

**The Impact of Smart Phone Applications on Retaining Customers:
An Empirical Study on Commercial Banks in Saudi Arabia**

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Abstract:

This study examines the impact of smart phone applications on commercial banking sector for retaining customers in the Kingdom of Saudi Arabia. To find out the extent of this impact, the study has been divided into two parts: the impact of quality, and the impact of diversity. For measuring these impacts, primary data have been collected through an electronic questionnaire on random sampling basis from 507 respondents.

Some banking services have been identified the customers want to get them through smart phone applications, as well as relationship between the different demographic characteristics of the customers and the type of banking services offered through smart phone applications. Data was collected through the questionnaires. Twelve Saudi banks operating throughout the Saudi Arabia were chosen based on whether or not they are providing their services through banking applications on smart phones devices.

The main findings of the study show a strong and positive relationship and among all the elements of quality and diversified dimensions of banking services offered through smart phone applications. The customers are focusing on the importance of quality more than the diversity of banking services provided through smart phone applications. It has been identified that the services needed by customers and banks willingness to provide these services through smart phone applications are: bill payments, government payments, managing self-accounts, and adding beneficiaries for money transfer.

Introduction:

We are living in the age of information technology revolution. The banking sector plays a prominent and active role in the economic life using this technology. Indeed, the information technology enforces the banking industry to improve both: its performance and the quality of its services. Banking industry is driven by the technological innovation, market uncertainty and competition. There has been a rapid shift from traditional banking to electronic banking. Competitive banks make significant investment in adopting new technology to align business strategies, enable innovative functional operations and provide extended customer services.

Perhaps one of the most important concept in this regard is the concept of e-services. With the help of various new tools and advanced technology in both implementation of banking operations and dealing with e-service activities, banks have become the forefront for providing banking services over the Internet in a way that can be accessed through multiple channels. Such channels include the bank's website and smartphones applications which commercial banks are racing to provide services for cutting the edge on this technology.

Mobile device is commonly known as cell phone users commonly use it for communication as well as a wireless delivery channel. The term mobile “refers to applications which are designed for users on the move” (Anckar and D’Incau, 2002). Mobile banking is also known as M-Banking or m-banking. According to Dahlberg and Mallat (2002), M-banking is defined as “a form of banking transaction carried out via a smart phone”. Moreover, it is defined as a “type of execution of financial services in the course of which -within an electronic procedure- the customer uses mobile communication techniques in conjunction with smart devices” (Pousttchi and Schurig, 2007). Generally, the technologies used for smart phones banking are Interactive Voice Response (IVR), Standalone Mobile Application Clients (SMAC), Short Messaging Service (SMS) and Wireless Application Protocol (WAP) (Tiwari and Buse, 2006).

The e-banking strategy is to provide these services through several communication channels. Perhaps the most recent and the most important of these channels is the Internet, which has its own unique distinctive feature among the rest of communication channels. Therefore, banks compete with each other to offer their services via this channel in a several ways, including bank website,

banking applications through smart phones, credit cards for purchasing via the Internet, and finally social networking tools such as Twitter, Facebook, etc.

The importance of this study can be seen as there is a lack of field studies in addition to the high intensity of competition among commercial banks in the provision of their services electronically. This study will help commercial banks to know the customer's direction and outlook on banking services provided through the smart phone applications. In addition, this study sheds light on the rapid technological developments and extent of adopting this technology for achieving a high growth in the variety and quality of banking services. Finally, this study opens the way for new researchers to study, research, and provide suggestions and recommendations on smart phone applications and its future role in banking services.

Objectives of the Study:

This study also intend to raise the level of awareness among commercial banks towards what applications can be reflected in the smart phones for retaining customers through:

1. Finding the relationship between the type and quality of banking services offered through the smart phone applications and retaining the customers.
2. Finding the relationship between the type and quality of banking services provided through the smart phone applications and the different demographic characteristics of the customers.
3. Finding the types of banking services that customers want from the smart phone applications.

