

Effect of Mobile Devices on the Use Intention and Use of Mobile Banking Service in Myanmar

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미얀마에서의 모바일기기 특성이 모바일 뱅킹 서비스 사용의도와 실제 사용에 미치는 영향 연구

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Abstract Most banks in Myanmar have begun to provide their services via mobile phones. However, few studies investigated the factors that may help to set mobile services from a customer perspective. So, this study aims to propose and test a conceptual research model to predict the user's intention to use and actual use level of mobile banking service by combining UTAUT and DeLone-Mclean IS model. Data were collected from 206 citizens who had experienced mobile banking in various regions of Myanmar. The study found that performance expectancy, effort expectancy, information quality and service quality influence the user's intention to adopt mobile banking services which directly affects the user's actual use of them. However, social influence, facilitating condition and system quality don't influence the user's intention. The study results contribute to meeting customer's needs and reducing customer risk in Myanmar's mobile banking industry, suggesting to seamlessly provide the necessary resources like technology improvements, organizational infrastructure and service centers. Another future study are required to include service's security and trust factors so that the service providers could gain their customers' reliability and trust.

Key Words : Mobile Banking services, Mobile communications, UTAUT-IS, User adoption, Myanmar

요 약 오늘날 미얀마의 은행들은 휴대전화를 통해 금융 서비스를 제공하기 시작했다. 그러나 금융업계가 고객 관점에서 모바일 서비스를 설계하는데 유용한 요인들을 조사한 연구는 거의 없다. 본 연구는 UTAUT와 DeLone-Mclean IS 모델을 결합하여 모바일 금융 서비스 이용자의 사용 의도와 실제 사용 정도를 예측하는 개념적 연구모델을 제안하고 테스트하는 것을 목적으로 한다. 데이터는 미얀마의 여러 지역에서 모바일 뱅킹을 경험한 206명의 시민들로부터 수집되었다. 본 연구는 성과 기대치, 노력 기대치, 정보 품질 및 서비스 품질이 이용자의 모바일 뱅킹 채택 의도에 영향을 미치고, 이어서 이용자의 모바일 뱅킹 채택 의도는 실제 사용에 직접적 영향을 미친다는 사실을 발견했다. 그러나 사회적 영향, 촉진 조건 및 시스템 품질은 모바일 뱅킹 사용 의도에 영향을 미치지 않는다. 이 연구 결과는 미얀마의 모바일 뱅킹 업계가 고객의 요구를 충족시키고 고객 위험을 줄이는 데 기여하며, 아울러 기술 향상, 조직 인프라 및 서비스 센터와 같은 필요한 자원을 원활하게 제공할 것을 시사점으로 제안한다. 모바일 금융 서비스 제공 업체가 고객의 믿음과 신뢰성을 확보할 수 있도록 서비스의 보안 및 신뢰 요인을 포함하는 추가 연구가 필요하다.

주제어 : 모바일 뱅킹 서비스, 이동 통신, UTAUT-IS, 사용자 채택, 미얀마

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1. Introduction

Technological advancements in the area of information communications and technology (ICT) have innovated the banking industry. With advances in ICT, individuals, businesses and governments have been able to exchange information quicker and cheaper than before. This is more evident when ICT comes to business sector. ICT was not limited to the way enterprises communicate each other and it also changed the way we do business.

Regarding banking industry, the mobile transformed the way banks deliver services, interact with their users and also maintain a strong relationship with them. Mobile banking(MB) can help banks to retain existing technology-savvy customers with value-added and innovative services and to attract new customers from corresponding sections of society[1]. MB offers customers many of the advantages of desktop internet banking.

To ensure the successfulness of MB, the bank must provide a robust system and communicate effectively its benefit to convince customers to use the MB system as an alternative for internet and traditional one[2]. However, failure to address customer concerns about MB causes them to mistrust MB system, which result in wasting the investment for those system[3].

The banking industry in Myanmar is important because a strong banking industry can support economic developments significantly through its efficient services. Today, it is a global trend that banks introduce new changing services, for example moving from traditional distribution delivery to electronic one like MB service.

However, the MB services are just starting in Myanmar. So, Myanmar needs to acquire a certain degree of understanding and familiarity with the electronic and technology means used in the application of mobile banking services. We are therefore concerned with understanding the opinion of citizens towards an

intention to use and user adoption of MB in order to motivate customers to use these mobile services and improve the relevant banking processes in Myanmar. The purpose of the current research is to identify and examine the motivating factors and their impact on the user adoption of Mobile banking services, and to provide some valuable implications for developing countries, especially in Myanmar.

