

**YANGON UNIVERSITY OF ECONOMICS
MASTER OF DEVELOPMENT STUDIES PROGRAMME**

**ANALYSIS ON THE USAGE OF DIGITAL BANKING
CHANNELS OF SELECTED PRIVATE BANKS
IN MYANMAR**

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AUGUST, 2019

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This thesis is submitted as a partial fulfillment of the requirements for the Master of
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ABSTRACT

Most countries are using updated technologies for the banking sector and created digital banking channels, products and also digitizing all of the bank's processes. This research was conducted to analyze the usage and to identify the awareness, understanding of digital banking channels of selected private banks in Myanmar. Descriptive method is used by collecting primary and secondary data and found that digital banking channels are used by users because of easy to use, understand and manage but on the other hand, they do not entirely trust banks and these channels because of fraud cases and technology issues. The merchants also know well and using digital banking channels to smooth their business operations. But the users and merchants have some problems and experiences in using digital banking channels. The bankers also face a lack of policies and regulations. To get more awareness and to improve using digital banking channels, need good infrastructures, proper linking between inter banks, updated features, adequate information and guidelines, widespread accessibility in both rural and urban areas and need exact policies from policy-makers.

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LIST OF ABBREVIATIONS

ATM	Automated Teller Machine
AYA	Ayarwaddy Bank
CB	Co-operative Bank
CBM	Central Bank of Myanmar
CDM	Cash Deposit Machine/ Cash Dispenser Machine
CEM	Currency Exchange Machine
CRM	Cash Recycler Machine
E-COMMERCE	Electronic Commerce
EU	European Union
I BANKING	Internet Banking
ICT	Information and Communication Technology
IP Star (C-Band)	original frequency allocation for communication satellites
IVR	Interactive Voice Response
JCB	Japan Credit Bureau
KBZ	Kanbawza Bank
KYC	Know Your Customer
MMK	Myanmar Kyats
MPU	Myanmar Payment Union
PIN	Personal Identification Number
POS	Point of Sale Terminal
PUM	Passbook Update Machine
SMS	Short Message Service
SNIM	Small Note Issuing Machine
UK	United Kingdom
UPI	Union Pay International
USA	United States of America
VTM	Video Teller Machine

CHAPTER I

INTRODUCTION

1.1 Rationale of the Study

“No developed nation has reached an advanced stage of development without a relatively large, sufficiently successful and reasonably sound financial sector. No developing economy has enjoyed sustainable economic growth without a sound expansion of its banking sector” (Roland Berger GmbH, 2016). Banking Sector is one of the financial sector and crucial for economic development and need to update internationally for globalization. As today’s age is the age of ICT (Information and Communication Technology), the usage of electronic devices and the internet is a necessity to keep abreast of the time. As retails, trade, education and many other fields have already taken the steps into the computerized and digital systems, banks are now following suited and have initiated the provision of digital financial services utilizing the internet and today’s electronic devices like mobile phones, ATMs, laptops and desktop computers, etc. in many countries of the world.

Technology is continuously developing and as globalization is at its peak, Myanmar needs to catch up in order to stand toe-to-toe with the international community. Myanmar Banking sector’s digital system implementation and integration is still in development and relatively new, however, some private banks have started rolling out the modern financial services in the form of E-savings account, digital payments like mobile banking, debit cards, credit cards, prepaid cards, e-commerce gateway services and others. While the Myanmar Government is holding workshops and seminars and establishing policies, rules and regulations across every sector in the pursuit of development, it is necessary for the people of Myanmar to comply and cooperate with the government to achieve actual development. Although the transition to an electronic/ digital system heavy society has its own various advantages and benefits, it will also come with consequential side effects on culture, tradition and other fields such as economy, health and politics. Regardless, as time has ushered in the

digital era, Myanmar has to embrace this change and continue towards development using technology.

The banking sector plays a crucial role in developing a country's economy. With this knowledge in mind, the private banks of Myanmar have undergone changes and are giving their best efforts to develop, implement and provide digital financial services and digital banking channels in this pursuit of development to stand tall in the world.

But, in Myanmar, the percentage of the banking users is very fewer to the country's population. Now, digitalization of Myanmar banking sector is at its early stage and facing many barriers to do changes. And most of the people in Myanmar do not know clearly about the digital banking channels. Therefore, the purpose of the study is to learn the awareness, understanding, usage of digital banking channels of private banks in Myanmar.

1.2 Objectives of the Study

The objectives are to analyze the usage of digital banking channels of selected private banks in Myanmar and to identify the awareness, understanding of digital banking channels of selected private banks in Myanmar for the improvement of digital banking channels of private banks in Myanmar.

1.3 Method of Study

The descriptive analysis is used for this study. In order to fulfill the research objective, primary data collected by both quantitative and qualitative approaches and secondary data are used in this study. The primary data are collected through a semi-structured questionnaire including multiple responses questions and also used the five-point Likert scale method of "Strongly Disagree (1)" to "Strongly Agree (5)". The users are selected from digital leading private banks using simple random sampling method and making key informant interviews to selected private bank's bankers (decision-makers) and merchants within Yangon. The secondary data are collected from annual reports of selected private banks, MPU organization, Central Bank of Myanmar, relevant textbooks, previous research papers, journals, magazines, articles, internet and websites. Data analysis was conducted using SPSS (Statistical Package for Social Science) software.

1.4 Scope and Limitations of the Study

This study mainly focuses on during 2012 to 2019 innovations and digital transformation of selected three private banks namely CB Bank, KBZ Bank and AYA Bank which are leading digital banks and have a large amount of users although some of the private banks in Myanmar have a portion of digital banking channels. In this study, 1000 users are target population and the sample 278 users within Yangon, mostly banks' clients who have bank accounts are collected 120 users from KBZ Bank, 120 users from CB Bank and 60 users from AYA Bank. The samples were calculated from the target population with 95 percent confidence level and 5 percent margin of error (Saundersl, Lewis, & Thornhill, 2016). Personal interviews and questionnaires are made within in Yangon of selected private banks' some merchants and decision-makers. Nevertheless, within the time frame and due to the limitations of others, it will not cover for the whole Myanmar banking industry.

1.5 Organization of the Study

This study has five Chapters. Chapter I includes the introduction of studies, rationale, objectives, methods, scope and limitations and organization of the study. Chapter II presents literature reviews related to digitalization on banking sector, its impacts and about digital banking channels. Chapter III briefly explains overview of the current situation of private banks and digital banking channels in Myanmar. Chapter IV describes about the analysis on the awareness, understanding and usage of digital banking channels and services of selected private banks in Myanmar. Chapter V concludes this study presenting the findings and suggestions.

CHAPTER II

LITERATURE REVIEW

2.1 Definition and Concept of Digitalization in Banking Sector

Digitization means the conversion of data into a digital format with the adoption of technology and adoption of digitalization is very important for the banking sector (HCL Technologies Limited. , 2019). Digitalization doesn't have a single, clear definition. "Digitization and digitalization are two conceptual terms that are closely associated and often used interchangeably in a broad range of literature" (Brennen & Kreiss, 2014). This entry considers each term in detail and argues that there is analytical value in explicitly making a clear distinction between them. The entry defines digitization as the material process of converting analog streams of information into digital bits. It defines digitalization as the way many domains of social life are restructured around digital communication and media infrastructures" (Brennen & Kreiss, 2016). "Digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities, it is the process of moving to digital business (Gartner, Inc. and/or its Affiliates., 2017)." according to Gartner's glossary and "Digitalization is the integration of digital technologies into everyday life by the digitization of everything that can be digitized. The literal meaning of digitalization gives an apparent idea of development and technology-dependent world accessibility" (Mahaldar & Bhadra, 2015). Adoption with modern digital technologies, banks can provide convenience to users, helps in saving time and costs with embraceable digitalization to banking processes. Digitalization reduces human errors and can build users' trustworthiness. Digitalization has also benefitted users by facilitating cashless transactions to go cashless society, whereby financial transactions are not operated with money in the form of physical banknotes or coins, but through the transfer of digital information between the transacting parties (BizImpact Knowledge Services LLP, 2019). Users need not store cash anymore and can make transactions at any place and time. Digitalization can check transactions and account balances by owned.

Digital Banking is the advent of ATMs and Cards started in the 1960s (Kelman & James, 2016). For the digital banking, the internet, electronic devices and electrical power are basically needed to make all transactions by using technology but no need the physical brick-and-mortar bank branches as traditional banking. Internet broadband appeared in the 1980s and digital networks are trying to connect in retail selling for inventory software systems and online banking is introduced in New York, United States. In the 1990s, internet and online banking became a norm and in the 2000s, e-commerce systems are leading to the modern digital banking world till now. “Digital banking is a component for moving to online banking whereas banking services are conveyed through the internet. Digital banking comprises high levels of process automation and web-based services and may involve APIs (Application Programming Interface) enabling cross-institutional service composition to deliver banking products and provide transactions through desktop, mobile and ATMs channels” (Sharma, 2017). The traditional banking is replacing with digital banking by using digital banking channels in worldwide. Some of the developed nations as Sweden, Norway and Denmark are going onward to cashless society using digital banking systems like cards, online banking services and most Swedish banks didn't have cash and making it the second most cashless country in the world, according to Forex Bonuses. Some countries are trying to go cashless societies for the way of life and also making policies to encourage to public for cashless transactions.

Nowadays, digitalization is a necessity for the banking sector. So, almost all of countries using the new financial technologies (Fintech) for banking sector and created the digital channels and products and digitizing all of their processes for making transactions around the world except of the countries that there are limitations for making international transfers to others countries because of international sanctions and mutual rules of corresponding banks.

2.2. Reviews on Digital Banking Channels and Products

Digital banking is important for banking sector not only for users' convenience, save time and costs but also for the banks to reduce operational expenses and to improve business opportunities although the initial investment cost for digitalization is too much for banks. Digital is buzzword and banks need to change digital banking system for the new generations. “Digital Banking is not only front end concepts such as Internet Banking, Mobile Banking, Direct Banking, Various Banking apps, use of Social Media

in Banking, Artificial Intelligence (AI), Robotics, Chat-bots, Cognitive computing, Block-chains, Big Data, voice biometrics etc. but also includes various back-end modernization programs are done to enable overall goals of digital banking which includes legacy modernization, Integration, Cash Recycler Machines (CRM), Document Imaging/OCR etc.” (Shripad Vaidya, 2019).

