ATM, Internet Banking and Mobile Banking Services in a Digital Environment: The Egyptian Banking Industry

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ABSTRACT
E-services are revolutionizing the way business is conducted in banking industry. Banks are trying to provide a variety of self-service channels such as Automated Teller Machines (ATM,) Internet banking and Mobile Banking (m-banking) in order to increase customer convenience, reduce costs and maintain profitability. This paper proposes a framework to explore and compare the dimensions and barriers that affect consumer's intention to use or adopt different self-service banking technologies in the Egyptian context.

An empirical study on bank customers was conducted using a quantitative approach, where structured questionnaires were distributed over 1500 respondents that were divided into three groups in order to investigate the usage of ATM, Internet banking and m-banking.

Data collected, was statistically analyzed using Chi square test, frequencies and cross tabulations. The results indicate that the three groups differ significantly with respect to usage, value, risk, tradition and image barriers. Moreover, significant relations between decisions of adoption with Internet banking experience, level of education, type of mobile owned and mobile Internet experience were also noted.

Keywords
Banking, ATM, Internet Banking, Mobile Banking and Consumer Behavior

1. INTRODUCTION
Significant changes in the banking system are led by globalization and financial liberalization [1]. Responding to these changes, banking system is continuously expanding the choice of services offered to the customers and increasing their reliance on technology to offer such services [2]. Like most service providers, banks have realized the importance of investing in technology, to control cost, attract customers, and fulfill customers' needs for convenience and technical innovation [3]. Seeking competitive advantage in the service sector, banks in Egypt have found new investment opportunities in the national privatization program [4]. By the mid-1990s the banking sector was facing rapid change, as public and private banks realized the potential of investing in retail banking [5]. To the banks, investment was justified by the rise in individual incomes, and by the small number of bank branches compared to the high population in Egypt [6]. Accordingly, banks started to compete in expanding their branch networks and providing a variety of delivery channels such as automated teller machines (ATMs), Internet banking and m-banking.

Despite the advances in the Egyptian banking system, Egyptian society remains in favour of cash. Only 30% of the money supply is in the form of bank deposits; and short term lending makes up around 80% of bank's portfolios. Nevertheless, general business expansion is driving an increase in demand for and use of cards for payment [7].

In Egypt, there is a great opportunity to expand in Self Service Technologies (SSTs) due to both the rapid development of telecommunications and IT networks together with the great diffusion of mobile phones [8]. This calls the need for, understanding consumer behavior and value perceptions towards SSTs in Egypt.

Thus, the aim of this paper is to provide a comparative study between ATM, Internet banking and m-banking in the Egyptian context. Based on SST Attitude/Intention to Use Model by [9], the paper proposes an integrated framework to investigate consumer's acceptance and usage or intention to usage of different SST channels, namely, ATMS, Internet banking and m-banking.

2. LITERATURE REVIEW
During the last two decades, the financial sector has developed rapidly in terms of size, industry structure and the variety of consumer products and services [10]. This prompted most banking sectors to reduce pressure within the banking hall and hence the intensive use of ATMs, Internet banking and m-banking. However some studies view them as a result of technological developments and financial liberalisation [11,12]. Thus [13] stated that these technological changes motivated banks to be aware of future trends in order to survive and compete.

The Egyptian financial sector has been transformed from traditional bank activities to a more open, effective and competitive system, which is able to offer a wide range of electronic services such as ATM, Internet banking and m-banking. Technological developments and financial liberalisation (deregulation) are considered as the main reason influencing the financial sector's development. As a result, today's banking takes place increasingly through electronic different channels, [14, 15].

There are currently 39 banks in Egypt, 5 public and 34 private banks. The five public sector banks are the largest operating banks in terms of balance-sheet size, accounting for nearly

50% of total bank assets. They have a significant market share in retail and corporate banking services through large branch networks and close relationship with state-owned companies [28]. Based on Central Bank of Egypt in 2009, 19 out of 39 banks (58%) were offering Internet banking services [29]. However, Internet banking services have not taken off in Egypt because of low rates Internet penetration. Based on the Ministry of Communication and Information Technology (MCIT), the number of Internet users in Egypt is 32.49 million [30]. Both the website of the Central Bank of Egypt and Directory of Egypt's Banks guided the research in locating private banks showed that only 36% had Internet Banking systems installed and 22% for public banks [31].

The automated service provides a good opportunity for organisations to provide new models for service design strategies and new service development. This means that there is reduced manual and paper work within the banking system [16,13].