2. Research Background

2.1 Mobile Banking

The MB system is one of the approaches to perform daily financial transactions that allow users to operate banking transactions. The current MB trend moves on the cashless domain and people are more interested in financial transactions electronically without going to the shops for purchasing the products. MB system services a financial organization for customers to carry out financial transactions through a mobile device such as a smartphone or personal digital assistant (PDA). Banks can provide services to users whenever they want and wherever they are. MB can also operate the financial services through short messages service (SMS). Therefore, users have to configure and activate Mobile Short Messaging Service (MMS) on their mobile devices. These MB services are more personal, pervasive, flexible and ubiquitous.

From the information system perspective, MB is one of the major technical innovations for financial institutions[4]. It provides customer value creation due to being inherently time and place independent - "anywhere and anytime" - free from temporal and spatial constraints[5]. Moving clients to electronic channels is an important issue for banks because it allows them to reduce operational costs[6], providing a more convenient means for customers to meet their banking needs with more complete and timely information[7].

On the other hand, MB needs the support of software and hardware platform in order to provide successful services for customers. So, banks should choose a specific plans to overcome the technical problems. MB system should be equipped with appropriate safety measures to ensure the normal financial trading. Such measures are firewall, intrusion detection system, surveillance systems and quick recovery mechanism. For MB services, the most important factor is safety for consumer because it includes personal information, personal ID number, transactions password, transactions content and the like.

2.2 Mobile Banking at Myanmar

In Myanmar, MB has just been introduced in 2015 with two banks, Myanma Economic Bank (MEB) and Inwa Bank Ltd. Myanmar's mobile market is the fourth fastest growing market in the world.

In Myanmar, the price of mobile sets gradually decreased and the mobile network operators are also providing an acceptable service to the customers. Mobile penetration rate in Myanmar had been long in low ranking in South-East Asia countries and the world. However, for the last five years, the country has witnessed unprecedented rise and growth in mobile usage. Especially in 2014, three of mobile network operators, Myanma Posts and Telecommunication (MPT), Ooredoo and Telenor started to increase the mobile network coverage (2G, 3G) all over the country. Currently, the mobile penetration rate of Myanmar is 85%(46 million subscribers) of the total population. By comparison, USA has a 75% smartphone usage rate with Singapore and South Korea more than 80%.

Myanmar has seen massive growth in internet penetration, mobile phone adoption, and social media usage for the past few years. The consumer market has essentially bypassed the development stages seen in other economies and moved straight to digital and mobile, making the company a potentially interesting

test bed for internet-enabled businesses. The telecom equipment supplier Ericsson suggested that 6% of the world's new mobile subscribers came from Myanmar, making her the number four fastest growing mobile market in the world. Smartphones are the first handsets owned by 80% of Myanmar's mobile users. By 2018, the market is expected to reach more than 90% mobile penetration.

The number of unbanked people is more than that of people who have a bank account, especially in rural area. In the developing world, most of the people probably use the mobile device rather than the bank account[8]. Mobile phones are used as a various initiative way to provide financial services to the 'unbanked'. The service may take a variety of forms including mobile transfer and mobile payments[9]. Telecommunication services in Myanmar are available at affordable prices for citizens, especially in rural regions. Furthermore, the government aims to allow citizens and private businesses to choose the telecommunication services that best suit their needs. According to this ambitious plan, the country will need billions of US dollars for investment to improve network infrastructure and increase access. So, these are good opportunities to implement MB in Myanmar.

While MB provides freedom services to operate the financial transaction "anywhere and anytime", internet banking enables users to conduct MB operation using the internet with PC at home or office. MB provides prominent features such as ubiquity, personalization, flexibility and mobility to deliver better services[10]. In the internet banking, PC and internet connections are the biggest limitation and great challenge for developing countries like Myanmar. Therefore, MB is the well suitable way to install for Myanmar's citizens.