Digital Banking is provided through various channels for users to accomplish their transactions and communications with banks. There are many digital channels to communicate between users and banks. The main channels are explained as follows;

- (i) **Automated Teller Machines (ATM), also called Cash Dispensing Machines (CDM):** It is widely used by users in all countries and users can withdraw cash with cards or card less, make remittance cash respectively and can enquiry account balances.
- (ii) **Cash Deposit Machines (CDM):** It is easy to use and users can deposit cash to account with debit card or account number.
- (iii) **Cash Recycler Machines (CRM):** This machine makes two main tasks, receiving and dispensing cash and it also stores money securely, keeps an accurate accounting of cash on hand, and automates the cash cycle.
- (iv) **Passport Update Machine (PUM):** It is also called Passbook Printing Machine and the user can make updating the current account balances and transaction details in bank passbook.
- (v) **Electronic payment cards:** Cards are mostly made with plastic and can make transactions for electronic payment. Electronic Payment Cards have existed in vital role of digital banking. There are variety types of cards but most are ATM cards, debit cards, prepaid cards, credit cards and virtual cards. Some of the card types are directly linked with card holder’s bank account at the back end and some cards are not linked with account as per card types. Although the cashless societies have existed in many years ago, the banker John Biggins introduced the Charge-It, the first form of payment card and in 1960s; the magnetic strike cards emerged. Electronic payment cards can be used in ATMs, POS terminals and for online e-commerce transactions for various purposes. The upgrading technologies of cards to store data is developed from magnetic stripe cards to EMV chip-based cards and NFC based tap cards in now. Because of digital technologies, some of countries are starting card less transactions using banking application in smart mobile phone via internet connection to reduce card issuing costs.
- (vi) **Point of Sales (POS) terminals:** It is the small electronic machine connected with online networks of banks to register the payment transactions made with cards. It

is set up in retail outlets and companies to accept with cards and QR payments. It can print sale slips for buyer and merchant (seller) for records but latest device so-called m-POS (Mobile Point of Sale) terminal is no need to print sale slips and it registers the transactions in merchants' portal system of bank and can check-in time by merchants themselves and can send the link of slip to buyer with email or telephone SMS.

(vii) **e-Commerce gateways:** This is one of the digital banking channels to accept electronic cards payment through the websites and applications over the internet. Merchant can sell their products or services in website or application with electronic cards or card less and buyer can purchase the products and services 24/7 from any places where can access internet or online payment. Merchants need to integrate their website or application and API (Application Programming Interface) link from bank.

(viii) **Online (Internet) channels:** This channel sometimes called internet banking or online banking and can provide to users for opening and closing bank account, enquiry the financial services, checking current transactions and balances, making transactions, requesting cheque book, stop payments with intermediary (OTP-one time password) device. The users no need to go bank branch physically to make transactions. It can access through internet browsers and websites with computers or smartphones or electronic devices which can connect with the internet.

(ix) **Mobile applications:** It is one of the digital banking channels and also calls mobile banking (m-Banking). It can provide banking and financial services like bill payments, funds transfer, checking mini-statement, re-payments for credit cards, top-up for prepaid telephone bills, enquiry the exchange rate and nearest ATMs, etc. through mobile telecommunication devices.

(x) **SMS:** It can provide SMS alerts to users for announcements, debit/credit alerts for card payments and transactions and user can prevent the frauds, stolen and hacker attack cases.

(xi) **Contact Centre:** It is an automated telephony system that interacts with callers, gathers information and routes calls to the appropriate recipients. Users can contact for reporting a problem or inquiries about a fee or service charge or transactional details.

Now, banks are capturing data and configuring of relations of users with bank through the digital banking channels and the captured data is transformed to useful information for bank and users are being offered users specific products.

2.3 Pros and Cons of Digitalization on Banking Sector

As digital technology continues to grow, the various industry fields are evolving alongside and adapting to the changes. This evolution can be clearly observed in the banking sector as banks are not rolling out digital formats, channels and services which can be accessed and utilized by the electronic devices of today's age. The digital transformations taking place in finance are driven by many common challenges and opportunities across the digital financial services of the banking sector (i-SCOOP, 2016). Traditional Manual Banking is most using papers and working manual and cash-based transactions system and people need to go physically to the banks for transactions and processes. By evolving and adapting with digitalization, banks are now able to provide financial services and assistance at any place, any time via digital channels such as websites, online banking, mobile banking applications, etc. This change and evolution, however, comes with its own perks and drawback depending on the types of services banks provide and the different sociocultural perspective of users. The digitization on banking sectors has so many pros and cons for the banks, users and third parties of related organizations but in this paper can describe the obvious facts of pros and cons for banks and users.

For the banks, the significant pros of digitalization are: reduce human errors and robe case, no need to build brick-and-mortar banks and can reduce operational expenses and increase profits, convert to cashless society and reduce the cash counting work, protect the diseases like infectious diseases, fungus diseases getting from cash counting, offer innovative products and services for users, give paperless services and products to users and save the environment, emphasis users by using technology that focus to users' demands and preferences, attain business targets and touch cost-effective manners and improve management decisions, operate effectively by maintaining accurate data and reliable management information system and can review user' transcriptions and follow-ups by collecting data from bank records, social media and others online public places and preservation the users. The cons for the banks are facing challenges of innovative fintech (Financial Technologies) solutions, high initial investment cost of adoption of technology, infrastructures costs and for professionals, IT specialists hiring costs, employee training costs for digitalization, diminish personal relationship with users and difficult to solve transactions issues, face risky issues for online hackers security and fraud cases and will occur services issues of signature guarantee and legal transactions.

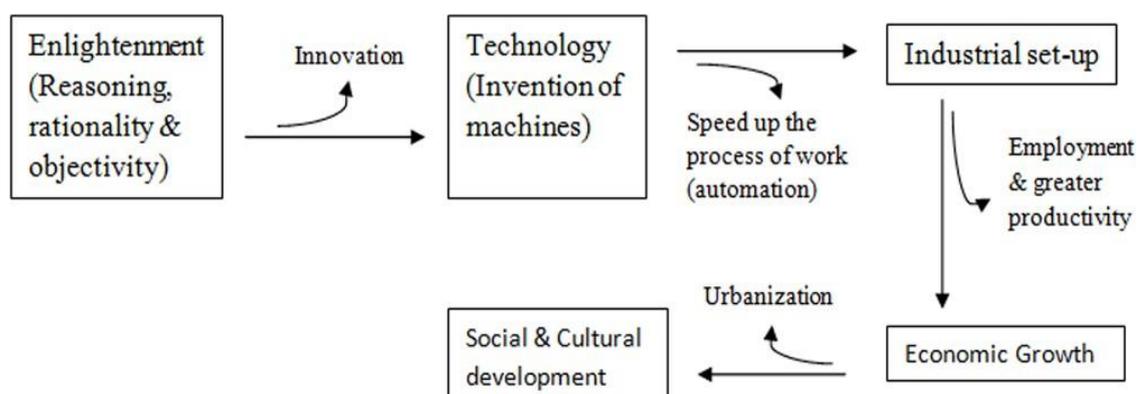
The pros for the users because of digitalization on banking sector are user can behave banking transactions 24 hours-a-day, seven-days a week from anywhere, convenience and ease of using for simplified banking transactions, privacy of transactions even without involvement of bank staff, no need to go bank branches and no queues, save cost and time, escape the situation of finding cash-notes and coins, settle online bill payment, easy to check balances and transactions details. The cons for users are that users face technological issues, face security issues, ineffective at complex transactions, non-personal relationship with bank, difficult to make deposits, user anxiety and infrastructure accessibility.

Although the pros and cons are divided for banks or users, some of the pros and cons are common for all. The transformations of traditional to digital (online) system need the infrastructures, technologies, policies, institutions and regulations, etc. Digitalization can reduce gradually rural and urban gap to use banking services and it can impact to all other areas.

2.4 Impacts of Digitalization on Banking Sector

This era was marked by technological innovation, capitalistic capability and experimentation to pave the way towards an economic boost (Mahaldar & Bhadra, 2015). Advocates of the theory- Wilber Schramm (1964), Everett M. Rogers (1969) and Lerner (1958) greatly believed in technology bringing development (Figure 2.1). The course of development according to modernization theory, technology will bring economic development (Mahaldar & Bhadra, 2015). Changing technologies in the banking sector also affect the social and cultural development to economic growth.

Figure 2.1 The sequence of development according to modernization theory



Source: Mahaldar & Bhadra (2015)

Digitalization involves exploring business models and platforms using digital technologies, devices or techniques, channels to produce several benefits in various aspects of life. Digital solutions can simplify a nation's safety and intelligence systems, and its economy and infrastructure. For peoples, digitalization promises much-needed improvement both in the delivery of public services, such as Government/Bank issued certificates, and other services, financial or otherwise (Finextra, 2016). Digital solutions and services can facilitate trades and settlement between different countries, as well as defend against mismanagements such as misuse and money laundering.

Digitalization in banking sector would also open up paths for other sectors to leverage digital clarifications. Banking has always led from the front in terms of providing new services by using technology (Finextra, 2016). The digital technology is essential for digitalization on the banking sector and there are many impacts of digitalization on the banking sector. The digital technologies become a serious role of business resources and lack of technology could result in humble decisions and in the long run, business will be failure. The digital technology move on digital solutions such as new digital banking channels, new products and services and new markets like online banking, internet banking, electronic payment cards, mobile banking and e-commerce gateways for the banking sector. These technologies also support risks, challenges and new economy to transform from traditional to digital for the banking sector. The transformation intends to increase the speed and consistency of financial processes and creativities to reinforce the banking sector.