Hypotheses:

H₀₁: There is no statistically significant relationship between the **quality** of electronic services provided by the bank through the smart phones applications and retaining the customers.

H₀₂: There is no statistically significant relationship between the **diversity** of the electronic services provided by the bank through the smart phone applications and retaining the customers.

H₀₃: There is no statistically significant relationship between the **different demographic** characteristics of the customers (age, gender, education, income) and the importance of using smart phones applications in banking.

Methodology:

The study used the descriptive survey method in order to describe the phenomenon under study. It applied a linking survey method to study the correlation between banking services provided through the smart phone applications and retaining customers. The sample for this study consists of twelve commercial banks operating in the Kingdom of Saudi Arabia. The study includes users who apply banking applications on smart phones only and does not include other customers. Number of targeted sample was determined to be 384 questionnaires. This is based on the fact that the number of members of the population is greater than 500,000 customers, and to reach the degree of confidence of 95% at an error level of 5%, this sample size has been used (Alqahtani *et al.*, 1432: 283).

An electronic questionnaire was developed and published in a temporary website page. (Kenett & Salini, 2011) explained the advantages and disadvantages of this mean. 734 responses were received of which 507 questionnaires were the targeted customers covered by the study, and 6 responses had been excluded for the lack of complete data. The questionnaire consists of 34 items in six parts.

Literature Review:

Barnes and Corbitt (2003), Barnes and Scornavacca and (2004) suggested that recent innovations in telecommunications enabled the launch of new access methods for banking services. One of these was mobile banking whereby a customer interacts with a bank via a smart phone device such as a smart phone or personal digital assistant. Karjaluoto *et al.* (2002), and Rugimbana (1995) found that there was vast market potential for mobile banking due to its always- on functionality and the option to do banking virtually any time and anywhere. Unnithan and Swatman (2001) studied the drivers for change in the evolution of the banking sector, and the move towards

electronic banking including mobile banking were strong growth potential and new banking channel for the two economies: Australia and India. Clark (2008) suggested that as a channel the smart phone could augment the number of channels available to consumers, thereby giving consumers more low-cost self- service options by which to access funds, banking information and make payments. Mobile as a channel delivers convenience, immediacy and choice to consumers. Rao et al. (2003) analyzed banks would need to expand their thinking about mobile banking beyond online banking and should start to view mobility as its own powerful and compelling delivery channel that could help them deliver to end users new value such as immediate access and additional control of personal finances. Gupta (1999) and Gupta, *et al.* (2003) also affirmed future of mobile banking in India in their studies. Suoranta (2003) found that the mobile banking users were married and their average age is 25 to 34 years. They possessed intermediate education and average income of this group was like clerks' salary. She found that age and education had a major influence on the use of the smart phone in banking services. The *adoption theories* assume that use of Internet banking precedes the adoption of the smart phone in banking. However, the study observed that some mobile banking customers omit Internet banking adoption when adopting the smart phone for banking actions. Polatoglu *et al.* (2010); Al-Ashban and Burney (2001); Karjaluoto *et al.* (2002); Black *et al.* (2002) support findings of Suoranta in their respective studies. Dohmen *et al.* (2009); Lyman *et al.* (2008); and Mas (2008) Saini (2014) found that there was a large number of different smart phone devices and it was a big challenge for banks to offer mobile banking solution on any type of device. Some of these devices support Java 2 Micro Edition (J2ME) and others support WAP browser or only SMS; presetting a serious challenge. Hayat (2009) suggested that for a banking regulator it was important to provide adequate protection for consumers, ensure economic stability, provide inter- operability of electronic system and guarantee security of transactions, Anti-Money Laundering (AML) and Know-Your-Customer (KYC) principles must also be applied to mobile payments. Comninos *et al.* (2008) concluded that unbanked transactions would be processed only electronically (online/mobile banking) if and only if there was convenience and security. Sharma and Singh (2009) found that Indian mobile banking users were specially concern with security issues like financial frauds, account misuse and user friendliness issues such as a difficulty in remembering the different codes for different types of transaction, and application software installation or updating due to lack of standardization. Banzal (2010) found that another major issue was the revenue sharing agreements among mobile service