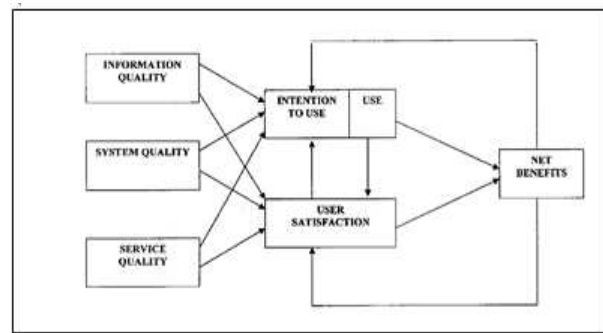
2.3 Technology adoption models

Myanmar is in the early stage of introducing the MB system. Studying the customers' perception will be therefore valuable for Myanmar government to build a

right MB policy. For this, we introduce the relevant research models that deal with factors affecting individual behavioral intention to use a specific information system (IS), which leads to actual system use. Firstly, the Unified Theory of Acceptance and Use of Technology (UTAUT) model is well known for the most comprehensive and theoretical models in the IS discipline[11]. UTAUT incorporates the four critical independent factors with a mediating one(Behavioral intention) and a dependent factor(System Use).

Among the four factors, performance expectancy means the level to which an individual realizes that using the system will enable him or her to secure gains in job performance. Effort expectancy refers to the level of ease associated with the use of the system, while social influence means the level to which an individual believes that important others perceive he or she should adopt the new system. Facilitating conditions represents the level to which an individual perceives that an organizational and technical environment supports use of the system.

On the other hand, in 1992, DeLone and McLean[12] developed a conceptual model of related IS success factors that comprise six dimensions such as System Quality, Information Quality, Use, User Satisfaction, Individual Impact and Organizational Impact. Each factor plays an critical role for IS success, while they are correlated with each another. They again revised their first model in 2003(see [Fig. 1]). The updated model added a third quality factor "Service Quality" and then integrated them "Individual Impact" and "Organizational Impact" into "Net Benefits". They have also added "Intention to Use" as a means to assess the attitude. In addition to including "Service Quality", both individual and organizational impacts have been replaced by "Net Benefits"[5].



[Fig. 1] Revised Model of DeLone & McLean[12]

3. Research Design

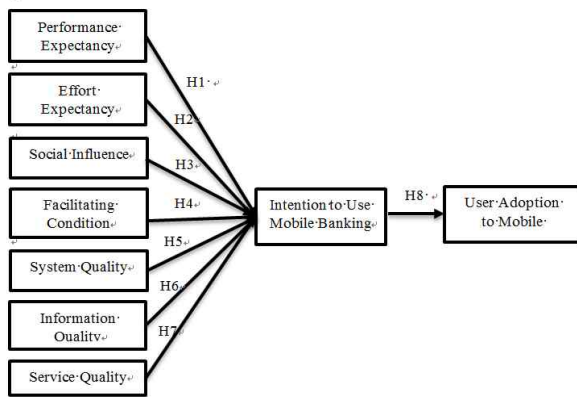
3.1 Research Model

This study aims to predict and understand the consumers' behavioral aspects that affect the adoption of MB services by Myanmar's citizens. Myanmar's MB services have been recently introduced by two banks and are expected to grow in size as the number of mobile subscribers increases in the early stages. Basically, MB services are provided as a product to converge ICT and finance for both developing and developed countries. The security, safety, quality and reliability of the mobile transaction process must be also strictly controlled by the nature of the financial services. So, this research used an integrated research model of UTAUT and IS success model(see [Fig. 2]). The former UTAUT was used to predict and explain technological acceptance, playing an important role in determining user acceptance and use behavior[13]. The latter IS success model is used to explain and measure the information system (IS) by investigating the relationship between three quality factors and net benefits[12].

The integrated model was selected because the MB in Myanmar is in its infancy, not fully implemented nationwide. In terms of technology adoption, we also needed to make sure some factors affecting Myanmar citizen's intention to use MB which can be implemented

by ICT convergence service with finance. Another reason is that quality issues are pretty important in meeting the needs of Myanmar citizens. In addition, MB systems can also belong to information system and technology, whereas both UTAUT and IS success models have been respectively validated in the previous literature. So, the integrated model was accepted for understanding the behavioral aspect of consumers who are adopting the use of MB in Myanmar.

This integrated research model in [Fig. 2] includes seven independent factors and two dependent factors which consist of individual intention to use MB and user adoption to MB. Performance expectancy, effort expectancy, social influence, facilitating condition came from UTAUT model, whereas system quality, information quality, service quality were selected from IS success model. They are all used as a direct determinant of behavior intention to use behavior.



[Fig. 2] Integrated Research Model

3.2 Research Hypothesis

3.2.1 Independent and Intermediate Variables

This study has examined MB and its services from the viewpoint of UTAUT and IS. It is assumed that customers will only use an information technology when it fits their tasks at hand and improves their performance. MB is built on wireless networks using protocols such as general package radio service (GPRS) and code division multiple access (CDMA)[14].

