Factors Affecting the Adoption of Mobile Services in the Libyan Banking Sector: Qualitative Evidence

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Abstract :

Mobile services have been a huge success in terms of adoption volume by most global banks. In this paper, we review existing literature on customers who have adopted this service and highlight the capability of mobile services. The purpose of this paper is to fill a gap in the literature and to investigate M-services adoption and usage in the Libyan banking sector to measure the level of those factors against M-services usage and adoption.

Fifteen semi-structured interviews were conducted to collect data from a sample of Libyan citizen participants in Australia who have banking accounts and experience with the Libyan banking sector. These sample sizes of Libyan customers were drawn from a population in different cities of Australia and this paper has used the manual technique to analyse the data collected. The findings of interviews provide useful insight for banks in developing appropriate and real strategies to meet customer's needs, and further, to maintain and increase the degree of adoption with M- services.

الملخص:

هذه الدراسة تستعرض العديد من الكتابات السابقة التي تناولت بناء علاقات مع العملاء ومعرفة اهتماماتهم المستقبلية، اضافة الي تسليط الضؤ علي قدرة وجودة الخدمات الهاتفية. ان الغرض من هذه الورقة ملء الفراغ الاكاديمي و معرفة العوامل الفعالة لاستخدام الهواتف النقالة في القطاع المصرفي الليبي للرفع من كفاءة الخدمات وجودتها، والحصول علي ميزة تنافسية. أجريت عدد خمسة عشر مقابلة شخصية لجمع البيانات من عينة من المساهمات من المواطنين الليبيين المقيمين في أستراليا الذين لديهم حسابات مصرفية والخبرة مع القطاعات المصرفية الليبية والاسترالية.نتائج المقابلات توفر معلومة مفيدة للبنوك حول كيفية استخدام

الخدمات الهاتفية في تطوير استراتيجيات مناسبة وفق لتلبية احتياجاتالعملاء في كل مكان وزمان والحفاظ عليهم.

Keywords: M- Services; Privacy; Service Quality; Competitive Advantage.

Introduction

Advances in technology, for example, Mobile Phone Services (M-Services) have dramatically changed the preconditions for service delivery in recent years, heavily impacting on service options and services support and on attaining competitive advantages. Service providers across most industries are now starting to employ Mobile services at various stages in the service delivery processes and in service support operations to improve the quality, privacy and competitive advantages of their service offerings. For example, M- services as new technology-enabled changes are changing the way service providers and their customers interact with each other. Essentially, mobile phone data network channels allow customers to access their data and services remotely using mobile-enabled devices.

In a study by Kardaras and Papathanassiou (2000), M- services were demonstrated to provide businesses with cheaper methods (both tools and activities) for accessing customers' views and positions. These advantages have been common across diverse industries. For example, implementation of M-services as tools to enhance communication helped many manufacturing companies to interact with their customers more efficiently ([1]). These communication tools are now widely used in different industries and within a range of areas of business, having been now embedded in operations for over ten years in most cases ([2]).

1 Mouelhi, R. B. A. (2009). "Impact of the adoption of information and communication technologies on firm efficiency in the Tunisian manufacturing sector." Economic Modelling **26**(5): 961-967.

2 Laukkanen, T. and M. Pasanen (2008); "Mobile banking innovators and early adopters: How they differ from other online users?" Journal of Financial Services Marketing **13**(2): 86-94.

The M-banking revolution has become a key to the future development of the banking sector, largely due to its ability to enhance connections, communication, interaction and therefore competitive advantages of banks. Banking in several developing countries (e.g. Libya) has transcended from a traditional model of customers queuing for services in the banks to a new scenario where banks can be reached from any point to access services.

The current investigative paper is an attempt to explore and identify the primary factors that may affects mobile services adoption in the Libyan banking industry. Specifically, the primary goal of this paper is to balance the systematic collection of data with the flexibility needed to explore respondents' understandings about factors that have influence on the adoption of M- services.

In previous decades, Libyan banks have traditionally delivered services through face-to-face interactions with customers for services at branch offices. Recent modernizations in telecommunications have enabled the start of new access methods for banking services. One of these is mobile banking. It is defined as, 'a channel whereby the customer interacts with a bank via a mobile device, such as a mobile phone or personal digital assistant ([1]).

"M-banking" is a term used for performing check balances, account transactions, payments and so on via a mobile device. It is most often presented via SMS, mobile voice and mobile banking applications. M-banking services have the potential role to save money, and provide an overview of accounts, loans and other available opportunities for customers.

Mobile banking has provided a significant opportunity for banking institutions to introduce new kinds of services to customers ([2]).

3 Amin, H. (2008). "Factors affecting the intentions of customers in Malaysia to use mobile phone credit cards." Management Research News **31**(7): 493-503.

[2]Ivatury, G. and M. Pickens (2006). Mobile phone banking and low-income customers - evidence from South Africa. Consultative Group to Assist the Poor / The World Bank and United Nations Foundation. U. N. F.-. CGAP.