First, ATMs are the most acknowledged as compared to than any other e-channels [17]. Egypt has approximately 4,600 ATMs [18]. They are banking terminals in public places, connected to data system and related equipment. ATMs play an important role in enhancing the firm's competitive position; as they were first introduced in an attempt to lower bank costs [19]. ATM industry has seen explosive growth in recent times [20]. Banks have been positioning ATMs to increase their reach. As clients value their time, they would appreciate a reliable ATM that would help them save their time in conducting routine banking activities [21].

On the other hand, the use of the Internet as a new alternative channel for the distribution of financial services has become a competitive necessity instead of just a way to achieve competitive advantage with the advent of globalization and fiercer competition [22]. Thus, Internet banking has changed the face of commercial banking in recent times by bridging geographical, industrial and regulatory gaps as well as creating innovative products and services and more market opportunities for both banks and customers [23, 24]. Based on [25, 26] cited by [27], Internet banking is defined as an "internet portal, through which customers can use different kinds of banking services ranging from bill payment to making investments" such as transfer fund, make enquiry for account balance, payment of bills and management of asset like stocks online.

Furthermore, m-banking services are typically modified versions Internet banking services, which are highly appreciated by users because of the independency of time and place [32]. According to Yankee group there will be 500 million m-banking users globally by 2015[33]. In Egypt, there is an upward trend in the mobile usage in many activities such as m-banking. The rapid development of telecommunications and IT networks [34, 35], the great dispersion rate of mobile phones whereas mobile subscribers have already reached 77.76 million in Egypt [36]. Besides, many alternative payment methods such as credit cards are widely used in Egypt and only 10% of Egyptians hold bank accounts [37, 38], which underlined the significant unbanked population. Furthermore most of telecom providers' revenue in Egypt is coming from voice services that will not be significant financially on the short term [39]. Telecom operators is now trying to target, maintain and protect subscribers by offering new services such as m-banking service. Finally, the success of m-banking in countries like South Africa, Kenya, and Botswana might also be an indication that Egypt's low-income segment may succeed too [40].

3. RELATED WORK

Many researches and many models in the field were conducted to study consumer perceptions, acceptance, satisfaction and attitude towards electronic banking services [41]. For instance, Curran and Meuter [9] reported that the significance of the factors affecting the adoption of ATMs, telephone banking, and Internet banking differed substantially between the channels. In a study of customer preferences for different delivery channels, by [42] found that customers ranked ATMs to be the most important delivery channel, with 70.65% of respondents regarding them as extremely important; bank branches came in second position, then m-banking and finally Internet banking, with only 17.39% of respondents regarding it as an extremely important delivery channel [7]. Another study by [43] revealed that most of the Self-Service Banking Technologies [SSBTs] users used ATMs in preference to Mobile and Internet banking.

Many studies reveal the challenges customers might face and the negative image they have towards new technologies believing that they are too complicated and not useful [44], and that some customers prefer face-to-face communications other than self-service options. Kuisma et al. [45] also stated that some non-adopters considered electronic banking users to be difficult, inconvenient and slow to use. The study also highlighted that some customers are afraid to make mistakes when using online services.

Thornton and White have also found out that the use of ATM increases as respondents are more convenience oriented, change oriented, computer oriented, knowledgeable about how to access their money, and confident in using electronic devices [46]. Moreover, a study by Gerrard et al. [47] state that customers do not use Internet banking due to risk associated with the service.

Regarding the most important e-banking services factors, Joseph and Stone found out that they are 'Accuracy', 'Security', and 'Accessibility', followed by 'convenience' and 'confidence in the bank', then, comes the 'ability to handle complaints' and 'personalized to my needs'. Finally, the 'visual appearance' comes with least importance [48].

In further studies, ATMs, Internet and m-banking users were found to be divergent in their demographic characteristics. Howcroft et al. [49] revealed that younger consumers value convenience or time saving potential of e-banking services more than older consumers. Younger consumers also regard the lack of face-to-face contact as less important than older consumers. Moreover, Karjaluoto et al. [50] described that a typical user of Internet banking in Finnish market highly educated, relatively young and wealthy person with good knowledge of computer which matches the results of another study conducted in the Egyptian market and revealed that the target market segment of m-banking in Egypt are the educated people with high level of income, use smart phones and are already Internet banking users. However, Laforet and Li [51] showed that education does not affect the adoption of m-banking in China. Furthermore, the average age of m-banking users was found to be much higher than the average age for Internet banking users within China.