With advances in digital technologies, banks' dominance in information is declined and user's demands are lead to competitive markets. Competitive pressure might banks to get economies of scale in bank ranking instead of being a big bank and banks are trying to get economies of scale, with joint venture and union of financial firms. And due to the development of technologies, the banks have changed for their delivery strategy, branches network strategy and extend the range of delivery option. The impact of technologies is significant value in the banking sector and it enables product development, better market infrastructure, implementation of reliable systems for control of risks and provides the financial intermediaries to reach geographically distant and various markets. But technology can both threaten and advantage impacts to people and businesses. Although digitalization is sweeping across all factors and introducing changes, the impacts can be clearly felt and observed across all sectors. The impacts are not only observed in the business and corporate world but also in the

political, social, cultural, agriculture and finance sectors among other things. The following contents will discuss the positive and negative impacts of digitalization on the banking sector.

Positive impacts of digitalization using digital technology in the banking sector are the banks can provide accurate data to users and banking processes are faster and more reliable than before changing. Digitalization improve to core banking system (CBS) of banks and it can access to common centralized data by all bank branches and can connect with other inter banks, user can make transactions from own bank to other banks from worldwide via online and acquire improvement in the efficiency of liquidity and cash flow management on their overall working capital lifecycle and profits. Because of digitalization, bank can deliver financial transactions and services to users through digital banking channels like ATMs, CRMs, CDMs, PUMs, electronic payment cards system, mobile banking, internet banking, POS and e-commerce and users' daily lifestyles are changed and facilitate to use banking services so that improve of socioeconomic of users.

Negative impacts of digitalization on the banking sector is that digitalization can increase the jobless and need professionals and digital specialists and skillful staff because of digital technologies and automated machines. The other negative impacts of digitalization on the banking sector is challenging cyber-attacks from internal and external hackers of banks and the data can be gone in a wink of an eye. The impacts of digitalization on the banking sector can affect the banking sector worldwide due to the major impact of developments and trends in information and communication technology, risk management strategies and business intelligence. As digitalization disrupts society ever more extremely, anxiety is growing about how it is affecting issues describe above such as resources efficiency, jobs, wages, inequality, health and security that occur debating among policy-makers, economists and industry leaders.

2.5 Reviews on Previous Studies

Al-Chalabi & Bahram (2018), this study focused on the digitalization of Swedish banks and how it affects their perspective on customer experience and found that some of the banks in Swedish are operating 100% digitally and these banks do not have any physical bank offices for customers to visit, and thus all of the banks' work becomes in one way or another digital work. This study also mentioned that the banking and finance industry is continually changing, and legal factors play a significant role.

Not only do these legal factors affect how banks work internally, banks also affect the competitiveness of the various actors and with it, how much digitalization can affect. This thesis concluded that digital transformation is heavily influencing the strategies of banks in the Swedish banking industry through customer needs, competition and legal factors.

Another study of Porkelsson (2017), digitalization in consumer banking studied with the purpose of how digitalization will affect consumer banking in the next 10 years and it found that the specialists confirm that technological developments will shape the future of the banking industry, but these changes need to be conducted carefully. This study described that there are a lot of developments in the financial industry and new opportunities in digital developments seem to be endless and new entrants on the market will increase competition, even foreign competition. As per the results from this research, the banks can know digitalization can affect their business and how they can use the results to improve their strategy. The purpose of this thesis is to answer the research question of how digitalization will affect consumer banking in the next 10 years. As per this thesis results, digital payments will be dominant in 10 years, there is however no consensus on whether there will be a need for the personal bank account. This thesis also described that rates and prices will be the most important factor in competition among banks in 10 years but having a good digital service platform will give a competitive advantage and the legal environment will also be in favor for all those non-banks and other financial institutions and give them a competitive advantage.

The next study of the effects of the digital transformation process on banks' relationship with customers (Case Study of a Large Swedish Bank) studied by Ortstad & Sonono (2017) indicated that the relationship with customers has become less personalized and more automated. It also showed that an alignment in the bank has contributed to increased satisfaction among digitally oriented customers.

According to the study of digital banking services, customer experience and financial performance in UK banks of Mbama (2018), digital banking through telephone, internet and mobile is becoming important for banks' service marketing, especially with the increase in digital device usage and customer demand for financial services and this thesis focused on determining the impact of digital banking services on customer experience and financial performance. It found that attributes such as perceived value, convenience, functional quality, service quality and digital banking innovation are important in improving customer experience, satisfaction and loyalty,

and banks' financial performance. The results from the thesis have the potential to assist banks in the provision of services and improve customer experience and financial performance, such as profitable growth and economic value-adds, through digital banking.

Based on the study of the pros and cons of internet banking: a short review KOSKOSAS (2011), some of the online services are offered by many traditional banks but the very cheapest choices are internet-only banks, which operate specifically online. This study investigated that customers can get the same services online from traditional banks, such as checking and savings accounts, cash deposits, and other financial products and services. This review indicated that the bank users are interested in paying lower fees for better customer service, they must consider internet banking although there were some cons of using online banking.

As per the study of the positive and negative effects of using electronic banking on customers and small entrepreneurs: an exploratory study in the western region of Saudi Arabia by Ghamri (2017), this study mentioned while technology has positively contributed in shortening the time and distances among nations, it has also created some negative effects such as the difficulty of protecting the individual's privacy and new types of money thefts such as identity theft, transferring money from one bank account into another, and the thefts of sensitive and confidential information have emerged. This research study focused on assessing the risks related to the theft of the information of the clients of the commercial banks and even considering the level of security and theft prevention of such information as one of the key factors of quality that most banks show as one of their competitive advantages which they are trying to maintain.

CHAPTER III

THE DIGITAL BANKING CHANNELS OF PRIVATE BANK IN MYANMAR

3.1 Digital Leading Private Banks in Myanmar

In Myanmar, to establish the bank, need to get the permission of the Central Bank of Myanmar under the law of Financial Institutions of Myanmar and the law of the Central Bank of Myanmar. Most of banks are commercial banks, some are established for mortgages, for construction development, for farmers financing, for microfinance, for rural and urban development and for investment etc. Commercial banks can operate not only for saving deposit and local remittance, but also for borrowing of money/ insecure or secure lending of money, international remittance and trade services. Myanmar private banks was ongoing from 1992, banking sector is strongly moving on year by year and then because of modern technologies banking sector is rapidly changing to provide better services to public. After the 2010 elections, the government began a destructive reform to make the democratic political process and focused on open market economy.

In similar with opening up the political process, policymakers in Myanmar commenced a number of market-oriented reforms. Amongst these initiatives, banking-sector development has become a main concentration of recent changes, given the role that a well-functioning financial sector plays in allowing the development of the private sector (Roland Berger GmbH, 2016). New efforts to develop the banking sector have involved both policies reforms and investments in the payment infrastructure for citizens. The government has also engaged cautious procedures to permit external involvement from foreign countries in the Myanmar banking sector. In Myanmar, most of the banking sector's development has been driven by domestic private banks and the percentage of assets managed by private and semi-private banks now exceeds those achieved by purely state-owned banks. In early 2016, private banks held approximately 52 percent of banking assets, compared to around 48 percent held by state-owned banks (Schellhase & Sun, 2017).

Today, there are thirty-one local banks in Myanmar, including twenty-seven private banks (see in Appendix Table 1) and four state-owned banks, but in the private banks list three banks are owned by municipal governments, seven semi-private banks that operate privately but are partially possessed by, or closely related with government agencies. Amongst the private banks, the three big leading banks in the market, which are Co-operative Bank (CB), Kanbawza Bank (KBZ) and Ayeyarwady Bank (AYA). Because of the obvious factors, these three banks control about two-thirds of all loans, two-thirds of all deposits, and more than 50 percent of all bank branches in the country, are also going up more quickly than other small private banks, these are leading banks of digitalization on banking sector and also firstly generating digital banking products and channels for people in Myanmar. Some of rest private banks and semi-private bank also make digitalization on their banking system and they assist gradually to people digital financial services through digital banking channels and using internet networks and the summary of these selected banks are as follow;

Co-operative Bank (CB Bank): Co-operative Bank (CB Bank) was established on 21st August 1992 with the permission of Central Bank of Myanmar through the rules of Myanmar Financial Institutions laws and operated as private and in June 2004, Co-operative Farmers Bank and Co-operative Promoter Bank were merged with the Co-operative Bank Ltd. under licensed of Central Bank of Myanmar and started to operate as the limited public bank to provide more financial services to public. CB Bank is one of the pioneer banks of core banking user in Myanmar and the initial adopter of technology for innovation of products and services. In 2011, CB Bank introduced to public the country's first ATM service and CB Bank is one of the Myanmar Payment Union members and doing business of acquiring and issuing of local MPU cards (now, CB Bank issues MPU-JCB co-branded debit cards). During 2012 and 2013, CB Bank launched the international payment cards like MasterCard Cards, Visa Cards and Union Pay International Cards and CB Bank tossed the first mobile banking application and internet banking platform in 2014. Currently, CB Bank has over 8,000 employees and over 200 branches widely in Myanmar and display how CB Bank is participating to the growing of the digital economy, a process that starts by listening to users and conveying solutions to them, especially in concerned with digital payments.

Kanbawza Bank (KBZ Bank): Kanbawza Bank (KBZ Bank) is established in 1st July 1994 in Taunggyi, located in the southern part of Shan State and headquarters was moved to Yangon in the year 2000. KBZ Bank is also the leading large bank for digitalization on the banking sector and one of CORE banking users in Myanmar and it is the most branches bank and the most ATM networks in Myanmar. It is one of the Myanmar Payment Union members and acquiring and issuing MPU cards. During the 2012 and 2013 KBZ Bank also acquire the international payment cards and afterward doing issuing business of the international payment cards like MasterCard, VISA, Union Pay International and JCB (Japan Credit Bureau) cards. In 2014, it introduces online banking services and in 2015, Yangon Stock Exchange Centre is started and KBZ bank became the settlement bank in Myanmar. Now, KBZ Bank has over 500 branches and over 20,000 employees across Myanmar and extended to open oversea bank branches in other countries and also leading for cashless society and digital economy along with development of the banking sector in Myanmar.