[2]Pousttchi, K. and M. Schurig (2004).Assessment of today's mobile banking applications from the view of customer requirements.37th Hawaii International Conference on System Sciences (HICSS).Big Island, Hawaii.

Mobile banking is becoming the first communications technology to have more users in developing countries than in developed ones, e.g. more than 800 million mobile phones were sold in developing countries in 2003 ([1]).

Numerous studies have determined that M-services have had a positive influence in relationships between banks and customers via cell phones, SMSs and voice messaging. It has been strongly established as the most important distribution and communication channel for retail banking. As a result mobile banking has significantly changed the way in which many customers access their bank account ([2]).

Current channels through which the mobile banking services have the ability to create new ways of interaction between with banks and customers will be discussed. Presently, most banks worldwide have provided diverse services and solutions for customers through mobile services ([3]).

The Mobile Marketing Association (2009) reported that mobile banking provides diverse services including customer service, account balance, mortgage alerts and transaction information. These services are delivered via mobile channels such as SMS, mobile applications and mobile web; each banking platform can send simple SMS notes to most customers because they already have similar functionality for sending information via mobile banking.

To remain competitive, Banks need to provide unique services for individual customers. Standard services are executed according to constant rules and unique services are created for unique situations. Standard services could be, for example, to view account balances or pay rent, if that is based on a fixed price. Unique services, in turn, could be offered; for instance, a loan application or an investment. In practice, many services fall in between these two extremes. Many routine transactions are like standard services, except that some inputs vary for

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[3]Mobile Marketing Association.(2009). "Mobile Banking Overview."Retrieved 25 July, 2013.

[3]Dewan, S. M., G. Low, et al. (2009).Consumer choice model of mobile banking.20th Australasian Conference on Information Systems, Melbourne, Australia.

each transaction. Withdrawing money from an account, transferring money from one account to another or paying a phone bill are good examples.

We believe that Mobile banking is a powerful way to use customer's communication channels offer greatly expanded services, for example, checking an account balance, receiving information on previous money dealings and checking credit card information by telephone, face to face or SMS ([1]). Indeed, M-banking can offer services such as: access to loan statements, monitoring of term deposits, one to one payments, bill payment processing, domestic and international fund transfers, status of requests for credit, mortgage approval, insurance coverage, loyalty-related offer-based services, exchange of data messages and emails, complaint submission and tracking, general information such as weather updates and news.

Mobile Banking in Libya

Libyan banks have traditionally delivered services through face to face interactions with customers at branch offices ([2]) and this is still a common practice. Mobile phone penetration figures below indicate that there will soon be more users of mobile phones in developing countries than in developed ones (e.g. more than 800 million mobile phones were sold in developing countries in 2003). Recently, mobile phone penetration rates were 79% in 2011 and increased to 89% in 2013 in developing countries on average ([3]), so our suggestion is that m-banking has the potential to be a popular method of service delivery for developing countries.

The mobile phone adoption and penetration rate in developing Arabic countries is shown in Table 1, (data gathered in Reference ([4])).

[5] Laukkanen, T. and M. Pasanen (2008). "Mobile banking innovators and early adopters: How they differ from other online users?" Journal of Financial Services Marketing **13**(2): 86-94.

[2]International Telecommunications Union.(2013). "ICT Facts and Figures."Retrieved 25 July, 2013.

[3]Deloitte. (2013). "Arab States Mobile Observatory 2013." Retrieved 30 July, 2013.

[4]Scornavacca, E. and H. Hoehle (2006)."Mobile banking in Germany." All Sprouts Content **6**(28).

The evolution of mobile services is still at an early stage in most Arabic countries especially in Libya, and access to the Web over mobile phones is a small proportion of the mobile phone space as a whole, compared to the volume of SMS texts sent.

Country	2001	2002	2003	2004	2005	2006	2007	2008	2012
Egypt	4 %	7%	8%	11%	19%	24%	36%	48%	105%
Jordan	1%	24%	-	5%	39%	57%	78%	83%	143%
Sudan	0%	1%	2%	3%	5%	12%	19%	-	73%
Algeria	0%	1%	5%	15%	42%	63%	81%	-	109%
Morocco	17%	21%	25%	31%	41%	52%	64%	-	119%
Libya	1%	1%	2%	9%	34%	34%	73%	-	129%

Source: Deloitte Report 2013.

Table 1: Rate of mobile phone adoption and penetration in Arabic countries

M- Services advantages

M-services implementations usually include facilities to conduct banking transactions and access information through the use of a mobile phone. Once a customer has established an account with a bank and deposited money into that account, they can usually manage their money and bank interactions through their mobile device. Basic implementations use short message services (SMS), while more advanced ones use mobile applications and mobile web interfaces ([1]). Other studies have recognised advantages of m-services as listed below:

- Through the use of mobile devices banks can automate advanced alerts “account alert” in real-time. There is the potential to have systems in the mobile system to allow a customer to push a call button which connects them to a bank services agent ([2]).