Overall Customer satisfaction is not a new issue; it is a central factor to evaluate and control strategic marketing. It is important to improve the current e-banking services by providing information and services that meet customers' expectations [52].

After reviewing the previous studies about factors that affect the intention of adoption of the three e-banking services, Perceived Ease of use, Perceived usefulness, Perceived Risk, Need for interaction, demographics were found to be the most important dimensions that needed to be studied.

4. PROPOSED WORK

The proposed framework is mainly based on Self-Service Technology (SST) Attitude/Intention model. Self-Service Technologies (SSTs) is defined "technological interfaces that enable customers to produce a service independent of direct service employee involvement" such as, automated teller machines (ATMs), banking by telephone, and banking services over the Internet [53] and m-banking [54]. Self-Service Technology (SST) Attitude/Intention model is an extension to Technology Adoption model (TAM) model. TAM is considered one the famous models concerning consumer attitude towards technology acceptance literature and explain why users accept or reject information technology [55].

Several authors have proposed TAM extensions with constructs such as perceived risk [56,57] and need for interaction. [9] developed the Self-Service Technology (SST) Attitude/Intention to Use Model to extend the TAM to include two additional determinants, i.e. need for interaction and risk, in the context of SST adoption. Although the benefits which customers get when using SSTs, they may still be less enthusiastic or could even resist adopting them due to the absence of direct communication with teller. Additionally, Studies in E-commerce [58] and wireless finance [59] have shown that high-perceived risk has a negative influence on technology adoption together with cost which again negatively affects the intention to use SSTs [60, 61].

In the Egyptian banking sector, there is a fee that customer pay when he withdraws money from a different ATM other than the card's bank, called a 'surcharge', which sometimes put the cardholder off the idea of using ATMs. Currently, most of banks in Egypt offer Internet banking and are taking steady steps to offer m-banking services with monthly fees. Not to mention the required fees in order to access to m-banking services using wireless Internet from their cell phones.

Nowadays, researchers are increasingly interested in modeling the influence of socio-demographics (gender, age, education and previous experience (direct experience, Internet/online banking experience, mobile product knowledge) on online perceptions and behavior [62]. Empirical evidence suggests that non- adopters (inexperienced users or novices) differ from adopters (experienced users or experts) in the criteria they use to evaluate information technologies [63, 64]. Moreover, Internet banking and m-banking users were found to be different in their demographic characteristics, for instance, Karjaluoto et al. [50] found that the Finnish adopters of Internet banking are highly educated, relatively young, and have high income.

The proposed integrated framework, in Figure 1 include the following variables: Perceived Ease of use, Perceived usefulness, Perceived Risk, Need for interaction, Perceived cost, demographics and intention to adopt e-banking services.

Items for Perceived Ease of use, Perceived usefulness, and intention to adopt m-banking were adapted from the original TAM presented by Davis et al. [56] While, "Perceived risk" and "need for interaction" were adopted from the Self-Service Technology (SST) Attitude/Intention to Use Model.

5. RESEARCH METHODOLGY

To understand the problem at hand, an empirical study on bank customers was conducted using a quantitative approach, where 1500 structured questionnaires were distributed over respondents. Respondents were divided into three groups in order to investigate the usage of ATM, Internet banking and m-banking. Data collected, was statistically analyzed using Chi square test, frequencies and cross tabulations. In order to achieve the research aim, a set of hypotheses have been formulated as shown in the following sub-section.

5.1 Research Hypotheses

H0 1. There is no significant difference between different self-services technologies' adopters and non-adopters with respect to perceived ease of use.

H0 2.There is no significant difference between self-services technologies' adopters and non-adopters with respect to perceived usefulness.

H0 3. There is no significant difference between self-services technologies' adopters and non-adopters with respect to perceived risk.

H0 4.There is no significant difference self-services technologies' adopters and non-adopters with respect to need for interaction.

H0 5. There is no significant difference between different self-services technologies' adopters and non-adopters with respect to perceived cost

H0 6. There is no significant difference between different self-services technologies' adopters and non-adopters with respect to users' demographics

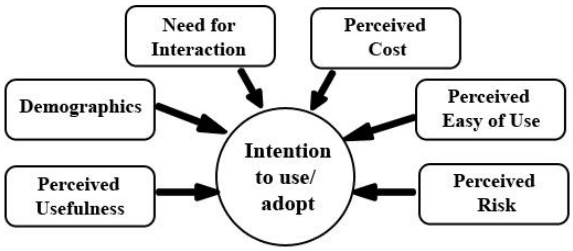

Figure 1: Proposed Framework

5.2 Data Collection and Analysis

A survey was undertaken where respondents completed a questionnaire about their perceptions of the three e-banking electronic channel's i.e. ATM, Internet banking and m-banking ease of use, usefulness, cost, risk with their lifestyle, and their need for interaction with personnel.