providers, banks, content providers, aggregators and other service providers like utilities, travel agencies, hotel industry, retailers etc. Brown *et al.* (2003) used the *Innovation Diffusion Theory (IDT)* to know the responsible factors of mobile banking adoption in South Africa. They concluded that the consumer needed, relative benefits, trial periods, along with perceived risk, had a major negative effect on the adoption of M-Banking. Suoranta and Mattila (2004) conducted a research on the adoption behaviour of mobile banking in Finland and they concluded that the attributes related to innovation diffusion like relative advantage, complexity, compatibility and trial- ability had a drastic effect on the adoption of mobile banking in that country. They also indicated that the fear of perceived risk was also a main factor in adoption of mobile banking.

Laforet and Li (2005) studied the consumer adoption behaviour of online and mobile banking in China. They concluded that the most important factors, due to which the Chinese consumers hesitate to use mobile banking, were their concern about the security of their money and low skill of computer use. Luarn and Lin (2005), who used the *Extended TAM model* in their research concluded that the main factors for adoption of mobile in Taiwan were perceived self- efficacy, cost of the service, trust- worthiness, and easiness of use. Amin (2009) suggested that the main determinants for the adoption of mobile banking in Malaysia were perceived usefulness, perceived ease of use, perceived credibility. Besides this, the awareness of mobile banking and normative pressure could be considered as significant factors on adoption of mobile banking.

Laukkanen and Pasanen (2008) conducted study on the mobile banking adoption in Finland and their finding suggested that education, occupation, household income, and size of the household had no concern with the adoption of mobile banking. They found differentiating variable were age and gender in their study. Yang (2009) selected 178 students from a university in South Taiwan to know the adoption factors as well as the resistance factors of mobile banking and he found that the students prefer to adopt the mobile banking because of it was convenience, low cost and meets one's personal needs. On the other hand, the resistance factors mentioned by him were concern on security and the connection fee for mobile banking. Püschel *et al.* (2010) studied the consumer's behaviour about the adoption of mobile banking in Brazil. The conclusion of their study was that compatibility with life style was the basic factor for the consumers of Brazil which should be taken in account by the banks before launching mobile banking services. Cruz *et al.* (2010) also conducted their study in Brazil for the same purpose and they found that the cost barrier and perceived risk

were the main factors due to which they reject the use of mobile banking while other responsible resistance factors were unsuitable device, complexity, and lack of information.

Laukkanen, T and Kiviniemi, V (2010) analysed the role of information in the use of mobile banking resistance and the findings of the study were that the proper information and guideline provided by the bank to the customers about the mobile banking had a great effect on minimizing the usage barrier. Natarajan *et al.* (2010) conducted research in India and they concluded that the main criteria for the Indian people to adopt the mobile banking were perceived risk, benefits, and their requirements. Koenig-Lewis *et al.* (2010) researched on young consumers in Germany and the result of the study showed that compatibility, perceived usefulness, and risk were important factors for the adoption of m-banking services. Compatibility was identified as an important antecedent for perceived ease of use, perceived usefulness and credibility. Creating Credibility and trust by the mobile banking companies were crucial to reduce the overall perceived risk of mobile banking.