[1]Mobile Marketing Association. (2009). "Mobile Banking Overview."Retrieved 25 July, 2013.
[2]Mobile Marketing Association. (2009). "Mobile Banking Overview."Retrieved 25 July, 2013.

- M- Banking creates new ways to generate real-time customer experience. M-banking applications facilitate numerous banking services such as accessing account balances, electronic payments, making deposits and withdrawals, transferring money.

- Customers generally perceive m-banking as cost-effective and time-saving, and banks also see it as a cost-reduction measure ([1]). As result, M-services are easy to use and most customers are already becoming familiar with it.

Methodology

Qualitative research is especially effective in obtaining culturally-specific information about values, opinions, behaviours, populations and information and communication technologies. It is also useful for gaining extensive information (depth, different levels and real) on how banking / customers can adapt to use mobile applications and facilities.

Qualitative interviews are one of the most important data-gathering tools in all types of qualitative research – positive, interpretive and critical. Semi-structured interviews are ideal as they can be specifically targeted to investigate and understand suggested views of customers who use technologies in the banking sector ([2]).

A semi-structured interview technique is also useful in the process of standardising responses that can range widely in opinion. It then allows the interviewer to explore further items raised by the interviewee. The value of interviewing is its ability to collect rich qualitative data about particular processes from the viewpoint of selected individual customers. Actually, it allows the interviewee to express their opinions, concerns and feelings as well as to build rapport, because they allow interaction between the interviewer and the interviewee ([3]).

[1]Zhou, T. and Y. Lu (2011)."Examining mobile instant messaging user loyalty from the perspectives of network externalities and flow experience." Computers in Human Behavior**27**(2): 883-889.

[2]Kaplan, B. and J. A. Maxwell (1994). Qualitative research methods for evaluating computer information systems. Evaluating the Organizational Impact of Healthcare Information Systems Health Informatics. New York, USA, Springer**:** 30-55.

[3]Abukhzam, M. and A. Lee (2010)."Workforce attitude on technology adoption and diffusion." The Built & Human Environment Review **3**: 60 - 71.

Data Analysis and Findings

Initially, in this section the analysis provides information about each respondent's demographic information in terms of five characteristics collected. Table 2, below shows interviewees' demographics summarised according to five major characteristics collected. From an overall analysis of the data in below table, the interviewees were from a background with a high level of education. It was expected that this sample would be able to clearly articulate their ideas of mobile services in the Libyan banking sector.

The last column of table (2) lists the name of Libyan bank that was each interviewee's primary bank. Gumhoria Bank (GB) was used by most of the interviewees (seven interviews). Furthermore, the analysis provides information in terms of gender, age and education level, which is a typical analysis used in most studies ([1]).

Interviewees' period of usage of M- banking can be summarised as below:

- Four interviewees had never used self-service technologies;
- Three interviewees had used M-service technologies for less than 1 year;
- Six interviewees had used M-service technologies for 1-2 years;
- Only one interviewee had used M-service technologies for 2-5 years;
- One interviewee had used M-service technologies for over 5 years.

Interviews	Gender	Age	Education Level	M-Banking	Libyan Bank
C1	Male	25-34	Postgraduate	1-2 Years	GB
C2	Female	25-34	Postgraduate	1-2 Years	NCB
C3	Male	35-44	Postgraduate	Over 5Years	GB
C4	Male	25-34	Postgraduate	Less 1 Year	NCB
C5	Male	25-34	Postgraduate	1-2 Years	CDB
C6	Male	25-34	Postgraduate	1-2 Years	UB
C7	Male	25-34	postgraduate	Less 1 Years	SB
C8	Female	35-44	**Undergraduate**	2-5 Years	GB

[1]Selamat, Z. and N. Jaffar (2011)."Information technology acceptance: From the perspective of Malaysian bankers." International Journal of Business and Management **6**(1): 207-217.

C9	Male	25-34	Postgraduate	Less1 Years	GB
C10	Male	35-44	Postgraduate	1-2 Years	SB
C11	Male	35-44	Postgraduate	1-2 Years	GB
C12	Male	35-44	Postgraduate	Never	WB
C13	Male	25-34	Postgraduate	Never	NBC
C14	Male	35-44	Postgraduate	Never	GB
C15	Female	25-34	postgraduate	Never	GB

Source: Prepared by the Author

Table 2: Interviewee Characteristics

As shown in Table 3 below, all interviewees had clear-cut gender responses, and their age and education level responses seemed consistent. As shown in the above table (2) 80 % of respondents were male and 20 % were females. This heavily skewed sample towards male respondents may reflect a greater interest in or exposure to interactions with the M-services for males.

In regard to age, Table 3 shows that only six (40 %) of the respondents were in the age group 35 - 44 years. The majority of the respondents (60 %) were 25-34 years old. The sample distribution of respondents' ages potentially supports the previously reported conclusion that older customers are usually less willing to adopt new technology than are younger customers ([1]). It is also important to note that this sample was based on Libyans residing in Australia (typically on student visas), which impacted on the age range of the sample; the distribution of respondents' ages appears to be appropriate for this population.