One of the most significant advantages of MB is that it provides users with ubiquitous and real-time services[15].

Performance expectancy reflects user perception of performance improvement by using MB such as convenient payment, fast response, and service effectiveness. Performance expectancy and effort expectancy are found to be the main determinants of behavioral intention in using mobile services in Finland[16]. Effort expectancy reflects consumers' perception of how difficult they use MB. When users feel that MB is easy to use and need less effort, they will have more expectation toward achieving the expected performance. Social influence reflects the effect of environmental factors such as the opinions of a user's friends, relatives, and superiors on user behavior[17]. Their opinions will affect users' adoption and usage of MB[18]. Facilitating conditions reflect the effect of a user's knowledge, ability, and resources [13].

MB as a new service requires users to have certain skills such as configuring and operating mobile phones so as to connect to the wireless internet. In addition, users need to bear usage costs such as data service and transaction fees when using MB. Previous research also studied the effects of performance expectancy, effort expectancy, social influence, and facilitating conditions on users' behavioral intention to use MB[16, 19]. Thus, we hypothesize:

H1: Performance expectancy affects individual intention to use MB.

H2: Effort expectancy affects individual intention to use MB.

H3: Social influence affects individual intention to use MB.

H4: Facilitating conditions affect individual intention to use MB.

A good quality of task technology will promote users' intention to use mobile banking. In contrast, a poor quality of that will decrease users' intention to use[20]. System quality reflects the desired technical

characteristics of information systems. System quality of MB can be adjusted with reliability, interface, response time, ease of use, security, and functionality. During the MB operation, the response time has a direct impact on the user's mood and work efficiency. Information quality captures content issues such as personalization, completeness, ease of understanding, and relevance[12]. MB is specifically designed to meet personal banking needs. When a bank customer logs into their accounts, all the information showed is greatly personalized and includes their name, account balance, transaction history, etc. Service quality can be operationalized by the assurance, empathy, and responsiveness. The quality of MB service becomes very critical in enabling users to efficiently accomplish their financial transaction to add value-added services to their activities and organizational performance. So, service quality will be more important in a MB environment. We have:

H5: System quality affects individual intention to use MB.

H6: Information quality affects individual intention to use MB.

H7: Service quality affects individual intention to use MB.

3.2.2 Intermediate and Dependent Variables

Behavioral Intention to use is defined as a measure of the possibility that a person will adopt the application. Personal use behavior is predicted and influenced by an individual intention[21]. UTAUT proved that behavioral intention has significant influence on technology usage[13, 22]. There exists the powerful correlation between intention to participate in a behavior and actual behavior[23]. The ultimate goal of the MB system is to encourage consumers to use mobile services rather than intend to adopt services. Behavioral intention was also found to have a positive effect on the adoption or use of MB [24]. Thus, we hypothesize:

H8: Intention to use MB affects individual user adoption to MB.

4. Empirical Results

Our research model comprises nine constructs, each of which was assessed in multiple items. The questionnaires were prepared based on the proposed research framework, composed of seven Likert points scale. Most items have been adopted in existing literature to maintain content validity. The questionnaire was written in English and translated into Myanmar. The questionnaires were distributed to 350 citizens in different regions of Myanmar. They were asked whether they had experienced MB and to fill questionnaires out based on their use experience. 206 completed responses were selected by eliminating uncompleted ones. The collected data were analyzed using statistical software, namely SPSS 18.0 and AMOS 18.0.

4.1 Demographic profile of the sample

The analysis of total respondents reveals more men than women in the sample(women 37%, men 63%). With education status, 18% of total respondents were from high school, 65 % from bachelor degree and 17% from the master and higher. The respondents' age distribution is as follows; 6% for the range 20 and less, 76% for 21-30, 10% for 31-40 and 8% for 41 and more. The Banking Experience distribution is 43 %(no experience), 6%(less than 5months), 12%(5 to 12 months), 21%(1 to 5 years) and 18% (more than 5 year). The MB experience distribution is 82 %(no experience), 7%(less than 3 months), 3%(3 to 7 months), 3%(7 to 12 months) and 5% (more than 1 year). Respondents are from 14% (more than 2 million metropolitan cities), 50% (commercial cities), and 36% (other cities).

4.2 Reliability and validity test

The exploratory factor analysis is a technique to grasp the covariance and correlation between the variables in order to identify the common factors and variables that represent the data well and to reduce the number of variables. The maximum likelihood method was used for exploratory factor analysis, whereas Varimax rotation method was selected as the rotation method. As a result, Factor Loading showed a minimum of 0.71 and a maximum of 0.82, and the validity was therefore confirmed. The Cronbach's alpha test was carried out to evaluate the internal consistency. All of them revealed internal consistency, showing 0.89 or more(see <Table 1>).