Most of the questions in the questionnaire were adapted from previous research. However, a number of questions were self-developed solely for the purpose of this research to address important concepts, which were not addressed in previous studies.

A five-level Likert scale, ranging from totally agree (1) to totally disagree (5) was used in all statements. The questionnaire also includes questions relating to socio-demographics (gender, age, income, and education), previous experience of online banking services and the use of mobile devices to access the Internet.

The samples were selected on a random basis and it may represent the whole population. It is important to study the insight about the significant of e-banking electronic channels with respect to SSTs model and to identify the problem areas and proposed recommendation leading to improvement for the channels.

The survey was administered both electronically and in person in order to increase the diversity of the respondents, increase the number of returned questionnaires, and increase the geographical accessibility.

500 questionnaires were distributed over respondents for each electronic service from Alexandria and other cities in Egypt. Yet concerning ATM and m-banking usage, only 380 valid questionnaires were returned, while 127 valid questionnaires were returned regarding the usage of Internet banking in Egypt.

Statistical tests i.e. chi square tests have been applied to assess whether the distributions of results differ significantly from results that might have arisen by chance.

5.3 Results

Sample description

For ATM respondents, 58.7% are males while 41.3% are females. Most of respondents were from 26 to less than 40 aged with 42.6%. 1.3% had only attended primary or secondary schools, 12.7% had graduated from high schools, 59.8% were university graduates, and 26.2% were postgraduates. Finally, 47.6% have monthly income between EGP 500 and EGP 2000, 22% have between EGP 2000 and EGP 5000, and 30% have more than 5000.

Concerning Internet banking group, the proportion of male was greater than female respondents in this survey. The respondents were 77 males (60%) and 50 females (39.4 %). The majority of the respondents were in the 26-40 age groups (66.1 %). Population studied comprised graduate and post graduate, with frequency distributions of 45.7 % and 54.3 %, respectively. Respondents with monthly income within the range of EGP 2000 – 5000 were the majority group (42.5 %) followed by those with a monthly income EGP 5000 to 15000 (33.1 %).

On the other hand, the proportion of male and female respondents of m-banking was almost equally split in this survey. The respondents were 188 males (49.5%) and 192 females (50.5 %). Most of respondents were 26-40 age group (60.8 %). The population studied comprised postgraduate students with 31.6 percent and graduated students with frequency distributions 56.8 %. Respondents that don't get a monthly income were the highest group (29 %) followed by those with a monthly income within the range of EGP 500 to 2000 (28 %).

Interesting Frequencies

ATM questionnaire respondents' frequency results revealed that 16.97% from those who have returned their questionnaires have never used ATMs, while the remainders have. 1.18% are infrequent users who use ATMs only a few times per month or per year, while 28.82% use ATMs either daily or weekly. 85% of respondents use ATMs most frequently in order to get cash, while 8.3% use them mainly to check their balance, 2.7% mainly to deposit cash, 2.2% mainly to transfer funds, and only 0.9% use them mainly for other services.

While results of Internet banking questionnaire discovered that 65.8% of respondents used Internet banking. Moreover, respondents who have been using internet banking between 1 to 2 years are (33.9%) followed by the users between 2 years to 5 years was (32.3%). Most of the respondents can access their Internet banking account anytime with 53.5%. Moreover, the majority who are intended to use or adopt the Internet banking is business owner (54.3%) followed by the salaried employees (40.9 %).

Considering m-banking, results indicate that 60.3 % don't have the intention to adopt m-banking services. Moreover, 82% of customers that have the intention to adopt m-banking possessed smart phones. Only 56% of Internet banking users will adopt m-banking services. Also, percentage of male and female who are willing to adopt m-banking service was almost returned their questionnaires have never used ATMs, while the remainder have. 1.18% are infrequent users who use ATMs only a few times per month or per year, while 28.82% use ATMs either daily or weekly. 85% of respondents use ATMs most frequently in order to get cash, while 8.3% use them mainly to check their balance, 2.7% mainly to deposit cash, 2.2% mainly to transfer funds, and only 0.9% use them mainly for other services.

Hypotheses Tests

H0 1. There is no significant difference between different self-services technologies' adopters and non-adopters with respect to perceived ease of use.