Measure	Item	Frequency
Gender	Male Female	12 3
Age	25 – 34 35 – 44	60 % 40 %
Education Level	Undergraduate Postgraduate	7 % 93 %

Source: Prepared by the Author

Table 3: Interviewee Demographics

[1]Yiu, C. S., K. Grant, et al. (2007). "Factors affecting the adoption of Internet Banking in Hong Kong—implications for the banking sector." International Journal of Information Management **27**(5): 336-351.

With respect to the level of education, Table 3 shows that the vast majority of respondents had done or were undertaking postgraduate studies (93 %). As most of the respondents were Libyan students studying in Australian universities, this was expected.

Factors Indicating M-services Adoption

Inherent in M-services are numerous features that facilitate its success. These are supported by broader technology adoption and Internet penetration trends. Many of these features have already been highlighted in discussions above relating to M- services specifically.

This section of analysis provides a series of questions that were asked to explore interviewees' perceptions of M-banking, and determined whether the interviewees perceived that these service technologies could be used by banks to enhance the services that they offered customers. All fifteen interviewees believed that M- services had advantages and could be used by customers to enrich their adoption of banking services.

1. E-privacy

Privacy generally refers to the hiding of some information, which is distinct from other information that involved parties are willing to share with others. Privacy is defined as "the claim of individuals, groups, and institutions to determine for themselves, when, how, and to what extent information about them is communicated to others" ([1]). This definition has been used in previous studies of online banking ([2]). Privacy generally includes the right of individuals to determine for themselves when, how, and to what extent information about them is communicated to others ([3]).

[1] Westin, A. F. (1967). Privacy and Freedom. New York, Atheneum.

[2]Ahmed, I. and K. Jamal (2007)."Information Technology Need in Consumer Banking and a Case Study of CAMS." Ubiquitous Computing and Communication Journal **2**(2): 1-5.

[3] Peterson, D., D. Meinert, et al. (2007). "Consumer trust: privacy policies and third-party seals." Journal of Small Business and Enterprise Development **14**(4).

M-banking is a subset of Internet banking as it allows easy access to banking services via mobile handsets, typically through modified versions of the Internet banking services. Five interviewees [C3, C7, C8, C12& C13] referred to the concept of m-banking in their interview when discussing the benefits associated with self-service technologies. For example C3 stated that: *My m-banking provides simple and brief messages about banking accounts and other critical information, so it gives flexibility in communication with banks' employees so I can know everything at any time.*

Similarly, one of the respondents C12, C7 or C13 stated that: *I can receive private SMS from my bank about my account transactions and any other important information. This gives me, as a customer, flexibility in interacting and communicating with employees at my bank to know everything with a complete care of privacy processes.*

While it is now common to assume that the customers and banks can secure their data exchange, some customers are interested in a stronger level of security that allows them to hide their data from the bank as well. This is also true from the perspective of banks, who would like to maintain privacy of data as much as possible ([1]).

C12 stated that: *My bank provided a number of channels to manage my money and accounts anytime through modern electronic channels to serve my needs. In my opinion, those services by electronic tools will be supported by my interactions with the bank. This is related to many advantages, such as my ability to find out about my account and receive bank statements without wasting time going to the bank. I can receive enough information about the operation of my accounts with low risk and cost in a private way.*

Electronic privacy brings opportunity for banks to make major gains. Sound electronic privacy protection can create a virtuous circle in which both the business and its customers benefit. If customers trust the business, in return they will provide better quality personal information. This allows the business to address customer needs more accurately and

[1]Avdan, S. and M. Butman (2007).Efficient Methods for Privacy Preserving Face Detection.Advances in Neural Information Processing Systems. Vancouver, B.C., Canada, The MIT Press. **19:** 57-64.

more cost-effectively. All these factors mean that banks that engender greater trust through sound protection of privacy are more likely to get closer to customers. Therefore, privacy is at the heart of the business and customer relationships. It involves crucial issues about power, value and the use or abuse of personal information ([1]).

C3 stated that: *M-banking can reduce overcrowding at the bank teller and lead to an increased degree of services, anywhere, because I can complete bank procedures from my home or office without the need to go to the branch, so it saves my time and my effort especially when I need to pay bills or transfer money with a complete protecting of my privacy.*

With regard to concerns arisingfrom the use of M- banking transaction processes, there were five interviewees [C1, C4, C5, C8 and C12] who believed that banking transactions involving technologies had concerns.

C5 *identified that his personal concerns were stealing money online or poor security (i.e. penetration of the protection of the bank system) and reduced privacy from others if unauthorized logins to his account occurred*.

C8 stated that: *I am looking for privacy (data confidentiality) and security of online service because these are key issues in the adoption of mobile applications in our bank. For example, I worry about issues like penetration of the protection system of the bank or stealing money when they log in to my account, I am worried about a breached online security system of my bank and damaged privacy.*

Interviewees' beliefs regarding any concerns that would affect their long-term relations with their bank were explored. Ten interviewees [C1, C5, C6, C7, C8, C9, C10, C11, C12 and C14] identified that they had no concerns that would have any real impact on their future relationship with their bank.