Ayeyarwady Bank (AYA Bank): Ayeyarwady Bank (AYA Bank) is one of the largest banks and established in July 2010 by the permission of the Central Bank of Myanmar. Within two or three years, AYA Bank also speedy growth like other large commercial banks in Myanmar and it is one of the leading banks for the digitalization of Myanmar Banking sector. In 2011, AYA Bank arranges to being the first user of a centralized core banking system across its entire network back and during 2014 and 2015, it is the first bank to become IFRS compliant and also the first to be audited by one of the big four international firms under the International Standards of Auditing (ISA). In 2017, AYA Bank launched e-commerce services and AYA digital wallet services. It is also the member of Myanmar Payment Union and acquiring and issuing of MPU cards and also one of partner of international payment brands like MasterCard, VISA, Union Pay International and Japan Credit Bureau. Now, AYA Bank has over 200 branches and over 8,000 employees and aims to provide innovative products and services to users and leveraging technology as the empowerment to rapidly expand the user base and leading the digitalization on banking sector of Myanmar and it consider using of blockchain technology in future.

In Myanmar, beyond these three banks, some of the private banks are also trying to change digital banking system using updated technologies and innovate digital

banking new products and channels in order to transformation and in harmony with international banking standards.

3.2 Technology and Innovations of Private Banks in Myanmar

“Both technological and financial innovations have driven modern economic growth. Both were necessary conditions for the Industrial Revolution, as steam and water power required large investments facilitated by innovations in Banking, Finance and insurance. Both are necessary for developing countries as they continue their struggle for economic development” (Michael P.Todaro, Stephen C.Smith, 2015). Technology is very important role in various industries and to promote physical development of economic. With the modern technologies, banks can touch more users and improve services for all users via digital banking channels in a systematized and in a secure way. Myanmar need the sound, reasonable and successful banking sector for globalization to get large networking with others countries. To get sound expansion banking sector and to update digital technologies like other countries, Myanmar private banks are trying to change traditional banking system to digital banking system using digital technologies through digital channels without visiting to branches and to transform cashless society and digital economy.

Myanmar economy was mainly operated on cash based for all transactions in many years. During 1995 and 1996, ATMs and card services was launched by some private banks (Asia Wealth Bank and Myanmar May Flower Bank) and in 2001 Asia Wealth Bank introduce the first online banking but in 2003, these bank are punished by government because of illegal issues and these services are adjourned after banking crisis in Myanmar. Myanmar banking sector is obviously changing after new democratic government election of year 2010, from traditional banking system to digital banking system with the adoption of digital technologies to offer innovative products and services to people and to improve efficiency and changes in payment system is significant. To make changing the payment system using modern technologies, in 2011, the Myanmar Payment Union (MPU) was established under the guidance of Central Bank of Myanmar and starts its operation in 2012 with 17 member banks. MPU stand as National Payment Switch (NPS) for Myanmar and its objectives are to reduce cash based payment, to develop digital payment system and improve existing payment system with sharing the bank services among the member banks and to connect with international payment system. In 2012, MPU started for issuing MPU

debit cards cooperate with some private banks and starts the ATMs services by some private banks.

In 2012, most of the private banks and MPU used the IP star (C-band) to connect ATM and POS for switching and communication systems. In those time telecom infrastructure is not improve and communication infrastructure was unstable and internet and network connection is badly down. In late 2012, USA, UK and EU sanctions are eased to Myanmar and the global payments technology companies like MasterCard, VISA and Western Union signed partnership with some private banks and acquiring these international cards in local bank ATMs. In 2013, CB Bank is the first issuer private bank of prepaid MasterCard cards and in 2014, VISA prepaid cards issued and acquired in ATMs and POS terminals in Myanmar. In 2014, some of private banks are also issued these cards respectively and acquired in ATMs and POS terminals step by step.

In July 2015, MPU was converted from association to a public company and now it has 28 member banks including private banks and state-owned bank called Myanma Economic Bank. Some of the members are already issued cards and set up ATMs and POS terminals in the market for making transactions. In 2013, China Union Pay the name changed as UPI (Union Pay International) was making partnership with MPU for acquiring business and also signed agreement with JCB (Japan Credit Bureau) for acquiring in mid of this year. Some of the private banks issued the prepaid UPI cards in 2013. In 2014, some of the private banks was acquiring e-commerce business with the global payments technology companies MasterCard, VISA. Also in year 2014, some of the private banks introduced the internet online banking services called iBanking (internet banking) and launched the mobile banking services that is application which can directly control the transactions via mobile phone by user. In 2015, MPU signed partnership agreements with UPI and JCB for issuing co-branded cards that can be used within Myanmar and also at other countries by using their network (MPU, 2015-2016 Annual Report). MPU was also launched MPU e-commerce gateway services in February 2015 to facilitate online payment for people. In July 2015, some of the private banks also members of MPU could issue MPU credit cards with the permission of CBM and onwards some of private banks are issuing the MasterCard, VISA and MPU-UPI co-branded credit cards.

In Myanmar, most of the digital technology leading private banks are using centralized core banking system and transform the banking sector through digital touch

points and Omni channel solutions for users to provide digital banking products at their fingertips. During the year 2013 to 2015, the telecom sector is booming and the communication technologies also improve and 3G and GPRS wireless system is using for banking sector networks. So, the connection and internet speed was slowly stable and telecom infrastructure is growing in these years. Although the digital banking channels and digital financial services are accessible now, Myanmar banking sector is getting later over 30 years than other developed nations because of technology but Myanmar has quick-tempered development of electronic devices and digital channels such as smart phones, webs and internet penetration in recent years effect to banking sector. So, some of the private banks in Myanmar are trying to develop the digital payment system using the exposure of digital banking technologies and digital channels to change from cash based economy to cards based and then to contactless payment system. Now, private banks and MPU planned to migrate to new switching technology to provide better services to people and some of private banks lead the digitalization on banking sector of Myanmar and they consider using of blockchain technology in future.

3.3. Digital Banking Channels of Selected Private Banks in Myanmar

In Myanmar, government encourages to use modern technologies and change business model of every sector. In Myanmar banking sector, digitalization is the one of the popular words to change business model and transform from traditional to digital system using the modern digital technology as other developed nations. After 2010, Myanmar telecommunication sector is opened up and the digital technology is providing to banking sector. Digital Banking is provided through various channels for users to achieve their transactions and communications with banks. In Myanmar, there are many digital banking channels to communicate between users and banks provide by private banks (see in Appendix Table 2). Amongst the private banks in Myanmar, CB Bank, KBZ Bank and AYA Bank are the leading banks of digitalization and modernize the new digital banking channels for people. There are so many digital banking channels in Myanmar but the useful and well-known digital banking channels for citizens provided by these selected three private banks are as follows;

Automated Teller Machine (ATM) and Cash Dispensing Machine (CDM): It is widely used by users in all countries and users can withdraw cash with cards or card less, make remittance cash respectively and can enquiry account balances. In Myanmar, some of private banks set up the ATM machines at most occupied area like shopping

centers, factories, hospitals, office towers, bank branches and hotels for public usage and private usage for using payroll services of owned factories. Currently, to set up the ATM machines, need the internet connection, 24 hour security and 24 hour electricity by hosted place owner or by respective banks and also need to safe from rain and water proof building. The internet connection is used from broadband network, ADSL, fiber optic line, 3G mobile network and 4G mobile networks. Now, as per the list from Myanmar Payment Union, 3,356 ATMs are set up around the countries by the MPU member banks and most of ATMs are installed by KBZ bank, CB bank and AYA bank and ATMs can be used 24 hours and 7 days.

Cash Deposit Machine (CDM): It is easy to use and users can deposit cash to account with debit card or account number. In Myanmar, this machine is used in cash collection services for private office or company and it can be installed for private using and it is limited.

Cash Recycler Machine (CRM): This is the sort of ATM machine and can make two main tasks such as receiving and dispensing cash and it also stores money securely, keeps an accurate accounting of cash on hand and automates the cash cycle (ARCA, 1999-2018). In Myanmar, these machines are only installed by CB Bank. There are 49 CRMs up to the end of March 2019, 20 in Yangon area and 29 and outside of Yangon region. To install the CRM, the requirements are needed like an ATM.

Passbook Update Machine (PUM): It is also called Passbook Printing Machine and user can make updating the current account balances and transactions detail in bank passbook. In Myanmar, there are only 4 machines installed by one of the private banks, CB Bank and user awareness is still low.

Currency Exchange Machine (CEM): Using this machine, user can change foreign currencies to Myanmar currency and can change from USD, Euro, Singapore Dollar, Thai Baht and Malaysian Ringgit to Myanmar Kyats and can use 24 hours and 7 days. There are only 4 machines named with Forex Machine, installed by one of the private banks, CB Bank in Yangon and Mandalay and Rakhine State's branches.

Video Teller Machine (VTM): It is the automatic video teller machine and user can enquiry to it like as a human teller for process and procedures of banking services. In Myanmar, there is only one machine installed by CB Bank and most of users not use the machine.

Small Notes Issuing Machine: It is the one of automatic teller machines and user can issue notes (100,200,500 MMK Notes) from these machine and now only one in Yangon and will install in required places.

Point of Sale (POS) Terminal: It is the small electronic device connected with online networks of banks to register the payment transactions made with electronic cards. In Myanmar, it is deployed in retail outlets, shopping centers, hotels, hospitals, gem shops and companies to accept with cards and QR payments. It can print sale slips for buyer and merchant (seller) for records but latest device so called m-POS (Mobile Point of Sale) terminal is no need to print sale slips and it registers the transactions in merchants' portal system of bank and can check in time by merchants themselves and can send the link of slip to buyer with email or telephone SMS. To deploy the POS terminal, merchant have to open bank account with business name and register to use POS as per agreement with banks and can accept with the electronic payment cards from card holders and can accept with created QR code. There are 14,706 POS terminals in Myanmar, which are deployed by private banks (source from MPU, Jan-2019).

