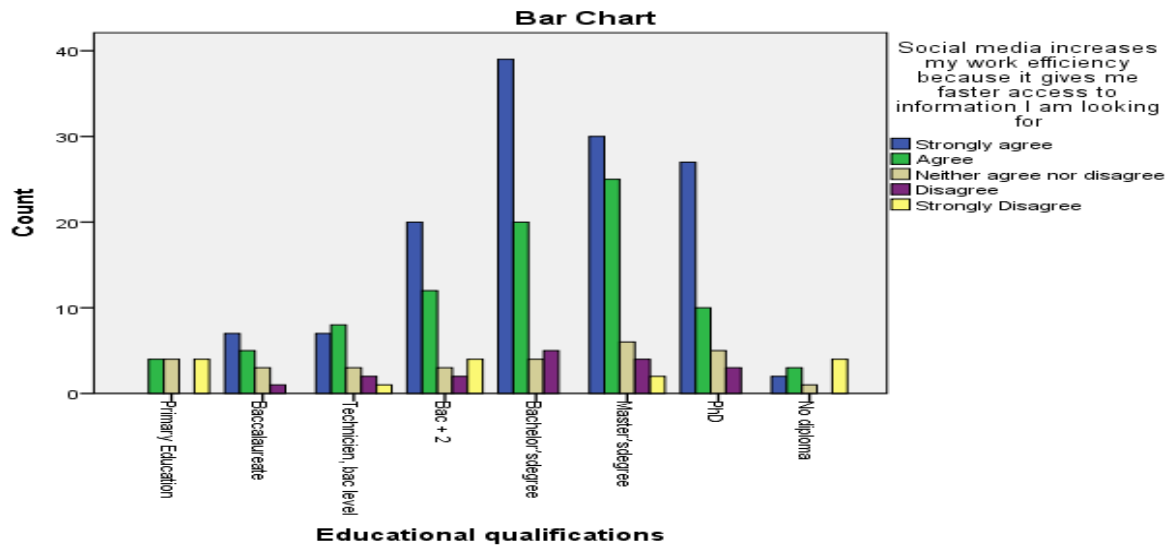


Figure 3-25. Educational Qualification*Social media increases my work efficiency because they give me faster access to information I am looking for.

Fig. 3-25 reveals that the respondents who believe that social media increases work efficiency are highly educated. 53.2% of the respondents are BA holders, 52.4% have a Master degree, 35.2% have a PhD, and 32% have BAC+2.

Table 3-45. Educational qualifications * The use of Web 2.0 technologies by Moroccan banks is beneficial for you as a consumer.

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	69.460 ^a	28	.000
N of Valid Cases	280		

a. 23 cells (57.5%) have expected count less than 5. The minimum expected count is .18.

Table 3-45 reveals that the chi-square value is (0.00) with an indication level of (69.460) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a statistically significant relationship between educational qualifications variable and the idea that “the use of Web 2.0 technologies by Moroccan banks is beneficial for customers”. Thus, the null hypothesis is rejected.

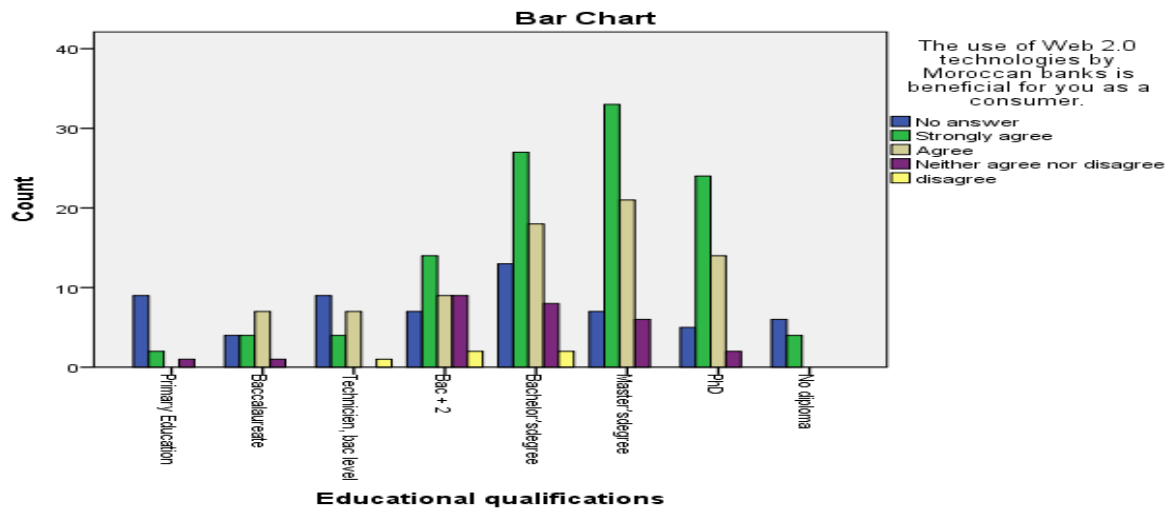


Figure 3-26. Educational qualifications * the use of Web 2.0 technologies by Moroccan banks is beneficial for you a consumer.

From **Fig. 3.26**, it can be revealed that respondents holding a BA degree (30.7%), a Master degree (39%) and a PhD (36.5%) agree that the use of Web 2.0 technologies by Moroccan banks is beneficial for them.

Table 3-46. Educational qualifications * Web 2.0 technologies are best used as social interaction network but not as a financial transaction channel.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	78.937 ^a	35	.000
N of Valid Cases	280		

a. 26 cells (54.2%) have expected count less than 5. The minimum expected count is .79.

Table 3-46 reveals that the chi-square value is (0.00) with an indication level of (78.937) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a statistically significant relationship between educational qualifications variable and the assumption that “Web 2.0 technologies are best used as a social interaction network rather than financial transactions channel”. Thus, the null hypothesis is rejected.

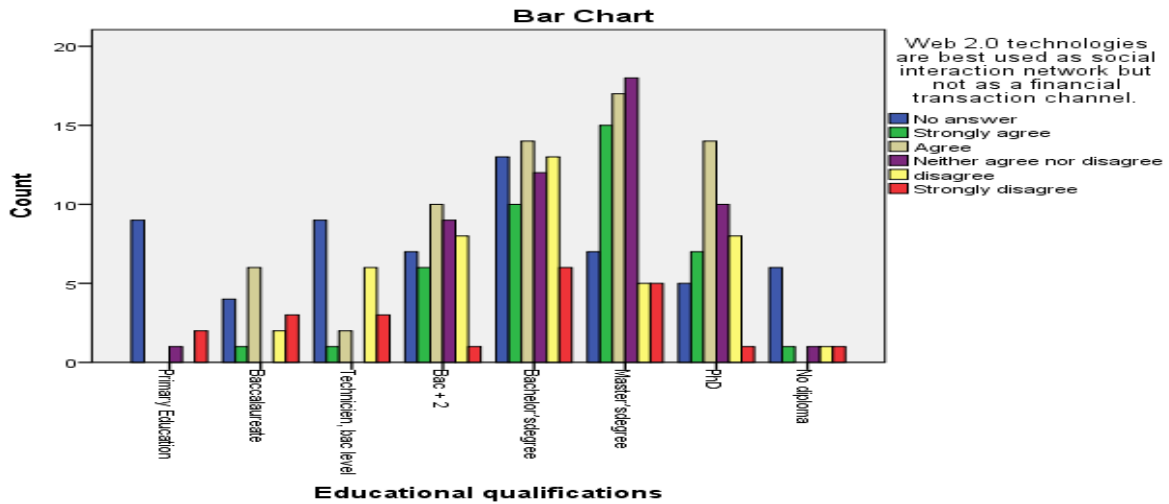


Figure 3-27. Educational qualifications * Web 2.0 technologies are best used as social interaction network but not as a financial transaction channel.

The results displayed in **Fig. 3-27**, shows that respondents with Master degrees (24.9%) and BA degrees (25.3%) think that Web 2.0 technologies are better used as a social interaction network.

3.1.4.4. Profession Factor

Occupation is examined to determine whether it impacts the usage of Web 2.0 technologies in banking communication.

Table 3-47. Profession * The use of Web 2.0 technologies

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	28.973 ^a	4	.000
N of Valid Cases	280		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 1.71.

The **Table 3-47** above reveals that the chi-square value is (0.00) with an indication level of (28.973) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a statistically significant relationship between the profession variable and the use of Web 2.0 technologies. Thus, the null hypothesis is rejected.

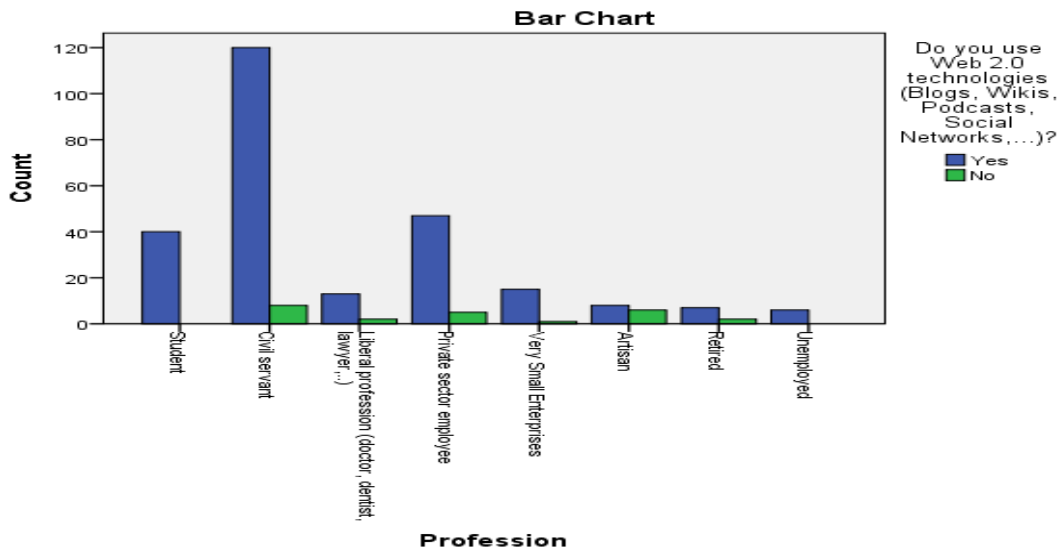


Figure 3-28. profession * The use of Web 2.0 technologies.

Figure 3-28 shows clearly that the majority of the respondents are using Web 2.0 channels in their personal and social interactions.

Table 3-48 Profession * I have the knowledge and skills required to use Web 2.0 technologies

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	99.975 ^a	28	.000
N of Valid Cases	280		

a. 24 cells (60.0%) have expected count less than 5. The minimum expected count is .24.

Table 3-48 reveals that the chi-square value is (99.975) with an indication level of (0.00) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a statistically significant relationship between the profession variable and the statement “I have the knowledge and skills required to use Web 2.0 technologies”. Thus, the null hypothesis is rejected.

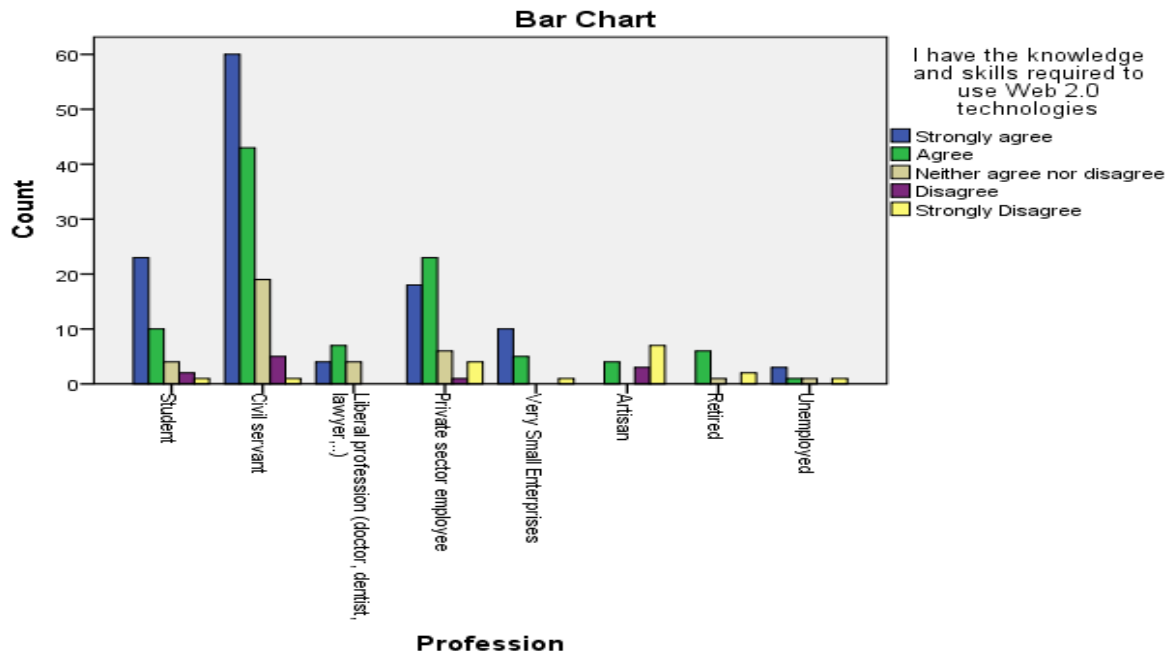


Figure 3-29. Profession * I have the knowledge and skills required to use Web 2.0 technologies.

Figure 3.29 shows clearly that the majority of the respondents are civil servants; they represent 99.2% (n=280) (the cumulative percentage of “strongly agree” and “agree”) of the respondents who agree on having the skills and the abilities to use Web 2.0 technologies. However, artisans and retired respondents acknowledge lacking the adequate abilities and skills to use Web 2.0 technologies.

Table 3-49. Profession*Web 2.0 technologies allow me to improve communication efficiently since it saves me time and money.

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	151.600 ^a	28	.000
N of Valid Cases	280		

a. 26 cells (65.0%) have expected count less than 5. The minimum expected count is .24.

It can be revealed from Table 3-49 that the chi-square value is (0.00) with an indication level of (151.600) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a statistically significant relationship between the profession variable and the fact

that Web 2.0 technologies improve communication efficiently”. Thus, the null hypothesis is rejected.

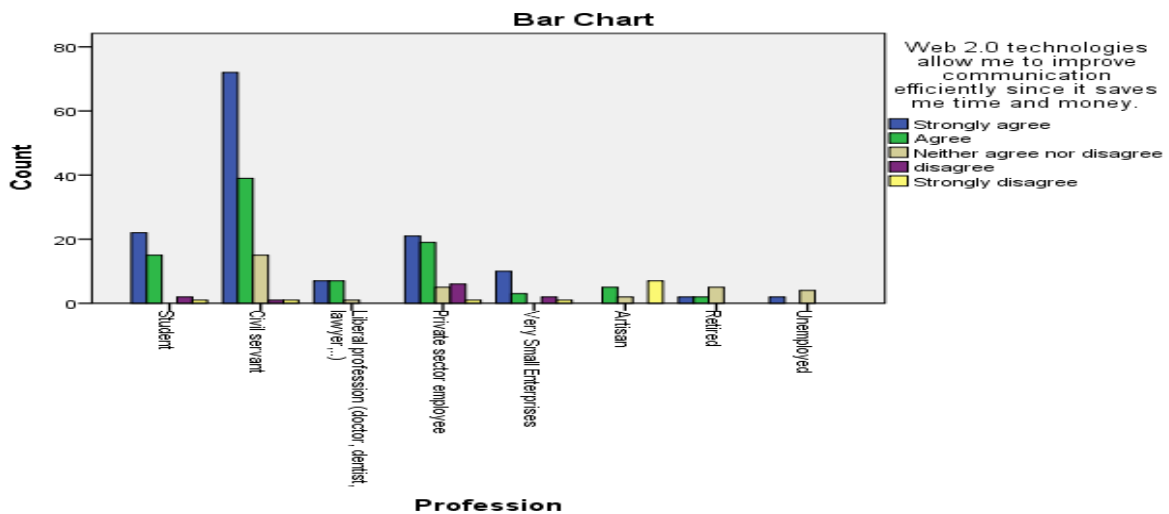


Figure 3-30. Profession * Web 2.0 technologies allow me to improve communication efficiently since they save me time and money.

Civil servants, Private sector employees, and Students think that Web 2.0 technologies enable them to improve communication efficiently because they save them time and money.

Table 3-50. Profession * Social media increases work efficiency because it gives faster access to information

- Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	102.716 ^a	28	.000
N of Valid Cases	280		

a. 27 cells (67.5%) have expected count less than 5. The minimum expected count is .32.

It can be revealed from **Table 4-50** that the chi-square value is (0.00) with an indication level of (102.716) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a statistically significant relationship between the profession variable and the assumption that “social media increases work efficiency”. Thus, the null hypothesis is rejected.

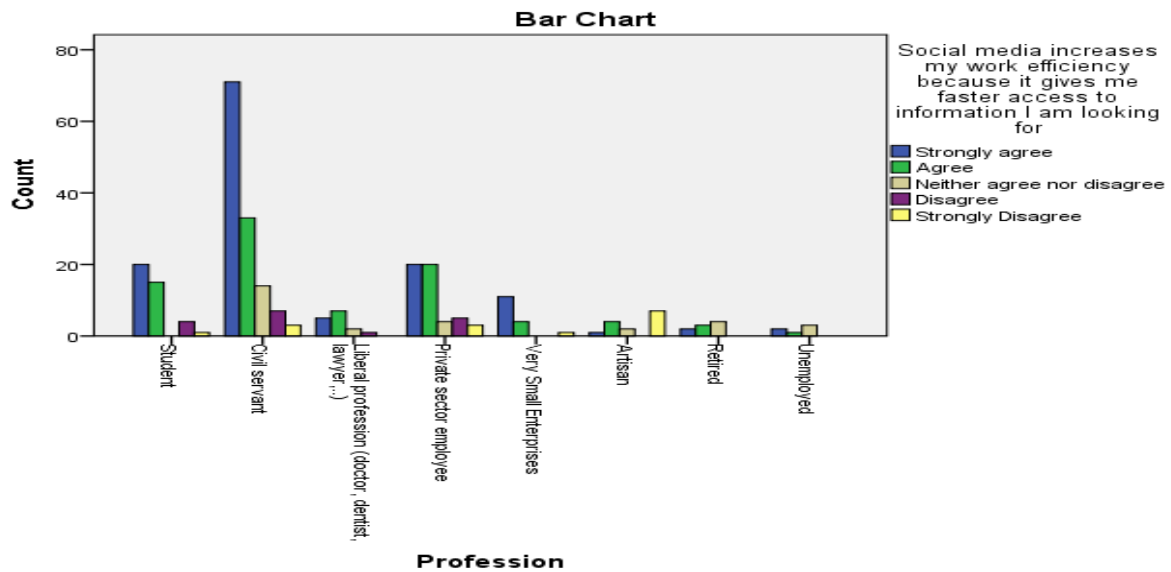


Figure 3-31. Profession * Social media increases my work efficiency because it gives me faster access to information I am looking for.

The **Fig. 3-31** above reveals Civil servant (76%), Students (19.9%), Private sector employees (33.5%) and very small Enterprises (18.5%) believe that social media increases their work in an effective way as it gives them quick access to information they need.

Table 3-51. Profession * the bank social profile is meant to develop an effective one-to-one communication with customers

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	48.641 ^a	28	.009
N of Valid Cases	280		

a. 26 cells (65.0%) have expected count less than 5. The minimum expected count is .17.

It can be deduced from **Table 3-51** that the chi-square value is (0.009) with an indication level of (48.641) which is a value that is statistically significant as the p-value is not higher than the theoretical significance level ($p < 0.05$). This indicates that there is a statistically significant relationship between the profession variable and the idea that “the bank social profile is meant to develop an effective one-to-one communication with customers”. Thus, the null hypothesis is rejected.

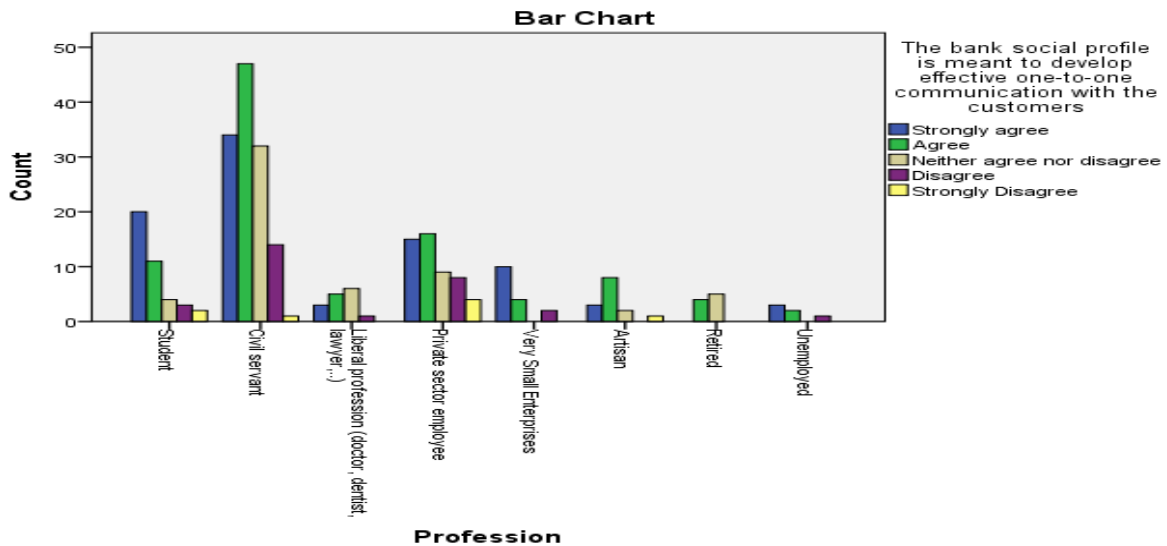


Figure 3-32. Profession * The bank social profile is meant to develop effective one-to-one communication with customers.

The results displayed in **Fig. 3-32**, show that civil servants (58.6%) followed respectively by Students (26.2%) and Private Sector employees (28.2%) believe that the bank social profile is meant to develop effective one-to-one communication with customers.

Table 3-52. Profession * The use of Web 2.0 technologies to communicate with the bank

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26.014 ^a	7	.001
N of Valid Cases	280		

a. 3 cells (18.8%) have expected count less than 5. The minimum expected count is 2.57.

It can be deduced from **Table 3-52** above that the chi-square value is (0.001) with an indication level of (26.014) which is a value that is statistically significant as the p-value is not higher than the theoretical significance level ($p < 0.05$). This indicates that there is statistically significant relationship between the profession variable and the use of Web 2.0 technologies as a communicative medium between the banks and their clients. Thus, the null hypothesis is rejected.

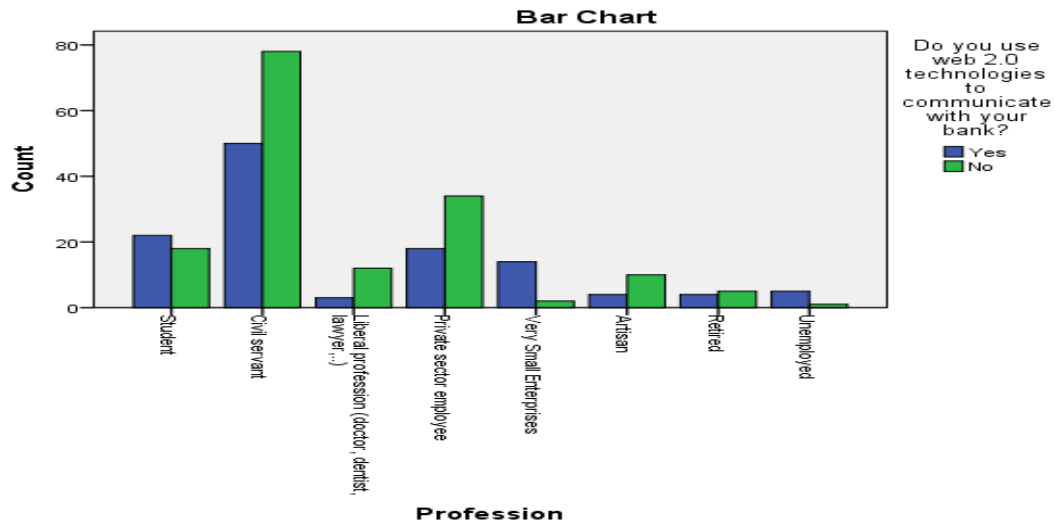


Figure 3-33. Profession * the use of Web 2.0 technologies to communicate with the bank

The results displayed in **Fig. 3-33**, show that the majority of the respondents don't use Web 2.0 technologies to interact with their banks.

Table 3-53. Profession * the use of online banking services

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.601 ^a	7	.006
N of Valid Cases	280		

a. 6 cells (37.5%) have expected count less than 5. The minimum expected count is 1.76.

The findings in **Table 3-53** above reveal that the chi-square value is (19.606) with an indication level of (19.601) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a statistically significant relationship between the profession variable and the use of Online Banking services by Moroccan banking customers. Hence, the null hypothesis is rejected.

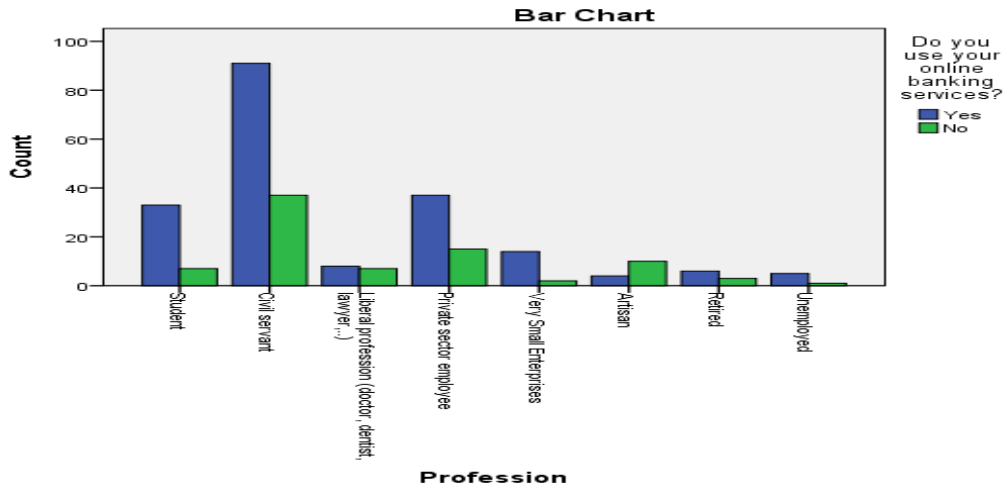


Figure 3-34. Profession * The use of Online Banking services.

It can be noticed from the results derived from the **Fig. 3-34** that the majority of the respondents are adopting Online Banking services. However, the highest adoption is seen among civil servants, private sector employees and students.