<Table 1> Reliability and Discriminant Validity test

Var	α	CR	AVE	1	2	3	4	5	6	7	8	9
PE	.89	.86	.62	0.787								
EE	.94	.92	.75	0.702	0.867							
SI	.90	.90	.66	0.751	0.801	0.815						
FC	.91	.90	.75	0.742	0.754	0.783	0.863					
SQ	.96	.94	.91	0.678	0.789	0.768	0.754	0.9				
IQ	.95	.92	.76	0.611	0.687	0.718	0.665	0.759	0.869			
SEQ	.89	.83	.58	0.687	0.726	0.746	0.71	0.796	0.861	0.76		
IMB	.93	.91	.70	0.745	0.777	0.745	0.659	0.718	0.654	0.82	0.836	
IMB	.93	.92	.75	0.692	0.582	0.706	0.666	0.741	0.663	0.81	0.739	0.869

Note) The diagonal value represent Square Root of AVE.

Amos 18 was used for confirmatory factor analysis to assess the validity and reliability of potential variables. Only one item in social influence (SI) factor was excluded from the analysis. As a result, the construct reliability value was greater than 0.83 and the Average Variance Extracted value was over 0.58. So, convergent validity was confirmed. In addition, the discriminant validity test was performed to evaluate the difference between the different latent variables. As a result, the square root of the mean variance extracted value was higher than the correlation coefficient among the variables, proving the discrimination validity.

4.3 Structural model fit test

Before the hypothesis test, the structural equation model fit was assessed. This study used three fit indices like incremental fit index, absolute fit index and parsimony fit index. In absolute fit index, the calculations of $\chi^2(CMIN)/p$, GFI (Goodness of Fit Index), RMSEA (Root Mean Square Error of Approximation), AGFI (Adjusted Goodness of Fit Index), and PGFI were calculated as 0.000, 0.861, 0.650, 0.765, and 0.657 respectively. In incremental fit index, the calculations of NFI (Normed Fix Index), CFI (Comparative Fit Index) and NNFI are 0.840, 0.916, and 0.923 respectively. In parsimony fit index, PNFI and PCFI are calculated as 0.775 and 0.852 respectively. The analysis shows that the model fit index meets all acceptance criteria(see <Table 2>).

<Table 2> Structural Model fit test

Fit indices	Indicator	Desirable range
$\chi^2(CMIN)/p$	1686.430(0.000)	$p \leq 0.05 \sim 0.10$
$\chi^2(CMIN)/df(Q)$	1.766	$1.0 \leq CMIN/df \leq 3.0$
RMSEA	0.061	≤ 0.08
SRMR	0.053	≤ 0.08
GFI	0.861	$\geq 0.8 \sim 0.9$
AGFI	0.850	$\geq 0.8 \sim 0.9$
PGFI	0.657	$\geq 0.5 \sim 0.6$
NFI	0.840	$\geq 0.8 \sim 0.9$
NNFI(TLI)	0.916	$\geq 0.8 \sim 0.9$
CFI	0.923	$\geq 0.8 \sim 0.9$
PNFI	0.775	≥ 0.6
PCFI	0.852	$\geq 0.5 \sim 0.6$

4.4 Hypothesis test

The path analysis shows the casual paths, containing standardized path coefficients and variance described for each equation in the assumed model. The hypothesis testing is to determine whether independent variables provide a prominent contribution to the dependent variables[25]. Path analysis used structural model equations to test the hypothesis. In hypotheses, H1 to H7 were respectively used to investigate and to find out the influence on intention to use MB. Hypothesis H8 was also used to investigate the

relationship between user intention to use and adoption of MB. The result shows that hypotheses H3, H4, and H5 are rejected, whereas the remainder hypotheses H1, H2, H6, H7 and H8 are supported. The result values with path coefficients are shown in <Table 3>.

The hypothesis testing results show that Performance Expectancy(PE), Information Quality (IQ), Effort Expectancy(EE) and Service Quality (SEQ) affect Intention to Use Mobile Banking (IUMB), while Social Influence(SI), Facilitating Condition(FC) and System Quality(SQ) don't influence Intention to Use Mobile Banking(IUMB). Finally, Intention to Use Mobile Banking(IUMB) has an effect on User Adoption to Mobile Banking(UAMB).