The results showed that there is significant difference between ATM adopters and non-adopters, Internet banking adopters and non-adopters group and m-banking adopters and non-adopters with respect to Perceived ease of use as for ATM chi-square = 24.955 (df =1, sig.=.000), for Internet¬¬ banking Chi-square 27.867(df=2, sig.=.000), and m-banking Chi-square =58.76 (df=2, sig.=.000)

H0 2. There is no significant difference between self-services technologies' adopters and non-adopters with respect to perceived usefulness

For the ATM sample chi-square = 43.666 (df =1, sig = .000). For Internet banking sample, Chi- square = 60.83 (df=2, sig.=.000), For m-banking Chi-square = 29.47 (df=2, sig.=.000). Therefore, these results enabled the rejection of the null hypothesis.

H0 3. There is no significant difference between self-services technologies' adopters and non-adopters with respect to perceived risk

For the ATM survey, chi-square = 15.789 (df =1, sig.=.000). For the case of internet banking, Chi-square =5.872 (df=2, sig.=.662).While in m-banking, Chi-square =47.169 (df=2, sig.=.000) consequently the null hypothesis was partially rejected for ATM and m-banking while in case of internet banking the null hypothesis failed to be rejected.

H0 4. There is no significant difference self-services technologies' adopters and non-adopters with respect to need for interaction.

For ATM survey chi-square = 41.087 (df=1, sig.=.000).

In internet, Chi-square =30.933 (df=2, sig.=.000) and m-banking, Chi-square =30.933 (df=2, sig.=.000), Accordingly the null hypothesis was rejected for ATM, Internet and m-banking.

H0 5. There is no significant difference between different self-services technologies' adopters and non-adopters with respect to perceived cost

For ATM respondents Chi-square = 202.319 (df=3, sig.=.000). Chi-square =25.54 (df=2, sig.=.000)for internet and m-banking Chi-square =24.58 (df=2, sig.=.000). For that reason the null hypothesis was rejected for ATM, Internet and m-banking.

H0 6. There is no significant difference between different self-services technologies' adopters and non-adopters with respect to users' demographics.

There is no significant difference between adopters and non-adopters with respect to gender were found in ATM, Internet and m-banking groups. Chi-square of decision of adoption for internet and m-banking with age was = 13.780, 5.874 (df=3, sig=. 32 and sig.=.118) respectively, non-significant difference was found and the null hypothesis was failed to reject.

Moreover, there is no significant difference between adopters and non-adopters with respect to age were found in Internet and m-banking groups. Chi-square of decision of adoption for internet and m-banking with age was = 13.780, 5.874 (df=3, sig=.32 and sig.=.118) respectively, non-significant difference was found and the null hypothesis failed to reject. However, a significant difference between ATM adopters and non-adopters with regards to age, where Chi square of 0.04.

Significant difference was noted between ATM adopters and non-adopters with regards to the level of income, where Chi square of 0. 006. While, Chi-square of decision of adoption with level of income for internet and m-banking groups were = 5.396, 9.963 (df=5, sig= .715, sig.=.076) respectively, no significant difference was found and the null hypothesis was failed to be rejected.

Finally, significant difference was noted between ATM, Internet, and m-banking adopters and non-adopters with regards to the respondents' educational levels, where Chi square of 0.031, 9.328, 13.414 respectively.

ATM cards would seem to be most common in the age group 26-40, followed in order by 16-25s, 40-55s, and finally 56 and above. We can conclude that younger people are more attracted to automation than older ones. People with high annual incomes more often have ATM cards, and more often have more than one ATM card.

Significant difference was again noted between ATM adopters and non-adopters with regards to the respondent's educational levels, where Chi square of 0.031.

It appears from the analysis that people at the advanced educational level are more likely to have ATM cards, followed by the intermediate and then the primary levels. The highly educated people are less likely to use other people's cards, and most frequently use ATMs after bank working hours and at weekends, or at any time. The two higher-level categories are more likely than the third to use ATMs to deposit cash and transfer funds. Results are summarized as shown in table 1

Table 1. Summary of Hypothesis res

Dimensions	ATM	Internet Banking	Mobile banking
Perceived EOU	Rejected	Rejected	Rejected
Perceived usefulness	Rejected	Rejected	Rejected
Perceived Risk	Rejected	Fail to reject	Rejected
Need for interaction	Rejected	Rejected	Rejected
Perceived Cost	Rejected	Rejected	Rejected
Demographics	partially rejected	partially rejected	partially rejected
Gender	Fail to reject	Fail to reject	Fail to reject
Age	Rejected	Fail to reject	Fail to reject
Income level	Rejected	Fail to reject	Fail to reject
Education	Rejected	Rejected	Rejected

6. CONCLUSION

The findings of this study indicate that perceived easy of use, perceived usefulness, cost, and the need for interaction; significantly affect the usage of ATM, Internet banking and M-banking. However, perceived risk has significant effect between adopters and non-adopters for ATM and m-banking only.