Table 3-54 Profession * The use of Web 2.0 technologies by Moroccan banks is beneficial for you as a consumer

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	48.692 ^a	28	.009
N of Valid Cases	280		

a. 26 cells (65.0%) have expected count less than 5. The minimum expected count is .11.

It can be revealed from **Table 3-54** that the chi-square value is (48.692) with an indication level of (0.009) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a high statistically significant relationship between the profession variable and the idea that “the use of Web 2.0 technologies by Moroccan banks is beneficial for customers”. Thus, the null hypothesis is rejected.

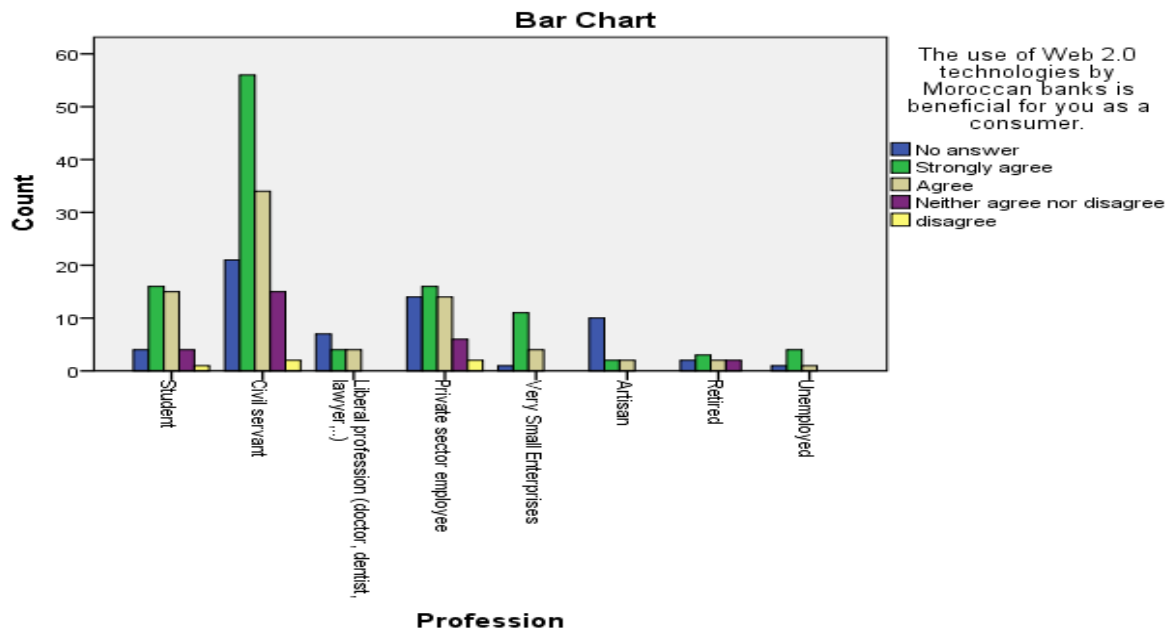


Figure 3-35. Profession * The use of Web 2.0 technologies by Moroccan banks is beneficial for you as a consumer.

The results displayed in **Fig. 3-35**, show that civil servants (58.6%) followed respectively by Students (26.2%) and Private Sector employees (28.2%) believe that the implementation of Web 2.0 technologies by the Moroccan banking institutions is beneficial for them.

Table 3-55. Profession * Web 2.0 technologies are best used as social interaction network but not as a financial transaction channel.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	94.606 ^a	35	.000
N of Valid Cases	280		

a. 32 cells (66.7%) have expected count less than 5. The minimum expected count is .47.

It can be revealed from **Table 3-54** that the chi-square value is (0.00) with an indication level of (94.602) which is a value that is statistically significant as the p-value is less than the theoretical significance level ($p < 0.05$). This indicates that there is a high statistically significant relationship between the profession variable and the idea that “Web 2.0 technologies are best used as social interaction network but not as a financial transaction channel”. Thus, the null hypothesis is rejected.

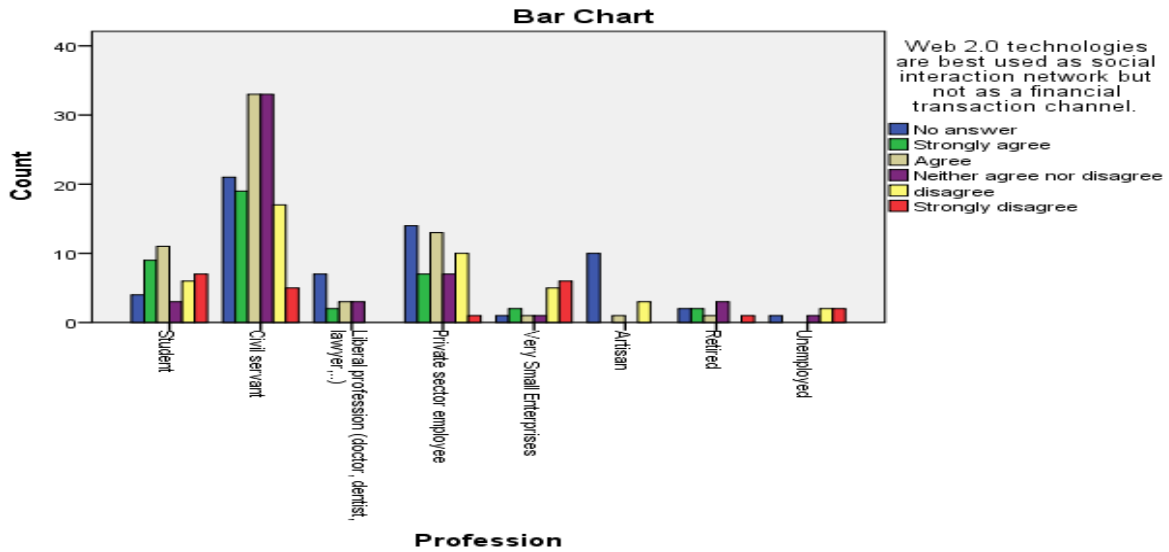


Figure 3-36. Profession * Web 2.0 technologies are best used as social interaction network but not as financial transaction channels.

From **Fig. 3-36**, it can be noticed that the respondents who occupied the position of civil servant and representing 34%, consider that Web 2.0 technologies are better used as a social interaction network but not as financial transaction channels.

3.1.5. Findings of the Third Part of the Questionnaire

This section of the questionnaire covers 19 items (≠27 through ≠45) dealing with the factors that influence customers to adopt Internet banking in Morocco. This part of the questionnaire includes seven-point Likert scales, ranging from “disagree strongly” (1) to “agree strongly” (7). It was developed based on the constructs of perceived usefulness, perceived ease of use, attitude, perceived risk (financial risk, performance risk, security risk) and intention to use. Perceived usefulness and attitude were adopted from the measurements defined by Cheng et al. (2006) and Lai and Li (2005). PU construct contains four items and ATT construct contains three items. Perceived ease of use and intention to use were adapted from the measurements defined by Cheng et al. (2006) and Lai and Li (2005), containing three items for each construct. Performance and financial risk were adapted from the measurements defined by Littler and Melanthiou (2006), containing two items for each construct. Security risk was adapted from the measurement defined by Littler and Melanthiou (2006) and

Chen et al. (2006), and included three items. The set of items shall reveal the factors that influence Moroccan banking customers to adopt Internet banking to communicate and conduct financial transactions.

3.1.5.1. Perceived Usefulness (PU):

- PU (1): Online banking is useful

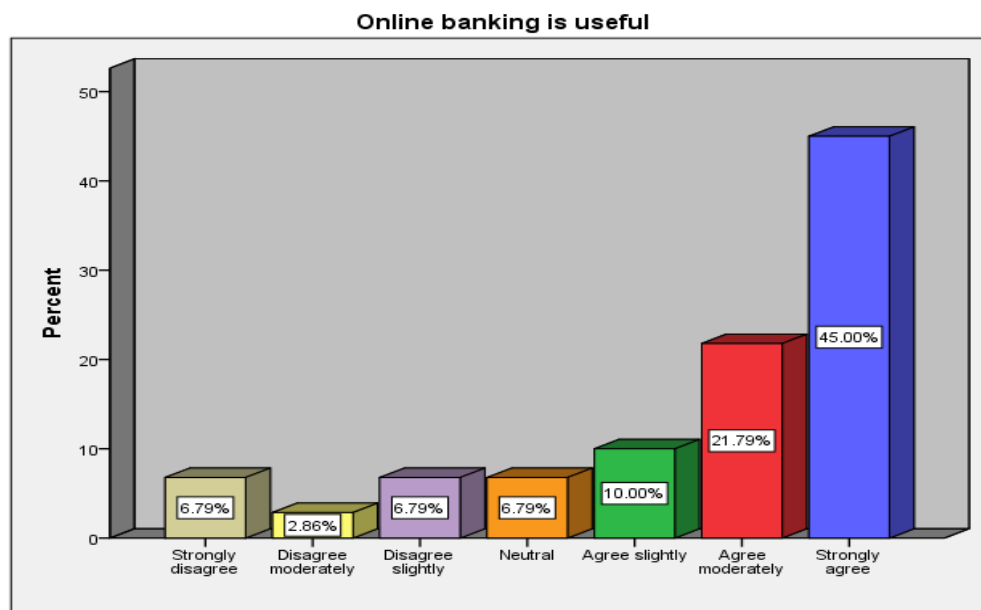


Figure 3-37. Online Banking is Useful

As Figure 3-37 indicates, the results of the item “Online banking is useful” shows that a total of 215 of the respondents out of (n=280) representing 76.8% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” believe that Online banking is useful, while 46 of the respondents out of (n=280) representing 16.5% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” don’t consider Online Banking useful. They have a negative view towards online banking.

- **PU (2): Web 2.0 technologies, implemented by the bank, save my time and enable me to accomplish my tasks quickly.**

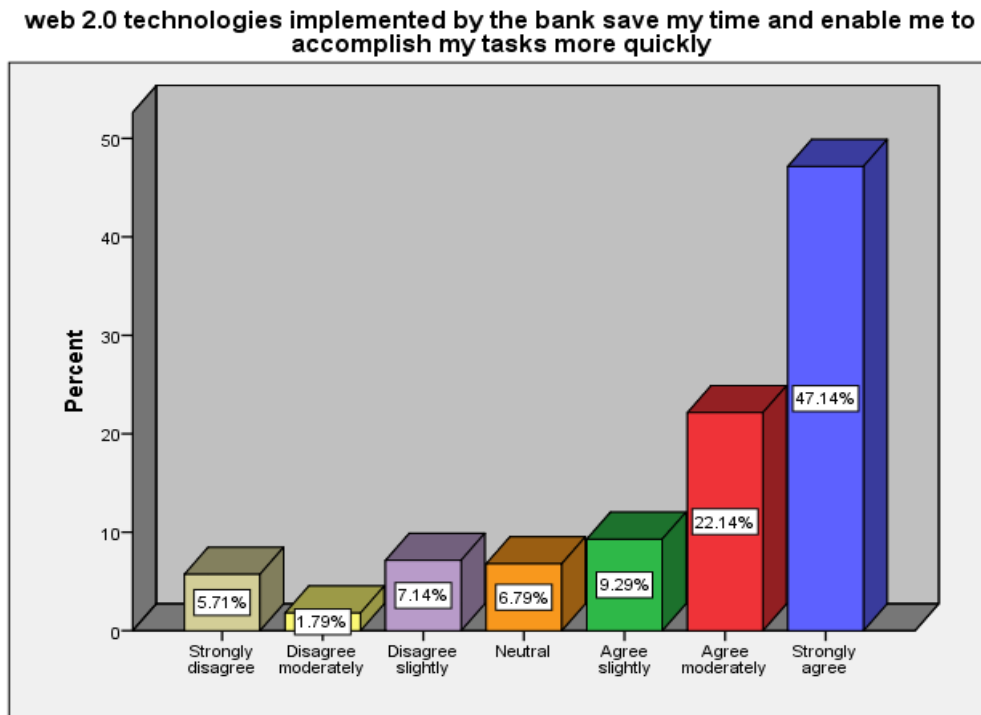


Figure 3-38. Web 2.0 technologies implemented by the bank save my time and enable me to accomplish my tasks more quickly.

It can be revealed from **Figure 3-38** above that a total of 220 of the respondents out of (n=280) representing 78.5% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” consider that IB is more convenient compared to brick-and-mortar banking, while 41 of the respondents out of (n=280) representing 14.6% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” don’t believe so. Hence, the results reveal that the majority of the respondents think that Web 2.0 channels are convenient and useful. These technologies help in saving their times as well as performing their task more quickly.

- **PU (3): Online banking is better for tracking my spending.**

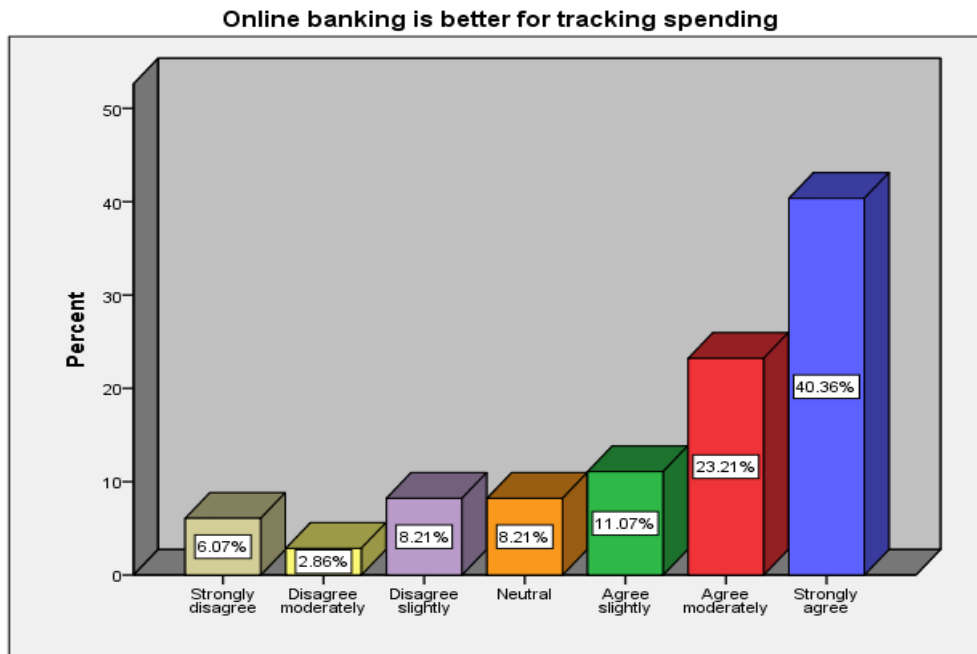


Figure 3-39. Online banking is better for tracking spending

In **Figure 3-39** above, the findings of the item “Online banking offers a wide range of banking services and investment opportunities” reveals that a total of 162 of the respondents out of (n=280) representing 57.9% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” find that online banking is beneficial and it is the best way to stay informed about their spending and their financial transactions, on the other hand, only 71 of the respondents out of (n=280) representing 25.4% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” disagree on the idea that online banking is better for tracking customers’ spending.

- **PU (4): Online banking offers a wide range of banking services and investment opportunities**

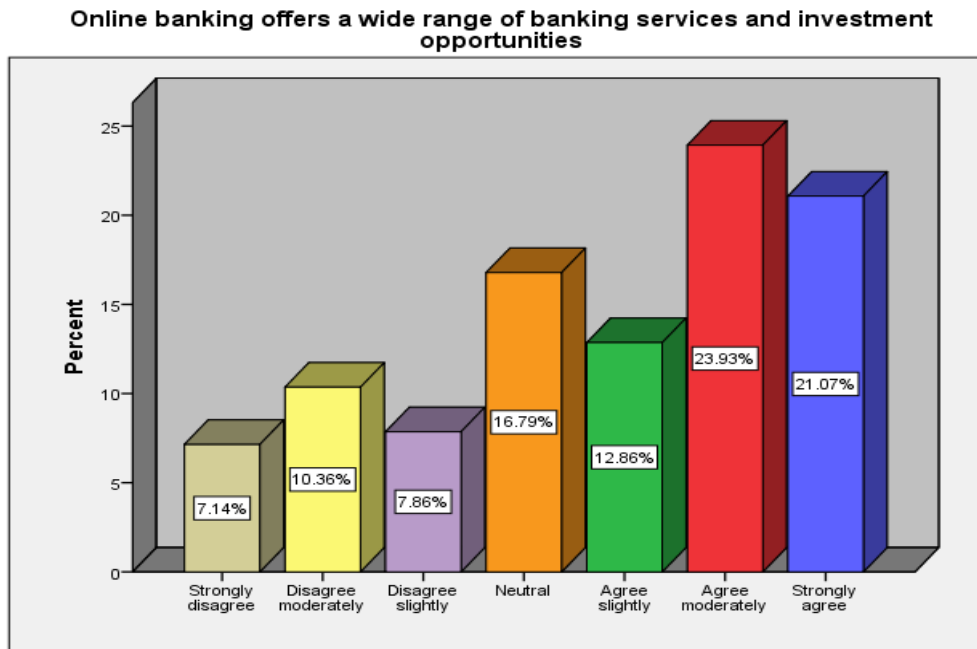


Figure3-40. Online banking offers a wide range of banking services and investment opportunities

The results of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” in **Figure 3-40** above show that a total of 209 of the respondents out of (n=280) representing 74.7% agree that “Online banking offers a wide range of banking services and investment opportunities”. They believe that online banking is useful and has a lot of advantages, while only 48 of the respondents out of (n=280) representing 18.2% (The cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly”) disagree. These respondents don’t think that IB offers something different from what the high street banking is offering.

3.1.5.2. Perceived Ease of Use (PEOU):

- PEOU (1): Web 2.0 applications are not complex

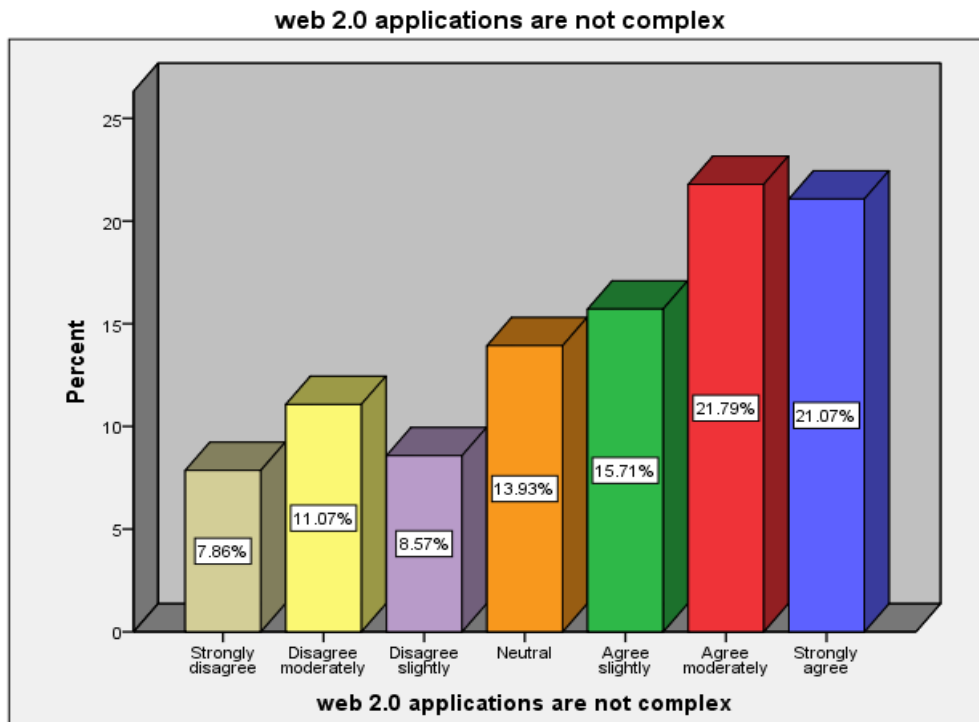


Figure 3-41. Web 2.0 applications are not complex

Concerning the item “Web 2.0 applications are not complex”, the **Figure 3-41.** above reveals that a total of 164 of the respondents out of (n=280) representing 58.6% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” agree that Web 2.0 technologies are easy to use, while 77 of the respondents out of (n=280) representing 27.6% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” find that Web 2.0 tools are difficult to use.

- PEOU (2): With online banking I don't have to visit the branch

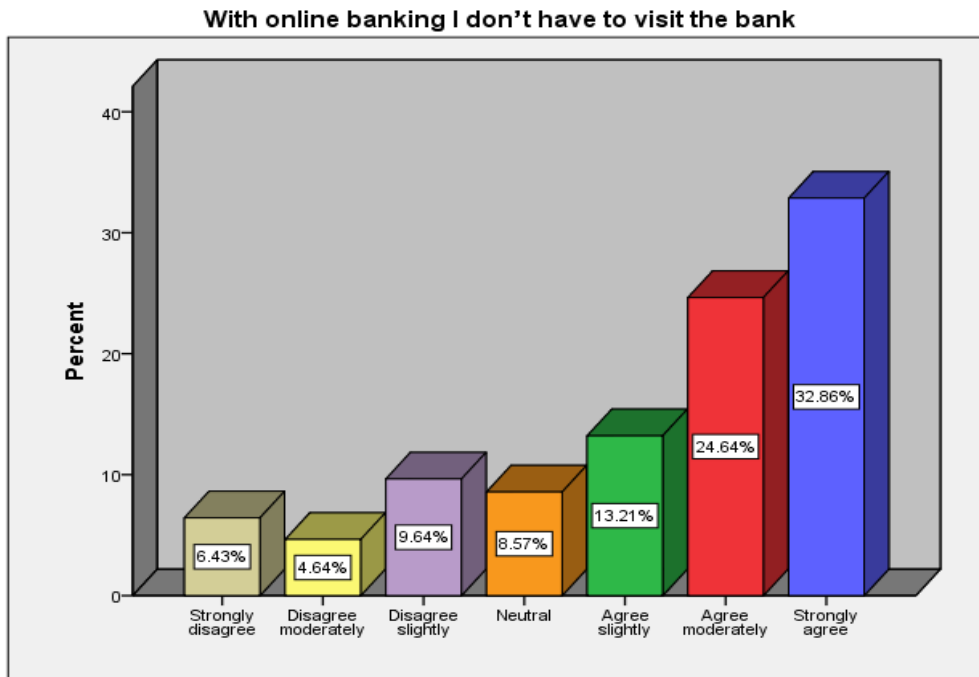


Figure 3-42. With online banking I don't have to visit the branch

Figure 3-42 above reveals the findings of the item “With online banking I don't have to visit the branch”. A total of 198 of the respondents out of (n=280) representing 70.7% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” think that with IB, they don't have to move to the bank branches to perform their banking transactions; there is a kind of availability of anytime and anywhere banking services, while only 58 of the respondents out of (n=280) representing 20.6% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” think otherwise. As a result, the majority of the respondents believe that online banking is convenient; it is not bound by operational timings and there are no geographical barriers.

- **PEOU (3): It's easy to use online Banking services for handling my banking transaction**

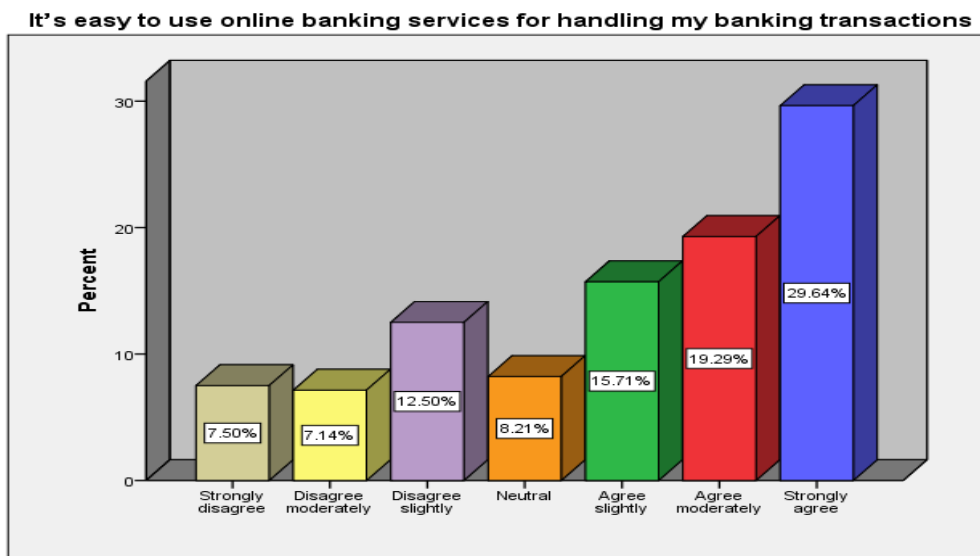


Figure 3-43. Online Banking is easy to use

It can be revealed from the **Figure 3-43.** above that a total of 181 of the respondents out of (n=280) representing 64.6% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” agree on the fact that online banking is easy to use, while only 76 of the respondents out of (n=280) representing 27.1% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” think that online banking is difficult and complex.

3.1.5.3. Perceived Risk (PR):

PR (1): Online Banking provide insecure transactions

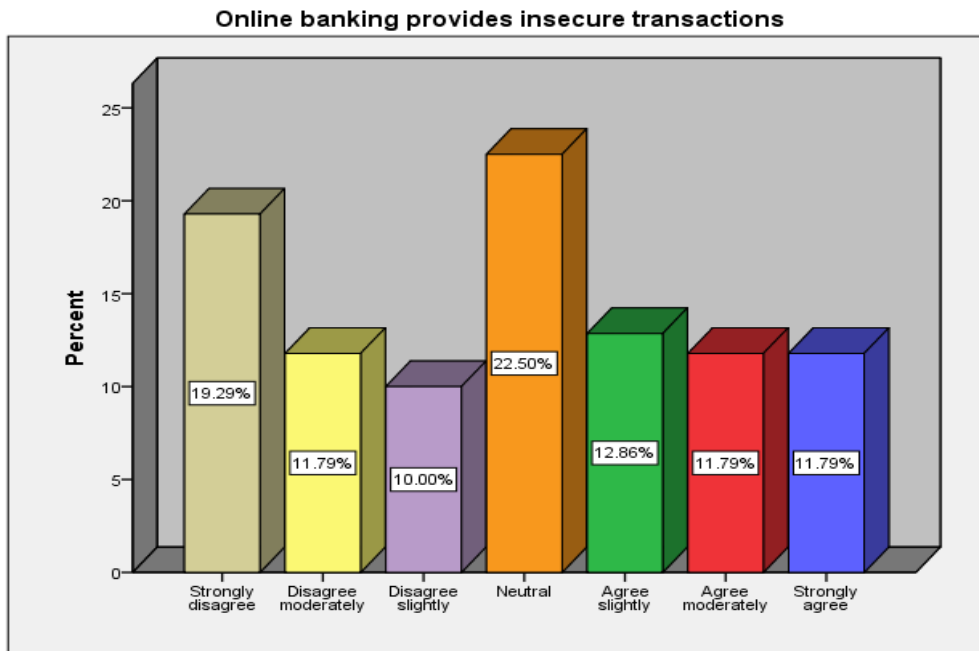


Figure 3-44. Online banking provides insecure transactions

Figure 3-44 above shows the findings of the item “Online Banking provides insecure transactions”. A total of 102 of the respondents out of (n=280) representing 36.74% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” believe that online banking is not a secure environment, while 115 of the respondents out of (n=280) representing 41.08% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” consider IB a secure place to conduct financial transactions. As a result, some Moroccan banking customers still perceive internet banking as unsafe and insecure.