C1 stated that: *I believe that my concerns rise when Libyan banks introduce a new technology. These cases always have a rate of risk, but banks should continue to work to reduce the risks that will lead to damage and to misunderstanding of using new technology. On the other*

[1]Jutla, D. and P. Bodorik (2003).A client side business model for electronic privacy 16th Bled eCommerceConfernce.Bled, Slovenia**:** 463-479.

hand, I think the banks have the ability to safety introduce programs and enhance relations in the long term.

Seven interviewees [C4, C5, C6, C7, C8,C10and C12] suggested solutionsto address the common concerns raised by numerous interviewees. All solutions were related to the bank designing protection agenda to protect and ensure privacy of customers, and guarantee that interactions are as secure as possible for all customers.

C6 stated that: *I am interested in being able to send or receive an SMS or mobile call when I do anything in my account such as check account or transfer money, to confirm it is correct and this would also lead to keeping in touch with my bank.*

C12 stated that:*I prefer to increase the degree of awareness of electronic banking, so all customers know they can be targets and will protect their private information and keep their password strong and secure.*

Interviewees commonly expressed their support for a program with rules to protect their accounts (such as developing a complex password) so increased protection procedures would be in place to address security concerns.

2. Service quality

Service quality is an important concept for both customers and providers in the banking sector, as customers usually look for high quality services. Service providers hope that quality services will enhance their image, sales and profitability ([1]).

Nowadays, service quality is a widely used concept in the banking industry. It can be defined in many different ways from the viewpoint of the customer. Service quality can be defined as economic activities that create value and positive benefits for customers at specific times and place as result of bringing about a desired change in, or on the

[1]Dabholkar, P. A. (1996). "Consumer evaluations of new technology-based self-service options: An investigation of alternative models of service quality." International Journal of Research in Marketing **13**(1): 29-51.

behalf of, the recipient of the services ([1]). An alternative definition is that service quality is the difference between the dimensions in customers' perceived service and opportunity of service ([2]). If banks provide services of poor quality, they will not be able to perform their work effectively. Moreover, as products and customer services within the banking industry become more similar and substitutable, switching costs become lower and more affordable for customers ([3]).

Service quality is a relative concept, linked on the one hand to the ability of the product to satisfy the requests of the customer. The increasing focus on quality has enhanced banks' ability to produce goods or provide services that are able to meet the needs of customers. Service quality is also linked to the ability to achieve the wishes of the customers in a form that corresponds with their expectations and achieves complete satisfaction with the product ([4]).

The growth in Mobile-based services has changed the way that banks and customers interact. E-service is conceptualized as an interactive information service that provides a means by which a bank can differentiate its service offerings and build a competitive advantage. Key themes within the e-service quality literature include the dimensions and measurement of E-service, elements of the web experience and the relationship between the web-experience, trust, customer satisfaction, intention to purchase, and loyalty. This emphasis on the role of technological service facilitators contrasts to traditional service quality research, which emphasized the human element of service delivery ([5]).

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[1]Sadek, D. M., N. s. Zainal, et al. (2010). "Service quality perceptions between Cooperative and Islamic Banks of Britain." American Journal of Economics and Business Administration **2**(1): 1-5.

[2] Wei, K. K (2009) "service quality: A study on Malaysian banks. Journal of Contemporary management research 5(2): 109 – 124.

[3] Vogel, M. A. (2005). Leveraging information technology competencies and capabilities for a competitive advantage.Maryland, USA, University of Maryland.**Unpublished doctoral dissertation**.

[4]Spathis, C. and E. Georgakopoulou (2007). "The adoption of IFRS in South Eastern Europe: the case of Greece." International Journal of Financial Services Management **2**(1): 50-63.

Customers often evaluate quality of service via groups of criteria. One common criterion is reliability, which means achievement in a manner that is what the customer wants. The second common criterion is the speed of response when the customer needs help. It refers to the access time needed by a customer in order to complete the required bank service. Customers are considered key for any business to survive; the ability of banks to deliver their products and services appropriately defines their success within the industry ([1]).

In banking service industries particularly, the development of effective customer interactions is increasingly recognized as an essential component of relationship strategies. In most cases, the success of a service provider is dependent on high quality relationships with customers. Changes across the Libyan banking sector, the changes in technology use and rising customer expectations have all stimulated an active interest in managing customer relationships and have resulted in a growing focus on customer retention in the banking sector ([2]).

Recently, Libyan banks have come to understand the importance of offering online services to their customers, to the point where such services are now an essential and inevitable convenience. Fortunately, online banking services do not represent merely an expense for banks. Thanks to such services, customers' satisfaction levels rise while retention costs drop. In addition, online transaction costs are lower than all other channels combined ([3]).