Sripalawat *et al.* (2010) studied on Thailand and used *TAM (Technology Acceptance Model)* and *TPB (Theory of Planned Behaviour)* in their research and they concluded that the subjective norm was the most significant factor in the adoption of mobile banking while the following factors were perceived usefulness and self-efficacy respectively in their study. Dasgupta *et al.* (2011) used *TAM model* on the students of a well-known university of India to know the factors responsible for mobile banking adoption and they suggested that perceived usefulness, easy-of-use, image, value self-efficacy and credibility were the important factors for adoption of mobile banking in India. Akturan and Tezcan (2014) used *TAM* to have depth knowledge about the intention of the Turkish youth for the use of mobile banking. The research concluded that attitude was the major determinant of mobile banking adoption intention in the youth. Iddris (2013) conducted a study on Ghana to know the main obstacles in the adoption of mobile banking and the result showed that the lack of required knowledge and learning was the first main obstacle due to which the people of Ghana avoid mobile banking while the addition as cost was the second reason for not adopting mobile banking and the third cause was the poor quality of the telecommunication network.

Based on the previous literature review, it has been observed that there are large variations among the banks in the diversity and quality of services. Such variations have the greatest impact on customers' satisfaction and retaining them to take the advantage of these services, and keep them

satisfied, as well as gaining new customers. With the proliferation of smart phones among the general public and their dependence upon them in many of the e-services, commercial banks are racing for providing banking services through these smart phone applications. In a summary, this study will focus only on the impact of banking services provided through the smart phone applications for retaining customers. The idea of this study is to explore the effect of providing banking services through smart phone applications and how is that related to retaining customers in the banking system.

Data analysis:

Pearson's coefficient of correlation was used to measure the relationship among the phrases. In particular, it shows the linear relationship between any two variables and how they are related to each other. Thus, Pearson's test was used to calculate the internal consistency between any given items with the whole items of the questionnaire through an experimental sample of 30 subjects.

After approaching this experimental sample, it is clear that there is a correlation between items with their dimension on a confidence interval with statistically high significance, which proves the consistency of the questionnaire and the cohesion of its items.

Cronbach's alpha test was also performed to ensure the reliability of the questionnaire items. The results are shown in table (1).

Table 1: Reliability test (Cronbach's alpha)

Dimension	Number of items	Cronbach's alpha
Quality	8	0.87
Diversity	2	0.60
Retaining customers	6	0.79
Total	16	0.90

It is clear from table (1) that the value of alpha coefficient was (90%), which indicates a high reliability level on the questionnaire items, while the lowest score (0.60) which is statistically acceptable value for being greater than (0.50). This, of course, means that the questionnaire is reliable to be applied on the sample.

Spearman's Correlation test was performed between the item (Using the smart phone application keeping me with the bank) and the item (Using smart phone application contribute on not switching to other banks) for identifying the degree of accuracy in answering questionnaire items. The results came as shown in table (2).

Table 2: Questionnaire Accuracy (Spearman's Correlation Coefficient)

Spearman Correlation Coefficient		Using smart phone application contribute on not switching to other banks
Using the smart phone application keeping me with the bank	Correlation Coefficient	0.72
	Significance level	0.00

It is clear from table (2) that there is a relationship at the level of significance equal or less than 0.01 between items (13) and (16), where the correlation coefficient is (0.72) which indicates that there is a reasonable accuracy level on answering these questions by the respondents.

The total participants in the sample was (728) respondents, of which 507 respondents (70%) already have used the application. But the proportion of those who used application for a year was 68%, while varying the percentages for the other: Daily (15%), weekly (36%), monthly (32%), and more than a month (17%).

Distribution of Sample Participants Based on Demography Variables:

The highest percentage (39%) of the distribution of the sample according to their ages is for the age group between 30 and 40 years, followed by age group of 22-30 years (37%). While the lowest percentage (3%) for the age group less than 22 years. The total number of males in the sample was 439 respondents (87%), while the total number of females was 68 respondents (13%). The highest percentage in the distribution of the sample according to their level of education was the undergrad level (56%), while high school or less is the lowest percentage (6%).

Level of income between SR 10,001 to SR 20,000 is the highest percentage for the distribution of the sample according to their monthly income (38%). While those who generate less than SR 5,000 monthly have the lowest percentage (12%).