PR (2): I don't feel secure sending sensitive information across online banking

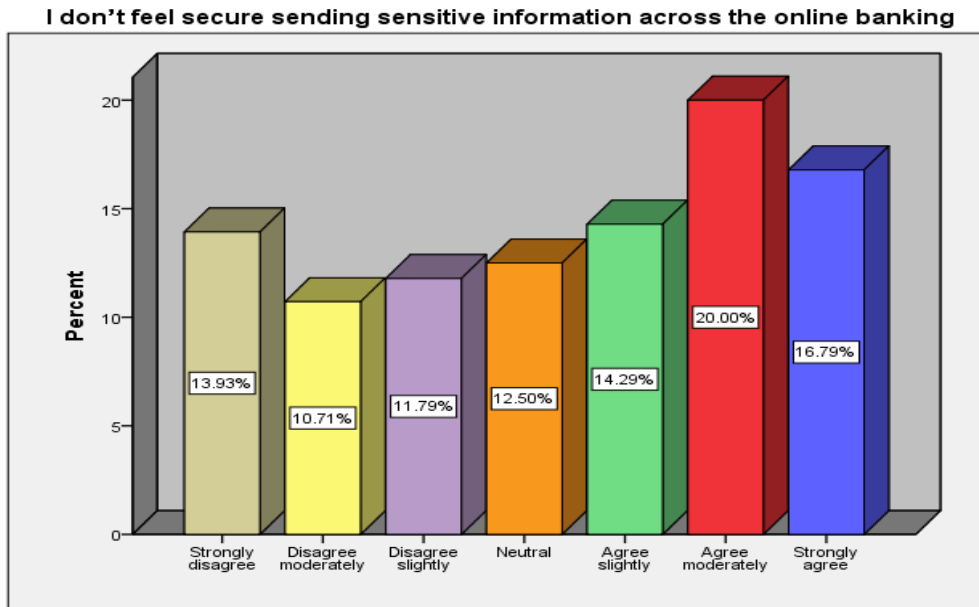


Figure 3-45. I don't feel secure sending sensitive information across Online banking

Figure 3-45 above reveals the findings of the item “Online Banking provides insecure transactions”. A total of 143 of the respondents out of (n=280) representing 51.08% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” believe that online banking is not secure, while 102 of the respondents out of (n=280) representing 36.43% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” feel secure sending sensitive information across online banking.

PR (3): When transferring money on Internet, I am afraid to lose money due to careless mistakes such as wrong input of account number and wrong input of the amount of money.

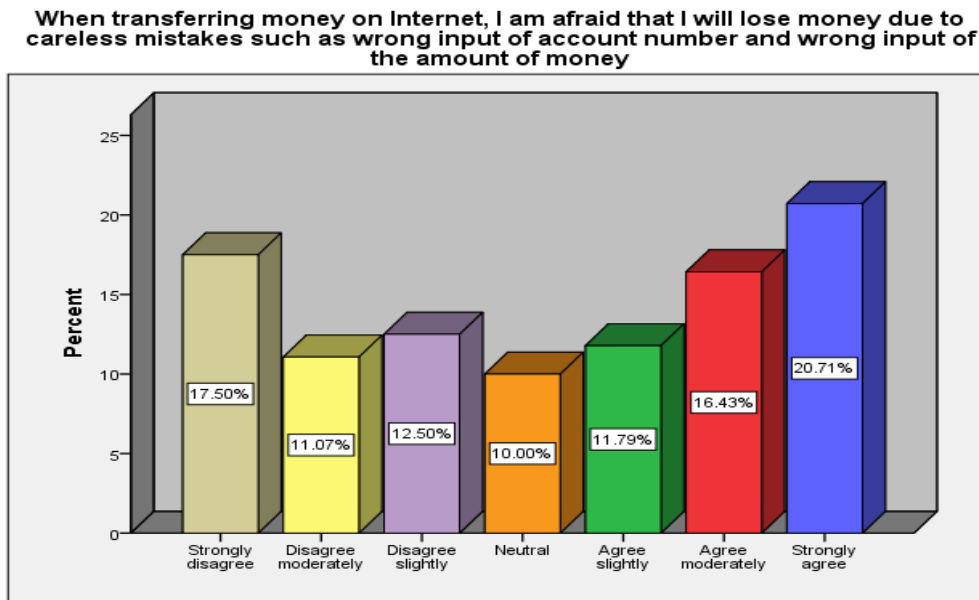


Figure 3-46. When transferring money on Internet, I am afraid to lose money due to careless mistakes such as wrong input of account number and wrong input of the amount of money.

Figure 3-46 above reveals the findings of the item “When transferring money on Internet, I am afraid to lose money due to careless mistakes such as wrong input of account number and wrong input of the amount of money”. A total of 137 of the respondents out of (n=280) representing 48.9% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” feel uncertain towards using Internet Banking as they lack the skills and knowledge to use it, while 115 of the respondents out of (n=280) representing 41.1% “disagree” (the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly”). However, the difference between the respondents who feel insecure towards performing banking transactions on the Internet and those who feel secure towards using Internet banking is not that high.

PR (4): Online Banking servers may not perform well because of slow download speeds, the servers being down or because the web site is undergoing maintenance.

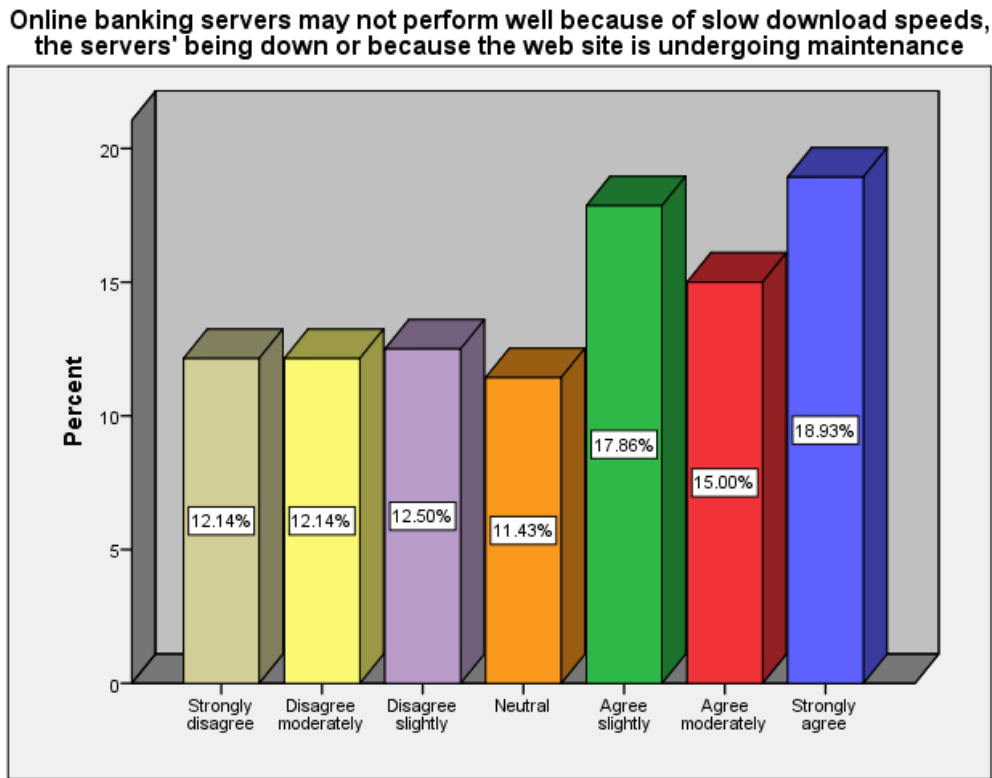


Figure 3-47. Online Banking servers may not perform well because of slow download speeds, the servers being down or because the web site is undergoing maintenance.

Figure 3-47. above shows the findings of the item “Online Banking servers may not perform well because of slow download speeds, the servers being down or because the web site is undergoing maintenance”. A total of 145 of the respondents out of (n=280) representing 51.79% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” don’t feel secure in doing transactions on the web, while only 103 of the respondents out of (n=280) representing 36.38% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” trust using Internet banking services. Nonetheless, there is almost no

difference between respondents who agree and those who disagree on the fact that online banking is a risky and uncertain environment.

PR (5): I am worried to use online banking because other people may be able to access my account

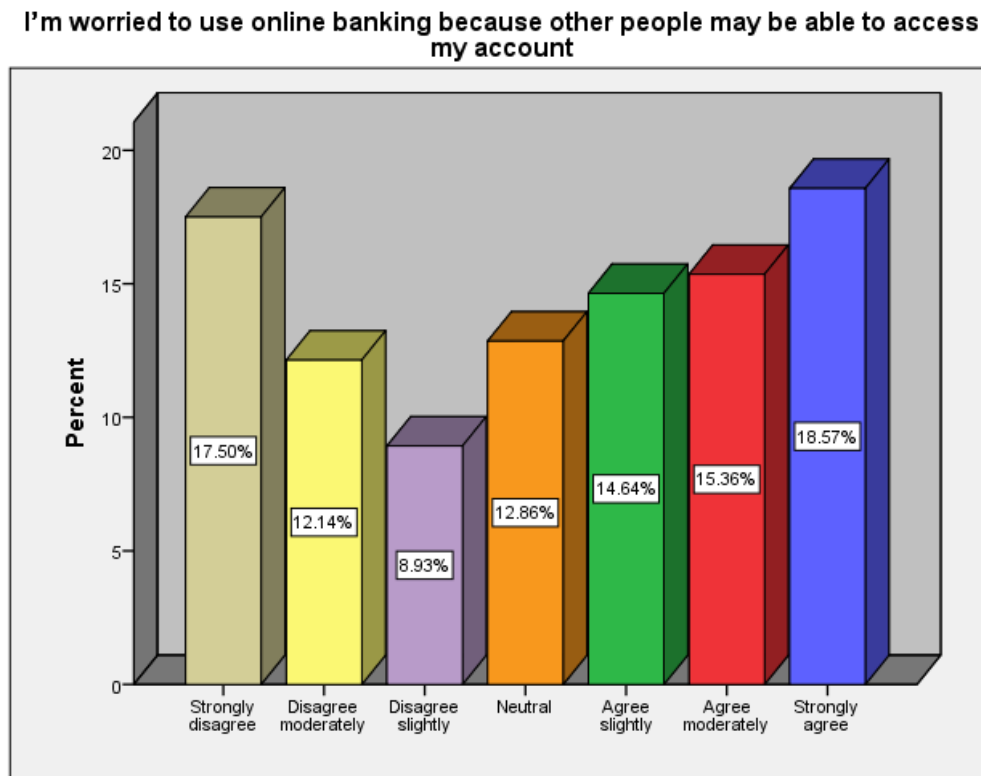


Figure 3-48. I am worried to use online banking because other people may be able to access my account

For the item “I am worried to use online Banking because other people may be able to access my account”, **Figure 3-48.** above reveals that a total of 136 of the respondents out of (n=280) representing 48.5% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” don’t trust online banking and consider it as risky and uncertain, while 108 of the respondents out of (n=280) representing only 38.5% of the cumulative percentage of “strongly disagree”, “disagree moderately” and

“disagree slightly” trust online banking. These later have no worries concerning online banking.

PR (6): Online Banking is a safe place to transmit sensitive information

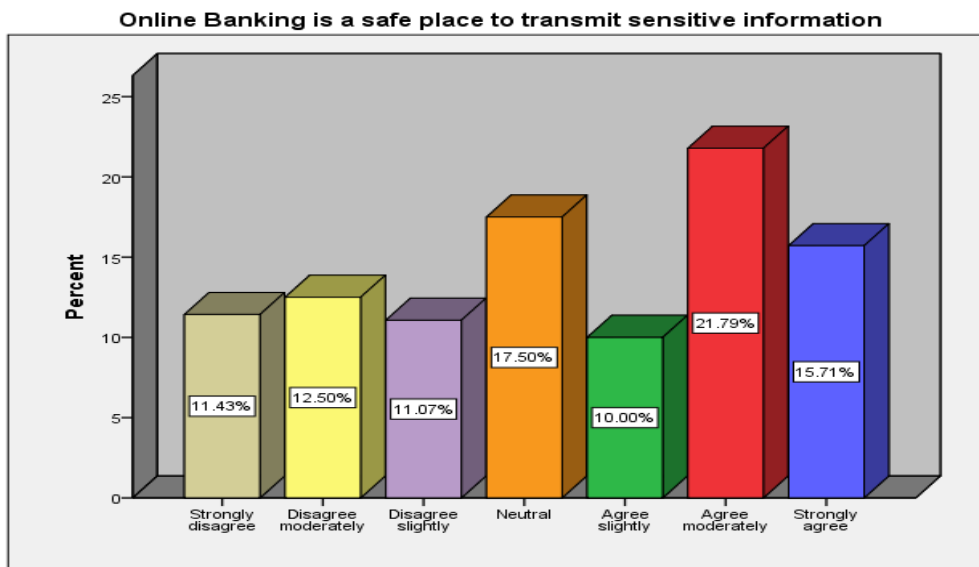


Figure 3-49. Online Banking is a safe place to transmit sensitive information

Figure 3-49 above shows the findings of the item “Online Banking is a safe place to transmit sensitive information”. A total of 133 of the respondents out of (n=280) representing 47.5% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” trust online banking for transmitting sensitive information. They perceive no risk to their accounts and other confidential information. while 98 of the respondents out of (n=280) representing 35% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” don’t feel secure using online banking. However, the difference between respondents who believe that online banking is a safe place to transmit sensitive

information is not that higher in comparison with those who doubt the security of online banking.

3.1.5.4. Attitude (ATT):

- **Attitude (1): using Online Banking has a lot of advantages**

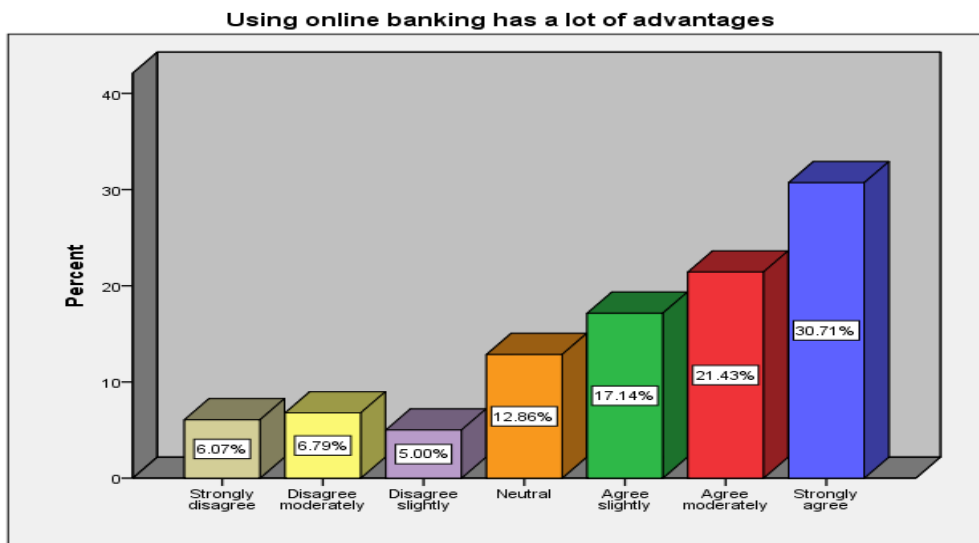


Figure 3-50. Using Online Banking has a lot of advantages

Concerning the item “Using online banking has a lot of advantages”, **Figure 3-50.** above reveals that a total of 194 of the respondents out of (n=280) representing 69.2% of the cumulative of “Strongly agree”, “agree moderately” and “agree slightly” concur that online banking offers a great variety of advantages, while 50 of the respondents out of (n=280) representing 17.9% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” believe the opposite. Therefore, the majority of Moroccan banking customers opine that online banking has a lot of advantages.

- **Attitude (2): using mobile banking is beneficial**

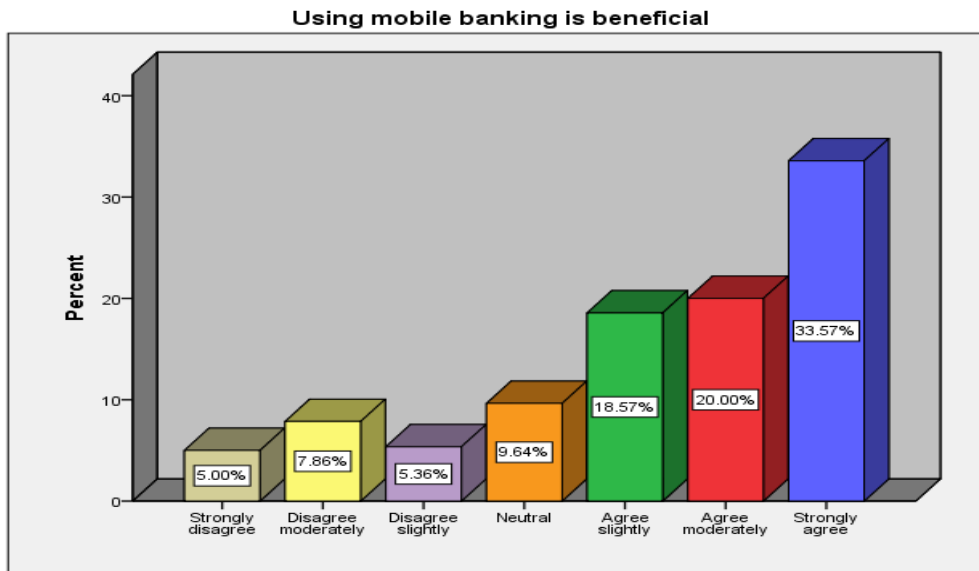


Figure 3-51. Using Mobile banking is beneficial

Figure 3-51 above shows the findings of the item “using Mobile Banking is beneficial”. A total of 202 of the respondents out of (n=280) representing 72.2% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” have a positive attitude towards mobile banking and believe that it is beneficial for them. While 51 of the respondents out of (n=280) representing 18.3% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” don’t share the same view. Therefore, the majority of the respondents hold a positive opinion concerning Internet Banking.

- **Attitude (3): Using Online Banking is a wise idea.**

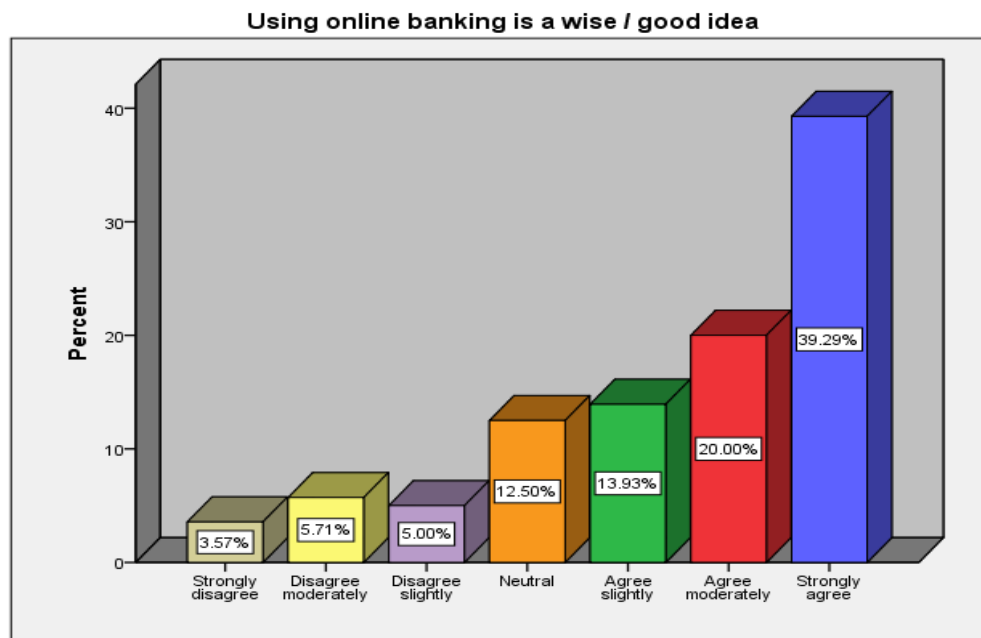


Figure 3-52. Using online banking is a wise idea

Figure 3-52 above reveals the findings of the item “using online banking is a wise idea”. A total of 205 of the respondents out of (n=280) representing 73.2% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly”), these respondents opine that online banking is an excellent idea, while 40 of the respondents out of (n=280) representing 14.3% “disagree” (the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly”) consider online banking useless.

3.1.5.5. Intention (INT):

- **Intention (1): I would use Internet banking for my banking needs**

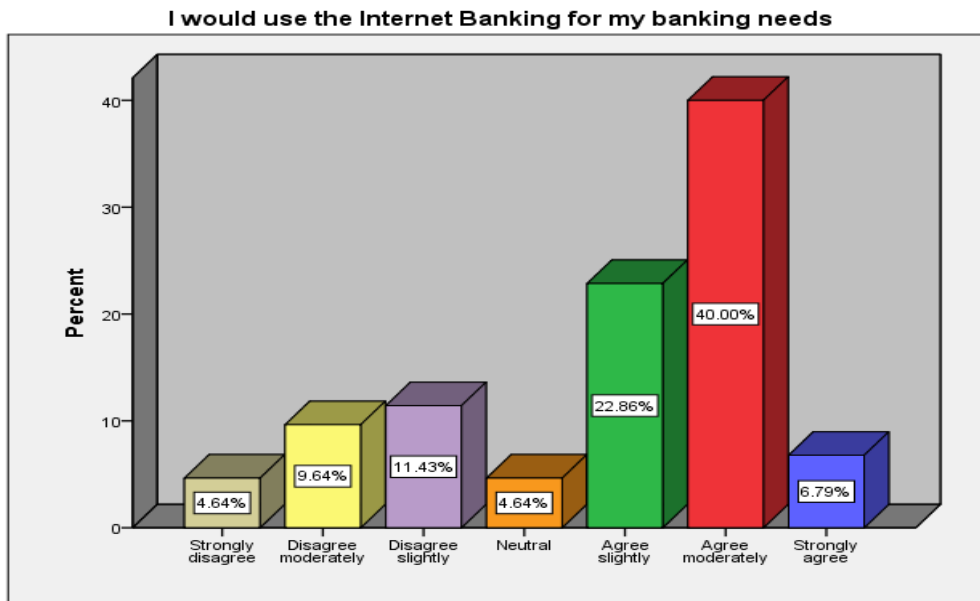


Figure 3-53. I would use Internet banking for my banking needs

The findings shown in **Figure 3-53** above indicate that a total of 195 of the respondents out of (n=280) representing 69.7% of the cumulative of “Strongly agree”, “agree moderately” and “agree slightly” are willing to use internet banking, while 72 of the respondents out of (n=280) representing 25.6% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” don’t have the intention to use Internet banking for their banking needs.

- **Intention (2): using Internet banking for handling my banking transaction is something I would do.**

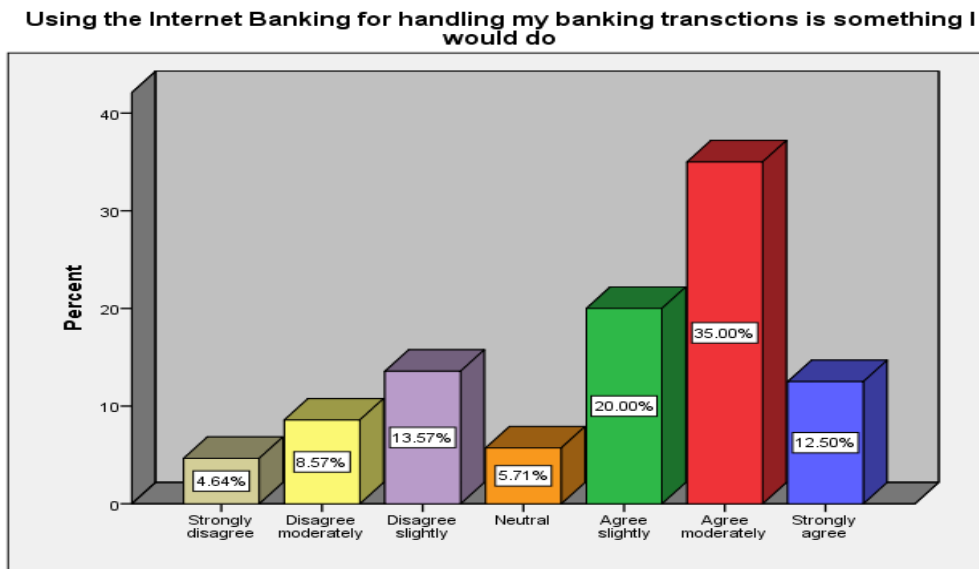


Figure 3-54. Using Internet banking for my banking transactions is something I would do.

For the item “Using Internet banking for my banking transactions is something I would do”, it has been found, as seen in **Figure 3-54**, that a total of 189 of the respondents out of (n=280) representing 67.5% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” have the intention to adopt Internet banking in the future. Nevertheless, 75 of the respondents out of (n=280) representing 26.8% of the cumulative of “strongly disagree”, “disagree moderately” and “disagree slightly”, opined that they have no intention to use Internet banking for their banking transactions and want to stick to traditional banking.