Most respondents in this paper agreed that M-Services adoption has been enhancing their interactions with banking systems, as it has

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[5]Herington, C. and S. Weaven (2007). "Can banks improve customer relationships with high quality online services?" Managing Service Quality **17**(4): 404-427.

[1]Spathis, C. and E. Georgakopoulou (2007). "The adoption of IFRS in South Eastern Europe: the case of Greece." International Journal of Financial Services Management **2**(1): 50-63.

[2] Al-Fawzan, M. A. (2005). "Assessing service quality in a Saudi bank " Journal of King Saud University, Engineering Sciences **18**(1): 101-115.

[3]Mashat, A. A., B. Ritchie, et al. (2005) "The Social Role of Accounting: Views and Perceptions of the Accounting Community in Libya towards Corporate Social Responsibility and Accountability."

helped banks to conduct their activities more effectively and efficiently. For example, M-banking has a strong ability to enhance the experience and quality of interactions with banks. Twelve interviewees [C1 -C 5 and C7 - C13] believed that mobile applications could be a driver for increased quality of interaction opportunities between themselves and their bank.

C1 stated that: *Of course yes, service speed, ease of use and response time for customers leads to positive interactions.*

From C5 and C12 the comment was received: *I think there are some factors that help, such as employees' efficiency in interactions and providing quick answers for any questions. Additionally, good skills and a good impression are reflecting a good quality.*

Customers were looking for an improvement in their feelings towards their banks. There were many factors of importance that were identified for quality support such as increasing the trust, satisfaction of customers, and a smiling face from the employee in the branch when meeting customers. The interviewees indicated that this leads to increased honesty which is important for customers with their bank.

C12 stated that: *The bank can increase numbers of customers and profits by using Mobile applications to serve customers and add high value with low cost. M-banking is a new tool which creates the ease of quality interaction between the bank and customers without the need for meeting face to face with tellers.*

C8 commented: *I have positive feelings towards the information, advantages and services which are supplied by my bank, as a result of their good quality website.*

C7 mentioned: *I can send my queries to my bank via their website and I can receive answers from them straight way.*

C12 stated that: *The website of my bank has adequate information which relates to loans and money transfers and also other important information for all customers.*

3. Competitive Advantages

Competitive advantage usually occurs when banks build long term customer relationships that can leverage information about specific customers to better understand their requirements and serve them. Some banks are able to become close enough to customers to suitably judge and serve their needs more effectively; customers join with banks with whom they enjoy a good relationship ([1]).

Many studies have confirmed that competitive advantage is sustained by adopting M- services. Study by Ray (2000) claimed that "Maintaining committed customer relationships have emerged as a sustainable competitive advantage". Competitive advantage has importance as it influences and builds great value for both banks and customers. Beccalli (2007) reported a similar finding that the definition of the competitive advantage stems from different organizational dynamic abilities arising from the successful use of M- services. This results in such things as timely responsiveness, flexible product improvement and enhanced management capabilities ([2]), which has a positive effect on banks' capabilities. This, in turn, creates improved competitive advantage.

Phan's (2010) definition of competitive advantage included the resources, capabilities, competencies, assets and processes that supply banking services with a distinct attraction to its customers and unique advantage over its competitors. In this definition, activities are used to attract and maintain customers. Competitive advantage activities include: banks providing services to customers at the lowest cost in the shortest time; value adding to create a service that offers highly desirable and distinct quality; speed that permits operational processes to be executed in a faster and superior manner; speed that permits banks to adapt to changing requirements of the market and being quicker than competitors; banks having continuous flow of creative services, which is valued by the customer; and customer service that has superior responsiveness to customers. These activities should work together to create competitive

[1]Ndubisi, N. O. (2007). "Relationship quality antecedents: The Malaysian retail banking perspective." International Journal of Quality and Reliability Management **24**(8): 1-17.

[2]Nucciarelli, A. and M. Gastaldi (2008). "Information technology and collaboration tools within the e-supply chain management of the aviation industry." Technology Analysis and Strategic Management **20**(2): 169-184.

advantages above and beyond activities that will positively reflect banking services to increase successful mobile operation ([1]).

In short, M-Services allow banks to gain a competitive edge because mobile adoption is a strategy to address competition ([2]). Successful banks have invested heavily in M-services, focusing on competitive advantage and collaboration processes with customers in different areas ([3]).

All of the participants in interviews stated that they would prefer to recommend a Libyan bank that used M-banking to others (for example family, friends, colleagues and neighbours). There are many reasons for the recommendation of a bank that employs M-service technologies. For example, one of C2, C5 and C10 stated that: *we would provide a recommendation for those M – services applications as a result of saving time, enhancing relationship operations and the ease of access, more convincing and speedy use of mobile services and really useful way for all.*

The use of M-service technologies in the Libyan banking sector is slowly becoming commonplace. As the Libyan interviewees were living in Australia, they had become accustomed to using these technologies to conduct their banking. In Libya, technology is becoming more important for business processes, particularly in banks. A question was asked to explore interviewees' knowledge about m-banking. The majority of interviewees [C1 – C6 and C8 - 15] agreed that these technologies created benefits / advantages for both banks and customers from the customer perspective.