<Table 3> The Results of hypothesis test

Hypo	Estimate	S.E.	C.R	P	Result
H1	.258	.080	3.219	.001**	Supported
H2	.244	.086	2.818	.005**	Supported
H3	.087	.112	.777	.437	Unsupported
H4	-.115	.076	-1.512	.131	Unsupported
H5	.008	.069	.109	.913	Unsupported
H6	-.305	.106	-2.878	.004**	Supported
H7	.668	.121	5.503	***	Supported
H8	.810	.073	11.116	***	Supported

Note) *P<0.05, **P<0.01, ***P<0.001 2-tailed

5. Research discussions

The study was designed to identify factors that affect the adoption and use of MB by Myanmar citizens. We used an integrated research model of UTAUT and IS success model. As a result of testing each hypothesis, H1 is accepted. Performance Expectancy (PE) have a significantly positive effect on Intention to Use Mobile Banking (IUMB). So, users are more active to use MB services when they feel that better performance in banking transaction improves using MB services. MB system will attract customers if it would be more quick and useful in payment and certainly enhance the effectiveness of the financial operations. Besides, considering the increase of mobile

phones and their ubiquitous nature, it is not surprising to note that Myanmar users expect to increase their productivity, save their time, and quickly accomplish their activities through mobile phones. This could result in heavy reliance on and usage of mobile technology. This is consistent with some earlier findings[13, 21].

In terms of effort expectancy (H2), we have found that effort expectancy has a positive relationship with user's behavioral intention. If customers can use the MB services easily and conveniently, they will continue to use banking services. Therefore, Myanmar citizens will perceive strong intention to use and finally adopt MB services. This may probably result from the high level of mobile phone usage in Myanmar; users find it easy to use MB, expect few problems, and get accustomed to it very quickly. The effort expectancy finding is consistent with some earlier studies[26, 27], but contradicts to the findings of Venkatesh et al.[28].

With Social Influence(H3), our test result indicates that social influence did not have a positive relationship with behavioral intention, which is consistent with some findings[13, 24] but contradicts to the finding of Seo[6]. This means that respondents were not affected by interpersonal word-of-mouth and peer groups. Although Myanmar is a collectivist society country, users will not intend to use MB due to the fact that people who are important to or familiar with them recommend to use MB.

In terms of facilitating conditions(H4), this study did not find a positive relationship between facilitating conditions and intention to use MB in Myanmar. It is believed that Myanmar citizens do not expect to have strong institutional support or necessary resources and knowledge to help them use MB services and therefore do not give it much importance. This is consistent with some earlier study[29], but contradictory to other previous studies[24, 27, 31].

For System Quality(H5), it does not have an important impact on user intention to use MB. Familiarity with MB, in general, may make using MB

easier and quickly. However, Myanmar users consider that MB system is not familiar with them, but difficult to access or find out the helper to solve their transactional problem when they use the MB system. The quality of equipment inside the system should therefore be enhanced.

In terms of Information Quality(H6), there is a positive relationship between information quality and intention to use with content issues. The result shows that Myanmar users are willing to use MB in terms of main functions like understandability, completeness, and timeliness. MB systems should be specifically designed to satisfy personal banking needs so that users can see all the information like their names, account balances, transaction history, etc.

Service quality(H7) has the significantly positive effect on individual intention to use MB services. If MB system can provide the sufficient quality of services such as assurance, empathy, and responsiveness, users will be active to use these financial transaction services[12].

6. Conclusion and implications

This study is focused on investigating the consumers' behavioral aspects that affect the adoption of MB services in Myanmar. Myanmar's MB services have been recently introduced by two banks, but are expected to grow in size as the number of mobile subscribers increases in the early stages. Considering this context, our research used an integrated research model of UTAUT and IS success model. The hypothesis testing results show that Performance Expectancy, Effort Expectancy, and Information and Service Quality affect Intention to Use Mobile Banking, However, Social Influence, Facilitating Condition and System Quality don't influence Intention to Use Mobile Banking. Finally, Intention to Use Mobile Banking affects User Adoption to Mobile Banking.

MB stands for a banking service delivered through a mobile device. MB services will be possible through the convergence of ICT and financial business. In particular, developing countries such as Myanmar were lagging behind existing offline banking and fixed network infrastructures compared to developed countries. Using mobile devices can make financial access easier and lower the operating costs of the bank. To this end, developing countries can skip the wide range of procedures in developed countries, allowing telecom and banking companies to enter the MB market with high reputation and financial benefits. However, MB technology must take its own risks and banks that offer MB services without personal, regular contact with customers (know-your-customer principles) can actually take the risk of unwanted customers[32, 33]. The results of this study can therefore contribute to providing some measures or implications for meeting the needs of customers and reducing customer risk in Myanmar's financial industry and government.