Table (3) shows the most important services needed by Saudi banks' customers through smart phone applications. After extracting the averages of customer answers, the results show that the payment of utility bills, government payment services, managing personal accounts, and adding beneficiary for money transfer are the most requested services. While loan and installments management services, and withdraw cash without a card are less needed services.

Table 3: Banking Services provided through Smart phone Applications that needed by Customers

No	Services	Need %
1	Managing my accounts (account statement, transfer from one account to another...etc.	93%
2	Adding beneficiary (for money transfer)	89%
3	Transfers between accounts within the bank, accounts in local banks, international money orders, or standing orders	85%
4	Request a checkbook, request and cancel the ATM card, request and cancel the credit card, activate cards	68%
5	Payment of utility bills and government payments	96%
6	IPO, buying and selling stocks, mutual funds	68%
7	Credit card account management (detection credit operations, payment of credit card dues)	77%
8	Loans and installments Management	61%
9	Withdraw cash without a card (urgent cash)	60%

Hypotheses Testing:

First Hypothesis: Quality and Customer Retaining

It is clear from Table (4) that there is statistically significant relationship between customers retaining and all of the following quality elements arranged by the power of their relationship (Coupling):

- 1- I feel relieved when implementing banking services through the smart phone applications;
- 2- I feel reassured when implementing banking services through the smart phone applications;
- 3- I feel safe when performing banking services through the smart phone applications;
- 4- I feel ease of use when performing banking services through the smart phone applications;
- 5- I can do banking services through my smart phone application at all times;
- 6- I do not need to go to the bank when I use my smart phone banking services applications.
- 7- Banking services are performed faster when I use my smart phone applications;
- 8- Banking services are performed immediately by a smart phone applications.

Table 4: Hypothesis Testing on Quality and Customer Retaining

No	Items in Quality Dimension		χ^2 Value	Sig Level. (2-sided)	Is there a relationship	Coupling coefficient	Coupling coefficient rate
1	I feel relieved when implementing banking services through the smart phone applications	Item number 16	166.109	.000	Yes	57.2%	63.6%
		Item number 11	374.314	.000	Yes	85.9%	
		Item number 12	450.830	.000	Yes	94.3%	
		Item number 13	184.824	.000	Yes	60.4%	
		Item number 14	40.426	.001	Yes	28.2%	
		Item number 18	156.358	.000	Yes	55.5%	
2	I feel reassured when implementing banking services through the smart phone applications	Item number 16	129.805	.000	Yes	50.6%	56.7%
		Item number 11	338.024	.000	Yes	81.7%	
		Item number 12	301.072	.000	Yes	77.1%	
		Item number 13	169.607	.000	Yes	57.8%	
		Item number 14	26.767	.044	Yes	23.0%	
		Item number 18	125.690	.000	Yes	49.8%	
3	I feel safe when performing	Item number 16	115.311	.000	Yes	47.7%	57.8%

	banking services through the smart phone applications	Item number 11	427.219	.000	Yes	91.8%	
		Item number 12	294.556	.000	Yes	76.2%	
		Item number 13	148.042	.000	Yes	54.0%	
		Item number 14	33.668	.006	Yes	25.8%	
		Item number 18	132.980	.000	Yes	51.2%	
4	I feel ease of use when performing banking services through the smart phone applications	Item number 16	130.095	.000	Yes	50.7%	56.4%
		Item number 11	309.567	.000	Yes	78.1%	
		Item number 12	333.913	.000	Yes	81.2%	
		Item number 13	140.948	.000	Yes	52.7%	
		Item number 14	40.288	.001	Yes	28.2%	
		Item number 18	113.980	.000	Yes	47.4%	
5	I can do banking services through my smart phone application at all times	Item number 16	79.362	.000	Yes	39.6%	47.3%
		Item number 11	218.577	.000	Yes	65.7%	
		Item number 12	236.533	.000	Yes	68.3%	
		Item number 13	84.489	.000	Yes	40.8%	