- **Intention (3): I would see myself using Internet banking for handling my banking transactions.**

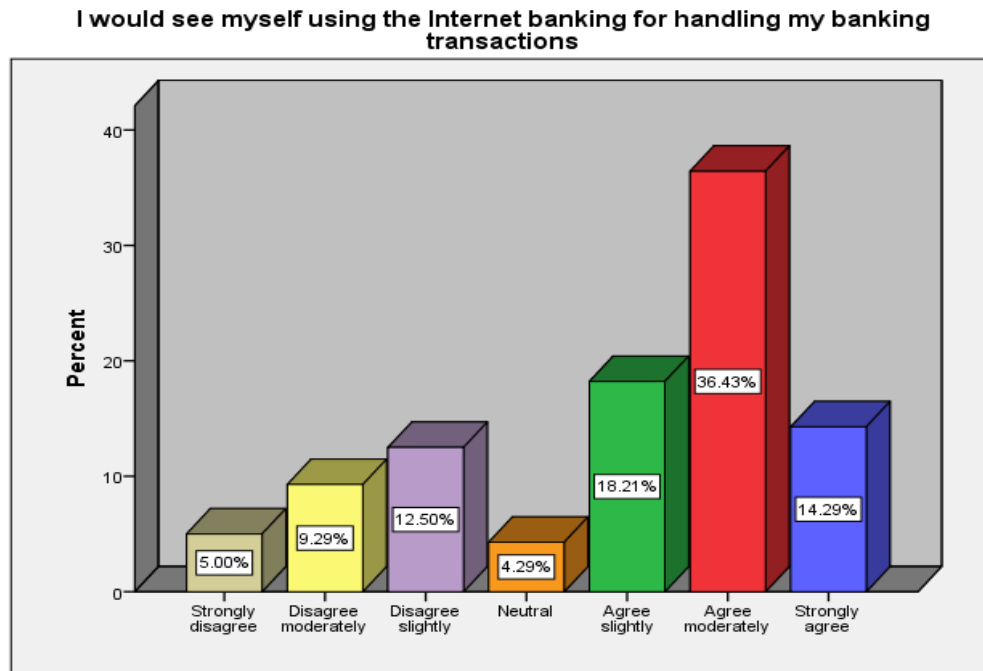


Figure 3-55. I would see myself using Internet banking for handling my banking transactions.

Figure 3-55 above shows the findings of the item “I would see myself using Internet banking for handling my banking transactions”. A total of 193 of the respondents out of (n=280) representing 68.9% of the cumulative percentage of “Strongly agree”, “agree moderately” and “agree slightly” are willing to use internet banking for their banking transactions. They are definitely potential users of Internet banking services. However, 75 of the respondents out of (n=280) representing 26.8% of the cumulative percentage of “strongly disagree”, “disagree moderately” and “disagree slightly” have no intention of using Internet banking at least for the moment.

3.1.6. Hypothesis Testing: Factors Influencing Internet Banking Adoption

Although the implementation and the use of Internet banking have been widely adopted in various developed countries, customers' adoption in developing countries, in this case Morocco, has been slower and very shy. That is why there is a need to investigate the factors that impact on customers' decision to adopt these services in conducting their banking transactions and also to allow banks to understand users' concerns so as to enhance their services and communication strategies.

The present study utilizes the original more parsimonious model TAM (Perceived Ease of Use, Perceived Usefulness and Attitude as predictors of adoption intention) as the theoretical background to explain the factors that influence the use of Internet banking in the Moroccan context. In addition to TAM, it was deemed necessary to include a measure of Perceived Risk because research has revealed that there is a big number of customers who refuse to use Internet banking because of uncertainty and security risk. They are afraid that their accounts will be compromised when using these services (Featherman and Pavlou, 2003; Kesharwani and Bisht, 2012). Our model consists of five constructs, which include Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Perceived Risk (PR) as independent variables and Attitude (ATT), Intention (INT) to use as the dependent variables. That is to say, the conceptual model developed combined the TAM constructs with PR constructs (Performance risk, security risk, and financial risk) in order to explain the factors that influence Moroccan banking customers to use internet banking services.

3.1.6.1. Hypotheses Development

Hypotheses regarding TAM construct

H4a: - Perceived Usefulness positively influences the adoption to use online banking.

H4b: - Perceived Usefulness positively influences attitude towards the use of online banking.

H5a: - Perceived Ease of Use positively influences Attitudes towards the use of online banking.

H5b: - Perceived Ease of Use positively influences the Perceived Usefulness of online banking.

H6: - Attitude positively influences the Intention to use online banking.

Hypotheses regarding Perceived Risk

H7a: - Perceived Risk negatively influences the Perceived Usefulness of using online banking.

H7b: - Perceived Risk negatively influences Attitude towards the use of online banking.

H7c: - Perceived Risk negatively influences Intention towards the use of online banking.

3.1.6.2. Measurement Model

In order to ensure rigor and validity of the results, Structural Equation Modeling (SEM) approach and the Statistical Package Analysis Moment of Structures (AMOS Version 24) were adopted in our data analysis (Bagozzi et al., 1991). Structural Equation Modeling or SEM, which is a very general statistical modeling technique, is widely used in the behavioral sciences (Hox and Bechger, 1995). SEM provides a very accurate and convenient framework for statistical analysis that includes several traditional multivariate procedures (factor analysis, regression analysis, discriminant analysis, etc.). The statistical model is usually presented in a set of matrix equation. SEM is meant to test and measure causal relationship among multiple variables simultaneously, to estimate the strength of interrelationship between latent constructs (Gallagher *et al.*, 2008) as well as to verify and test model hypothesis through a path coefficient comparison analysis(Bagozzi et al., 1991).

3.1.6.2.1. Factor Loading (FL)

Factor loading is one of “the most commonly used procedures in the development and evaluation of psychological measures” (Floyd and Widaman, 1995, p.268). The aim of factor analysis is to decrease a group of variables into a smaller group of dimensions (Field, 2013). According to Field (2013), this technique has three main uses as follow:

1) To understand the structure of a set of variables. 2) To construct a questionnaire to measure an underlying variable. 3) To reduce a data set to a more manageable size while retaining as much of the original information as possible (p. 666).

3.1.6.2.2. Exploratory Factor Analysis (EFA)

Therefore, an Exploratory Factor Analysis (EFA) using Principal Component Analysis (PCA) was performed on the survey data. PCA is conducted so as to condense construct items into a smaller number of basic components and to explain the variance-covariance structure of a set of variables through linear combinations (Wold, 1987) and also to get a clear picture of which construct loads on and which factor the extracted constructs are rotated with using Varimax rotation principle. The rotated factor loading with their comprising variables and their factor loadings are presented in **Table 4-57**. None of the factors are less than 0.60 and the reasonably high factor loadings provide evidence that an item loads to one component and there is no cross loadings. Besides, Crombach’s alpha values of variables ranged from 0.876 to 0.971, significantly above 0.8 levels as seen in **Table 4-57**. The coefficients surpass the threshold value of 0.5 showing evidence of internal consistency as suggested by Nunnally and Bernstein (1994). Furthermore, to support the factorability of the correlation matrix, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is found to be 0.910 which is well above the recommended value of 0.600 (Kaiser, 1974), and the significance of Bartlett’s test of Sphericity (Bartlett, 1954) also reaches statistical significance (0.000) that is less than 1% (see **Table 3-56**. below). Therefore, the data of the current study is suitable for using factor analysis.

Table 3-56. KMO and Bartlett’s Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.910
Bartlett’s Test of Sphericity	Approx. Chi-Square	5078,917
	Df	171
	Sig.	.000

Table 3-57. Results of Exploratory Factor Analysis

Factor	Acronym	Scale items	FL	EV	CA
PU	PU1	Internet banking is useful.	0.903	3.253	0.922
	PU2	Web 2.0 technologies implemented by the bank save my time and enable me to accomplish my tasks more quickly.	0.949		
	PU3	Internet banking is better for tracking spending.	0.929		
	PU4	Internet banking offers a wide range of banking services and investment opportunities.	0.821		
PEOU	PEOU1	Web 2.0 applications are not complex	0.862	2.406	0.876
	PEOU2	With online banking I don't have to visit the bank.	0.897		
	PEOU3	It's easy to use online banking services for handling my banking transactions	0.926		
PR	SR1	Online banking provides insecure transactions	0.829	3.659	0.908
	SR2	I don't feel secure sending sensitive information across Internet Banking	0.871		
	SR3	I don't feel totally safe providing personal privacy information over the internet banking	0.895		
	FR	when I transfer money over the Internet, I'm afraid of losing money because of carelessness such as improper account number entry	0.825		
	PR	I'm worried to use online banking because other people may be able to access my account	0.848		
ATT	ATT1	Using online banking has a lot of advantages	0.945	2.672	0.939
	ATT2	Using mobile banking is beneficial	0.951		
	ATT3	Using online banking is a wise / good idea	0.935		
INT	INT1	I would use the online banking for my banking needs	0.975	2.836	0.971
	INT2	Using online banking for handling my banking transactions is something I would do	0.968		
	INT3	I would see myself using the online banking for handling my banking transaction	0.974		

Note: FL= Factor Loading, EV=eigenvalue, CA= Cronbach's alpha.

PU- Perceived Usefulness, PEOU- Perceived Ease of Use, PR- Perceived Risk, ATT- Attitude, INT- Intention.

Source: survey

In accordance with Hair et al., (2008), only those items with factor loading more than 0.50 and only those factors with Eigenvalues greater than 1 were retained for further analysis. The items below the threshold value of 0.40 have to be eliminated; therefore, the item "Internet banking is a safe place to transmit sensitive information" was excluded due to its low loading and lack of statistical significance. Concerning the

others, all items were retained. This resulted in the loading of 18 items across five factors explaining 47.8% of total variance. The five factors were namely: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Perceived Risk (PR), Attitude (ATT) and Intention (INT).

3.1.6.2.3. Confirmatory Factor Analysis (CFA)

Confirmatory Factor analysis (CFA) is considered as one of the most rigorous methodological approaches to testing for the validity of factorial structures within the framework of structural equation modeling (SEM). It is meant to assess the measurement reliability and construct validity of identified factors and also to test the model fitness of the hypothesized model. It has been conducted using AMOS 24.0. The overall model fit was assessed using six goodness-of-fit indices, which are normalized fit index (NFI), comparative fit index (CFI), goodness of fit index (GFI), adjusted goodness of fit index (AGFI), and root mean square residual (RMSR). **Table 3-58** below shows the results of the structural model of this research, along with the recommended values of common model fit suggested by Bentler, 1989; Hair et al., 2010; Gefen et al., 2003; Hu and Bentler, 1999. The overall goodness of fit measurement model reflected a fairly good fit with chi-square χ^2 (545.250) and Degree of Freedom (128) as suggested by previous research. A comparison of all model fit indices with their respective suggested values provided evidence of a good model fit (see **Table 3-58**). Therefore, the path coefficients of the structural model are analyzed.

Table 3-58. Fit Statistics (Confirmatory Factor Analysis)

Fit Statistic	Recommended Value	Obtained	References
Chi-Square		545.250	
DF		128	
Chi-square significance	$P \leq 0.05$	<0.0005	
χ^2 /df	<5.0	2.32	Bentler, 1989
GFI	>0.90	0.90	Hair et al. 2010
AGFI	>0.80	0.86	Gefen et al., 2003
NFI	>0.90	0.94	Bentler, 1992
CFI	>0.90	0.96	Bentler, 1992
RMSEA	<0.08	0.06	Hu & Bentler, 1999

Note: χ^2 / df- Chi Square/ degrees of freedom, GFI- Goodness of Fit, AGFI - Adjusted Goodness of Fit, NFI- Normed Fit Index, CFI- Comparative Fit Index, RMSEA- Root Mean Square Error of Approximation. Recommendation as low as 0.80 as a cutoff have been preferred for Normed Fit Index (NFI) (Hooper et al., 2008, p.55)

In order to assess convergent validity, average extracted (AVE) was used. The AVE is the amount of indicator variance that is accounted by the underlying items of construct. It measures the variance extracted by the indices in relation to measurement errors and must be higher than 0.5 to justify using a construct (Barclay et al., 1995), so that latent variables explain more than half of the variance of its indicators (Hair & Anderson, 2010; Henser et al., 2009); that is, the average variance shared between each construct and its indicator must be more than the variance shared between that construct and other ones. As seen in **Table 3-59**, AVE for each construct ranged between 0.729 and 0.945 and all values were above the expected threshold of 0.5. Therefore, the value of CR and AVE, respectively more than 0.60 and 0.50 showing appropriate construct reliability and convergent validity.

3.1.6.2.4. Discriminant Validity

Table 3-59. Average Variance and Discriminant Validity

	PEOU	PR	PU	ATT	INT	AVE
PEOU	1					0.802
PR	0.049	1				0.729
PU	0.636(**)	0.016	1			0.813
ATT	0.487(**)	0.031	0.554(**)	1		0.891
INT	0.190	0.014	0.249(**)	0.348(**)	1	0.945

Finally, discriminant validity of the instrument was also confirmed by investigating the correlation of the indicators of different variables in the covariance matrix of AMOS output. The main difference between convergent and discriminant validity is that content validity investigates the correlation of indicators that measure a construct and must be related to each other, on the other hand, discriminant validity tests indicators that must not be related to each other (Martyn, 2009). The results obtained showed that square root of AVE was greater than the correlation between the constructs (Henseler et al., 2009), which can be verified in **Table 3-59** for all constructs. Campell and Fiske (1959) stated that the value of correlation must be less than 85%. Thus, so as to estimate discriminant validity, the correlation between the

constructs must be less than 0.85. The correlation coefficient of more than this value indicates that the constructs measure the same concept. Based on these results, we conclude that all the constructs show evidence of discrimination validity. Moreover, cross-loading was also used to assess discriminant validity. It should be lower than the loading of each indicator (Hair & Anderson, 2010). This was analyzed and verified that no indicator has loadings with lower values than their crossing loadings (see **Table 3-60**). This suggests good convergent validity and shows that the indicators truly represent the intended latent constructs.

Table 3-60. Cross-loading

	<i>PU</i>	<i>ATT</i>	<i>PEOU</i>	<i>INT</i>	<i>PR</i>
<i>PU1</i>	0,903	0,700	0,695	0,445	-0,086
<i>PU2</i>	0,949	0,713	0,742	0,472	-0,119
<i>PU3</i>	0,929	0,675	0,714	0,437	-0,140
<i>PU4</i>	0,821	0,590	0,724	0,446	-0,110
<i>ATT1</i>	0,706	0,945	0,685	0,592	-0,173
<i>ATT2</i>	0,697	0,951	0,646	0,539	-0,164
<i>ATT3</i>	0,704	0,935	0,643	0,539	-0,160
<i>PEOU1</i>	0,692	0,553	0,862	0,317	-0,271
<i>PEOU2</i>	0,733	0,672	0,897	0,447	-0,123
<i>PEOU3</i>	0,715	0,642	0,926	0,400	-0,207
<i>INT1</i>	0,502	0,578	0,419	0,975	-0,128
<i>INT2</i>	0,490	0,581	0,437	0,968	-0,109
<i>INT3</i>	0,463	0,562	0,415	0,974	-0,105
<i>SR1</i>	-0,120	-0,156	-0,208	-0,143	0,829
<i>SR2</i>	-0,097	-0,142	-0,199	-0,106	0,871
<i>SR3</i>	-0,109	-0,192	-0,198	-0,114	0,895
<i>FR</i>	-0,089	-0,108	-0,129	-0,049	0,825
<i>PS</i>	-0,119	-0,129	-0,187	-0,060	0,848

3.1.6.2.5. Structural Model

As the assessment of construct reliability, indicator reliability, convergent validity, and discriminant validity of the constructs were satisfactory; it was possible to analyze the structural model. The causal relationship between latent exogenous variables and latent endogenous variables were measured through standard coefficients and

significance value using AMOS, some hypotheses were confirmed others were rejected according to the results of the data analysis.

To test the statistical significance of the parameter estimates from SEM, the test statistic is the Critical Value (C.R.), which represents the parameter estimate divided by its standard error (S.E.). Based on a significant level of 0.05, the C.R. needs to be $>\pm 1.96$. Below this level, the parameter can be unimportant to the model. Perceived Usefulness was hypothesized to have a positive effect on Attitude. A positive path coefficient (C.R.=5.233, $p<0.001$) between the two constructs provided evidence to support H4b. Hypothesis H4a stated that Perceived usefulness had a positive impact on Intention. The path coefficient between these two constructs (C.R.=9.031, $p<0.001$) provided evidence to support hypothesis H4a. Hypothesis 5a stated a positive relationship between Perceived ease of use and attitude. The path coefficient between the two constructs (C.R.=3.831, $p<0.001$) provided evidence to support H5a. Hypothesis 5b stated a positive impact of perceived ease of use on perceived usefulness. The path coefficient between the two constructs (C.R.=14.924, $p<0.001$) revealed great evidence to support H5b. Hypothesis 6 stated that attitude positively influenced intention to use IB. The path coefficient between these two constructs (C.R.= 6.322, $p<0.001$) provided evidence to support H6.

However, the factor loading on PR-PU was 0.066 (with C.R.=1.552, $p=0.121$), which was not significant, and thus H7a which stated a negative relationship between PR and PU was not supported. Hypothesis 7b stated a negative influence on attitude. The path coefficient between the two constructs (C.R.=-0.990, $p>0.05$) provided evidence that H7b was not supported. Hypothesis 7c stated a negative influence on attitude. The path coefficient between the two constructs (C.R.=-0.030, $p>0.05$) provided evidence that H7c was not supported.

The results about Perceived Risk are very surprising since PR doesn't influence PU, ATT and INT to adopt IB. However, the model reveals a strong and significant negative covariance between PR and PEOU which was not predicted in the research model. The factor loading on both PR and PEOU is -0.645 with (C.R.=-3.325,

p<0.001) which is surprising and does not go in line with the results of previous studies.

The hypotheses results are shown in **Fig. 3.56**.

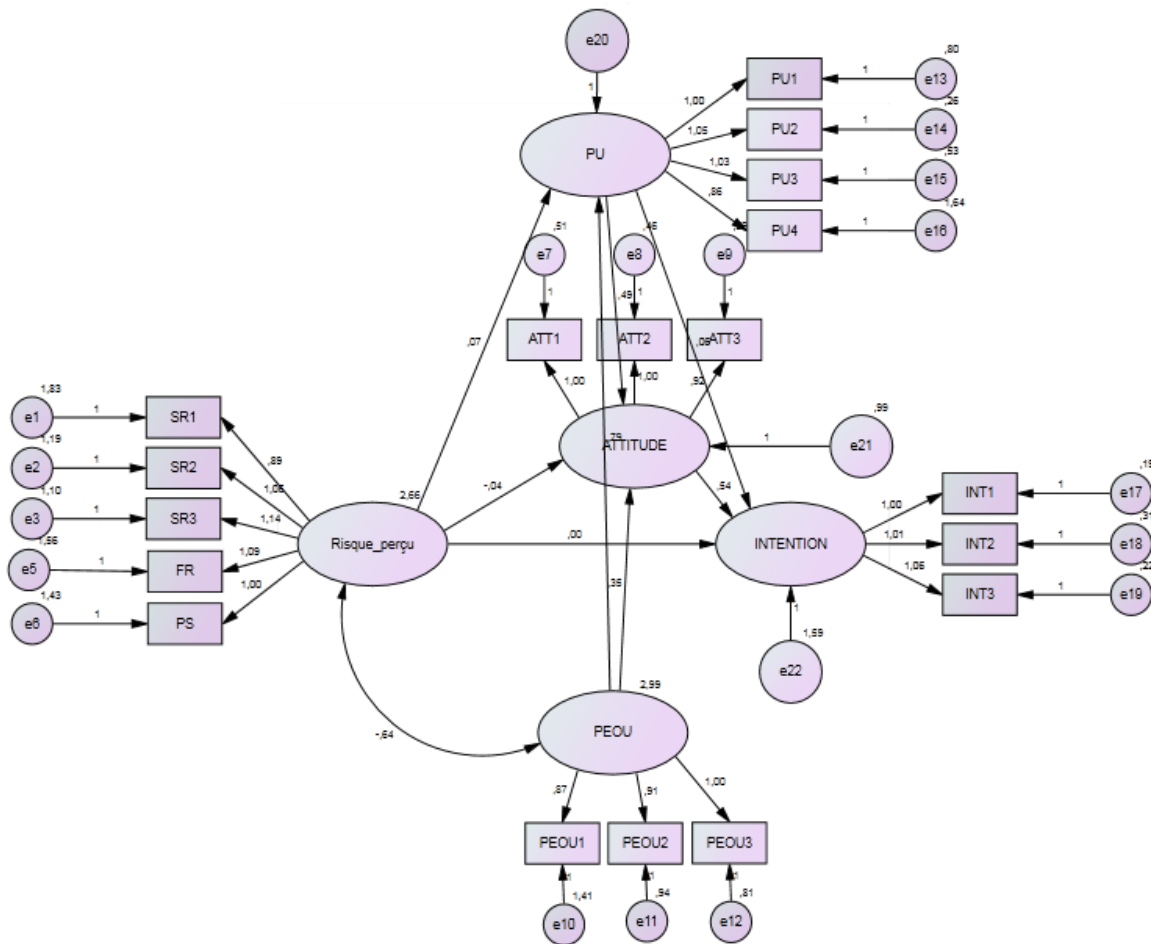


Figure 3-56 . Results of the Structural Model

$\chi^2/df=2.323$, GFI= 0.900, AGFI=0.864, CFI=0.966, NFI=0.942, RFI=0.930, RMSEA=0.069

*P<0.05

**P<0.01

***P<0.001

Note: dotted line represents no significance

The results of the study concerning the factors influencing Internet banking adoption showed that PU has a significant effect on the Intention to use IB ($\beta=0.480$, $p<0.001$). Besides, PU has an indirect influence, via attitude ($\beta=0.724$, $p<0.001$), on Intention to adopt IB. This result is similar to the finding reported in Taylor and Todd (1995),

which indicated that perceived usefulness has both direct and indirect influence on Intention toward system use. Furthermore, PEOU has a significant indirect positive relationship with Attitude towards the use of Internet banking services and the value of the correlation coefficient is found to be ($\beta=0.420$, $p<0.001$) and also has a strong significant relationship with PU correlation coefficient value ($\beta=0.805$; $p<0.001$). In other words, PEOU does not have a direct impact on INT to use, although it affects PU, which in turn leads to greater acceptance of online banking. ATT has a strong direct influence on INT and the value of the correlation coefficient is found to be ($\beta=0.589$, $p<0.001$). The results obtained are consistent with those of Davis 1989; Pikkarainen et al. 2004; and Chen et al. (2003) which revealed that PU has a direct impact on usage INT and ATT while PEOU has a strong positive impact on PU and Internet banking ATT and thus adoption. Consequently, the results obtained in the current research are in line with the following studies: Davis, 1989; Taylor & Todd 1995. Venkatesh and Davis 2000; Alsamydai et al., 2014; Bhatti 2007, Guriting et al., 2006, Kim et al., 2007 and Pavlou 2003.

However, as far as Perceived risk is concerned, the results demonstrate that PR has an insignificant negative impact on PU ($\beta=0.06$, $p>0.05$), Attitude ($\beta=-0.04$, $p<0.05$) and Adoption ($\beta= -0.002$, $p<0.001$). Nevertheless, PR is revealed to have a significant negative influence on ATT and INT through the mediation of PEOU construct. There is a strong negative relationship between PEOU and PR ($\beta=0.84$, $p<0.001$). This relationship was not predicted in the current research model. This means that the higher the risk of using IB tools, the more complex the technology is perceived, and the willingness to its use. These findings concerning PR are not consistent with prior research. **Table 3.57** below provides a summary of the hypotheses testing for the SEM analysis. The results reveal that H4a, H4b, H5a, H5b, and H6 are supported, while H7a, H7b, and H7c are not.

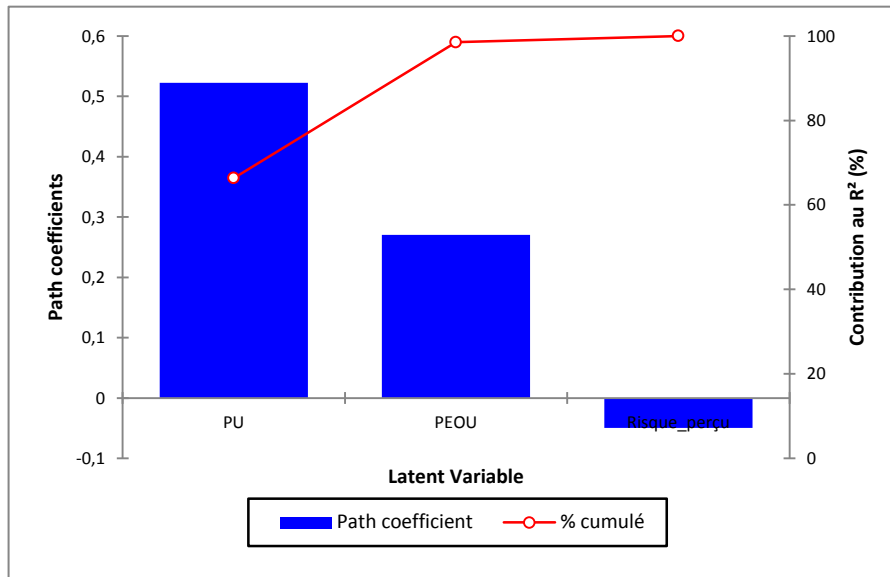


Figure 3-57. Variables impact and contributions on Attitude

Moreover, the results demonstrated that PU has a strong positive significant influence on attitude towards Internet banking adoption more than PEOU. Attitude toward system adoption is hypothesized to partially mediate the effect of perceived ease of use and perceived usefulness on Intention. This finding is consistent with TAM prior studies conducted in the IB context (**Figure 3-57**).

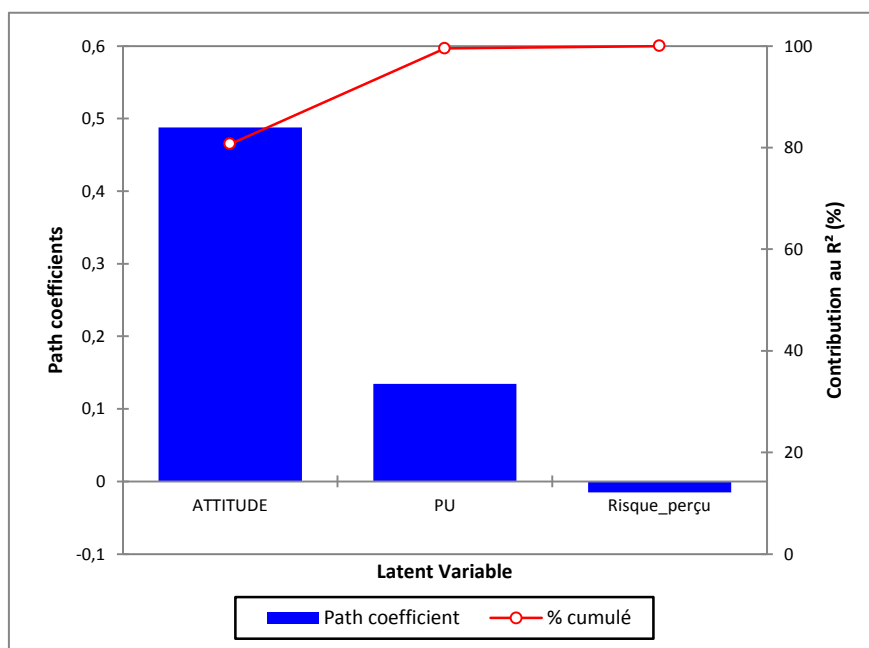


Figure 3-58. Variables impact and contributions on Intention

Figure 3-58 shows that Attitude has a significant direct influence on the Moroccan banking customer behavioral intention to use online banking. The respondents in the survey who holds a strong favorable attitude towards using IB are with no doubt going to use this technology; however, those who hold weak and negative attitudes may reject adopting IB services. Therefore, individuals' intention is prompted by their attitude towards the concerned behavior. In other words, a person feelings and opinions are key determinants in influencing an individual intention to adopt a new technology. This result is consistent with Kim et al. (2009) who argue that the role of attitude is important in determining intentions of new technology adoption.