Overall, Myanmar citizens don't think that any assistance is available to them when they encounter problems associated with using MB. Therefore, banks and mobile network operators need to seamlessly provide the necessary resources, such as technology improvements, organizational infrastructure and service centers. Institutional support should be also provided for users when they have a financial problem of using the MB system.

Specifically, customers prefer faster, more convenient services and better performance on the MB system, so they want to pay faster and more efficiently. These unique characteristics should be regarded as the MB system and policy should be designed, built and implemented in Myanmar[34].

In terms of quality, MB service providers, such as banks and mobile network operators, must provide customer service centers and basic functions in local language (Burmese) and international language (English) for the user to understand clearly. In

particular, since MB users want to easily understand financial information products, the MB system should provide sufficient information about account balances, account statements, check reimbursements, account transfers, and bill payments.

On the other hand, this research is only a starting point for studying important factors affecting intention to use MB and user adoption of MB. In particular, as mobile technology is rapidly evolving and the convergence of these technologies and financial services has advanced over time, more study on MB adoption is necessary as time goes on. This study also need to include both service's security and trust factors so that the MB providers could gain their customers' reliability and confidence[35]. Lastly, this research was conducted in Myanmar where the mobile industry is growing rapidly but MB is still in its early state. The results of this research may be suitable to a similar investigation to this study.

REFERENCES

- [1] Tiwari, R. and Buse, S., "The Mobile Commerce Prospects: A Strategic Analysis of Opportunities in the Banking Sector", Hamburg, Germany: Hamburg University Press, 2007
- [2] C. H. Jung, S. H. Namn, "Cloud Computing Acceptance at Individual Level Based on Extended UTAUT", *Journal of Digital Convergence*, Vol.12, No.1, pp. 287-294, 2014.
- [3] Norzaidi, M. D., & Salwani, I. M., "Evaluating the intranet acceptance with the extended task-technology fit model: Empirical evidence in Malaysian maritime industry", *International Journal of Arts and Sciences*, Vol 3, No. 2, pp. 294-306, 2010.
- [4] Lin, H. F., "An empirical investigation of mobile banking adoption: The effect of innovation attributes and knowledge-based trust", *International journal of information management*, Vol. 31, No. 3, pp. 252-260, 2011.
- [5] Laukkanen, T., "Internet vs mobile banking: Comparing customer value perceptions. *Business Process Management Journal*, Vol 13, No. 6, pp. 788 - 797, 2007.
- [6] Seo, K. K., "Analysis of use intention of mobile cloud service using a convergence technology acceptance model, *Journal of Digital Convergence*, Vol. 14, No. 12, pp. 105-110, 2016.
- [7] Gerrard, P., & Cunningham, J. B., "The diffusion of Internet banking among Singapore consumers", *International Journal of Bank Marketing*, Vol. 21, No. 1, pp. 16 - 28, 2003.
- [8] Porteous, D., "The Enabling Environment for Mobile Banking in Africa", Report Commissioned by Department for International Development - DFID, 2006.
- [9] Donner, J. and Tellez, C. A., "Mobile Banking and Economic Development: Linking Adoption, Impact and Use", *Asian Journal of Communication*, Vol 18, No. 4, pp. 318-322, 2008.
- [10] Laukkanen, T., "Internet vs mobile banking: comparing customer value perceptions", *Business Process Management Journal*, Vol 13, No. 6, pp. 788-797, 2007.
- [11] Yuen, Y. Y., Yeow, P. H., Lim, N., & Saylani, N., "Internet banking adoption: Comparing developed and developing countries", *Journal of Computer Information Systems*, Vol 51, No. 1, pp. 52-61, 2010.
- [12] DeLone, W.H. and McLean, E.R., "The DeLone and McLean Model of Information Systems Success: A Ten-Year Update", *Journal of Management Information Systems*, Vol 19, No. 4, pp. 9-30, 2003.
- [13] Venkatesh V., Morris M. G., Davis G. B., & Davis F. D., "User acceptance of information technology: Toward a unified view", *MIS Quarterly*, Vol 27, No. 3, pp. 425-478, 2003.
- [14] Junglas, I., & Watson, R. T., "The u-constructs: four information drives", *Communications of the Association for Information systems*, Vol 17, No. 1, pp. 26, 2006.
- [15] S. H. Kim · J. S. Han, "Smart Cold-Chain Monitoring