		Item number 14	34.258	.005	Yes	26.0%	
		Item number 18	95.188	.000	Yes	43.3%	
6	I do not need to go to the bank when I use my smart phone banking services applications	Item number 16	143.319	.000	Yes	53.2%	46.6%
		Item number 11	89.401	.000	Yes	42.0%	
		Item number 12	153.978	.000	Yes	55.1%	
		Item number 13	74.748	.000	Yes	38.4%	
		Item number 14	74.916	.000	Yes	38.4%	
		Item number 18	140.565	.000	Yes	52.7%	
7	Banking services are performed faster when I use my smart phone applications	Item number 16	136.301	.000	Yes	51.8%	55.1%
		Item number 11	192.745	.000	Yes	61.7%	
		Item number 12	257.039	.000	Yes	71.2%	
		Item number 13	123.464	.000	Yes	49.3%	
		Item number 14	44.009	.000	Yes	29.5%	
		Item number 18	229.137	.000	Yes	67.2%	
8	Banking services are performed	Item number 16	84.128	.000	Yes	40.7%	50.6%

	immediately by a smart phone applications	Item number 11	187.737 ^a	.000	Yes	60.9%	
		Item number 12	251.048 ^a	.000	Yes	70.4%	
		Item number 13	93.831 ^a	.000	Yes	43.0%	
		Item number 14	52.151 ^a	.000	Yes	32.1%	
		Item number 18	162.209 ^a	.000	Yes	56.6%	

Second Hypothesis: Diversity and Customer Retaining

It is clear from table (5) that there is statistically significant relationship between customers retaining and all of the following diversity elements arranged by the power of their relationship (Coupling):

- 1- The bank meets all my banking services that I wish through the smart phone applications
- 2- I do not need to go to the bank when I use my smart phone banking services applications

Table 5: Results of Hypothesis Testing on Diversity and Customer Retaining

No	Items in Diversity Dimension		x ² Value	Sig Level. (2- sided)	Is there a relationship	Coupling coefficient	Coupling coefficient rate
1	The bank meets all my banking services that I wish through the smart phone applications	Item number 16	169.591	.000	Yes	57.8%	52.1%
		Item number 11	137.355	.000	Yes	52.0%	
		Item number 12	293.064	.000	Yes	76.0%	
		Item number 13	145.711 ^a	.000	Yes	53.6%	

		Item number 14	62.910	.000	Yes	35.2%	
		Item number 17	73.316	.000	Yes	38.0%	
2	I do not need to go to the bank when I use my smart phone banking services applications	Item number 16	143.319	.000	Yes	53.2%	43.8%
		Item number 11	89.401	.000	Yes	42.0%	
		Item number 12	153.978	.000	Yes	55.1%	
		Item number 13	74.748	.000	Yes	38.4%	
		Item number 14	74.916	.000	Yes	38.4%	
		Item number 17	65.156	.000	Yes	35.8%	

Third Hypothesis: Demography Differences and the Importance of Using the Smart Phone Applications

It is clear from table (6) that there is statistically significant relationship between Demography Differences and the Importance of Using the Smart Phone Applications arranged by the power of their relationship (Coupling): Monthly income, Gender. It is clear from the table (6) that there is no relationships between Demography Differences and the Importance of Using the Smart Phone Applications and age, and education level.