Another digital banking channels of private bank in Myanmar are Electronic Payment Cards and these are mostly made with plastic and used for electronic payment transactions. Electronic Payment Cards are existed in popular role of digital banking channels of private banks in Myanmar. There are variety types of cards and diversity brands in Myanmar but most are ATM cards, debit cards, prepaid cards, credit cards and virtual cards. Some of the card types are directly linked with card holder's bank account at the back end and some cards are not linked with account as per card types. In Myanmar, electronic payment cards are mostly used in ATMs, CRMs and some automated machines for cash deposit and cash withdraw and used in POS terminals for payment transactions and for online e-commerce transactions. The upgrading technologies of cards to store data is developed from magnetic stripe cards to EMV chip based cards and NFC based tap cards in now. Currently, most of the private banks issued the MPU local cards for domestic transactions and some of the private banks issued the international payment branded cards like MasterCard Cards, VISA cards, Union Pay International (UPI) cards, Japan Credit Bureau (JCB) cards and MPU-JCB co-branded cards, MPU-UPI co-branded cards and all are spread using in most of countries in the world. User can apply the cards and fill application form depended on cards types and terms and conditions of respective bank. Up to 2018, member of MPU

private banks issued the estimated number of 5,336,406 MPU debit cards, 129,592 MPU credit cards and 1,195,330 MPU co-branded cards (MPU, February, 2019). Some of the private banks issued international payment network brands the estimated number of over 35,000 MasterCard cards, over 50,000 VISA cards, over 4000 UPI cards and over 930,000 JCB cards, up to 2019 March in Myanmar as per the number of cards issuing teams of private banks. The numbers of cards are estimated amounts and there have some limitations to collect card quantities.

Online (Internet) Channel: In Myanmar, this digital banking channel is also named internet banking (i-Banking) or online banking and can deliver to users to enquire the financial services, checking current transactions and balances, making transactions, requesting cheque book, stop payments with intermediary (OTP-one time password) device. The users no need to go bank branch physically to make transactions. It can access through internet browsers and websites with computers or smartphones or the electronic devices which can connect with internet to manage their banking transactions with convenience and secure ways. In Myanmar, this channel is divided into two types so called personal internet banking and business internet banking. For the personal internet banking, user basically need to has one or more personal bank account and user can check all accounts' balance and can make other functions, like transfer, loan schedule, e-top up, etc. and can use generally and has limited in transaction amounts and times. For the business internet banking, can separate the user levels like maker, authorizers and viewer and can apply as per control types like single package, dual package, view only and can also apply customized package as per board of director meeting minutes' decisions. Currently, internet banking users are nearly 31,000 including personal and business iBanking users in private banks and users are gradually increasing.

E-Commerce Gateway is also one of the digital banking channels to accept electronic cards payment through the websites and applications over the internet. Merchant can sell their products or services in website or application with electronic cards or card less and buyer can purchase the products and services 24/7 from any places where can access internet. Merchants need to integrate their website or application and API (Application Programming Interface) link from bank. In Myanmar, there are more online shops with Facebook pages but less the secure websites and applications to sell products and services. Some of the website or application owners want to sell their products and services on online but the payment collection is still

using the cashiers or deliverers or bank account transfer. Some ways are not safe for merchants and some ways are not reasonable for buyers, so merchants deploy the POS terminals or register the e-commerce gateway services for collections. The user can choose the product and services from online and can settle with MPU cards or MasterCard Cards or Visa cards to buy something and if there is an error in transactions, they can disputes via their issuer banks and can chargeback for transactions. For the online merchants, this service is very risky because of card-not-present transactions but normally, this channel is vital role in developed countries as per the trends of generations. In Myanmar, there are two types of gateway API; MPU cards accepted gateway and MasterCard cards, Visa cards accepted gateway services. MPU e-commerce is started from Feb, 2015 and there are 11 private banks and 1 state-owned bank to accept e-commerce service and total 162 MPU card accept merchants up to Dec, 2018. MasterCard cards and Visa cards accept e-commerce are launched on Oct, 2014 and there are nearly one thousand merchants in the whole country and some of them are not active.

Mobile Banking Application: In Myanmar, mobile banking application is the most useful and popular service in banking sector and now, some of the private banks are identified these digital banking channels with various name like KBZ Pay, CB Pay and AYA Mobile Banking, AGD Pay and MAB Mobile Bank. It can provide to user for banking and financial services like bill payments, funds transfer, checking mini-statement, re-payments for credit cards, top-up for prepaid telephone bills and prepaid cards, card less withdraw transactions, enquiry the exchange rate and nearest ATMs, etc. through mobile telecommunication devices. Myanmar's telecom sector is growing after 2010 and the mobile phone are incredibly using not only in urban area also in rural area. Using mobile banking application, users can control and check their bank account themselves and save times, cost and can change daily life styles. In Myanmar, the mobile banking services and applications are provided to the users not only by private banks also by telecommunication companies and financial technologies companies which getting the license and permission from Central Bank of Myanmar. Users can withdraw and deposit money to their bank accounts or cash even after office hours from agents authorized by respective banks or companies. Currently, some of the private banks and international payment organizations are starting the QR code payments with mobiles for users and waiting the permission from CBM. Some of the private bank are also trying to card less withdraw from ATMs via mobile banking application with OTP

code. So, Myanmar private banks emphasized in mobile banking application for financial services and mobile banking application is easy to use and users are increasing day by day.

SMS (Mobile) Channel: In Myanmar, some of the private banks provide this services to users with charges and user can apply and register for this channel for 1 year period and banks encourage to use because users can know some of the financial information alerts promptly whether they are making or not the transactions. This channel can provide SMS alerts to users for announcements, debit/credit alerts for card payments and transactions, and the user can prevent the frauds, stolen and hacker attack cases. But, this channel is still less using because of the users' awareness.

Contact Centre /IVR (Interactive Voice Response) Channel: Although this digital banking channel is most useful in Myanmar, only some private banks are implementing this service. It is an automated telephony system that interacts with callers, gathers information and routes calls to the appropriate recipients. Users can contact for reporting a problem or inquiries about a fee or service charge or transactional details. Currently, this channel is not successful in Myanmar because of telephone lines, staff workforce and difficult to call the contact center. AVR (Automated Voice Response) channels are also not still having yet in private banks of Myanmar.

According to the digitalization is changing of business model, the private banks in Myanmar are changing the internal process and procedures in accordance with the permission of the Central Bank of Myanmar from traditional to digital system, as well as banking channels for users through digital technologies. The list of digital banking channels of private banks in Myanmar is shown in appendix table 2. Using the digital banking channels, private banks effort to speed up the financial sector not only to develop the economic sector in accordance with government guidelines and coordination with international abreast. Although there are so many digital banking channels for users but most of the peoples in Myanmar especially in rural area are not use these channels and still alive with traditional ways of payment and receipt system both in rural and urban area because of user awareness, infrastructures, procedures, policies and regulations. But as per the annual reports of MPU from the year 2012 to 2018, the progress of ATM, POS & Card deployment and e-commerce using is improved and number of the transactions and volume of transactions in all are gradually high-rise (see in Tables 3.1 to 3.7).

Table 3.1 Progress of ATM, POS & Card Deployment

Years	Number of Quantities		
	ATM	POS	Cards
2012-2013	210	710	above 50,000
2013-2014	625	2730	about 500,000
2014-2015	1250	3000	above 1,500,000
2015-2016	1875	4560	above 2,800,000
2016-2017	2414	9560	above 4,300,000
2017-2018	3300	17000	above 6,500,000

Source: MPU 2017-2018 Annual Report

Table 3.2 Number of ATM Transactions

Years	No. of Transaction
2012-2013	51,700
2013-2014	480,000
2014-2015	1,523,000
2015-2016	2,927,000
2016-2017	4,265,728
2017-2018	6,578,400

Average Number of Transactions at ATM ~555,000/Month

Source: MPU 2017-2018 Annual Report

Table 3.3 Volume of ATM Transactions (MMK in Million)

Years	Transaction Amount
2012-2013	3,700
2013-2014	38,000
2014-2015	138,000
2015-2016	287,000
2016-2017	420,085
2017-2018	652,000

Average Volume of Transactions at ATM ~55,000m/Month

Source: MPU 2017-2018 Annual Report

Table 3.4 Number of POS Transactions

Years	No. of Transaction
2012-13	2,800
2013-14	15,000
2014-15	7,600
2015-16	26,800
2016-17	217,194
2017-18	1,038,097

Average Number of Transactions at POS ~87,000/Month

Source: MPU 2017-2018 Annual Report

Table 3.5 Volume of POS Transactions (MMK in Million)

Years	Transaction Amount
2012-13	70
2013-14	430
2014-15	370
2015-16	900
2016-17	21,520
2017-18	87,000

Average Volume of Transactions at POS ~7,250m/Month

Source: MPU 2017-2018 Annual Report

Table 3.6 Number of E-Commerce Transactions

Years	No. of Transaction
2015-16	47,300
2016-17	368,141
2017-18	607,977

Average Number of Transactions at E-Commerce ~50,000/Month

Source: MPU 2017-2018 Annual Report

Table 3.7 Volume of E-Commerce Transactions (MMK in Million)

Years	Transaction Amount
2015-16	7,017
2016-17	2,293
2017-18	4,231

Average Volume of Transactions at E-Commerce 353m/Month

Source: MPU 2017-2018 Annual Report

3.4 Other Digital Financial Services (Mobile Financial Services Providers)

In Myanmar, to do the financial services need permission and license from the Central Bank of Myanmar. After 2010, the telecommunication sector and the financial sector is booming distinctly and mobile phone penetration is widely spread in the whole nation. But most of the people in rural and urban areas use banking services in small percentage ratio and mostly are also still using traditional way of payment and receiving money. In that time, some of the private banks are launching mobile banking services and some of the telecom companies and financial services providers are doing mobile and digital financial services using internet, mobile and digital financial technologies by cooperation with some private banks. Amongst digital financial services providers, Wave Money doing by Digital Money Myanmar Limited, M-Pitesan power by Ooredoo Myanmar Fintech Limited and OK\$ undertaking by Internet Wallet Myanmar Limited are certified and popular digital financial services providers in Myanmar.