- Automation System Architecture based on Internet of Things”, *Journal of digital convergence*, Vol. 12, No. 12, pp.351-356, 2014.
- [16] S. H. Kim · J. S. Han, “Smart Cold-Chain Monitoring Automation System Architecture based on Internet of Things”, *Journal of digital convergence*, Vol. 12, No. 12, pp.351-356, 2014.
- [17] Molina-Castillo, F. J., López-Nicolás, C., & Bouwman, H., “Explaining mobile commerce services adoption by different type of customers”, *Journal of Systemics, Cybernetics and Informatics*, Vol 6, No. 6, pp. 73-79, 2009.
- [18] Hong, S. J., Thong, J. Y., Moon, J. Y., & Tam, K. Y., “Understanding the behavior of mobile data services consumers”, *Information Systems Frontiers*, Vol 10, No. 4, pp. 431-445, 2009.
- [19] Park, J., Yang, S., & Lehto, X., “Adoption of mobile technologies for Chinese consumers”, *Journal of Electronic Commerce Research*, Vol 8, No. 3, pp. 196 - 206, 2007.
- [20] Lee, K. Ch. And Chung, N., “Understanding factors affecting trust in and satisfaction with mobile banking in Korea: A modified DeLone and McLean’s model perspective”, *Interacting with Computers*, Vol 21, No. 5-6, pp. 385-392, 2009.
- [21] Oliveira T., Faria, M., Thomas, M.A. and A. Popovic (2014) “Extending the understanding of mobile adoption: when UTAUT meets TTF and ITM” *International Journal of Information Management*, Vol 34, No. 5, pp. 689-703, 2014.
- [22] Venkatesh, V., & Zhang, X., “Unified theory of acceptance and use of technology: US vs. China”, *Journal of Global Information Technology Management*, Vol 13, No. 1, pp. 5-27, 2010.
- [23] Yoon, C. H. & Choi, G. D., “The Effects of National Culture on Ethical Decision-Making in the Internet Context : An Exploratory Analysis”, *Journal of digital convergence*, Vol. 12, No. 12, pp.23-36, 2014.
- [22] S. H. Lee · D. W. Lee, “A Study on Internet of Things in IT Convergence Period”, *Journal of digital convergence*. Vol. 12, No. 7, pp.267-272, 2014.
- [25] Hair, J., Blake, W., Babin, B., & Tatham, R., “*Multivariate Data Analysis*”, New Jersey: Prentice Hall, 2006.
- [26] Faria, M. G., “Mobile banking adoption: A novel model in the Portuguese context”, *Universidade Nova de Lisboa*, 2012.
- [27] Zhou, T., Lu, Y., & Wang, B., “Integrating TTF and UTAUT to explain mobile banking user adoption”, *Computers in Human Behavior*, Vol 26, No. 4, pp. 760 - 767, 2010.
- [28] Venkatesh, V., Thong, J. Y., & Xu, X., “Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology”, *MIS Quarterly*, Vol 36, No. 1, pp. 157 - 178, 2012.
- [29] Im, I., Hong, S., & Kang, M. S., “An international comparison of technology adoption”, *Information & Management*, Vol 48, No. 1, pp. 1 - 8, 2011.
- [31] B. C. Kim, “A Internet of Things(IoT) based exploration robot design for remote control and monitoring”, *Journal of digital convergence*, Vol. 13, No. 1, pp.185-190, 2015.
- [32] Mun, H. J., Yooncheol Hwang, Y. C., & Kim, H. Y. “Countermeasure for Prevention and Detection against Attacks to SMB Information System - A Survey,” *Journal of IT Convergence Society for SMB*, Vol. 5, No. 2, pp. 1-6, 2015.
- [33] Kim, K. B., & Yun, J. Y., “Comparison and Analysis on Mobile Payment in terms of Security : Survey,” *Journal of IT Convergence Society for SMB*, Vol. 5, No. 3, pp. 15-20, 2015.
- [34] Kim, L. S., “Convergence of Information Technology and Corporate Strategy”, *Journal of the Korea Convergence Society*, Vol. 6, No. 6, pp. 17-26, 2015.
- [35] Lee, H. J., Na, O. C., Sung, S. Y., & Chang, H. B., “A Design on Security Governance Framework for Industry Convergence Environment ”, *Journal of the Korea Convergence Society*, Vol. 6, No. 4, pp. 33-40, 2015.

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