Table 6: Results of Hypothesis Testing on Demography Differences and the Importance of Using the Smart Phone Applications

No	Demography Dimension	Items in Demography Dimension	χ^2 Value	Sig Level.	Is there a relationship	Coupling coefficient
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				(2-sided)		
1	Age	Item number 3	11.603	0.478	No	-
		Item number 11	11.527	0.776	No	-
2	Gender	Item number 3	11.224	0.011	Yes	14.9%
		Item number 11	3.764	0.439	No	-
3	Education level	Item number 3	8.429	0.492	No	-
		Item number 11	11.685	0.471	No	-
4	Monthly income	Item number 3	28.806	0.004	Yes	23.8%
		Item number 11	13.424	0.642	No	-

Findings:

The findings of this study as follow:

There is a strong relationship and a positive impact among all the components of the quality of banking services provided through smart phone applications and retained the customers in banking services, indeed, this result is consistent with the study of Saleem and Rashid (2011). The study shows a positive relationship between customer satisfaction, elemental safety and ease of use. The researchers believe that the existence of this relationship depends on the privacy policy and the risks that may result from intrusions across applications and electronic services in general. In addition to the customer's desire to get quick and affordable applications, it is very important to implement banking services through smart phones applications with security and ease of use measures.

There is a strong relationship and a positive impact among all components of the diversity of banking services provided through the elements of smart phone applications. This is due to the customer's desire to get banking services quickly as compared to visiting branches and wait long time to be served. This conclusion confirms with the result of the study done by Saleem and Rashid (2011) which indicates that the breadth and diversity of operations provided through phone applications that increase customer satisfaction.

Nine banking services have been studied, the payment of utility bills, government payments service, managing personal accounts and adding beneficiary for money transfer have the highest

importance for the customers. This finding is comparable with the result of Goyal *et al.* (2012). It is also suggested that the services that are frequently used in times close to customers is the most important, followed by the use of the least important, and so on.

Four demographic elements have been studied, two of them important elements for the use of banking applications on smart phones applications are: monthly income and gender (in order of importance), while there is no relationship between the other two, namely age and educational level. This justifies the lack of relationship with age and educational level that hand held devices are becoming affordable for ease of use by all age and educational groups. The relationship between monthly income and gender are natural because the banking operations are often showed direct relationship with the increase in the money. With respect to the relationship of gender, the researchers show that this was due to the behavior of life of people in Saudi Arabia, where men have to perform a lot of tasks and financial services, including banking, which is explains the difference in the importance of banking operations between the male and female. Researchers observed that females who had already used smart phone applications had a lower proportion (13%) which might be an indication that the banking culture among males was higher than females. This may be due to the high proportion of unemployed females (58%) compared to males (Labor Force Survey, 16: 1434).

The relationship between the qualities of banking services offered through the smart phone applications is stronger than the relationship between diversity and retaining these services to the customers. The researchers believe that the reason for this is due to customers' concern about security risks resulting from the use of electronic applications more than the interest in the diversity of services offered by banks.

The presence of a high percentage of customers who have never used banking operations through smart phones is 30 per cent. This may be due to a bad impression for banking services offered through smart phone applications in customers' minds. Security aspects, ease of use may increase banking services through smart phone applications. Banks must take into account these aspects to retain customers' services, saving time, and effort as well as reducing cost for both parties.

Recommendations

1. Banks should give their attentions on the quality of services provided through smart phone applications. Customers are looking for quality of services provided to forego their going to the bank.
2. Banks should focus when developing applications on the characteristics and elements that represent quality according to their importance for the customer, as well as they should focus on the applications of the relevant promotional campaigns on smart phones.
3. Banks should know the services desired by the customers to be provided to them through smart phone applications.
4. The study shows that a large proportion of customers who use banking applications on smart phones prefer the process of adding the beneficiary through the application, where this service still not provided by some Saudi banks, so that the banks must hasten to provide this service to their customers.
5. Due to the high proportion of those who do not use the banking applications on smart phones, (30% of the total number of customers), it is important for banks to encourage their customers to use the smart phone applications for better quality and diversity as to save time and effort as well as reducing cost to the customer and the bank.
6. In this study, the focus is on the smart phone applications as one of the important channels between banks and their customers, and the researchers believe the importance of further research and development on this area.

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