C1 stated that: *The technology (mobile) is becoming essential for maintaining a modern lifestyle, particularly in economic sectors such as*

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[1] Ray, G. (2000). Information system and competitive advantage: A process oriented theory. Ohio, USA, Ohio State University **Unpublished doctoral dissertation:** 133.

[2]Cavusoglu, H. (2003). The economics of information technology investments Dallas, USA, University of Texas at Dallas.**Unpublished doctoral dissertation** 218.

[3]Phan, D. D. and D. R. Vogel (2010)."A model of customer relationship management and business intelligence systems for catalogue and online retailers." Information and Management **47**(2): 69-77.

in banks. In addition, the increasing speed of daily business (for example in banks) across many aspects of a business requires businesses to take vital steps and implement suitable procedures to achieve benefits for them.

C3 and C11 stated that: *we think mobile services can reduce overcrowding and deliver the best services for customers, so it creates customer satisfaction about those services because the mobile provides services 24 hour per days and 7 days per week, so there are no holidays.*

C12 commented: *mobile services are a great chance for anyone to manage money with confidence from home or work office any time. It is easy to transfer money internally or to another country. This is an alternative channel for easy money management. It means M-service can save customers' time to finish financial procedures with their bank. Also, banks can create competitive advantage in their local market because they have already achieved customers' support against any future competitors.*

From the interviewees' statements above, we can summarize that M-service technologies have the ability to share benefits between customers and banks. For example, sharing information among customers and banks in privacy in the Libyan banking sector will lead to increased trust and the reduction of daily routines and stress for employees in the banking system. Mobile applications can enhance customers' service quality, thereby increasing the number of new customers when a bank provides a high-quality and low-cost service. Mobile applications enable banks to create competitive advantages through the provision of good services to customers, as well as the ability to communicate and correct any errors. Mobile serves therefore have advantages for completing all processes by creating comfortable online interactions for customers with their bank, so it leads to the creation of customers' satisfaction about those services.

Discussion

We can see clearly in table (2) above that males show a high percentage of uptakes of m-services use (80%), whereas female participation is lower (20%). The studies by Yiu et al. (2007) and Emzio (2010) also reported that female respondents so far had a lower rate of adoption for M-banking than males. There are similar rates in studies by

Joshua and Koshy (2011), Emzio (2010), Al-Suker (2005) and Roses et al. (2009) - all had a higher percentage of male respondents; however these studies identified that males have a greater interest and preference than females for using m-services.

Most of the participants in the interviews were aged similarly; thus sixty percent (60%) of interview participants were in the 25-34 years age group. This demographic grouping may have been due to the convenient sample population used in this study (i.e. Libyans who were living in Australia, most of whom were studying at university). These age demographics are similar to the sample used in Ab-Hamid (2006) and Roses et al. (2009).

With respect to the level of education of the participants, all were highly educated, as was expected due to the convenient sample population of the research. Ninety three percent (93.3%) of the interviewees were engaged in postgraduate studies. The responses support the literature that claims highly-educated customers have more widely adopted Mobile services within the banking sector, such as the study by Joshua and Koshy (2011), by Malhotra (2011) and by Malhotra and Galletta (1999). Additionally, educated consumers tend to have higher requirements of service in their quest for trust and satisfaction and seek more advanced quality services than less educated users.

As the respondents were currently living and studying in Australia at the time of their participation in this paper, they had all had experience using mobile applications and had the ability to engage with banks. The time spent in Australia by the participants ranged from one to nine years. Most had experience using mobile service in both Libya and Australia and were therefore accustomed to modern technology.

The demographics and technology use analysis of the participants found that this younger generation of Libyans, who were students studying to further their education, were more likely to adopt newer technologies. These are individuals with the potential to drive M-service technology adoption in the banking sector on their return to Libya. Prior research has supported this argument, identifying that the younger generations are usually more interested in adopting mobile services than older generations ([1]).

[1]Twati, J. M. (2008). "The influence of societal culture on the adoption of information systems: The case of Libya." Communications of the IIMA **8**(1).

Participants stated that greater experience with the use of M-service technologies will lead them to demand greater access to m-banking services on their return to Libya. As they have become more experienced consumers, they now have higher expectations of service from their banks for them to be satisfied by the service offered. Prior research in literature has suggested that more experienced users are less likely to be satisfied with services that are not differentiated from other offerings, and hence they are less loyal. With Libyan banks improving their overall customer experience through the use of M-service adoption, it should be possible to enhance overall customer perception of the relationship with their bank.

Customers' experiences with a technology influence their awareness of similar technologies and hence can increase (or decrease) their intention to adopt the M-services. Libyan banks have the potential to create a positive attitude towards their customers through increased adoption of m-banking. This can increase relationship quality, trust and satisfaction, and promote the value of the banking services ([1]).

Conclusion

From the results presented above, it can be concluded that the majority of the respondents had employed the use of M-services technologies when they were available. Thus, the sample has sufficient knowledge of these technologies tools used in the banking sector to be suitable candidates for participation in this study.