3.1.7. Summary of the Quantitative Findings

The previous two sections of this chapter have been devoted to the presentation of the findings of the quantitative analysis of data obtained through the questionnaire. It contains two broad sections. The first section is devoted to the demographic information about the respondents' gender, age, educational level, profession, bank, and Internet access. The second section deals with the results obtained regarding the research questions and hypotheses. This section contains two scales: Customers' perception towards Web 2.0 technologies application in the context of Internet banking and the second scale deals with the factors that influence Internet banking adoption in Morocco. A variety of statistical tools were used to test those variables, namely Cronbach's alpha, Chi-square test, and Cross-tabulation. Cronbach's alpha was used to measure internal consistency, which is the reliability of the scale. The results obtained indicated a high level of internal consistency. Chi-square statistic was used to evaluate tests of independence which assesses whether a relationship or an association exists between two variables. The results of Chi-square tests are presented on **Table 3-62**. This statistical tool is meant to closely investigate the relationships within our data set (the relationships between gender, age, level of education, profession and the use of Web 2.0 technologies). Structural Equation Modeling (SEM) is also adopted. It integrates a genuinely modeling framework that incorporates a number of different multivariate techniques into one model fitting framework (Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA)). CFA

aims to confirm or disconfirm the hypotheses and uses path analysis diagrams to represent variables and factors, whereas EFA tries to uncover complex patterns by exploring the dataset and testing predictions. Exploratory Factor Analysis (EFA) was performed by using principal components extraction method and Varimax rotation method. CFA was used to test the adequacy of the measurement model with SPSS and AMOS software tools. The results indicate that all fits indices values are within the recommended values. The structural model was also tested by AMOS. The model fit indices values are good which indicated that the structural model fits well and the hypotheses can be examined. As a consequence, based on the statistical tools, the results were very satisfying and provided clear answers to the research questions and confirmed some of the research hypotheses.

To study consumer acceptance of online banking (Internet banking) in Morocco in the light of the technology acceptance model (TAM), another variable was added that was derived from IT literature on one hand and from the sample on the other hand. The model proposed that online banking adoption can be modeled with variables derived from the TAM theory namely PU, PEOU and ATT and variables referring to Perceived Risk Theory. The model was tested on 280 Moroccan banking customers and the results revealed that PU, PEOU, and ATT have a significant impact on IB usage. It was found that PU was more influential than PEOU in explaining technology acceptance which concurs with prior TAM studies (Davis, 1989; Davis et al., 1989). However, perceived risk was found to have a relatively indirect relationship with IB acceptance which is not consistent with many studies carried out in IB context. The results of the Structural Equation Modeling reveal a significant negative relationship between PR constructs and PEOU constructs which was not predicted in the research hypotheses or in the prior studies conducted in IB context.

3.1.7.1. Summary of the Research Hypotheses Findings:

3.1.7.1.1. Moroccan Banking Customers' Perception towards Web 2.0 Technologies Usage.

Tables below provide a summary of the research hypotheses findings. **Table 3-61** summarizes the findings of hypothesized testing concerning Moroccan banking customers' perception towards Web 2.0 technologies usage. While **Table 3-62** Provides findings of hypothesized testing related to the factors influencing IB adoption in Morocco.

Table 3-61. Summary of the Findings of Hypotheses Testing (1)

	Gender Factor	Age Factor	Ed. Qual. Factor	Profession Factor
1- The use of Web 2.0 technologies	.227	.000	.000	.000
2- Having the knowledge and skills to use Web 2.0 applications	.474	.031	.000	.000
3- Web 2.0 channels improve communication as they save time and money	.168	.044	.000	.000
4- Web 2.0 increases work efficiency as it provides faster access to information	.077	.428	.000	.000
5- Bank social profile is meant to develop effective one-to-one communication	.540	.161	.000	.009
6- The use of Web 2.0 channels to communicate with the bank	.098	.294	.205	.001
7- The use of IB services	.246	.032	.000	.006
8- The use of Web 2.0 applications by Moroccan banks is beneficial	.240	.193	.000	.009
9- Web 2.0 tools are best used as social interaction networks but not as financial transactions channels	.215	.386	.000	.000

* Significant at $p < 0.05$.

**significant at $p < 0.01$.

***significant at $p < 0.001$.

3.1.7.1.2. Factors Influencing Internet Banking Adoption in Morocco.

Table 3-62. Summary Hypotheses Testing Results for the Structural Model(2)

HYPOTHESIS	PATH	ESTIMATE	S.E.	C.R.	P	HYPOTHESIS
H4A	PU → INT	.478	.053	9.031	***	Supported
H4B	PU → ATT	.493	.094	5.233	***	Supported
H5A	PEOU → ATT	.349	.091	3.831	***	Supported
H5B	PEOU → PU	.790	.053	14.924	***	Supported
H6	ATT → INT	.535	.085	6.322	***	Supported
H7A	PR → PU	.066	.043	1.552	.121	Not supported
H7B	PR → ATT	-.045	.045	-.990	.322	Not supported
H7C	PR → INT	-.002	.051	-.030	.976	Not supported

PU: Perceived usefulness, **PEOU:** Perceived Ease of Use, **PR:** Perceived Risk, **ATT:** Attitude, **INT:** Intention.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

S.E. Standard error; *C.R.* Critical ratio.

Source: Survey

3.2. Findings of the Semi-Structured Interviews

The following section is devoted to the analysis and the description of the findings obtained from the semi-structured interviews. The purpose behind the use of the semi-structured interview is to explore in depth the features related to Web 2.0 technologies from a triangulation perspective. As mentioned previously in the methodology chapter, the idea is to untangle other aspects that the quantitative data collection instrument could not address and clarify (Mitchell and Jolley, 2012).

In order to collect qualitative data, a semi-structured interview was conducted (see **Appendix B**). The sample interviewed comprised four interviewees from the four largest banks in Morocco, namely BCP Bank, Attijariwafa bank, BMCE bank and CIH bank. CIH Bank was added because 10% of the survey respondents are with CIH Bank. Besides, since 2014, CIH Bank has been transformed from a classical bank into an interactive one. It has taken advantage of the technological revolution to offer easily accessible services and guarantee safety and transparency to customers. It has become the “bank 2.0”, “the Bank of Tomorrow”.

The senior managers were contacted in place to schedule the appropriate date and time for the interviews. The interviews were completed over the course of 20 days (from 20th May to 9th June 2019). Each interview lasted about 30 minutes and was recorded for the ease of coding and transcription. The interviews were conducted in French language as the interviewees are not fluent in English language.

All the interviews followed the semi-structured interview protocol. Then the interviews were transcribed for analysis after the respondents had given their consent. Quotes in the discussions were translated into English by the author.

The interview questions seek to get the interviewees opinions and ideas about the use and the impact of Web 2.0 channels on banking communication and the major factors that influence IB adoption. Key issues mentioned from each interview are highlighted and the most common issues mentioned by the interviewees are combined.

This section is divided into two parts. The first one is about the demographic characteristics of the interviewees and the second one is about the semi-structured interviews findings details.

3.2.1. Findings of the Demographics Section

This section presents briefly information about the demographic background of the interviewees. After having administered the questionnaire, four branch managers were invited to take part in face-to-face semi-structured interviews. The findings of the demographics section elicited by the semi-structured interviews are of high importance to the analysis of the qualitative data. The current section gives details of the findings obtained from the interviews data analysis with respect to three major heading themes that are based on the questions included in the semi-structured interview protocol.

- 1- The integration of Web 2.0 technologies in the Moroccan banking communication.
- 2- The impact of Web 2.0 technologies on banking communication.

3- Factors influencing IB adoption by Moroccan banking customers.

The data for this study is obtained from a total population of four branch seniors from four different Moroccan banks (BCP bank, Attijariwafa bank, BMCE bank, and CIH bank). The interviewees were asked about their gender, age, educational level, professional responsibility, service and tenure. All the interviewees are more than 45 years. Two interviewees are women and the two other ones are men. The two women hold B.A. degrees and occupy the position of a branch manager. “Mrs. Fatima” has served for almost 24 years in BMCE bank, and “Mrs. Asmae” has been working for more than 26 years for CIH bank. The third interviewee is a man. He holds a B.A. degree in Economics and Accounting. Mr. Ahmed belongs to the Information System department and has served for more than twenty years in BPR bank Fez-Meknes. The fourth interviewee is also a man. He holds a BA degree. He is a Regional Group Director and has served a period of more than 28 years in Attijariwafa bank. All the four interviewees are highly qualified and occupy high positions in their respective banks.

3.2.2. Patterns and Themes in the Semi-Structured Interview

This section outlines the themes rising from the research questions upon which the questions included in the questionnaire are based. The three research questions are formulated based on Web 2.0 technologies literature, Internet banking and the research model (TAM and Perceived Risk) (*see Chapter one*).

3.2.2.1. Web 2.0 Integration in the Moroccan Banking Communication

The first subsection deals with the participants’ perceived opinions concerning the implementation of Web 2.0 channels in the banking marketing strategy. To tackle the first research questions that deal basically with the implementation of Web 2.0 technologies (Blogs, Wikis, RSS, Podcasts, SNSs, etc.) in the banking strategy to communicate with their customers and how they are perceived by the Moroccan customer, the following questions are used in interviewing the four banking managers

representing their banks; Attijariwafa bank, BCP bank, BMCE bank and CIH bank respectively.

Question 1: What types of Web 2.0 Technologies are currently used by your bank? For what purposes?

In response to this question, all the four interviewees testified that they are currently adopting Web 2.0 tools, namely Blogs, Wikis, RSS filters, and Social Network sites (Facebook, Twitter, and LinkedIn) so as to communicate effectively with their stakeholders and to stay competitive. All the four banks have set up their own Websites by which they have become closer to their current and prospective customers.

Mr. Khalid, a Regional Group Director in Attijariwafa bank, says:

It is difficult to imagine how any business could operate nowadays without the use of Web 2.0 technologies. The implementation of these technologies is a necessity as they enable our organization to transmit information quickly and to reach a vast audience and at the same time respond promptly to customers' enquiries and concerns. We are present on Facebook, LinkedIn and Twitter. We have specialized staff who post information related to finance and business on blogs and we have also created our website where all information concerning the bank services is displayed and updated regularly. (Interviewed on May20th, 2019)

Mrs. Fatima, a branch manager in BMCE bank, reports:

To stay competitive at the national and international level, it is primordial to implement Web 2.0 technologies in our Customer Relation Management Strategy. Web 2.0 technologies have many advantages. They integrate well with the existing technology. They are very fast, cheap, transparent and effective. We are now using them as a way to build upon the community-minded philosophy that we have spent years developing. They are also a great source of information as they help to identify which features and benefits are important and which combination will give us a competitive edge. (Interviewed on May25th, 2019)

Mr. Ahmed, a senior manager in IS department in BPR Fez-Meknes, points out:

We have implemented Web 2.0 technology in our marketing strategy for many reasons. The most important one is the high demand of customers. Clients are

increasingly connected to internet so they want to get updated news and information concerning their bank's products and services. The second reason is the intense competition. Thirdly, because these platforms help in reducing costs and improving efficiency. Finally, it is due to the increasing deregulation of the financial services market in the world (Interviewed on June 1st, 2019).

Question 2: How did you become aware of the availability of Web 2.0 technology?

In reaction to this question, the majority of the interviewees testify that it is through conferences, financial and trade publications, but most importantly through Moroccan citizens living abroad (MRE) who asked to be offered the same digital services given by their counterparts abroad. They want to be informed about any financial novelty and to be able to track their spending out of the restricted time and geographical boundaries.

Mr. Ahmed, a senior manager in IS department in BCR Fez-Meknes bank, states:

A great number of our customers are living abroad (MRE). During the last few years, we have been asked to develop and digitalize our banking services so as to meet their expectations and requirements. We, therefore, have implemented Internet banking as an additional channel to offer our customers a variety of online services with more convenience for accessing information and making financial transactions overseas. Customers' satisfaction and customers' retention are our major concerns (Interviewed on June 1st, 2019).

Mrs. Asmae affirms that thanks to professional trainings and seminars, they have been able to implement Web 2.0 for internal and external communication. These tools have been revealed to be more convenient and easy to use. She declares:

With Internet banking, our customers can download their historical statements, transfer funds, apply for loans and/or mortgages, pay their bills, open current/savings accounts and particularly dodge fees (Interviewed on June 6th, 2019).

Question 3: What are the main motivations for adopting Web 2.0 technology?

When the interviewees were asked about the organization's motivation for adopting Web 2.0 technologies, Mrs. Asmae, a branch manager in CIH bank states that a key factor was to maintain the reputation of the bank. She says:

Indeed, there are a couple of factors; one of them is the factor of reputation because social network sites can be used directly to reach out to dissatisfied customers. It is an opportunity to find a solution to the problem that our customers are facing. When customers are not satisfied with the service provided by the bank, they increasingly turn to social media to vent their frustration, knowing that no organization wants the negative publicity. By communicating with customers directly for feedback, we are able to gain their trust and loyalty (Interviewed on June 6th, 2019).

Mrs. Fatima from BMCE bank asserts that Web 2.0 technologies are valuable tools for their current clients and potential ones to connect to the bank. She believes that social media can greatly affect the reputation and the brand of the bank. She opines:

We use social networks to inform our customers about our services and upgrade them according to customers' feedback. It helps in building real customer relationship based on transparency and trust and thereby increases the brand awareness (Interviewed on May 25th, 2019).

Mr. Khalid elaborates on the same idea and ascertains:

...a complaint for us is an opportunity to change something that went wrong in the past. It is an excellent way to monitor "rumors" spread in these channels and thus protect the good name of the bank...as a result, our bank is adding SNSs as permanent channels fully integrated into Customer Relationship Management (CRM) systems so as to move from a product-focused strategy to a customer-focused one...all these are achieved to create a value for customers, understand their needs, meet their expectations and ultimately offer value-added services. Anyway, as long as it is used adequately, Web 2.0 can with no doubt yield both short and long term goals of any business (Interviewed on May 20th, 2019).

All the four interviewees maintain that Web 2.0 tools allow the organization to know in real time what people think about the services offered. They also permit to promptly communicate with customers and to develop one-to-one communication. Besides, they decrease in the use of other communication channels such as e-mails, phone callings, etc. These channels do not only increase brand loyalty and reputation, but they also decrease costs, increase functionality and improve efficiency.

Mr. Ahmed, highlights other motivational factors, he points out:

...online banking makes it easy to access bank account information at any time and from anywhere. Customers can access their bank services at odd hours and far away from the bank branches. Digital banking today offers the possibility to schedule regular payments such as rent, salaries and other fixed payments, transfer money between accounts, make purchases and payments, and lately pay taxes such as the vehicle circulation tax, annual income tax, real estate tax, etc. All of these were impossible few years ago (Interviewed on June 1st, 2019).

Mrs. Asmae adds that Web 2.0 tools are excellent marketing tools that are cost effective:

... we don't need to spend thousands of Dirhams to inform people about our services through traditional advertising channels. We just post our message through Web 2.0 platforms for free to reach a huge percentage of users whom we would not be able to reach otherwise. In addition to this, we have been able to reduce costs related to posting monthly payments, statements, brochures, phone calling, etc.(Interviewed on May 20th, 2019).

Question 4: What is the perception of your customers about online banking? How do they react to the use of these new technologies?

The analysis of the data provided for this question shows that all the interviewees are positive about their clients' perception towards online banking. A great number of Moroccan banking customers prefer online banking services over brick-and-mortar banking thanks to its reliability, convenience, usefulness, speed, cost effectiveness and user-friendly. A lot of clients adopt internet banking as it reduces the need for personal bank visits especially for those with little time or those who suffer from health problems. However, some customers are reluctant to adopt IB for security problems, lack of trust and knowledge.

Mrs. Fatima states:

The majority of our clients, specially the productive generation, use IB for their financial transactions. They believe that IB is useful and easy to use. Nonetheless, security issues hovering the internet concern bank clients a lot; they don't trust internet security (Interviewed on May 25th, 2019).

Mr. Khalid summarizes the possible reasons for the non-adoption of IB in Morocco.

He says:

We should not forget that as a developing country, there is still resistance in using technology due to many reasons. First of all, some clients are computer illiterate which makes difficult for them to use a computer or any similar device. Secondly, not all Moroccan banking customers possess a smart phone or a lap top. Thirdly, some clients have no internet connection or their bandwidth is poor, therefore, they cannot have access to our online banking services. Finally, and this is the major concern for some clients is the security issues. These ones don't trust online banking; they are afraid of hackers and of being scammed (Interviewed on May20th, 2019).

However, Mrs. Asmae asserts that online banking is a safe place to conduct financial transactions.

Online banking is highly secure and safe. All banking institutions provide encryption and security features to safeguard privacy and confidentiality of every banking transaction. But the problem lies on customers themselves who should be careful when selecting their passwords and have to renew them systematically. Their log in details should be memorized and kept secret even from bank staff. Moreover, when transferring money, or paying online bills, clients are asked to input security codes received on their mobile phones to validate the transfer (Interviewed on June6th, 2019).

Mr. Ahmed adds:

Some of our clients are becoming aware of the benefits that the adoption of these tools can generate. Most of them have a positive attitude towards its use; however, other customers may feel uncomfortable using computer technology and also the internet channels don't appear to be significantly viable for them(Interviewed on June1st, 2019).

Therefore, the biggest challenge for internet banking is maintaining security standards when customers unknowingly reveal their personal and sensitive information to others.

Question 5: How are banks currently using Web 2.0 technologies?

When the interviewees were asked how banks are using Web 2.0 technologies, Mrs. Asmae, the branch manager in CIH bank, says:

In the first place, Web 2.0 technologies were implemented so as to fill the gap in communication and engagement. They are used to target “the Net generation” who are reluctant to come in contact with their banks through traditional channels. (Interviewed on June6th, 2019)

Financial marketers are aware of the tremendous impact of Web 2.0 applications. That is why they have deployed them to differentiate themselves for customers and to maximize their reach in the offline and online segment.

Mr. Khalid, a Regional Group Director in Attijariwafa bank, adds:

Web 2.0 facilitates and necessitates the creation of new products and services to stay competitive. Innovative online payment systems are replacing traditional payment methods. In 2015, Morocco's Central bank "Bank Al-Maghreb" passed the first banking law since 2006, aiming to modernize the financial sector and promote electronic payments. Therefore, in 2016 two measures took place: the recognition of digital currencies such as "Bitcoin" or "Ether" or digital wallets like "PayPal" and the introduction of the concept "payment institutions". Our customers are now able to pay in foreign currencies on foreign websites which was not possible before (Interviewed on May20th, 2019).

Mr. Ahmed, a senior manager in IS department BCR Fez-Meknes, appends:

As one of the largest banks in the country, we have implemented Web 2.0 technologies for a number of years now. Chaabi Doc Net has many functions. Among these is setting up an information system to optimize the flow control and to manage container movements. Besides, these technologies have opened up new possibilities for better communication over the internet and through smartphones (instant messaging, e-mails, etc.). We also use blogs to create public awareness about the new services that are introduced to our customers and RSS feed which increases productivity, allowing people quickly scan new posts and headlines (Interviewed on June1st, 2019).

Mrs. Fatima, a branch manager in BMCE bank, states:

We are aware of the benefits of Web 2.0 technologies. We use them to differentiate us from our competitors and to cover a large market segments especially the young generation. Through these technologies, we build our own image, influence the public opinion and respond promptly to the negative publicity.... We are also very active in the web 2.0 sphere; we have lately started blogs, regularly updated and where information about finance, economic and social sustainability is disseminated for those who may interest, especially when we launch a new service. We have also YouTube videos about the services that we offer, a Facebook page, a LinkedIn page and Twitter through which our clients can contact and interact with us. They are indeed remarkable marketing tools. (Interviewed on May25th, 2019)

According to the four interviewees, the potential of Web 2.0 channels is endless. They help to create new sources of revenue, deepen customers' relationship, attract new customers, accelerate service delivery, build trust and brand loyalty, and enhance retention and profitability.

Moreover, Web 2.0 applications deliver benefits by offering unlimited ways for collaboration as well as spreading information more quickly and more effectively. Although bank institutions are using a mix of Web 2.0 tools, Blogs, wikis, social networks, RSS feeds and podcasts remain the most heavily adopted technologies. Blogs are used mainly to disseminate specialized information and to expand into new markets. Social Network Sites provide faster and easier communication, get customer's feedback, and enhance word-of-mouth evangelism marketing. RSS helps in expanding audience through syndication, thus, increase the bank reach and strengthen the bank's brand.

Question 6: In today's digital world, do you think that banks are enforced to have an effective presence in social media?

Concerning this question, the interviewees agreed that in order to stay competitive and to respond to customers' needs and expectations, banks should have an effective presence in social media. However, they ascertain that the inappropriate use of social media may cause the loss of the company, the brand or the client confidence. All the four banks have a social media presence. They all have Facebook, Twitter, and LinkedIn accounts and an official web page.

Mr. Asmae reveals:

We are now more than ever exposed to publicly available comments and criticism. Social media offer visible and transparent platforms for customers to express their discontent and annoyance as well as their satisfaction. More than that, through these channels, clients can make decisions on specific financial service based on information gathered by few clicks of the mouse. Our Facebook page contains more than 1M members who like, comment or share our postings. It is regularly updated and through which prompt responses to financial users' comments are provided. We also have a LinkedIn account with 27,246 members and Tweeter account with 1330 Tweets. (Interviewed on June 6th, 2019).

Mr. Khalid states:

The development of social media in our modern world is unquestionable. Recent statistics indicate that more than 3 billion people in the world are using social media. In 2019, the use of social media has multiplied in such a way that Facebook has 2.38 billion active users, WhatsApp with over 1.5 billion and Instagram 600 million active users. Therefore, customers' passion for these channels enforces banks to have an effective presence in these channels as we depend on customers to live (Interviewed on May20th, 2019)

Mr. Ahmed points out:

We are doing our best to live up to the expectations of the Moroccan customer. Many banking transactions can be done and managed through Web 2.0 channels. Besides, the printing costs and maintenance bills and taxes are reduced. Better serving customers and providing convenient services have become our first priority (Interviewed on June1st, 2019).

Moroccan banking institutions are aware of the opportunities that Web 2.0 is offering. According to the literature, a lot of Moroccans are using social networks in their everyday social life and banks are using customers' feedback and analyzing their interactions with each other so that they could improve the brand perception, meet future customers' needs, and increase brand loyalty.

Question 7: According to the survey conducted in the current research, 57.14% of the respondents do not use Web 2.0 technologies to communicate with their bank. In your opinion why is that?

Mrs. Fatima says:

Well it means that 42.86% are communicating with the banks using Web 2.0 which is very promising!!! We should acknowledge that the implementation of these technologies by the Moroccan banking institutions is recent. As a result, some customers have not grasped yet the full potentials that these technologies offer.(Interviewed on May25th, 2019)

Mr. Khalid states:

We are present in social media as it enables us to promote innovation, improve performance and stay competitive. We are using Web 2.0 tools including Podcasts, Blogs, Wikis and RSS feeds. We have well-trained employees and we hire skillful professionals in the field of IT. Today customers expect to be

heard and satisfied. They demand to receive what they need through Web 2.0 channels (Interviewed on May25th, 2019).

Mrs. Asmae reveals:

You know Moroccan customers are very demanding and they always want what is the best in the market. And we know that. Therefore, we publish information that is interesting, timely and important to them whether in our Web page or through Blogs and SNS. We engage with those who comment on our posting and provide them with accurate responses. It is a two-way conversation; we talk but we listen more!! (Interviewed on June 6th, 2019).

All respondents confirm that their respective bank has created a social profile and an official webpage so as to have an active social presence and to encourage customers to share feedback, provide comments, rate services, provide reviews and download items for sharing with their network of friends. However, there is still some skepticism from the Moroccan banking customer to use these channels to communicate with their banks. According to the interviewees, it is due to the fact that the implementation of these technologies by the Moroccan banks is at its early stages of adoption. It has not reached maturity yet. Besides, many Moroccan banking customers have not yet get the full potential of social network sites as business channels and for this reason Moroccan banking institutions are deploying massive efforts to meet the expectations of the Moroccan customer.

3.2.2.2. The impact of Web 2.0 technologies on banking communication

The second subsection discusses the results obtained from data by the four respondents with respect to the impact of Web 2.0 technologies on banking communication.

Question 8: According to you, what are the benefits of Web 2.0 technologies?

According to the results obtained for this question, all the interviewees affirm that the potential of Web 2.0 is tremendous. The benefits mentioned by the four interviewees are summarized as follow:

- Break down the hierarchical and functional boundaries.
- Increase accuracy and speed of access to information.

- Increase effectiveness of marketing in terms of awareness, loyalty, consideration, etc.
- Facilitate interaction with and between customers
- Increase customers' satisfaction and restore confidence.
- Reduce marketing costs, and expenses.
- Facilitate the network transactions.
- Touch more customers differently.
- Save the customers' time.

Question 9: What has been the impact of these technologies on your company's competitiveness and communication?

To this question Mrs. Asmae replies:

The implementation of Web 2.0 in the Moroccan banking strategy is recent. So it is difficult at this stage to evaluate the real impact these technologies have on our competitiveness and communication. However, every day the number of Moroccan banking customers who conduct their banking transactions electronically is increasing; they rarely visit the branch (Interviewed on June 6th, 2019).

Mrs. Fatima points out:

...the impact is huge. We are using Web 2.0 tools as a low-cost channel to disseminate messages, host conversations, provide customer services, spot discontent customers, and increase the reach and the impact of traditional media efforts. In addition, we are taking advantage of the benefits that web 2.0 technologies offer by creating and developing services that meet the customer's expectations and needs (crowdsourcing). We cannot deny the potential of Web 2.0 channels. These have transformed users from passive consumers of information into active creators and users of word-of-mouth information (Interviewed on May 25th, 2019).

Mrs. Ahmed asserts:

Thanks to the implementation of Web 2.0, banks have gained great benefits, including better access to information, lower costs in conducting transactions, higher revenues and more effective marketing strategies (Interviewed on June 1st, 2019).

Mrs. Fatima adds:

If Web 2.0 technologies are properly deployed, they will certainly allow banking institutions to cost-effectively increase their productivity and their competitive advantage (Interviewed on May25th, 2019).

All the four interviewees assert that Web 2.0 technologies and social network sites, in particular, facilitate transparent and innovative ways in communication between the customers and their banks, and boost the brand good reputation.

Question 10: Are you satisfied with the use of these technologies? Why?

The results obtained from the following question are all positive. All the interviewees are very satisfied with the results generated by the implementation of these technologies.