Most of the digital financial services system are wallet type and no need to have bank account and can use with telephone number or via mobile application, so these financial services are generally using in rural and urban areas of Myanmar although user cannot get the interest rate and service fee is expensive than banks' service charges. Using these digital financial services, users can make cash-in cash-out transactions, transfer and receive money, bill payments and online payment. As per Myanmar's current situation, the unbanked population is much than other and because of fragile infrastructures, mobile digital financial services are more popular and useful than digital banking channels. In Myanmar, for the mobile digital financial services, the providers need the agents with the proper requirements (place, documents, and small cash deposit amount) to serve the people for their financial services and easy to manage. Most of the people currently use mobile digital financial services just before drying and that is one of the challenges for the traditional banking services. But, sometimes users face fraud cases and lose the money because of users' lack of knowledge, unsecure network, cheating from third parties, untrusted agents and background providers' lack of accountability.

As per the above conditions, the private banks in Myanmar need to play an important role of digitalization for financial services, providing the digital banking channels for nations and getting the larger chance of market shares. Now, the digital banking channels of private bank uncover the whole country and the banks also facing fintech companies' threaten. In the next chapter, analysis results on the users'

awareness, understanding and usage for the improvement of digital banking channels and digitalization on financial services will be described.

CHAPTER IV

ANALYSIS ON THE USAGE OF DIGITAL BANKING CHANNELS OF SELECTED PRIVATE BANKS IN MYANMAR

4.1 Survey Profile

Digitalization in banking sector is important for banks and bank's clients. Myanmar banking sector is trying to do digitalization using updated digital technologies and some of the private banks are leading for digitalization on banking system and generating digital banking channels for people in Myanmar. In this study, data are collected from the 278 respondents (120 clients of CB Bank, 120 clients of KBZ Bank and 60 clients of AYA Bank) stay in Yangon area and they have bank account of selected digital leading private banks in Myanmar. The main purpose of this study is to analyze the usage of digital banking channels of selected private banks in Myanmar and to identify the awareness, understanding of digital banking channels of selected private banks in Myanmar for the improvement of digital banking channels of private banks in Myanmar.

Digital banking channels are used not only by users but also used by merchants generally for receiving side such as POS, E-commerce Gateway, Mobile Banking Agent, etc. Digital Banking channels are provided and marketed by banks in line with the Central Bank's rules and regulations. So, the Key Informant Interviews were conducted with some merchants, who use the digital banking channels and also made personal interview with the bankers of digital leading banks. All of the interviewers' name and professional position would be kept confidential and the interview records were done with the permission of participants and the answers are enabling to use in this research.

4.2 Survey Design

This study used simple random sampling method and survey is conducted with three section semi-structured questionnaires (see in appendices) and some are multiple responses questions by using quantitative and qualitative approaches for primary data.

Section (A) is demographic characteristics of respondents including gender, age, education, occupation and income level of respondents. Section (B) is digital banking channels and its usage and section (C) is awareness, understanding, cost-saving, infrastructure and trust on digital banking channels of private banks in Myanmar analyzed with five-point Likert scale model “Strongly Disagree (1)” to “Strongly Agree(5)”. This study also used the Key Informant Interviews (KII) to merchants and bank decision makers to obtain qualitative description of perspectives or experiences.

4.3 Analysis on Survey Data

4.3.1 Characteristics of the Respondents (Users)

In this analysis, demographic characteristics of respondents include as gender, ages, education level, occupation, and income level of respondents. Results data are shown and detail explanation is presented in following tables.

(i) Gender of Respondents

Table 4.1 Gender of Respondents

Respondents' Demographic Characteristics		No. of Respondents	Percentage
Gender	Male	98	35
	Female	180	65
Total		278	100.0

Source: Survey Data (May, 2019)

According to the quantitative survey results, the gender of respondents are dispersed both female and male. As per Table (4.1), 98 out of 278 respondents denote 35% of male and 180 out of 278 respondents represent 65% of female are users of digital banking channels. There is significant different in survey result because the percentage of female users are much more than male users. It shows female respondents are more interested to use digital banking channels and in Myanmar, the number of female population work more than the number of male population at companies.

(ii) Age of Respondents

Table 4.2 Ages of Respondents

Respondents' Demographic Characteristics		No. of Respondents	Percentage
Age	16-25	96	34.5
	26-35	119	42.8
	36-45	39	14.0
	46-65	18	6.5
	Above 65	6	2.2
Total		278	100.0

Source: Survey Data (May, 2019)

Shown in Table 4.2, as per the survey data among the 278 respondents, between 26 years to 35 years old respondents are most common users and 119 out of 278 respondents represents 42.8% of users, between 16 years to 25 years old respondents are second-largest respondents and 96 out of 278 respondents represents 34.5%, then between 36 to 45 years old , 39 out of 278 respondents are 14%, between 46 years to 65 years old, 18 out of 278 respondents are 6.5% and above 65 years old respondents are smallest and it represent 2.2%. As per the result data, majority of respondents are middle-aged users and young ages users, 16 years old to 35 years old and they are more interested to use digital banking channels of private banks in Myanmar than old people. Thus, young generations are more attracted in digital banking channels.

(iii) Education Level of Respondents

Table 4.3 Education Level of Respondents

Respondents' Demographic Characteristics		No. of Respondents	Percentage
Education	High School	9	3.2
	University Graduate	233	83.8
	Professional Level/ Master Level	36	12.9
Total		278	100.0

Source: Survey Data (May, 2019)

In Table 4.3, as per the survey results, 233 out of 278 users are university graduate level and percentage is 84% of respondents, professional master level is 36 out of 278 respondents, 13% of respondents and 9 out of 278, 3% of respondents is high school level. According to the results, most of the university graduates are more interested and use the digital banking channels.

(iv) Occupation of Respondents

Table 4.4 Occupation of Respondents

Respondents' Demographic Characteristics		No. of Respondents	Percentage
Occupation	Unemployment	1	.4
	Business Owner	3	1.1
	Company Staff	266	95.7
	Government/NGO Staff	6	2.2
	Retired	2	.7
Total		278	100.0

Source: Survey Data (May, 2019)

According to the survey results, most of the respondents are company staff and 266 out of 278 respondents represents 95.7% of users, government and non-government organization staff are 2.2%, business owners are 1.1%, retired respondents are 0.7% and unemployment is 0.4% (see in Table 4.4). As per the collected survey data, company staffs are more interested and using digital banking channels. In Myanmar, some of the companies are using private banks' services like payroll services, cash management services, therefore, sometimes the company staff are necessity to use digital banking channels of private banks for personal usage as salary income, checking bank statement and cash withdraw from ATMs. So, the company staffs are largest amount of respondents in this survey. The government and non-government staff are the second-largest amount of respondents and they also interested in using digital banking channels. The third-largest amount of respondents is business owners are small business owners and they also use the digital banking channels of private banks in Myanmar.

(v) **Income Level of Respondents**

Table 4.5 Income Levels of Respondents

Respondents' Demographic Characteristics		No. of Respondents	Percentage
Income Level (MMK / Per Month)	100000-200000	55	19.8
	200001-500000	147	52.9
	500001-1000000	46	16.5
	1000001-1500000	14	5.0
	Above 1500000	16	5.8
Total		278	100.0

Source: Survey Data (May,2019)

According to the survey result data, getting between MMK 200,001 and MMK 500,000 per month respondents represent 52.9% (147 out of 278 respondents), between MMK 100,000 and MMK 200,000 per month respondents represent 19.8% (55 out of 278 respondents), between MMK 500,001 and MMK 1,000,000 per month respondents represent 16.5% (46 out of 278 respondents), above MMK 1,500,000 per month represent 5.8% (16 out of 278 respondents) and between MMK 1,000,001 and MMK 1,500,000 per month respondents represent 5% (14 out of 278 respondents) as per Table 4.5. It shows the majority of digital banking channels users are low income level of company staff and little higher income respondents are interested to use digital banking channels.

4.3.2 Survey Results Analysis

In this section, digital banking channels usage is analyzed as per users' responses that include respondents' bank account usage, usage of digital banking channels, and the users use which digital banking channels, the purpose of using digital banking channels, using times and knowing places of digital banking channels.

(i) Respondents' Bank Account Usage

Table 4.6 Bank Account Usage

Banks	CB	KBZ	AYA	KBZ- AYA	CB- KBZ	CB- AYA	Total No. of Responses	Percentage by total Responses	Percentage by total Respondents (cases)
CB	70	25	24	32	-	-	151	37.9	54.3
KBZ	25	63	7	-	-	32	127	31.9	45.7
AYA	24	32	57	-	7	-	120	30.2	43.2
No. of Responses	119	120	88	32	7	32	398	100	-

Source: Survey Data (May, 2019)

As per the survey results of the responses by total respondents, 278 users have bank account at CB Bank, KBZ Bank and AYA Bank and the users use not only the CB Bank account but also use other two's bank accounts because the responses of the cases in Table 4.6. Although there are the 278 respondents, the numbers of responses are 398 according to multiple responses questions. So, in the Table 4.6, results show the number of users 151 out of 278 use CB Bank including other banks and it represents 54.3%, the number of users 127 out of 278 use KBZ Bank including other banks and it represents 45.7% and the number of users 120 out of 278 use AYA Bank including other banks represents 43.2%. In this analysis, survey data are collected from digital leading banks in Myanmar such as CB Bank, KBZ Bank and AYA Bank's users. Most of the users have bank account in those private banks. Some of the users use not only one bank account, sometimes they use two or more bank accounts in only one bank and they also have bank accounts in other banks as per their responses by total respondents.