In recent years, M-services have come to be considered highly effective banking services methods because they process many advantages that traditional banking channels cannot offer. These advantages refer to the benefits that customers can enjoy by using M-services. For example, customers can benefit from a wider range of financial incentives, faster transaction speed, and increased information transparency, lower transaction handling fees, higher deposit rates, and

[1]Al-Majali, M. (2011). "The use of theory reasoned of action to study information technology in Jordan." Journal of Internet Banking and Commerce **16**(2): online.

extra credit card bonus points ([1]). The interviewees in this paper identified all of these benefits, suggesting that customers of banks are aware of the possibilities available even when their primary bank does not offer and / or promote such services.

The purpose of M-services is to provide more facilities, enhance exchange processes among banks and customers, and manage information ([2]). These activities are important because they impact on the ability of banks to growth and achieve value for their customers, such as reduce transaction costs and enhance customer experiences ([3]).

Most participants had used M-banking for two years or less. This may be largely because Libyan banks are still in the early stages of using technology and longer is required to establish good offerings and promotion of online services for all customers. M-banking offers an opportunity for a bank to gain a competitive advantage in service quality.

The interviews revealed that the majority of the interviewees believed that it was very useful to have access to financial information. M-banking services were believed to increase the privacy of banking activities towards customers (such as paying bills) through reduced travel time to a physical branch, reduced paper work and 24/7 services access.

From these responses, the interviewees believe that M-banking is easy and useful for interacting with their banks and saves them time, because they can use this technology tool anywhere (for example cafe, meeting, bed and bus) and at any time. The interviewed Libyans believed that M-banking would be best for Libyan customers because it allows them to always interact with their banks, overcoming the restrictions of the still popular arrangement of in-branch banking using cheque books.

[1]Chi Lee, M. (2010). "Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation–confirmation model." Computers & Education **54** (2).

[2]Rivard, H. (2000). "A Survey on the Impact of Information Technology on the Canadian Architecture, Engineering and Construction Industry." IT Con **5**: 37-56.

[3]Nakata, C. and Z. Zhu (2006). "Information technology and customer orientation: A study of direct, mediated and interactive linkages." Journal of Marketing Management **22**(3-4): 319-354.

Customers generally perceive M-banking as secure ([1]). However, theft of access codes, finances and personal data is a significant concern. This is especially problematic when customers move from access on fixed internet devices to m-banking, where devices are more easily lost or stolen.

M-services provide access to bank and account related information anytime anywhere through the use of a mobile device. The bank can provide different services to customers through m-banking including balance inquiry, shopping, fund transfer, and bill payments with complete secrecy of customer privacy information([2]).

Given that M-banking offerings are mostly value-added services, with the mobile phone acting as a new channel to operating an existing bank account, it is necessary to modify the delivery of such services to include rural customers and those who are not already using M-services. While M-services are growing in popularity, banks have yet to shift the access frontier in order to 'transform money'. M-services present a great opportunity for the provision of banking services to those who do not have a bank account. In addition to technological and economic innovation, policy and regulatory innovation is needed to make these services a reality ([3]).

M-Services are often trying to provide customers with new ways of communicating responsibly in their current activities (for example, mobile banking). This paper enables banks to know the key drivers influencing M-services adoption and, therefore, what aspects to highlight in their strategies to focus on. Young and educated customers are heavy Mobile-services users - both males and females. However, banks have to be able to offer new types of e-services with added value to improve consumers' adoption of the M-services in their sector – especially female

[1]Zhou, T. and Y. Lu (2011)."Examining mobile instant messaging user loyalty from the perspectives of network externalities and flow experience." Computers in Human Behavior**27**(2): 883-889.

[2]Ghosh, A. K. and T. M. Swaminatha (2001)."Software security and privacy risks in mobile e-commerce." Communications of the ACM **44**(2): 51-57.

[3]Comninos, A., S. Esselaar, et al. (2008). "Towards evidence-based ICT policy and regulation: M-banking the unbanked." Research ICT Africa Retrieved 25 July, 2013.

bank customers who, so far, have shown a slower uptake in this and other studies ([1]).

Mobile service has appeared as significant distribution channel because M- service is able to satisfy the needs of the customer and provide benefits that make the service worth to accept. Actually, the findings indicate that the m-banking adoption areprivacy, services quality and competitive advantages, so there are the most significant items of intentions to adopt m-banking services in developed and developing countries.

This study makes numerous recommendations for continued research in the area of mobile banking.The services obtained from mobile networks are low-cost and relate to both business and leisure activities, which contributes to them being more widely accepted by customers. While students are likely to be excited adopters of M-services, a possible limitation of this paper is that we performed the sampling technique on consumers who are Libyan citizens but living in Australia where most of them are engaged in higher studies. This convenience-based sampling technique is being increasingly used in research, but care should be taken when trying to predict results of new M-services outreach to Libyan citizens in Libya.

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