Mr. Ahmed, a senior manager in ICT department in BCP bank, says:

...for the moment the gains are not evident. However, Mobile banking or Internet banking is expected to reduce cash circulation. It is also meant to boost transparency and true governance in business and finance...more than that, by implementing online banking, we are undoubtedly going to reduce crimes related to theft of cash and to simplify transit operations. (Interviewed on June1st, 2019).

Mr. Khalid, Attijariwafa bank Regional Group Director, states:

We are very satisfied. Two-Third of our urban customers are Internet banking adopters. They conduct their major financial transactions online, namely checking balance, send/ transfer money (Cash express), pay bills or taxes, track expenditures, purchase goods which are all done with a few mouse clicks(Interviewed on May20th, 2019).

Respondents described three activities as being primordial in making effective use of Web 2.0 technologies. Firstly, banks are now implementing Web 2.0 technologies- such as blogs, forums, and chats- on the bank's website. Secondly, respondents pointed out that the banks are scrutinizing what is posted about them on large social networking platforms; there are full-time employees whose role is to check and respond to postings on social networks. Thirdly, bank managers stressed on the

importance of being actively present on the most influential social network sites [Facebook, LinkedIn, Twitter, etc.]. These platforms give the possibility for banking institutions to create a “wall” through which their customers can post messages and interact with their banks and with other users about common issues, concerns and inquiries. Finally, the interviewees mentioned that social networking is increasingly evolving from “fun tool” platforms into a relevant financial networking instrument. Because the implementation of Web 2.0 tools is still at its infancy stage, Moroccan banks are increasingly using these platforms for the purpose of building trust and strengthening loyalty.

3.2.2.3. Factors Influencing Internet Banking Adoption

The third subsection presents and discusses the results obtained from respondents with regards to the factors that may hamper Internet banking adoption by Moroccan banking customers.

Question 11: According to you what are the main barriers to the integration of Web 2.0 technologies in the Moroccan banking system?

According to the results obtained for this question, the main barriers to the integration of Internet technology in banking communication and transaction mentioned by the four interviewees are summarized as follow:

- Some customers don't use Web 2.0 technologies at all; neither socially nor financially.
- Computer illiteracy.
- Poor or Lack of Internet connection.
- Some clients don't possess smartphones.
- Lack of customers' awareness of Internet banking and its benefits; many consumers are not aware of the existence of these technologies. There is a lack of knowledge about the services provided online.
- Some customers don't trust these new technologies in their financial services and transactions and prefer mortar-and-brick transactions.
- Some clients don't get the potential financial return from the use of Web 2.0 tools. They believe that it is useless and with no evident benefits.

- Some customers find these applications difficult and complex.
- Some clients resist change especially aged people.

All the negative factors mentioned above inhibit Internet banking adoption by Moroccan banking customers. However, the question below was added to find out the main barriers to the implementation of these technologies by the banks themselves.

Question 12: Are you facing any difficulties in implementing Web 2.0 technologies as a financial institution? How?

Mr. Khalid replies to this question:

Honestly speaking I don't think that the introduction of Web 2.0 technology in the banking strategy and communication has affected the organization in a negative way. On the contrary, it has promoted open, transparent, visible and accurate communication between employees and management. Now, we can use videos and webcast instead of texts which help in promoting better content. These tools have also helped in creating an effective collaborative communication and have improved productivity (Interviewed on May20th, 2019)

Mrs. Fatima reveals:

...there is a need for competent and specialized staff, those who are able to monitor consumers' conversations. These employees are going to be in charge of reviewing clients' conversations and dedicate time and effort to respond to them promptly and efficiently. Another important element concerns clients in the semi-urban and rural areas where internet is almost inexistent and computer illiteracy is dominant. We are making great efforts to cater to these customers in the near future(Interviewed on May25th, 2019)

Mr. Ahmed points out:

The adoption of Internet banking has become a necessity if we want to stay competitive and on the trend. We do our best to provide our customers with innovative approaches and diversified services so as to gain their trust and respond to their needs. Besides, the migration of customers to Internet banking results in considerable savings in operating costs. Customers are now able to make purchases, payments and transfers through their mobile devices. We are working with other players (the government, Telecommunication enterprises, etc.)so as to improve online infrastructure and increase internet connectivity (Interviewed on June1st, 2019).

For the interviewees, there is a great need for highly skilled technicians, system analysts, security specialists, software application developers, Web designers and database administrators to implement Web 2.0 technologies efficiently and accurately. There is also a need to well train the existing bank employees. The respondents consider that the use of Internet banking provides a wide range of financial services to the Moroccan customer in spite of the obstacles it encounters, like poor online infrastructure, slow internet connectivity, computer illiteracy and security issues.

3.2.3. Summary of the Qualitative Findings

The current subsection contains the results derived from the analysis of data obtained through the semi-structured interviews. From the qualitative findings, it has been discovered that the implementation of Web 2.0 technology in Moroccan banking communication is successful although it is at its first stages. The majority of Moroccan banks invest in these technologies; mainly Social Network Sites, Blogs, Podcasts, Wikis, and RSS feed, in a way to communicate and interact efficiently and promptly with their customers and stakeholders. Banking managers are encouraging negative as well as positive feedbacks which according to them are helping in building a more positive image of the bank. For these reasons, these technologies have become an essential part in the banks' Customer Relation Management Strategy (CRMS). They have been revealed to be stronger tools to build good e-reputation and branding. Through these channels, the bank can make the brand visible by inclusion on the web, improve customer experience and definitely enrich the customer knowledge. Thanks to the openness and the devolution of these technologies, flexible and innovative ways of communication are facilitated between banking institutions and customers.

Furthermore, the interviewees stressed the idea that web 2.0 technologies represent efficient tools to increase product awareness, to persuade current and potential customers to adopt the product/service and to remind users that the service exists.

Web 2.0 channels have become an increasingly vital element in the competitive landscape of the financial services industry and also a must if the banks want to meet the fast evolution of the digital market. They are cost-effective methods for

marketing activities to market their services, identify dissatisfied customers and expand their market share.

The impact of the implementation of Web 2.0 in the Moroccan banking institutions is great according to the interviewees. These tools have steered the banking system in a direction that is consistent with the demands and requirements of the Moroccan banking customer. A lot of Moroccan clients are adopting Internet banking for their financial transactions, such as bills payment, transfer funds between accounts, tax payment, shopping, online stock trading, etc. the service includes 24-hour access at any place.

However, some Moroccan customers are reluctant to take up Internet Banking services. They are not ready yet to change from the present familiar secure ways of brick-and-mortar banking to Internet banking, particularly for senior citizens who fear change and prefer personal, face-to-face interaction. More than that, during the interviews, the factors of accessibility and availability were mentioned as key factors that hinder IB adoption. The lack of access to computers or smartphones or even the internet slows down the adoption of IB.

For sure there are some obstacles to overcome but they are very optimistic about the future and ascertain that the convenience and accessibility of IB services will certainly boost the Moroccan banking customer to adopt IB services.

3.3. Summary

Chapter three presents the quantitative data findings of the questionnaire as well as the qualitative data results of the semi-structured interview. The main purpose of this chapter is to clarify how data was collected and analyzed. In this respect, this chapter is divided up into two broad sections. The first section deals with the findings of the questionnaire and the second one covers the findings of the semi-structured interviews.

The first section is divided up into three subsections: the first subsection deals with the demographic information about the respondents of the questionnaire. That is to say, it details background facts about the participants' gender, age, diploma, occupation, bank, and internet access. This subsection outlines the descriptive statistics calculated on the basis of the variables included in the demographic questionnaire. Descriptive statistics, in the form of frequencies and percentages, are subsequently presented in one table for each of the above-mentioned variables. It has been found that the information derived shows that the chosen sample presents variations at all levels.

The second subsection deals with the results of the second part of the questionnaire which contains closed questions (19 items) related to customers' perception towards the implementation of Web 2.0 technologies in the Moroccan banking system. The third subsection concerns the findings of the third part of the questionnaire that enquires about the factors that influence IB adoption in Morocco (18 items). The statistical Package for Social Sciences (SPSS) V.20 and the Statistical Package Analysis Moment of Structures (AMOS) V.24 are adopted in quantitative data analysis to measure user's intention and usage on Internet banking services. Structural Equation Modeling (SEM) approach is also adopted to analyze the structural relation between measured variables and latent variables through a vast variety of statistical procedures (factor analysis, multiple regression, path diagram, etc.).

The second section is about the findings of the semi-structured interview where four interviewees participated; two females occupy the position of a branch manager and two males; one is a senior manager in ICT department and the other one is a Regional Group director, from four Moroccan banks; Attijariwafa bank, BCP bank, BMCE bank and CIH bank. Their answers were analyzed based on the content of the four research questions. The qualitative findings are complementary to the quantitative ones. They will with no doubt bridge the knowledge gap and provide another dimension to the issue under investigation. The next chapter is devoted to the analysis and the interpretation of the collected data.

Chapter Four: Results Discussion, Interpretations, and Implications

The previous chapter focused on the presentation, description and justification of different data collection and analysis procedures. It was also concerned with the collected data with a substantial description and analysis of each of the measured variables. It has presented the results of the quantitative and qualitative data. While this chapter presents a critical discussion of the results of the study and suggests some major implications and conclusions that may hopefully enlighten stakeholders in the field.

The discussion of the results aims to provide a better understanding of customers' perception towards Web 2.0 technologies in the Moroccan banking communication and also the factors influencing the IB adoption among Moroccan banking customers through the use of both quantitative and qualitative analysis.

This study surveys mainly Moroccan banking customers and banks' senior managers with the objective of answering the research questions and determine the influential factors that motivate and/or deter Moroccan clients from adopting IB services. To this end, mixed methods approach is used to guide and enlighten the use of the triangulation strategy in the interpretation of the quantitative and qualitative findings. This new paragraph is also guided by the research questions and hypothesis articulated and presented in the literature review conducted and reported in the first chapter.

4.1. Discussion of the Results– Survey

4.1.1. The Moroccan banking customer's perception towards Web 2.0 technologies and their implementation in the Moroccan banking communication.

The present research study has revealed that most respondents who are currently adopting Internet banking services are at the age between 26 and 45 and the least are

over 55, which means that as the age increases, the number of people using internet banking services decreases. Since Internet banking is based on information and communication technology, individuals should have adequate competence and knowledge about the system to be able to use it. The net-savvy generations are well versed in using Web 2.0 applications; they feel perfectly comfortable with these tools. Consumers in the young age are significant users of new information technologies. These technologies have become a natural facet in their daily lives. Thus, they are more likely to invest time and money to embrace Internet banking because of its convenience. This goes well with the findings of Mattila's, 2001; Taylor and Todd, 1995a; Rosen and Weil, 1995; Morris and Venkatesh, 2000; Ford et al., 2001; Kennett et al., 1995. Their studies have found that older customers are less competent and less comfortable with a new technology which is thought to be impersonal and unable to provide personalized services. They appreciate and demand face-to-face banking services they are used to. They tend to be more conservative towards new things and have more difficulties in learning how to use new types of financial services and technologies compared to young customers. These customers need to interact with people rather than machines. Cruz et al., (2010) investigated 3585 respondents in Brazil and claimed that older people perceived mobile banking as more difficult to use than younger people did. Likewise, by collecting 666 respondents in Brazil, Puschel et al., (2010) observed that typical users of Internet banking were less than 30 years old.

In addition, education variable in our study has been found to have a statistically significant influence on online banking usage and the adoption of Web 2.0 technologies as banking communication channels. The association between Internet banking and the level of education was tested using chi-square test and it has proved that there is a strong relationship between them. The results show that the highest numbers of those who use Internet banking are highly-educated; they are Bachelor degree, Master degree or PhD holders. Consequently, well-educated people respond positively and quickly to Internet Banking as they possess the skills required to use advanced technologies. This means that the higher the level of education, the more the usage of IB applications. The higher levels of education, more and more people tend

to accept various forms of technology and easily adopt them in their everyday life. Moreover, these clients are used to having technology integrated into many aspects of their daily and professional lives, thus, banking is not an exception. Since these customers use technology for daily basis, and possess a good level of computer proficiency, they, undoubtedly, expect and demand that their banks use the latest technologies that respond to their needs and expectations. This result goes well with Daniel (1999), Jayawardhena and Foley (2000), Karjaluoto et al., (2002), Burke (2002), Mattila (2001), Sathye (1999) and Sakk-Thivel's (2006) findings which revealed that customers with higher educational attainments are more comfortable in using new technology. Besides, Perkin and Annan (2013) state that as individuals become more literate, especially in Information and Communication Technology (ICT), the more they are interested in accepting internet banking.

The present study has also revealed that occupation has a significant influence on IB adoption. The majority of the respondents who are using Internet banking services are civil servants and employees in the private sector. These consumers are with no doubt using frequently computers or the Internet in their jobs, so they have higher abilities to use technologies in general. These individuals are mostly computer literate. They possess a greater depth of technological knowledge or a higher level of finesse when using technology; therefore, they have a more positive attitude toward Internet banking. According to Polatoglu and Ekin (2001), and Howcroft et al.,(2002), demographic characteristics that describe electronic banking customers include young, affluent, and highly educated. A Finnish study (Mattila, 2003) revealed that customers who are generally wealthy, highly educated, and in higher positions accept technological changes quickly. Therefore, the demographic characteristics of Internet banking users tend to be young and highly educated. However, their research reveals that the users are mostly males. This result is not the case in this study. These studies indicated that females expressed more negative attitudes and greater level of anxiety towards computers than males (Nayak et al., 2006), less self-perceived competence and a lower ease of use with respect to the Internet (Wood et al., 2010) and greater risk aversion and less trust in the use of the Internet (Sanchez-Franco et al., 2009).

Nonetheless, the results in the present study show that females (37%) are using IB a little bit more than males (34%) which do not match with previous research. Females have a significantly more favorable attitude towards IB. The possible reason for the present study findings is that females have become more autonomous and, thus have acquired financial independence. They are now more receptive to IT than their male counterparts and perceive it to be more useful and easier to use. During the last century women have been offered equal opportunities in education, decision-making and employment. As their males' counterparts, females have a great deal of responsibility. They have a very heavy schedule in addition to their work restricted timing. Therefore, they need to rely on Internet banking which offers them more flexibility and convenience to conduct their financial transactions when they are busy.

The survey also found that most of the respondents (96.4%) had access to Internet and 91.4% confirmed using Web 2.0 technologies for their social interactions. Not surprisingly, 70.7% were already Internet banking users, leaving the remaining 29.3% respondents as non-adopters. 44.2% of them use Internet banking services for less than five times per week and 25.4% rarely use IB and only when notified with new operations. These results revealed that the respondents are aware of the benefits IB services offer and take full advantage of it. Customers can have access to their bank account any time of the day or night and get anything they need quickly. The most common task performed was checking account balance or recent transactions (91.7%), followed by online bill payment (58.7%), money transfer (47.7%), online purchasing (39.4%), applying for a loan (27.1%), and finally stock transactions (0.9%). However, the findings reveal that there are still some Moroccan banking customers (37%) who prefer to visit the brick-and-mortar branches for their banking transactions instead of using online banking services. These customers still favor cash and feel more comfortable with face-to-face interaction. Thus, the bank local branches remain an essential part of banks' operations and customer-advisory functions. Moroccan Brick and mortar banks are still Moroccans' first choice for getting help and assistance in person.

This study also showed that 65% of the respondents are using smartphones to communicate with their banks. Mobile devices have replaced PCs' main devices to access the Internet. With this technology, the opportunity to communicate and get in touch with the banks has been greatly facilitated and has become more and more efficient and instantaneous. Mobile devices such as cell phones, smartphones and tablets have evolved from desirable piece of consumer technology to an integral part of daily life for most people. These devices are not only for phone calls, emails, instant messages, shop for clothes, groceries and holidays, they are an essential gateway where users interact whether at home, at school, at work or on the move. They have become necessary business tools that have almost replaced the traditional mortar-and-brick branches. The applications downloaded on customers' smartphones allow them to conduct financial transactions remotely and at any time; hence, offering perpetual connectivity. There is an increasing prevalence of smartphone ownership among Moroccan customers. According to the literature, 75.7% of the total population has smartphones. As a consequence, clients expect a high degree of interactivity, continuity, and flexibility in the services they receive. They want to be connected 24 hours, 7 days a week as it has become extremely difficult to comply with the banking schedules which are often incompatible with the schedule of most customers. Moreover, through these technologies, users can save money, time, and energy. Visits to branches have tremendously declined in popularity. Banking transactions are mostly conducted through Internet and mobile devices because it allows customers to maintain better control over their finances and to have immediate and regular access to their bank accounts.

Interestingly, Web 2.0 social channels (Facebook, Twitter, YouTube, etc.) represent new communication platforms that provide better visibility for customers to voice their opinions and give their feedback concerning the services provided. It is also a great opportunity for banks to be closer to their clients and respond to their requirements. This new virtual interaction increases personalized relationships and creates a broader experience. However, many respondents air their unhappiness publically over Web 2.0 social channels. They use these platforms to complain which

seriously impact the company's reputation and revenues. SNSs are "the voice of the people". Most of the users rely on these sites to take their decisions about purchasing bank products and services. The findings reveal that SNSs are used by all different people belonging to different age categories. Both teens and adults are using SNSs which is in line with Brennan (2010) who states "Although Facebook initially appealed to the young, now the fastest growing demographic is those at least 35 years old, and the majority (more than two-third) of Facebook users are out of college" (p.8). Moreover, it has been noticed that women are more active on social networks than men. This result is mainly due to a number of reasons; women prefer to be updated on the latest news, to stay connected with "Friends", to have fun, to learn new things, and to promote oneself. Moreover, according to the qualitative findings, Web 2.0 applications offer a lot of advantages for banking institutions; they use them as marketing channels to market their products and services at a minimal cost, as effective communication channels through which they can share content quickly and in real-time, as channels for feedback and reactions and ultimately for financial transactional services.

Furthermore, data collected also show that some customers are not aware of the existence of this technology and its advantages. 40% of the respondents have revealed not having any idea whether their bank has an online presence or not. They are unaware of the existence of this technology and the advantages it offers.

4.1.2. Factors Affecting Internet Banking Adoption

This section seeks to analyze the factors underscoring the Moroccan banking customer that may explain the drivers and barriers to online banking services adoption in Morocco. In the present study, the factors influencing Internet banking adoption, including perceived usefulness, ease of use, attitude and perceived risk which were identified and tested in a lot of research, were tested in the context of Morocco. The Internet banking context was chosen as the significance of this class of information system is increasing and is gaining importance to the development of the Moroccan financial system and economics.

The research findings strongly support TAM theory as a powerful and parsimonious model to predict users' intention to adopt Internet banking services. TAM has already been tested with different samples and different situations proving to be valid and reliable. The study results are consistent with prior studies conducted by Davis et al., (1989); Venkatesh and Davis, 2000; Chen et al., (2003); Featherman and Pavlou, (2003), which reveal that an attitude towards using an information system is based on two primary antecedent variables namely perceived usefulness and perceived ease of use. Both perceived usefulness (PU) and perceived ease of use (PEOU) have significant direct effect on attitude (ATT). The present research findings have revealed that perceived usefulness and perceived ease of use have direct and indirect effect on intention to adopt IB services. Perceived usefulness directly affects usage intention whereas ease of use indirectly affects it through perceived usefulness and attitude towards intention. The results obtained supported the hypothesis that perceived usefulness (PU), perceived ease of use (PEOU) and attitude (ATT) have a positive effect on the intention (INT) to use Internet banking services. This is in line with the findings of Chen et al., (2003) and Venkatesh and Davis, (2000). Their findings support the fact that users could adopt IB services for its usefulness, convenience and ease of use. On the other hand, non-adopters of IB services perceived them as relatively complex and somehow useless.

The results of the structural Equation Modeling, based on TAM, indicate that usefulness perceived by the Moroccan customer in relation to the potential advantages of online banking services has the greatest influence on customer intention to adopt internet banking services. This finding refers to the fact that consumers use online banking for the benefits it provides in comparison to other banking delivery channels. This factor has been investigated in many previous studies related to new Information technologies acceptance. Similar findings were obtained by Chan and Lu (2004), and Pikkarainen et al., (2004), who investigated acceptance of internet banking in Finland and Hong Kong, respectively. Both studies concluded that perceived usefulness is more influential than perceived ease of use in explaining technology acceptance of internet banking which is the case of the current study. PU is revealed to be an

important factor in determining the adoption of IB among Moroccan banking customers. PU is related to the technology efficiency and effectiveness which means that the Moroccan banking customer's willingness to use IB depends upon their perception of its usefulness. As mentioned in the literature review, internet banking provides a lot of advantages for bank institutions and customers alike. It is useful for customers in terms of convenience and the availability of the services, 24hours a day 7 days a week, without the need for face-to-face interactions. It is useful for the bank as it reduces cost, strengthens bonds with customers, improves communication and increases revenues.

According to the results, some customers do not accept or use Internet banking services because of technological sophistication used in new technology. Some Moroccan banking customers (20.6%), in the survey, believe that IB services are complex to handle. They consider this technology very difficult to understand and it requires a lot of expertise and IT skills to perform a successful transaction. It is perceived as hard to grasp, and ambiguous to deal with. Studies related to Internet banking have found that the higher the level of technological complexity, the lower the consumers' perception of its ease of use (Davis et al., 1989; Ndubisi and Sinti, 2006; Gerard et al., 2006; Lu et al., 2003). Our findings show that PEOU is the second factor that helps in increasing the adoption of new technologies. It has a significant positive effect on attitude towards using Internet banking. The relationship between PEOU and ATT has been found in other studies (Davis et al., 1989; Pikkarainen et al., 2004; Koeing-Lewis et al., 2010). This is due to the fact that simplicity, accessibility and convenience enhance job efficiency and performance when using IT. That is the easier a given IT can be learned or used, the more useful it is considered. Wang et al., (2006) state that perceived ease of use depends mostly on the individual's expertise with more experienced users finding it easy to use. Previous studies have empirically demonstrated that ease of use has a positive correlation with the technology usage of the new information systems (Mathieson, 1991; Adams et al, 1992, Igbaria et al., 1997; Davis, 1989) and the adoption of Internet banking systems (Alsajjan & Dennis, 2010; Wang et al., 2003; Pikkarainen et al., 2004). Other TAM studies have revealed

that perceived ease of use has less impact on IT acceptance than usefulness. That is because perceived ease of use impinges on technology acceptance through perceived usefulness (Pikkarainen et al., 2004). This indirect effect can be explained by the fact that when customers perceive ease in using IB, it is more likely that they will develop a positive attitude towards using it and; thus, perceive it as useful. Consequently, it can be stated that our findings confirm previous research on Internet banking adoption, where it was stated that the easier the customers learn to use internet banking, the more its adoption would increase.

Moreover, the results indicated that PU is one of the most influential factors explaining the Intention to use Internet banking services. It is a major construct in the adoption and usage of IB services. The surveyed respondents believe that online banking brought about many advantages. It increases work efficiency and productivity and could result in personnel and professional benefits. These findings refer to the fact that consumers use Internet banking for the benefits it provides. Chan (2001) and Johnson et al., (1995) state that convenience is an important factor that boosts customers to adopt IB services. This finding is in line with other TAM studies (Celik, 2008; Gefen, Karahanna and Straub, 2003; Davis, 1989; Davis et al., 1989; Venkatesh and Davis, 2000; Taylor and Todd 1995; Erikson et al., 2005; Pikkarainen et al., 2004) which found that perceived ease of use has less impact on technology acceptance than perceived usefulness. This is because ease of use affects technology acceptance through perceived usefulness.

Most of the surveyed Moroccan banking customers have found Internet banking easier to put into practice and also helpful in reducing the lead time and effort that they need to invest in banking transactions. Through these tools, they can maintain better control over their finances and can have immediate and regular access to their account. They perceive IB as useful and beneficial; they can request for a checkbook or monthly e-statement, pay their bills, pay taxes, and transfer money. Hence, when customers perceive online banking useful, easy, simple, and interactive, their intention to use it would be greater and they would with no doubt embrace it.

In addition, the results indicated another significant direct relationship between attitude (ATT) and Intention to adopt Internet banking (INT). Attitude (ATT) exhibited a significant relationship with Intention towards using IB services which means that using IB is an excellent and wise idea. These findings are consistent with prior research. In the context of IB, a lot of research has reported a significant positive relationship between ATT and INT. For instance, Lee, (2009) found the INT to use online banking to be positively affected by ATT. Taylor and Todd (1995) research revealed that INT to adopt IB was greatly affected by ATT. Suh and Han (2003) found also that ATT towards using IB had a significant impact on INT to adopt IB services. In the context of m-banking services, Puschel et al., (2010) found a significant positive relationship between ATT and INT.

As far as PR variable is concerns, the results demonstrate that PR has no significant direct relationship with PU, Attitude and Adoption. Nevertheless, PR has been revealed to have significant negative influence on ATT and INT through the mediation of PEOU construct. PR has a significant negative impact on PEOU. That is to say, the higher the risk of using IB tools, the more complex the technology is perceived, and the willingness to its use. The ease of use of IB as an innovative service reduces the negative perception of the risky nature of the service. PEOU primarily reduces the negative effect of perceived risk on attitude and intention to adopt IB services. When Moroccan customers perceive IB services easy and simple to use then their perception of risk is reduced and it doesn't influence directly their ATT and INT to use IB. Nonetheless, these findings concerning PR are not consistent with prior research.

Despite the fact that there is an important rise in the number of IB services among Moroccan banking customers, security issues still persist. Prior research suggested that security is one of the most important issues which can cause the customer to be skeptical toward using Internet banking. About 51.1% of the respondents are not confident about the security aspect of Internet banking. They strongly believe that IB provides insecure transactions, and thus they need full guarantee and security of their transactions if they would take Internet banking. Sathye (1999) in Australia

discovered that security concerns and lack of awareness stand out to be the major obstacles to the adoption of Internet banking. He found that 73% avoid the adoption of online banking because they are concerned about the safety and security of transactions over the Internet. Lee (2003) research reveals that perceived security risk and financial risk adversely influence Intention to use Internet banking in Taiwan. Kaynak and Hancar (2005) observe that security concerns are the most important reasons given for not using online banking. Their results show that security issues, like phishing, information leakage, and fraud, are determining aspects of internet services. Cheng et al., (2006) research also shows that Perceived Web Security is a significant and direct determinant of customer's intention in Hong Kong. Cruz et al., (2010) study indicates that cost barrier and perceived risk are the highest rejection motives among Brazilians banking customers. Susanto et al., (2012) survey a large scale of prospective IB customers in Indonesia and find that perceived security is a major factor that influences customer's initial trust of IB. Brown et al., (2003) find that PR had a significant effect in influencing mobile banking adoption. Lu et al., (2011), study on trust transfer process and intention to use mobile payment services in China, indicates that PR negatively affects the acceptance of m-banking payment. Another study by Leo et al., (2010) who did a similar investigation where they collected 122 questionnaires from undergraduate students at an Eastern US university, the results of their study indicate that PR has a significant negative effect on behavioral intention of potential user's behavioral intention towards mobile banking services adoption. Furthermore, Featherman and Pavlou, 2003; Cheng et al., 2006; Sathye, 1999; Chen, 2008; Chen, 2013; Tan and Teo, 2000; Gerrard and Cunningham, 2003, research implied that Perceived Risk is a critical factor in adopting IT. Bank customers largely perceived risk as a major impediment to the adoption of IB services due to security threats it poses to their financial and confidential information. Nonetheless, this appeared not to be the case for the current study. The results of the quantitative research supported by the qualitative research have revealed that the effects of PR on the Moroccan banking customer attitude and intention are not of vital importance when considering IB services. PR has no significant direct effect on ATT and INT but rather mediated through perceived ease of use which implies that security

concerns will not deter customers from adopting IB services if they are perceived easy to use.