(ii) Usage of Digital Banking Channels

Table 4.7 Usage of Digital Banking Channels

Digital Banking Channels Usage	Responses		Percentage by Total Respondents
	N	Percentage	
Automated Teller Machine (ATM)	237	24.9	85.3
Cash deposit machine (CDM)	19	2.0	6.8
Cash Recycler Machine (CRM)	17	1.8	6.1
Passbook Update Machine (PUM)	10	1.1	3.6
Currency Exchange Machine (CEM)	0	0.0	0.0
Video Teller Machine (VTM)	2	.2	.7
Small Notes Issuing Machine	17	1.8	6.1
Point of Sales Terminal (POS)	40	4.2	14.4
Prepaid Cards	32	3.4	11.5
Debit Cards	137	14.4	49.3
Credit Cards	82	8.6	29.5
E-commerce Gateway (Online)	12	1.3	4.3
Internet Banking	58	6.1	20.9
Mobile Banking	221	23.2	79.5
SMS Banking Alert	56	5.9	20.1
Contact Centre/ IVR (Interactive Voice Response)	12	1.3	4.3
Total	952	100.0	-

Source: Survey Data (May, 2019)

According to the survey results shown in Table 4.7, 278 respondents answered the 952 responses because of multiple responses questions. So, 237 out of 278

respondents use ATM and it is 85.3% of using among other digital banking channels, 221 out of 278 respondents use mobile banking represents 79.5% and the second most using channels, 137 out of 278 respondents use the debit cards shows 49.3%. The private banks issue numerous debit cards with various brand names, the users can confuse the card type and card name although they hold the debit cards. Then, 82 out of 278 respondents using credit cards show 29.9% and the credit cards are reissued in recent years by private banks. 58 out of 278 respondents use internet banking and it represents 20.9% and 56 out of 278 respondents use SMS banking alerts display 20.1%, it is an assumption of debit alert and credit alert. The respondents 40 out of 278 use the POS terminal and it is 14.4% that shows all of banks are trying to drive cashless society but the users not use the POS for making payments because of some issues. The respondents 32 out of 278 use prepaid card is 11.5% and it is the slightest usage among in electronic cards channels. Among the 278 respondents, 19 respondents use one of the ATM machines represents 6.8% and 17 of 278 respondents use cash recycler machine and another 17 out of 278 respondents also use small note issuing machine represent same percentage of 6.1% and these two machines are also sort of ATMs. 12 respondents out of 278 use e-commerce online gateway signify 4.3% and it shows very diminutive usage among users. The e-commerce gateway is an important gears for making payments by users and receiving money by merchants from online in current digital era but in Myanmar it is still unfamiliar for users and occasional for merchants. The respondents 12 out of 278 use Voice Response (Contact Centre) represent 4.3% and users do not frequently use this channel. The respondents 10 out of 278 use passbook update machine and it represent 3.6%. Passbook update machine is set up only in some places and most of users not recognize to use. The 2 respondents out of 278 uses Video Teller Machine and it is 0.7% of total responses and this channel is not popular and deployed only in one branch of private bank (CB Bank). Although currency exchange machine is set up in some branches of private bank (CB Bank), as per survey results of 278 respondents, the users not use it. As per the analysis results of digital banking channels usage as per the responses by total respondents, the users are not using all of the digital banking channels but they use above two or more channels for their respective purposes and the users not know clearly about some of the digital banking channels. In this survey results, some of the digital banking channels like Passbook Update Machine, Currency Exchange Machine and Video Teller Machine and Online e-Commerce Gateway are significantly low using among the digital banking channels.

(iii) The Purposes of Using Digital Banking Channels

Table 4.8 The Purposes of Using Digital Banking Channels

Purposes of Using Digital Banking Channels	Responses		Percentage by Total Respondents
	N	Percentage	
Money Transfer	206	24.1	74.1
Cash Withdrawal	217	25.4	78.1
For payment Transactions	142	16.6	51.1
For Receiving Transactions	141	16.5	50.7
For Other Factors	57	6.7	20.5
For Above all Factors	93	10.9	33.5
Total	856	100.0	-

Source: Survey Data (May, 2019)

As per Table 4.8 of analysis results in accordance with the responses by total respondents as per the multiple responses, 217 respondents out of 278 use digital banking channels for purposes of cash withdrawal and the responses represents 78.1% , 206 out of 278 respondents use digital banking channels for money transfer and it retorts 74.1%, for the purposes of payment transactions, 142 respondents use digital banking channels and it represents 51.1%, 141 respondents use digital banking channels for receiving transactions and it is 50.7%, 93 out of 278 respondents use digital banking channels for money transfer, for cash withdrawal, for payment transactions, for receiving transactions and for other factors and it shows 33.5% and 57 out of 278 respondents use digital banking channels for other factors usage. As per the analysis, the users use the digital banking channels for various purposes and they mostly use for cash withdrawal and for money transfer and they frequently use the digital banking channels for making payment transactions and for receiving transactions.

(iv) Number of Times for Using Digital Banking Channels

Table 4.9 Number of Times for Using Digital Banking Channels

Particular	No. of Respondents	Percentage	Valid Percentage	Cumulative Percentage
Daily	62	22	22	22
Once a Week	125	45	45	67
Once a Month	76	27	27	95
Rarely	15	5	5	100
Total	278	100.0	100.0	

Source: Survey Data (May, 2019)

As per survey results in Table 4.9, among the 278 respondents, 45% of respondents 125 use digital banking channels once a week, 27% of respondents use digital banking channels once a month, 22% of respondents use daily and 5% of respondents rarely use the digital banking channels. According to the analysis, most of digital banking channels users use once a week and a tiny number of users rarely use digital banking channels.

4.3.3 Survey Results of Awareness, Understanding, Cost-Saving, Infrastructure and Trust on Digital Banking Channels

In this section, users' awareness, understanding, cost-saving, infrastructure and trust on digital banking channels are analyzed as per knowing sources and there are thirteen statements to measure the average (Mean) of user's awareness, understanding, cost-saving, infrastructure and trust on digital banking channels by using five points of Likert scale model that is ranging from "Strongly Disagree (1)" to "Strongly Agree (5)".

(i) **Sources of Knowing the Digital Banking Channels**

Table 4.10 Sources of Knowing the Digital Banking Channels

Sources of Knowing the Digital Banking Channels	Responses		Percentage by Total Respondents
	No. of Respondents	Percentage	
Newspaper/Journals/Magazines	78	13.70	28.10
TVCs	51	9.00	18.30
Social Media/Websites	203	35.70	73.00
Billboards	55	9.70	19.80
Direct marketing	107	18.80	38.50
FM Radios	15	2.60	5.40
Promotion Events	59	10.40	21.20
Total	568	100.00	-

Source: Survey Data (May, 2019)

According to the survey results with the responses by total respondents in Table 4.10, the respondents know about the digital banking channels from social media, websites is 73%, knowing from direct marketing is 38.5%, knowing from printed media is 28.1%, knowing from promotion events is 21.2%, knowing from billboards is 19.8%, knowing from TVCs is 18.3% and knowing from FM radios is 5.4% respectively. As per the analysis of sources of knowing the digital banking channels, the users can know about the digital banking channels from different sources but the users of digital banking channels usually know about the digital banking channels from social media, websites and web pages, private bank staff' direct marketing and frequently know from other sources like as printed medias, promotion events, billboard advertising and TVCs. Today is digital period and most of the users are using social media and private banks are competing for market expansion. Thus, users can speedily know about digital banking channels from social media and private bank staff' direct marketing. According to the multiple responses questions, 278 respondents' response 568 times for sources of knowing the digital banking channels.

(ii) Analysis of Awareness, Cost-Saving, Infrastructure, Trust and Understanding on Digital Banking Channels

In this section, the 278 users from selected digital leading private banks are surveyed for analysis of awareness, cost-saving, infrastructure, trust and understanding on digital banking channels with five point of Likert Scale Method.

Table 4.11 Analysis of Awareness, Cost-Saving, Infrastructure, Trust and Understanding on Digital Banking Channels

Particular	No. of Respondents	Mean	Standard Deviation
People are fully aware of the digital banking channels of private bank in Myanmar.	278	3.5	.72
Private bank provide the required knowledge related with digital banking channels to people.	278	3.6	.73
Digital banking channels are quite popular nowadays rather than physical banking and cash.	278	3.9	.61
Overall Mean for Awareness	278	3.7	
The cost and time are more saving than using traditional methods and going physical bank branches.	278	4.1	.55
In term of transaction cost, do you think using digital banking channels is cheap and worth.	278	3.8	.53
Overall Mean for Cost-Saving	278	4.0	

Particular	No. of Respondents	Mean	Standard Deviation
Myanmar's current telecommunication and electricity infrastructures fully support to use the digital banking channels for internet connection, network coverage, electric etc.	278	3.4	.79
Digital banking channels can be used 24/7 and any location.	278	3.5	.91
Digital banking channels are needed for digital financial services development than brick and mortar banks.	278	3.8	.70
Overall Mean for Infrastructure	278	3.6	
Less trust on digital banking channels.	278	3.1	.80
Digital banking channels are trust worthy for people.	278	3.5	.64
Overall Mean for Trust	278	3.3	
Digital banking channels are easy to understand and use.	278	3.8	.59
Digital banking channels from private bank are easy to manage.	278	3.8	.60
Digital banking channels from private bank are easier and more convenient for user.	278	3.9	.55
Overall Mean for Understanding	278	3.8	

Source: Survey Data (May, 2019)

According to the Table 4.11, the results indicates overall mean score of awareness is 3.7 and it shows the users have good awareness related with some digital banking channels of private banks but sometimes they face technological issues, security problems because of lack of knowledge and they do not fully aware all of

digital banking channels. Although the digital banking channels of private banks are popular, the users are still use the bank branches for transactions. The private banks provide required knowledge to users via social media, advertising and other ways but not covered at all.

As per results of overall mean score of cost-saving is 4.0 in Table 4.11, it indicates the users accept that using the digital banking channels is more saving cost and time than going physical banks and using traditional methods. In the current situation of banking sector, users prefer the digital banking channels because no need to go banks and no need to communicate with bank staff and can avoid the other limitations but they can face difficulties to make deposits, infrastructure issues and technological issues.