ATMs have been spreading across the Egyptian banking sector. As banks install more ATMs, more people use them and realize their advantages and limitations. Despite their convenience and service potential, ATMs are not so far very frequently used in Egypt. Judging from our survey, the problem seems not so much to be lack of availability of ATMs that are safe and easy to use, and which provide accurate information, or a good range of services, but rather that people are unaware of the advantages of ATMs and of the different services provided through them. Most people are only using ATMs to withdraw cash or check their balances. Poor reliability and a degree of satisfaction with ATM location also appear to be inhibiting the growth of ATM usage in Egypt. Better understanding of the context of use of ATMs should enable decision makers in the banks to address their customers' needs more fully. Customers are becoming more powerful than they previously were, and are more able to switch to other providers that if their expectations are not met [65]. By understanding their different usage pattern and different needs, ATM installers will be better placed to provide an effective service where and when the customers want it.

On the other hand, perceived risk dimension for Internet banking services was not significant between adopters and non-adopters which seems to be the highest factor to inhibit the dissemination of Internet banking services in Egypt, as the consumer feels insecure to perform electronic transaction due to insecure method of payment, difficult to learn electronic banking, no proper training provided by the banks to use electronic banking. Proper awareness can produce more results by creating awareness to all the people to use the electronic banking facility. Also, in the demographic dimensions, age, gender and income were insignificant. Education level was significant difference; this is matching

what [66] found that the likelihood of adoption rose with higher level of financial assets and education.

Moreover, this study concluded that there is significant difference between M-banking adopters and non-adopters with respect to level of education, mobile Internet experience, and type of held mobile. These results are well matched with Karjaluoto et al. [66] findings. However, no significant difference between adopters and non-adopters with respect to age, gender, and occupation was also found. Consequently, the target market segment of m-banking in Egypt could be described as the educated people that have good experience in mobile internet usage.

Furthermore, there is significant difference between adopters and non-adopters with respect to Internet banking usage supporting the hypothesis H2. Accordingly, Internet banking users are more likely to use m-banking system, as they realize the ease and convenience of use of self–service systems.

On the other hand, the results showed that adopters and non-adopter differ significantly with respect to the usage, value, risk, image and tradition barriers, thus supporting the hypotheses H3, H4, H5, and H6. The results indicate high-risk perceptions for non-adopters mainly concerning transmitting and storing information related to banking transactions. Therefore, safety issues in particular should be well addressed and targeted marketing actions should be taken in order to encourage non-adopters to use the m-banking service.

Banks in Egypt should highlight the fact that the service is secured and mention explicitly the security techniques used. In addition, banks may promote the service trial by providing a free of charge demo, where they can actually try using the system without using their own real accounts.

Additionally, non-adopters are also have value doubts, where they are not sure that m-banking will improve the control of financial accounts. Unawareness is another key issue where although customers might have heard of m-banking, they are not well aware of the services provided or how to use it. Consequently, bank marketers should emphasize the value obtained when using this service. This could be realized using both mass media advertising and face-to-face communications, which would enable marketers to better, communicate with potential customers and meet their needs.

7. RECOMMENDATIONS

In order to eliminate the effect of usage barrier, face-to-face communication and educational techniques could be useful techniques. Banks should make a demonstration of how the service could be used and allow practicing the actual use of the service. By doing this, customers would have a better chance to realize the ease and convenience of use while at the same time learn more about the high security techniques used.

The main limitation of this study is the limited geographic dispersion, where questionnaires were distributed mainly in Alexandria, which is the second city in Egypt. A more diverse random sample would help making the results more generalizable.

A complementary qualitative study may provide bank marketers with a better understanding of customers' decision-making process, and would enable them to determine the factors that are more influential and accordingly makes marketing campaigns more efficient and effective by designing them in a way that addresses the various customers' concerns, especially the most important concerns.

Studying the bank's decision makers perspective may also yield in depth knowledge regarding the adoption of m-banking, where having the broad picture would enable decision makers alleviate or eliminate barriers as needed.

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