This section has dealt with the results obtained from the questionnaire while the following section is devoted to the analysis of the findings derived from the semi-structured interviews.

4.2. Discussion & Interpretation - Semi-Structured Interviews

Our interviews with the four managers representing four major banking institutions in Morocco; Attijariwafa Bank, BCP Bank, BMCE Bank and CIH Bank, has three objectives: First, to gain more fine-gained insights into how Web 2.0 applications are adopted for establishing IB and confirm the relevance of the implementation of Web 2.0 technologies within the banking marketing strategy. Second, to evaluate the impact of Web 2.0 tools on the Moroccan banking communication. Third, to shed light on the possible factors that hamper Internet banking adoption.

4.2.1. Web 2.0 Technologies Integration in the Moroccan Banking Communication

In recent years, most Moroccan banks have started adopting Internet banking as an additional channel to reach and interact with clients. They consider that Web 2.0 channels are essential if they want to strengthen their brand image and to stay competitive. These tools are also valuable in the sense that they help in building real customer relationships based on transparency, loyalty, and trust. Besides, Web 2.0 is mostly deployed to fill the gap in communication and engagement and to maximize the bank reach in the offline and online segments. As stated by Hicks and Grabber (2010), Web 2.0 tools allow banks to participate in the information digital cloud through five main characteristics: collaboration, creativity, community, and control. Moroccan banking institutions are using Web 2.0 applications to establish an accurate and effective collaboration with their employees and stakeholders. Thanks to Web 2.0 multiplicity of tools, Moroccan banks are now able to set the ground for creativity and socialization. Furthermore, a new virtual community is being created for an effective

interaction where information is disseminated and new opportunities are offered to view customer's feedback on the brand and its services which are in line with Poon (2007) who found that Web 2.0 channels enable banks to ameliorate their performances, respond to customers' expectations, and improve customer services.

All four managers confirmed the implementation of Web 2.0 technologies in their marketing strategy. Moroccan banks have recently started to integrate Web 2.0 technologies with a view to improving communication within and outside their institutions. The four managers reveal that they are aware of Web 2.0 advantages in terms of fast accessibility, ease of use, rich user experience and above all cost saving. Web 2.0 social platforms have become part of a huge dissemination and marketing platforms for banking institutions. They have the potential to achieve the bank objectives in reaching a huge market segment as well as driving down the costly methods of communication. They have also proved to offer effective ways to increase the impact and reach of traditional media efforts and decrease the time to market for services.

Furthermore, the qualitative findings revealed that Moroccan banks are active on social platforms. Most banks are using Facebook, Twitter, LinkedIn, etc. platforms not just to brand themselves but also to improve visibility, to promote services, to analyze customer needs, and to offer immediate banking and money transfer facilities. These banks are creating and sustaining their social network pages to enhance their social network distinction and build up strong connections with online users, especially young people from generation Y who are accustomed to meet and converse on Facebook, MySpace, Flickr, and other similar Social Network channels. This result is consistent with Gunawardena et al., (2009) who stated that Web 2.0 technologies have been created and developed as interactive social tools that facilitate interaction, communication, and collaboration between users. According to the findings, the common Web 2.0 platforms for the banking industry are Facebook, Twitter, and LinkedIn. These platforms allow banks to create an online communication channel, through which they can interact, share knowledge as well as engage in conversations with their customers and respond promptly to their inquiries. During the interviews,

the four managers reflected on the idea that Web 2.0 social channels can greatly affect their reputation and their brand. Customers are now using Web 2.0 tools to discuss the services provided by their mutual banks. As a result, Web 2.0 tools permit bank managers to know in real-time what people think about the services offered and give them the possibility to find a solution to the problem, which according to the interviewees will certainly increase functionality and improve efficiency.

Managers were asked to identify the most relevant Web 2.0 technologies used by their respective banks. All have confirmed that they are using Blogs, SNSs, RSS feeds and forums on the bank official website. Blogs and Forums are used to create public awareness about the new services and to provide updated financial information. They also offer great opportunities for sharing information among customers as well as an effective marketing channel through which they inform customers about the launch of a new service. Blogs and forums help in developing and strengthening bank-customer relationship.

Banks have also embraced SNSs (Facebook, Twitter, LinkedIn, etc.) as permanent communicative channels fully integrated into their Customer Relationship Management systems so as to move from a product-focused strategy to a customer-focused one. Once again all the four interviewed managers had the same view in relation to the importance of social network sites in developing brand awareness and enhancing effective communication. They highlighted that social networking sites are increasingly developing from a “fun tool” into a business networking instrument. As a result, they are actively present on social media since these social channels offer faster and easier flow of information. They are using social channels as a way to better understand the specific wants and needs of their clients. Through these channels they are able to get a sense for what additional product offerings consumers are interested in and draft changes to existing policies based on what customers are unhappy about. Banking institutions want to create a value for customers, understand their needs, and offer them a unique experience. In addition, the interviewees all agreed that Web 2.0 social channels reduce cost and enhance reach. They confirmed that the cost of SNSs is lower compared to traditional marketing platforms such as TV, radio, print media,

billboards, etc. Besides, SNS has provided banks with a method to enhance their reach and communicate with a large number of customers who may not be accessible through traditional streams.

Furthermore, Moroccan banks are deploying great efforts to satisfy the customer needs and, thus, respond promptly and effectively to their enquiries by offering value-added services. Through these social platforms, they are able to build upon the community-minded philosophy, and transmit information quickly. Social networks have become a medium at which information is gathered and shared at a high level. More than that, social channels allow banks to monitor rumors that may affect the good name of the brand. People usually turn to social media to air their frustration and discontentment to billions via SNSs. Evans (2010) mentioned that the social Web exposes *the good*, the *bad* and *the ugly* without any consideration to a specific group and this is exactly what the Moroccan banks are trying to monitor. Customers write whether the recommended service meets their expectations or not. When users like or dislike a product or service, they usually start to influence their “friends” on social media to use it or to deter them from using it, and these “friends” will influence their “friends”, and so on. The information spreads like wildfire through an electronic word-of-mouth effect, and a large number of users of these platforms will adopt or reject the service based on their friends’ feedback and experience. Besides, a lot of people rely on first-hand experiences of their network of friends and relatives rather than advice given by professionals. So for the bank, it is an opportunity to reach out to dissatisfied customers and solve the problem. Furthermore, banks also rely on evangelism marketing which is a type of word-of-mouth marketing where satisfied customers become voluntary advocates, actively spreading the word on behalf of the brand for a huge number of people to see. These customers talk about the brand, stay involved and share the brand post. The banks encourage these customers to express their satisfaction on social media so as to convince their social network to adopt or use the service. The respondents stated that they are encouraging positive as well as negative feedback so as to increase interactions and be able to respond to customers promptly. SNSs have become crucial tools to stay in touch with a vast audience in an

effective and efficient way. In this respect, Nadkarni, (2013) pointed out that banks can be both *proactive* and *reactive* through Web 2.0 social channels. They can without any difficulty illustrate their engagement to grant the best user experience to maintain existing and attract potential customers.

Moreover, YouTube is also deployed by bank institutions to convey messages to a wider audience and at a fraction of the cost of airing the same message using conventional advertising media channels. It was revealed from the qualitative research that bank embraced YouTube to strengthen their bond with customers and remain relevant in the market. However, the interactive presence on Web 2.0 technologies requires high commitment and significant time investment from the banks. They need qualified employees to monitor these networks, respond appropriately to comments, answer questions, and post updated information about new services which is according to the interviewees not easy at this stage of Web 2.0 implementation.

Moroccan banks have rapidly embraced Web 2.0 tools not only to meet the customers' needs and expectations but also for the benefits that these tools offer to banks themselves and to the customer. They offer a large range of services through their websites ranging from bill payment to making investments. Their services have moved from the informational and communicational level to the transactional one. So far the Moroccan banks have developed mobile banking applications in order to provide their customers with the ability to check their bank account balances in real-time, pay their bills online, transfer money, pay taxes, purchase online, and many other services. The banks ensure that these applications are highly secure.

In terms of the Moroccan banking customer perception towards online banking, there was remarkable commonalities across participants' responses. They have revealed that most Moroccan banking customers prefer Online banking over brick-and-mortar traditional banking services thanks to its convenience, usefulness, and cost-effectiveness. It is true that the emergence of new Web 2.0 technologies and the rise of social network sites have opened up new perspectives in terms of convenience and efficiency, but they have also brought some challenges for the banking institutions.

They have acknowledged that as a developing country, online banking has not yet gained maturity, and some of the Moroccan customers are not confident to adopt these technologies because of uncertainty, lack of adequate skills to handle these channels, lack of internet connection and low bandwidth capacity as well as security issues that are hovering the internet.

4.2.2. The Impact of Web 2.0 Technologies on Banking Communication

Managers ascertained that the impact of Web 2.0 technologies on banking communication is tremendous. The results revealed that Web 2.0 applications are the key to business communication excellence. They all opined that Web 2.0 channels have broken down the hierarchical and functional boundaries where communication has become flatter, more open, and more efficient and information has become more accurate and faster. The research results demonstrate that the biggest advantage of Web 2.0 technologies is the level of online accessibility. They have transformed the classical banks into interactive ones that are easily accessible. Customers can check their balance whenever they want, can set up online bill payment, apply for loans and mortgages and handle transfer between accounts. In other words, customers are offered the same services in more convenience regardless of the mortar-and-brick branch and the contact channel used from the comfort of their own home or work place.

These technologies have also increased marketing effectiveness in terms of brand awareness, loyalty, and trust. Through the Internet, banks are able to reinforce the brand image in the mind of their customers and have facilitated interaction between the bank and the customers, and therefore, have increased customer's satisfaction and strengthen loyalty.

Moreover, the findings show that cost effectiveness is another driving force for adopting Internet banking. This later provides cost savings for banks to conduct standardized and low value-added transactions. It has also reduced the cost of advertising and handling fees as well as the operating costs which have significantly increased the profit margins. As a result, banks are able to reduce cost, facilitate

transactions and touch more customers. This finding is also supported by Paridon and Carraher (2009) who found that Web 2.0 social channels are cost-effective method for marketing activities. It is used by businesses initially to market products and services at a minimal cost then it has become a great way to maintain long-term relationships with potential and current customers.

Thanks to Web 2.0 technologies, banking institutions have gained great benefits including higher revenues and effective marketing strategies. These technologies have facilitated transparent and innovative ways in communication between the customer and the bank. Banks have moved from the informational and communicative level to the transactional one. Banks today offer a variety of online services with more convenience for accessing information and making financial transactions overseas. The Moroccan client can schedule regular payments such as rent, salaries and other fixed payments, check account, transfer money between accounts, make purchases and pay bills and lately a new service has been provided by the Moroccan banks is tax payment. Hence, Internet Banking offers unique advantages in terms of accessibility, convenience, privacy, and security.

4.2.3. Factors Influencing IB Adoption by Moroccan Banking Customers

All four managers pointed out that Web 2.0 technologies offer a plethora of advantages if they are well implemented. The qualitative findings have revealed that banks have benefited from the implementation of Web 2.0 applications in many ways. There is a better access to information, lower transactional costs, higher revenues and more efficient marketing strategies. Nonetheless, they all acknowledged that they are at their early stages of their Web 2.0 application. They are still learning what these technologies can and cannot do in the Moroccan context, yet, they are highly motivated to understand their full potential. Besides, they stated that they need to devote time and financial resources to upgrade the technology and to hire talented trained professionals.

Furthermore, the managers interviewed confirmed that day by day customers using Internet banking is on the rise; however, not all Moroccan banking customers are

willing to adopt Internet banking which, according to them, is due to the following reasons:

First of all, computer illiteracy is one of the most inhibiting factors to IB adoption. Some Moroccan banking clients do not possess the basic and technical knowledge about computers and how to manipulate them, therefore, these services are perceived as complex and difficult to handle. Second, the absence of Internet connection and mobile phones are also one of the reasons that inhibit IB usage. Not all Moroccan banking customers are connected to Internet neither possess a computer. Third, lack of customers' awareness and knowledge of the existence of these technologies /services and their benefits. Many customers have no idea about the services that banks offer online. Besides, these customers do not get the potential of financial return from the use of these tools. They consider them useless and with no evident benefit and prefer the familiar secure brick-and-mortar banking. Last but not least, security concerns have been revealed to be one of the most significant factors that impede IB usage. It is a major issue for online banking and their customers. Some Moroccan customers are reluctant to conduct financial transactions over the Internet; they are afraid of losing their money due to fraud, hacking, or phishing.

4.3. Conclusions and Implications

4.3.1. Theoretical Contributions

Through the last years, Morocco has undergone unprecedented structural reforms in the banking sector with a view to forming the basis of a strong and sustainable economic development. These reforms have contributed to the reinforcement of overall macro-economic stability, the amelioration of business environment, and trade openness, along with the liberation of the main productive sectors namely agriculture and industry that generate income and create job opportunities. These reforms have brought the Moroccan banking institutions in line with international standards. They were deemed necessary as new lifestyles and communication channels, as well as new contact and payment channels have emerged and have impacted the financial institutions. The changes in behaviors have incited them to achieve excellence in terms of service quality.

It is clear that progress made by Morocco in the modernization and the development of its financial system is outstanding. Morocco banking sector is the most highly developed in North Africa in terms of penetration indicators and is also among the most advanced in the wider MENA region (Oxford Business Group, The Report Morocco:2018). Furthermore, the implementation of Web 2.0 technologies in the banking marketing strategy and communication is considered as another fundamental step in the Moroccan banking development. These technologies, if well-implemented, would certainly provide a lot of benefits for the bank as well as the customer.

From a theoretical standpoint, the results obtained provide important insights to the existing literature in a number of ways. The research findings have revealed that almost all Moroccan banking institutions have introduced Web 2.0 technologies in their marketing strategy such as social networking sites (Facebook, LinkedIn), Micro-blogging (Twitter), online videos and photo sharing (YouTube and Flickr), and RSS feeds to enhance Internet banking services. These tools provide innovative products and services to engage with current and prospective customers, build loyalty, enhance

revenues by driving down the costly methods of communication and transactions and most importantly stay competitive.

Furthermore, the research results reveal that the most popular social media used by Moroccan banks for communicating with their clients are Facebook, Twitter, YouTube and LinkedIn. These platforms are intensively used as they afford more space where banks can post images, messages, videos, and information. Through these social channels, information is spread quickly and easily among a huge auditory of users and potential customers. They are also used to reach customers that may not be accessible through mortar-and-brick branches especially the digital natives. These channels have become a medium through which information is collected and shared at high scales.

The research results also make a useful contribution to internet banking literature on the factors that seem to affect internet banking acceptance as well as Web 2.0 perception as effective tools in the Moroccan banking communication. The findings show that most Moroccan banking customers possess the required knowledge and skills to use Web 2.0 tools. They are aware of the benefits that these technologies offer. The analysis of data demonstrates that these applications are highly useful and convenient which is consistent with many prior studies.

Another finding reveals that the gender variable does not influence users' perception of Web 2.0 technologies. Nayak et al., 2006, Sanchez-Franco et al., 2009, and Wood et al., 2010 studies indicate that females express more negative attitudes and a greater level of anxiety towards computers than males, less self-perceived competence and a lower ease of use with respect to the Internet and greater risk aversion and less trust in the use of the Internet. However, females in the present study use Web 2.0 technologies and Internet banking more than men. The possible reason for this finding is that females have become more autonomous and, thus, have acquired financial independence. They are now offered equal opportunities in education, decision-making and employment. Like their male counterparts, females have a great deal of responsibility. They have a very heavy schedule in addition to their work restricted

timing. As a result, they need to rely on Internet banking which offers them more flexibility and convenience to conduct their financial transactions.

However, younger customers are more likely to adopt these technologies. They are well versed in using Web 2.0 applications. In addition to this, customers with higher educational attainments and who use Information and Communication Technologies (ICT) at work have a more positive attitude towards Web 2.0 tools and show more willingness to adopt them.

Another relevant conclusion of this study is that a theoretical model is developed. The model can be used to explain and predict consumers' intention to adopt online banking within the Moroccan financial system. It helps understand the factors that lead to Internet banking adoption which is relatively a new delivery channel in Morocco. It also builds a new valid measurement to predict and explain consumer's acceptance of new technologies. Consequently, this study expands knowledge in the area of Internet banking adoption and usage in Morocco.

The research finding reveals that Internet banking offers many benefits to both the customer and the bank. For customers, there is no time and no geographical limitations; customers can conduct their financial transactions whenever and wherever they want. There is also a better time organization where the time lead is reduced. There is also effortless accessibility for disabled or sick people. On top of that, the costs of transactions are lower in comparison with the traditional stream. For banks, Internet banking is recognized as a tool that can significantly reduce their overhead costs as well as day-to-day expenses related to monthly payments posting, statements, brochures, phone calls, etc. Through Web 2.0 social channel, financial institutions can create brand awareness, enhance reach, and dodge fees.

Furthermore, the findings of the present study are of great importance to future researchers, professionals, and academics since it provides a broad understanding of the user's perceptions of Web 2.0 technologies, their implementation in the Moroccan banking communication, and their effective role for managing knowledge. The study presents a theoretical model based on the Technology Acceptance Model (TAM) and

Perceive Risk Theory (PR). The model helps understand the reasons why Moroccan banking users accept or reject Internet banking services.

It has been found that perceived usefulness and ease of use are the major factors that boost the intention to adopt Internet Banking services among Moroccan clients. Perceived usefulness is an important determinant indicator between perceived ease of use and attitude toward using internet banking in Morocco. Perceived ease of use directly and positively influences perceived usefulness, because the easier a technology is, the more useful it is perceived. These results are consistent with prior studies conducted by Davis et al., 1989; Venkatesh and Davis, 2000; Chen et al., 2003; Pikkarainen et al., 2004; and Koeing-Lewis et al., 2010. When customers do not have difficulties using internet banking services, they perceive the usefulness of the services and then they will likely use it. Perceived ease of use of Internet banking services encourages clients to adopt these services and make these technologies more useful for them. Therefore, perceived usefulness and perceived ease of use show a strong influence on the user's attitudes toward adopting Internet banking services. Moroccan customers are looking for a bank website that is more interactive, friendlier, easy to understand, and most essentially should contain all the needed information simply and conveniently. Many customers in the survey think that Internet banking services are easy to work with, which enhances the technology perception of being more useful since they can save time and effort. Through these channels, clients can conduct their financial operations in the comfort of their own space and in a time of their choosing.

However, the findings show that security issues have a significant influence on the acceptance of Internet banking through ease of use perception which is not in line with Prior studies have found that perceived risk is a key factor that inhibits consumers' acceptance of internet banking services because clients are afraid of intrusion, fraud, and identity theft (Sathye, 1999; Tan and Teo, 2000; Lee, 2003; Featherman and Pavlou, 2003; Gerrard and Cunningham, 2003; Cheng et al., 2006; Chen, 2008; Chen, 2013). Nonetheless, the present study has revealed that perceived risk has no significant negative effect on usefulness, attitude, and intention. Perceived risk has

been revealed to have a significant negative impact on ease of use. This relationship was not predicted in the research model. The result demonstrates that the higher the risk of using Internet Banking services, the more complex the technology is perceived. That is to say, the ease of use and accessibility of online banking services reduce the individuals' perception of risk.

The implementation of Web 2.0 technologies and the Internet banking adoption model for Moroccan banks to communicate with the public meet the research objectives and answer the research questions as well as provide a particular contribution to theory. The results fill a gap in research associated with the adoption of Web 2.0 channels as a novel communication method and present a deep understanding of the factors that influence users to adopt internet banking services. Importantly, the research outcome has many implications for banking managers who are trying to strengthen their Internet banking customer base. It also adds significance to the academic discussion around banking social communication and the technological aspects that govern the implementation of Web 2.0 as an effective communication medium.

The present study is of high importance since the Moroccan banking system is among the largest in the region. It would enable banks to predict the acceptance of Internet banking by their customers and evaluate the factors that influence them to use Internet banking. This study would contribute to providing better insights for bank management and marketing professionals to understand the individual predictors of Internet banking. Moreover, the findings culled from this research would give input for the Moroccan banking industry with regards to the reasons that deter current and potential customers to use Internet banking and help bank managers to carry out elaborated marketing campaigns and customize service options to meet the needs of specific customer segmentation as well as implementing flawless security procedures.

Numerous Internet banking advantages were revealed through research in terms of convenience, the accuracy of transactions, and reduced transaction cost; nonetheless, the adoption of these technologies are not widely used. A large number of Moroccan banking customers are still skeptical to adopt such services due to security breaches that threaten their financial and confidential information, lack of awareness of

the existence of this service and the benefits it offers, and the complexity of Internet banking among others. The research has revealed that the more the users' aversion to risk and privacy concerns are lowered and ease of use is higher, the more they are likely to adopt Web 2.0 tools.

Moroccan internet banking development has been slower compared to developed countries whose Internet bank systems are rapidly developing and whose telecommunication infrastructure is so dynamic and competitive. Therefore, both banking marketers and consumer educators still need to make efforts to understand the factors that lead to Internet Banking adoption among the Moroccan customer.

Overall, the topic of Internet banking adoption would constitute an important research area in the years to come. Furthermore, the findings of this study are meant to constitute another contribution to the literature on the Moroccan Internet banking services.

4.3.2. Managerial Implications

From a managerial standpoint, the current study presents an opportunity to investigate the responses of users to Internet banking and to evaluate customers' perception toward Internet banking which will enable them to increase customers' satisfaction and build up loyalty.

First of all, the government and banks have to develop methods that can increase bank customers' knowledge and skills about computers and Internet banking. Bank managers can make use of the current research results to develop appropriate strategies to attract new customers to use IB services. That is to say if banks have greater knowledge about the drivers and inhibitors that influence customers' adoption of IB, then they will have greater ability to develop adequate strategies to increase banking adoption rate among Moroccan clients.

Secondly, banks need to enhance awareness of the existence of the IB services by informing the Moroccan customer about IB features and benefits through different marketing and advertising strategies. To access more potential users, information about IB should be provided by the bank tellers and the bank employees at the local

branches. The information should focus on the benefits that these services offer in terms of time-saving, usefulness, ease of use, convenience at any time anywhere, and costs effectiveness. Since Web 2.0 social channels are considered as the fastest-growing segment in the sector of marketing services, banks need to create and advance digital relationship by way of social media because of its word-of-mouth marketing features as well as being more dedicated towards conversations through Social Network Sites. They have to allocate more time and effort to respond to customers' inquiries and react to their concerns promptly to gain loyalty and credibility and most importantly to be able to avoid the negative e-reputation that may be disastrous for them.

Another important managerial implication of the research findings is that retail banks should address the needs of younger, more web-savvy customers by way of creating new services and products characterized by higher simplicity and visibility as well as using the power of social network platforms to enhance their marketing strategy.

Finally, Moroccan banking institutions need to invest in factors that boost IB usage and reduce negative factors that hamper IB so as to expand their services to wider users. Moroccan banking institutions are recommended to assure their customers that IB is trustworthy, reliable, and legible. They need to guarantee the security of the accounts and privacy of personal information. They also should disseminate information on the use of IB usefulness and ease of use and, thus, make some advertisement campaigns to increase online trust, decrease the risk of user-related information leaks, and provide sound security mechanisms. In fact, the adoption of Web 2.0 applications and social channels will undoubtedly reduce the use of traditional streams, provide better access to information, more effective marketing, and more innovative services at lower costs.

It is necessary that banks create strong favorable beliefs about using internet banking such as ease of use, usefulness, and security. Banks need to provide awareness about the technology-based services and their benefits as well as reducing perceived risk concerns. Security issues were observed to be critical impediments to the adoption of Internet banking services in Morocco which implies that banking institutions ought to

provide security mechanisms and decrease the risk of user-related information leaks that lead to fraud and hacking. Reducing perceived risk of using IB through communication, satisfaction, and trust in the bank will encourage people to use IB. Furthermore, there is a dire need for banks to educate their customers that IB is trustworthy and their bank accounts details and personal information are kept confidential and private so that consumers will be prone to use IB services. Therefore, banks have to work hard to protect their customers from internet fraud and provide Internet security to their customers so as to ensure a high adoption from the Moroccan customer.

4.3.3. Future Research Directions

This study has been conducted in Morocco and concerns Moroccan banking customers with a view to investigating the perception and the impact of Web 2.0 technologies on bank-customers' communication as well as the factors (TAM and PR) that influence customer's adoption of Internet banking. There are further research opportunities that could be developed from this study.

First of all, the respondents in the current research belong mostly to the urban areas of Morocco. Further research should include people living in rural areas who face some difficulties concerning access to the Internet and/or poor quality of Internet connection. Sathye (1999) used Internet access as one of the factors that affect IB adoption. He found that without a proper Internet connection, the use of IB is not possible at all. Besides, the lack of awareness and familiarity with Web 2.0 technologies are also considered as important concerns in developing countries as they may impede Internet banking usage. Hence, future studies might cover the rural sector to provide a complete picture of online banking adoption in Morocco.

Secondly, the model adopted was cross-sectional. It measures perceptions and Intentions at a single point in time; thus, perceptions may change over time as individuals develop their personality, gain new experiences and adopt new attitudes (Venkatesh et al., 2003). This change has implications for researchers and

practitioners who are interested in predicting online banking usage over a certain period of time and may credit a longitudinal study.

Finally, future research is needed with more diversified models that can identify other relevant variables that may explain Internet banking adoption in the Moroccan context. The variables adopted were perceived usefulness (PU), perceived ease of use (PEOU), perceived risk (PR) and attitude (ATT); nonetheless, there may be other factors that can influence customer adoption of IB services that were not examined in this study. Future research may include more variables such as cultural norms and social influence to provide better results. These variables were found to be important during the investigation because cultural differences have played a crucial role in influencing individuals with respect to how they respond to new technology acceptance. Raman and Wei (1992) have shown that culture influences the acceptance and use of information systems because culture shapes individual beliefs, attitudes, and behaviors. There is a need to understand and analyze the impact of culture and awareness on Internet banking adoption which could prove as a link between culture and Internet banking adoption, especially when an important number of the Moroccan population still deals with cash. Moreover, the importance of social influence on technology acceptance has been widely acknowledged. A lot of studies have emphasized on subjective norm variable to understand the impact of social influence on users' behavior and how it influences user's intention to adopt the technology. Venkatesh and Davis (2000) have found that subjective norms positively influence users' image and enhance their social status within the group.

To sum up, this section has dealt with the discussion of the results obtained from the quantitative and qualitative data. It has also presented some implications and the findings that have been drawn from this study. Moreover, this chapter has dealt with the analysis and the interpretation of data collected on Web 2.0 technologies implementation in the Moroccan banking communication and the factors that influence Internet banking adoption among Moroccan banking customers. The next concluding section summarizes the whole study and draws some conclusions and results. It also presents some of the study limitations.

Conclusion

5.1. Synthesis

During the past years, Web 2.0 technologies have been offering many web-based applications as a new way of retaining, exchanging, and maximizing the spread of information. Today users are active participants in the creation of knowledge where time has been compressed and geographical barriers have become obsolete. Thanks to Web 2.0 tools, communication has become instant and more dynamic. These technologies have significantly affected the process implemented by banks where customers can connect quickly and easily to their bank services whenever they want. Nonetheless, despite their claimed benefits, Moroccan customers still show some reluctance to adopt them mainly due to risk concerns and complexity.

In this context, the present study has been concerned with the implications of Web 2.0 technologies on the Moroccan banking communication and the factors influencing Internet banking adoption. The study has also developed a theoretical model based on Technology Acceptance Model and Perceive Risk theory to explain the customers' intention to use Internet banking in Morocco.

The objective of this study is to address the following research questions:

1. To what extent are Moroccan banking customers aware of and familiar with Web 2.0 technologies?
2. What good are Web 2.0 technologies to banking institutions?
3. To what extent does Web 2.0 technology adoption lead to effective communication, and which Web 2.0 technologies do Moroccan customers use the most?
4. What problems might Web 2.0 technologies solve?
5. What is the impact of Web 2.0 technology on bank communication?

6. What are the factors that influence Moroccan banking customers to get involved in Web 2.0 technologies as a medium to communicate with their banks?
7. What are the key motivators and inhibitors for consumers' acceptance of Internet banking?

To set the ground for this investigation, the first chapter has dealt with the review of the literature. It has provided insights on Web 2.0 technologies, a general overview of the Moroccan banking system as well as the historical evolution of the Moroccan banking industry. It has also discussed the theoretical models used in information systems and has focused on the Technology Acceptance Model (TAM) and Perceived Risk (PR) theory as the model developed in this research study was based on these theories. Chapter two described the methodology used in this study. It was designed in such a way that it allowed collecting data to achieve the research objectives. It has described the procedures of data collection, and the appropriate statistical analysis methods used for data analysis. The reliability of the model was verified and supported the validity of the TAM and perceived risk instrument for evaluating Internet banking acceptance. Chapter three has been concerned with data analysis and interpretation. The chapter has also presented the results of the testing hypothesis. Chapter four has discussed the findings derived from the mixed methods approach to research and their implications.

In this context, to achieve the objectives of this study, data was collected through a survey and semi-structured interviews. The information collected through the questionnaire helped investigate banking customers' awareness and familiarity with Web 2.0 technologies as well as the factors influencing Internet banking adoption in Morocco. While the information collected through semi-structured interviews has helped investigate the integration of Web 2.0 technologies and their impact on banking communication. The use of a mixed-methods approach (qualitative and quantitative methods) for data collection is meant to converge the research findings, enhance credibility, and provide a fuller understanding of the research problem. For the data analysis, this research has used SPSS V.20 and AMOS V. 24 for descriptive

and inferential statistics. In this context, the results obtained are briefly summed up below.

With respect to the first research question, the results obtained revealed that the majority of Moroccan banking customers are aware of and familiar with Web 2.0 technologies. Almost all the respondents are conscious of the existence of most Web 2.0 applications and the great potential they offer. They rely on these tools (blogs, social networks, wikis, RSS, virtual worlds, etc.) to fulfill their communication, entertainment, social needs, or financial transactions. These tools and channels are already integrated into their everyday life. Furthermore, another finding revealed that females use Web 2.0 technologies and Internet banking more than men. The possible reason for this finding is that females have become more autonomous. They are now offered equal opportunities in education, decision-making, and employment. As their male counterparts, females have a great deal of responsibility. As a result, they need to rely on Internet banking which offers them more flexibility and convenience to conduct their financial transactions. In addition, the education variable in our study has been found to have a statistically significant influence on online banking usage and the adoption of Web 2.0 technologies as banking communication channels. This means that customers with higher educational attainments are more comfortable in using new technology. Moreover, the present study has also revealed that occupation has a significant influence on Internet banking adoption. These consumers are with no doubt using frequently computers or the Internet in their jobs, so they have higher abilities to use technologies in general. These individuals are mostly computer literate. They possess a greater depth of technological knowledge or a higher level of finesse in using technology.

For the second research question, it has been proved that Web 2.0 technologies possess the ability to lift banking services and offerings to great levels. Through Web 2.0 social channels, banks can create brand awareness, drive down the costly method of communication, increase efficiency, strengthen the relationship with customers, and most importantly enhance reach.

Concerning the third research question, Web 2.0 implementation in the Moroccan banking communication strategy has boosted transparency and true governance. It has been demonstrated that these technologies offer opportunities for better accessibility and management of corporate knowledge as well as a great opportunity to drive innovation so as to meet the customer's needs and expectations. Moreover, the spreading of information and the development of shared knowledge between all the organization stakeholders have been tremendously impacted by Web 2.0 technologies. However, there is a need for skillful professionals to edit what is posted to ensure that what is uploaded is accurate and well organized. Moreover, Social Network Sites and Blogs have been found to be the most used applications by customers and banks alike. They allow banks more space where to post their messages, videos, and information. They are also great tools to build customer relationships and provide interactive online service support.

For the fourth research question, the results obtained indicated that many customers trust peer's ratings and testimonials as a key source in decision-making more than official information. Therefore, through Web 2.0 tools, banks are able to monitor the rumors that can affect their brand image and offer them the opportunity to respond promptly to their concerns and inquiries. They have also contributed to decrease the time to market for services.

As for the fifth research question, it has been shown that Web 2.0 technologies have a great impact on banking communication. Web 2.0 technologies have affected knowledge management and communication. They have contributed significantly to sharing, retrieving, and organizing knowledge. These technologies have also enhanced effective collaboration and broken down the hierarchical and functional boundaries as well. Besides, Web 2.0 applications enable banks to ameliorate their performances, respond to customers' expectations, and improve customer services. Bank managers have realized that they need to deploy Web 2.0 applications to differentiate themselves for customers and to maximize their reach in the offline and online segments.

Finally, with reference to the two final research questions that enquire about the factors that influence Internet banking adoption, the findings obtained revealed that the proposed model which incorporates the constructs of Technology Acceptance Model (Perceived usefulness, perceived ease of use, attitude, and intention) and those of perceived risk (financial risk, security risk, and performance risk) has good explanatory power and confirms its robustness in predicting customers' intention to use these services. The findings have shown that perceived usefulness and ease of use are the major factors that boost the intention to adopt Internet banking services among Moroccan clients. Perceived usefulness has both direct and indirect influences on Intention adoption while Perceived ease of use directly and positively influence perceived usefulness. Indeed, perceived ease of use has long been recognized as a basic requirement for system design. That is to say, the easier a technology is, the more useful it is perceived. Another interpretation is that difficulty in using online systems is becoming less of a concern as they increasingly becoming user-friendly. Accordingly, perceived usefulness and perceived ease of use show a strong influence on the users' attitudes toward adopting Internet banking services. Many customers in the survey think that Internet banking is easy to work with. It is helpful in reducing the lead time and effort. It also allows them to maintain better control over their finances and offers them immediate and regular access to their account. Moreover, the findings have indicated that security issues have a significant negative impact on ease of use this relationship was not predicted in the research model. The result demonstrated that the higher the risk of using Internet banking services, the more complex the technology is perceived. That is to say, the ease of use and accessibility of online banking services reduce the individuals' perception of risk. Furthermore, the results have shown that computer illiteracy is another inhibiting factor in Internet banking adoption. Some Moroccan banking clients do not possess the basic and technical knowledge about computers and how to manipulate them, therefore, these services are perceived as complex and difficult to handle.

To sum up, this sub-section has been devoted to the most important conclusions derived from the findings. The next and last sub-section of this dissertation concentrates on the limitations of the study.

5.2. Limitations

Despite the various contributions, the current study is not free from limitations. This work naturally leaves clues and limitations for further research. First, the respondents in the sampling were highly educated (64% of respondents were Bachelors, Master or Ph.D. holders) whose behavior might differ somehow from the population average. They are generally more technology savvy and faster to adopt new technologies. It is highly likely that less-educated customers or those who possess little skills and knowledge about computing and Internet would be less motivated to use Internet banking services because of the complexity and risk perceived. Moreover, as with any research, there should be a great care when generalizing the results of the study. There is a need of a more representative sample to enhance the generalizability of the research conclusions.

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Glossary

Attitude (ATT): the individual's positive or negative feelings about performing a particular behavior (Fishbein & Ajzen, 1975).

Bartlett's test of Sphericity tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that the variables are unrelated and therefore unsuitable for structure detection. Small values (less than 0.05) of the significance level indicate that a factor analysis may be useful with the data.

Blog: a personal journal that is publicly accessible on the World Wide Web. Blogs include personal thoughts of the author in a chronological order, just as in a hard copy journal. The term blog is short for Web blog.

Chi-square (X²): a statistic used to test the degree of agreement between the data actually obtained and that expected under a particular hypothesis (e.g. the null hypothesis).

Confirmatory Factor Analysis (CFA) is made to test a theoretical factor structure against one's data.

Customer Relationship Management (CRM): is a strategy for managing an organization's relationships and interactions with customers and potential customers. A CRM system helps companies stay connected to customers, streamline processes, and improve profitability.

Deregulation of financial industry refers to the process of removing government rules controlling the way that banks and other financial organizations operate. It may allow them to conduct more activities than before. Deregulation is intended to increase efficiency in the market.

Digital natives: refers to the generations that grow up with new technology. They have spent their entire lives surrounded by and using computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age. These natives speak the digital language of computers, video games and the Internet (Prensky, 2001)

Empirical: Based on the results of experiments and/or observations; not based on theory.

Epistemology: Theory of the grounds of knowledge, relating to how knowledge is produced; basis of claims to knowledge.

Facebook: a social networking website launched in February 2004, and it is privately operated by Facebook, Inc. It was founded by Mark Zuckerberg and others.

Factor Analysis: The rewriting of a set of variables into a new set of orthogonal factors. Factor analysis requires the use of sophisticated computer software and some knowledge of statistics in order to be able to interpret the results.

Generation Y: A new generation of younger, college- and university-educated workers born between 1980 and 2000 and grown up with the Internet, also known as Gen Y, Yers, Digital Natives, Net Generation or Millennial.

Goodness of fit statistics are used to evaluate the overall fit of a theoretical model. they summarize and/or test the fit of a theoretical model.

Goodness of fit: a summary measure of the discrepancy between observed values and the fitted values derived from a hypothesized model. The judgment of the degree to which a proposed theoretical model fits one's data.

Google: a social networking and messaging tool that integrates a web-based email program which will work through the popular Gmail service, allow users to post status updates, photos and links to members of their network, as well as pull in their activity on other sites like Twitter or Facebook. (Google, 2010; Gross, 2010).

Hypothesis: a research idea that can serve as a premise or supposition to organize certain facts and thereby guide observations.

Hypothesis testing: the use of some technique, usually statistical, to establish whether a hypothesis may be rejected.

Information Technology (IT): the use of computers, communications networks, and knowledge in the creation, storage, and dispersal of data and information. Information technology comprises a wide range of items and abilities for use in the creation, storage, and distribution of information.

Information and Communication Technology (ICT): describes the convergence of several technologies and the use of common transmission lines carrying very diverse data and communication types and formats. (Conole et al., 2003)

Information system (IS): refers to any organized system for the collection, organization, storage and communication of information.

Intention / Adoption: the customers' intention to adopt, as opposed to their actual use of IB services.

Internal Validity: the degree of validity of statements made about whether "X" causes "Y".

Internet banking (online banking) or mobile banking: are alternatives channels for banks to deliver their services and for customers to acquire these services (Scornavacca & Hoehle, 2007, Riquelme & Rios, 2010, as cited in Yu, 2012, p.104). Customers are using IB and m-banking through wireless devices connected to Internet.

Qualitative research methods: the intensive study of many cases; the study of difference in kind. Explanation is a matter of understanding and interpreting actions, opinions, or experiences by taking the context into account. (Dahlberg & McCaig, 2010)

Quantitative research method: the extensive study of many cases; the study of difference in number. Data is analyzed via statistical methods and conclusions are drawn about relationships and regularities between variables.

Mediator or mediating variable is a variable that is proposed to explain the relationship between two other variables. It is affected by the Independent variable and in turn affects the dependent one.

Methodology: A set of methods used in a process of inquiry.

Methods: practical means /strategies / techniques that researchers use to collect data. These techniques for learning about social reality allow us to gather data from individuals, groups, and texts in any medium. Each approach has its own set of methods and instruments, usually multiple methods and/or hybrid methods.

Management information system (MIS) is a computer system consisting of hardware and software that serves as the backbone of an organization's operations. An MIS gathers data from multiple online systems, analyses the information, and reports data to aid in management decision-making.

Mobile banking or M-banking is a service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile device such as a smartphone or tablet. (Wikipedia)

Moderator is a variable that affects the magnitude or the strength of the relationship between the independent and dependent variables. (Judd, 2015)

Online Community: A virtual community that exists online and whose members enable its existence through taking part in membership ritual.

Ontology: The science of the essence of being; closely related to one's view of reality.

Perceived Ease of Use (PEU): The extent to which a person believes that using a particular system will be free of effort”.

Perceived Usefulness (PU): The extent to which a person believes that using a particular system will enhance his or her performance.

Phishing: it is the criminally fraudulent process of attempting to acquire sensitive and confidential information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic communication. (English Oxford Dictionary Online).

Platform: The hardware or software framework that enables a computer system to run. Platforms typically include the computer architecture and the operating system for the system.

Podcast: A digital media file or files that are distributed over the Internet and which are played back on portable media players and personal computers. The term podcast is short for iPod broadcast.

Positivism: the positivists view social reality as “knowable”. There is a real world “out there” waiting to be reached. One of the key tenets of positivism is the practice of objectivity. Researchers are expected not to allow their own values to intervene in their research project, thus preventing “researcher bias” from entering into the research process. (Hesse-Biber & Leavy, 2011)

Principal Component Analysis (PCA): is a dimensionality- reduction technique used to explain the variance-covariance structure of a set of variables through linear combinations (Wold, 1987).

Probability: the mathematical chance of an event occurring.

Reliability: if a question is completely reliable, it can be asked of every different population and be understood in the same way. The term captures how trustworthy the study is and has to do with errors in measurement, that is, in the collection and analysis of data which implies that similar results will be obtained by researchers on different occasions.

Research design: The plan that researcher proposes to follow in conducting the research.

Research strategy: the basic philosophical orientation of the research. The research strategy may be either theoretical or empirical and within the empirical classification there are the two major options of positivism and phenomenism.

RSS Feed: Really Simple Syndication (RSS) is an XML based-content syndication protocol that allows web sites to share information as well as aggregate information upon the users’ needs (Cold, 2006). RSS feeds enable subscribers to automatically download current content from associated web sites. Users can locate content that is pertinent to their job and subscribe to the communication which enables a much faster communication stream.

Simple random sampling: a form of sampling where every entity in the population has an equal chance of being included in the sample.

Semi-structured interview: contains specific research questions, employed by the researcher to guide the interview, but the use of these questions in any given interview is often at the discretion of the researcher, who may or may not decide to ask these questions in every interview.

Sequential (time ordered) mixed method designs: designs in which quantitative and qualitative components are related at the data collection stage and/or the data analysis and data interpretation stage. One method component follows the other in time with the goals of exploration or explanation.

Social media: a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content (Kaplan and Haenlein, 2010). It is primarily used to transmit or share information, opinions, create content, and provide recommendation with a broad audience.

Social networking: an act of engaging groups of people with common interests, they associate together on social networking sites and build relationships through community. (Cohen, 2009; Hartshorn, 2010).

Structural Equation Modelling (SEM): refers to a family of procedures (Kline, 2005) that is primarily used to test theoretical models that propose causal association between a set of variables (Shumacker & Iomax, 2016). It can be thought as a “confirmatory approach” to analyzing structural associations among a set of variables (Byrne, 2010). This theory implies that there is a particular covariance structure among variables. In other words, SEM is a collection of tools for analyzing connections between various concepts in cases where these connections are relevant either for expanding our general knowledge or for solving some problems (Blunch, 2013).

Technology Acceptance Model (TAM) (Davis, 1989): an information system theory that models how users come to accept and use a technology.

Triangulation: It is a strategy which involves using two or more different research methods to study the same research question. The researcher is looking for convergence of research findings to enhance the credibility or validity of research findings.

Tribes marketing: entails a change of focus from individual to micro-social level as unit of analysis (Cova, 1997). In other words, “the link is more important than the thing” (Cova, 1997, p.314). (e.g. Apple has its tribe; the fanatic who walk around brandishing Apple paraphernalia).

Twitter: a micro blogging service that emerged in 2006. It is an online news and social networking site where people communicate in short messages; called tweets).

Validity: how well the research question is operationalized into one or several variables, that is, how correctly the research questions capture the phenomenon studied. If a question is completely valid, the responses to the questions will be applicable to the general population by the researcher.

Viral marketing refers to a marketing activity in which information about a product spreads between people, especially on the Internet. Retrieved from <https://dictionary.cambridge.org/dictionary/english/viral-marketing>

Web 2.0: (also called social media) is a notional second generation of web-based communities and hosted services available on the World Wide Web. The concept originated from the move to the Internet as a platform. There is no updated technical specification associated with Web 2.0.

Wiki: A piece of software on a server that enables users to create and edit the content of web pages using any browser. Most wikis are collaborative websites that allow multiple persons to update web content. The term wiki comes from wiki-wiki which means “quick” in Hawaiian.

World Wide Web: A set of interconnected Internet sites that use the hypertext transfer protocol (HTTP). Electronic pages on the World Wide Web can be viewed and retrieved using the Internet. It is also referred to as the Web or WWW.

YouTube: founded in 2005, it is the world’s most popular online video community where millions of people can discover, watch and share originally-created videos (YouTube, 2005).

APPENDIX A: Questionnaire

Moroccan Banks Customers' questionnaire

As part of a research project that we are doing to assess consumer perception to the use of Web 2.0 technologies by Moroccan banks and the factors influencing Online/ Internet banking adoption in Morocco, we would appreciate you take the time to complete the following questionnaire.

The quality of the information collected is very important for the survey we are conducting. It should take about five minutes of your time. Your answers are voluntary and will be confidential.

Part I- Demographic Information

- 1- **Gender:** Male Female
- 2- **Educational Qualifications :**
- Primary Education
 - Baccalaureate
 - Technicien, bac level
 - Bac + 2
 - Bachelor's degree
 - Master's degree
 - PhD
 - No diploma
- 3- **Age:** 18 to 25 26 to 35 36 to 45 46 to 55 + 55 years
- 4- **Profession**
- Student
 - Civil Servant
 - Liberal profession (doctor, dentist, lawyer, ...)
 - Private sector employee
 - Very Small Enterprises
 - Artisan
 - Retired
 - Unemployed
- 5- **Bank:**
- AttijariWafa banque
 - Banque Populaire
 - CIH
 - BNCI
 - BMCE
 - Crédit Agricole
 - Al Barid Bank
 - Crédit du Maroc
 - Société Général

Other: _____

6- Do you have access to the Internet?

- Yes No

7- Access to Internet is mostly done:

- at work at home in public places

Part II- Consumers' Perception towards Web 2.0 Technologies in Moroccan Banking Communication

8- Do you use Web 2.0 technologies (Blogs, Wikis, Podcasts, Social Networks,...)?

- Yes
 No

9- If "yes", which of the following Web 2.0 tools do you use?

- Blogs
 Wikis
 RSS filters
 Social Networks: Facebook Twitter LinkedIn Instagram
 Podcasts (YouTube, ..)

To what extent do you agree or disagree with the following statements?

10- I have the knowledge and skills required to use Web 2.0 technologies

- Strongly agree
 Agree
 Neither agree or disagree
 Strongly disagree
 Disagree

11- Web 2.0 technologies allow me to improve communication efficiently since it saves me time and money.

- Strongly agree
 Agree
 Neither agree or disagree
 Strongly disagree
 Disagree

12- Social media increases my work efficiency because it gives me faster access to information I am looking for

- Strongly agree
 Agree
 Neither agree or disagree
 Strongly disagree
 Disagree

13- Has your bank a social profile (Facebook, LinkedIn, Twitter, MySpace, ...)?

- Yes
 No
 I don't know

14- The bank social profile is meant to develop effective one-to-one communication with the customers

- Strongly agree
- Agree
- Neither agree or disagree
- Strongly disagree
- Disagree

15- Do you use web 2.0 technologies to communicate with your bank?

- Yes
- No

16- If “yes”, which of the following Web 2.0 tools do you use to communicate with your bank?

- Blogs
- Wikis
- RSS filters
- Social Networks: Facebook Twitter LinkedIn Instagram
- Podcasts (YouTube, ..)

17- Which of the following medium do you use to get in touch with your bank?

- Social media
- E-mail
- Mobile application
- bank website
- Visit the branch
- call the customer service

18- Do you use your online banking services?

- Yes
- No

19- Which mobile application are you connected to?

- Attijarinet CIH Mobile BMCE Direct Societé Général Maroc
 BNCI Mobile CAM Mobile Crédit du Maroc Chaabi Net

Other: _____

20- Which tool do you use to communicate with your bank?

- Computer
- Lap top
- Smart phone
- Tablet
- ATM
- Visit the branch
- Call the customer service

21- How often do you use online banking?

- Daily
- 3 - 4 per week
- 1 – 2 per month

- Rarely
- Only when notified with new operations

22- Which features of online banking do you use?

(you can tick more than one option)

- Balance enquiry/ e-statement
- Open an account
- Manage checking account/ saving account
- Transfer money
- Apply for loans
- Online bill pay
- Credit card payment due date
- Order credit card / checkbook
- Stock Transactions
- Buy prepaid recharge
- Purchasing
- ATM & Branches location

23- How satisfied are you with your bank's online services?

- Very satisfied
- Somewhat Satisfied
- Neutral
- Dissatisfied

24- How do you express your satisfaction / dissatisfaction with your bank's services?

- Visit the branch
- Call the customer service
- Talk about it in a blog
- Talk about it through social media
- Do nothing

25- The use of Web 2.0 technologies by Moroccan banks is beneficial for you as a consumer.

- Strongly agree
- Agree
- Neither agree or disagree
- Strongly disagree
- Disagree

26- Web 2.0 technologies are best used as social interaction network but not as a business channel.

- Strongly agree
- Agree
- Neither agree or disagree
- Strongly disagree
- Disagree

Part III– Factors influencing Internet banking adoption in Morocco

27- Indicate your agreement or disagreement with the following statements by ticking your response using this scale: (1-Strongly disagree – 7 Strongly agree)

	1	2	3	4	5	6	7
<i>Perceived Usefulness</i>							
Online banking is useful							
web 2.0 technologies implemented by the bank save my time and enable me to accomplish my tasks more quickly							
Online banking is better for tracking spending.							
Online banking offers a wide range of banking services and investment opportunities							
<i>Perceived Ease of Use</i>							
web 2.0 applications are not complex							
With online banking I don't have to visit the bank							
It's easy to use online banking services for handling my banking transactions							
<i>Perceived Web Security/ perceived risk</i>							
Online banking provides insecure transactions							
I don't feel secure sending sensitive information across the online banking							
I don't feel totally safe providing personal privacy information over the internet banking							
when I transfer money over the Internet, I'm afraid of losing money because of carelessness such as improper account number entry							
I'm worried to use online banking because other people may be able to access my account							
Mobile Banking is a safe place to transmit sensitive information							
<i>Perceived Attitude</i>							
Using online banking has a lot of advantages							
Using Internet banking is beneficial							
Using Internet banking is a wise / good idea							
<i>Intention / adoption</i>							
I would use Internet banking for my banking needs							
Using online banking for handling my banking transactions is something I would do							
I'd see myself using Online banking for handling my banking transactions							

APPENDIX B: Semi-Structured Interview

Bank Managers and Executives semi-structured Interview

- Investigating the use and the impact of Web 2.0 technologies in the Moroccan banking communication.

I- Personal and Professional information

- Gender: Male Female
- Educational Qualification : _____
- Age: 20 to 30 years 31 to 40 years 41 to 50 years + 50 years
- Bank: _____
- Bank position: _____
- How many years have you been working in this bank? _____

II- The integration of Web 2.0 technologies in the Moroccan Banking communication

- 1- What type of Web 2.0 applications are currently used by your bank? And for what purposes?
- _____
- 2- How did you become aware of the availability of Web 2.0 technologies?
- _____
- 3- What are the main motivations for adopting Web 2.0 technologies?
- _____
- 4- What is the perception of your customers about online banking?
- _____
- 5- How are banks currently using Web 2.0 technologies?
- _____
- 6- In today's digital world, do you think that banks are enforced to have an effective presence in social media?
- _____
- 7- According to the survey conducted in the current research, 57.14% of the respondents do not use Web 2.0 technologies to communicate with their bank. In your opinion, why is that?
- _____

8- According to you, what are the benefits of Web 2.0 technologies?

- _____

9- What has been the impact of these technologies on your company's competitiveness and communication?

- _____

10- Are you satisfied with the use of these technologies? Why?

- _____

11- According to you what are the main barriers to the integration of Web 2.0 technologies in the Moroccan banking system?

- _____

12- Are you facing any difficulties in implementing Web 2.0 technologies as a financial institution? How?

- _____

APPENDIX C: SPSS and AMOS Results

Model Fit Summary :

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	45	292,660	126	,000	2,323
Saturated model	171	,000	0		
Independence model	18	5062,237	153	,000	33,087

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	,146	,900	,864	,663
Saturated model	,000	1,000		
Independence model	1,543	,208	,115	,186

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,942	,930	,966	,959	,966
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,824	,776	,796
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

NCP

Model	NCP	LO 90	HI 90
Default model	166,660	120,617	220,419
Saturated model	,000	,000	,000
Independence model	4909,237	4680,135	5144,681

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	1,049	,597	,432	,790
Saturated model	,000	,000	,000	,000
Independence model	18,144	17,596	16,775	18,440

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,069	,059	,079	,002
Independence model	,339	,331	,347	,000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	382,660	389,237	546,225	591,225
Saturated model	342,000	366,992	963,549	1134,549
Independence model	5098,237	5100,867	5163,663	5181,663

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	1,372	1,207	1,564	1,395
Saturated model	1,226	1,226	1,226	1,315
Independence model	18,273	17,452	19,117	18,283

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	147	159
Independence model	11	11