In the Table 4.11, the overall mean score of infrastructure is 3.6 and it indicates the infrastructures supported to use digital banking channels such as electricity, internet network, machines and devices but these are insufficient for all users as per their comments in survey questionnaires. To develop the digital banking channels usage, the users need the digital banking channels than brick and mortar banks. Especially, infrastructure is needed to develop for the digital banking channels and as per their answers of respondents, they are not reliable to current infrastructure of the internet connection, electricity and network coverage. Therefore, the private banks and respective authorities need to provide the good infrastructures, need to fix the machine and devices to use 24/7 at appropriate locations, need to monitor to solve the difficulties of users and need to heed the user's responses to grow the digital financial services.

In accordance with the overall mean score results for trust in Table 4.11 is 3.3 and it displays the users are trustworthy upon digital banking channels not at all. In up-to-date conditions, users' trust rate on banks and digital banking channels is fall because of fraud cases by bank operation staff or hackers and feel unsecure or unsafe to use digital banking channels and user's issues like as lack of knowledge or lack of understanding on technological issues and other reasons.

As per survey results of overall mean score for understanding in Table 4.11 is 3.8 and it shows most of users response that the digital banking channels of private banks are easy to understand, easy to manage, easy to use. But users can face some of the technologies factors such as network coverage, connection problems and because of difficult features of digital banking channels, user need the helps from providers or

banks to understand the digital banking channels. Thus, private banks need to provide more convenience ways to understand and to use the digital banking channels.

All of the above survey results describe the users' awareness, understanding and usage of users for the improvement of digital banking channels of private banks in Myanmar. As per the survey results, some of the users know clearly about digital banking channels but some do not know noticeably even though they use these channels by themselves.

4.3.4 Problems and Experiences related with Using Digital Banking Channels

As per collected survey data, 141 out of 278 users (50.7% of users) describe their experiences and problems related with using digital banking channels and 137 users (49.3% of users) not response as per Table 4.12. The 97 out of 141 respondents describe internet connection is failure when they use the digital banking channels and 11 users answer ATMs connection is usually breakdown at the end of month (especially in pay days). Another 11 users response money in ATMs is not enough and 7 users face bank's system is breakdown (temporary out of service). Among of them, 4 respondents face that ATM service is not working sometime because of inter banks network error and another 4 respondents express some of the ATMs machines are damage and they face the errors. 2 respondents out of 141 respondents answer that the payment transactions delay to pay especially in weekends (bank's holidays). One from 141 respondents face difficulties to withdraw cash from ATMs and other 2 respondents' answer that they got cards error like card expired and PIN (Personal Identification Number, sometimes called in Banks is Password) locked. If the cards are expired or happen PIN locked, the user need to go respective branch for renewal or reset PIN. The PIN can lock when the user presses wrong PIN over 3 times. If the user still remember his or her old PIN, he or she no need to go branch and can call to respective hot line number (IVR) for restart PIN. One of the respondents faces mobile banking error and another one responses difficult to call contact center (IVR). Some of the users response when they withdraw cash from ATMs, they sometimes get the old, damage and tear money and they also response banks need to support adequate information to users and need to share information even to internal bank staff about the digital banking channels.

Table 4.12 Problems and Experiences related with using Digital Banking Channels

Problems and Experiences related with using digital banking channels	No. of Respondents	Percentage
No. of not answer respondents	137	49.3
ATM service is not working sometime because of network error	4	1.4
Difficult to withdraw money from ATM	1	0.4
ATM Machine error	4	1.4
Money is not enough in ATM machine	11	4.0
ATM Connection Breakdown at end of month (especially at Pay Days)	11	4.0
Internet Connection Breakdown when using Digital Banking Channels	97	34.9
Card Error (Expired, PIN Locked)	2	0.7
Delay to payment transaction in weekends	2	0.7
Cannot contact to Call Centre	1	0.4
Mobile Banking Error	1	0.4
Banks's System Breakdown (out of services)	7	2.5
Total	278	100

Source: Survey Data (May, 2019)

Actually, to improve the digital banking channels of private banks in Myanmar, private banks need to try to well-informed to users by various channels as per their behaviors and users' experiences and problems are handled according to their requirements and experiences. And also need to support the sound infrastructure like

internet connection, network coverage, adequate machines and services and need to solve the problems of users timely. As per users side, users need to know undoubtedly about the digital banking channels and maintain owned information concern with security and safety.

4.3.5 Perceptions of Merchants and Bankers

Various types of merchants such as companies, hotels, restaurants, shopping centers, supermarkets , mini-marts, gems & jewelry shops, hospitals, ...etc. are deploying the digital banking channels of ATMs, POS, E-commerce gateway, Business Internet Banking and identify as mobile banking agents powered by banks. The merchants deploy the digital banking channels from digital leading banks and mostly from CB Bank, KBZ Bank and AYA Bank for many purposes of receiving, payment and transfer.

The objective of the interviews is to gather the relevant data from merchants and bankers for the improvement of digital banking channels. For the awareness of merchants, most of the merchants know well the digital banking channels, their business operations are smoother and their sales volume transactions increase than before by using digital banking channels. But some of them have bad experiences related to digital banking channels, they disappointed when the internet connection is decline while making receiving transactions and they need proper training from private banks for using digital banking channels although the banks arrange the training for them. Sometimes, they face the weak customer services and they need 24/7 support and monitoring from the bank. The important thing they are facing is the cost like as MDR, of using digital banking channels.

For the point of bankers, the digital banking channels can support to develop the financial sector, to reduce the money printing cost, to go the cashless society as other countries and support for taxation. In today's digital era, although the digital banking channels are needed for daily lifestyles and necessity for today's society, in the next times can affect to human resources and employment opportunities because the digital banking channels are automation systems and have advantages and disadvantages to all users.

CHAPTER V

CONCLUSION

5.1 Findings

Digital banking channels are products and services of banks which transformed by using the digital technologies which are known from the literature review. By using digital banking channels, users can get more advantages than disadvantages. Most of the countries in the world except that there are limitations for making international transfers to other countries because of international sanctions and mutual rules of corresponding banks replace traditional banking with digital banking by using digital banking channels and encourage to cashless and then card-less societies with using the updated digital fin-tech. But the banks and users need to take attention to the effects of digitalization on the banking sector and also the negative impacts of using digital banking channels.

In Myanmar, although some of the digital banking channels as ATMs, cards are launched by some private banks during 1995, in today's bank population is less than non-banked population and can count the digital leading banks. Many people in Myanmar have no bank account and even though they do have bank account, some of the account owners do not use the digital banking channels and lack of using digital banking channels experiences and widely use traditional ways till now. The private banks in Myanmar are trying to go cashless society using digital banking channels by promoting several ways and as per the progress of ATMs and POS deployment, cards acquiring and issuing businesses and e-commerce using is improving and number of the transactions volume in all are increasing year by year. But, in Myanmar, still need the well-infrastructures and to reduce the cash transactions when making payments and receiving and using digital banking channels is still slowly spread countrywide although the other digital financial services are using via mobile agents.

According to the survey data of demographic characteristics of respondents, it expressed female users of respondents are more than male users because the number of female population work more than the number of male population and age level of between 26 and 35 years old are most interested in using digital banking channels and

between 16 and 25 years old groups are also interested in using digital banking channels. As per the results, middle-aged and youth are more interested in using digital banking channels because they are familiar with digital devices and applications related to computerized system. In the level of education, university graduates more use than the other levels because they have more sufficient knowledge and awareness on digital banking channels. As per the occupation in survey data, most of the company staffs use the digital banking channels because their companies also use the private bank's services such as cash management services and payroll services. By using payroll services, the company can directly transfer salary to staff's bank account with traditional ways or using internet banking timely and the staff can check their account balance with mobile banking channels and the company can reduce wasting of time and cost. The digital banking channels are mostly used by between 200,001 MMK and 500,000 MMK per month income level of users and most are company staff.

As per survey data, most of the respondents have more than one bank account and they also used more than one digital banking channel because the bank account and some of the digital banking channels are relating with each other. The results show the users are not using all of the digital banking channels but they use above two or more channels for their respective purposes. ATMs are most frequently used by users and mobile banking and debit cards are also greater used by users but as per the survey results, the users do not know clearly about some of the digital banking channels. The results of survey data describe that the respondents used digital banking channels with the purposes of cash withdraw and the second-largest purpose is for the money transfer and most of the users use one or more digital banking channels once a week.

As per the results of survey data, most of the users know about the digital banking channels from social media, websites and online information. Some of them know from direct marketing of bank staff. According to the statistical results shows awareness, cost is saving, infrastructure, trust and understanding on digital banking channels with five-point Likert Scale Method. As per the results for awareness, the users have good awareness on some digital banking channels but not thoroughly aware of all of digital banking channels and the private banks need to provide the required knowledge related to digital banking channels to people. As per the results of cost-saving for using digital banking channels, the users generally agree that using the digital banking channels is more saving cost and time than going physical banks and using traditional methods. As per the results for infrastructures, the respondents not expected

that Myanmar's current telecommunication and electricity infrastructures fully support to use the digital banking channels for internet connection, network coverage, electricity, etc. Besides, they do not significantly agree that digital banking channels can be used 24/7 and any location and they assumed that digital banking channels are needed for digital financial services development than brick and mortar banks. Therefore, the private banks and respective authorities need to provide good infrastructures, need to fix the machine and devices to use 24/7 at appropriate locations, need to monitor to solve the difficulties of users and need to heed the user's responses to grow the digital financial services. As per the results of trust on digital banking channels, the users are trustworthy upon digital banking channels but not at all. In updated condition, users' trust rate on banks and digital banking channels is weakening because of fraud cases by other person or third parties or hackers and feel insecure or unsafe to use digital banking channels and user's issues like as lack of knowledge or lack of understanding on technological issues and other reasons according to the news from social medias and printed medias. As per survey results of understanding on digital banking channels, most of users response that the digital banking channels of private banks are easy to understand, easy to manage, easy to use. But users can face some of the technologies factors such as network coverage, connection problems and because of difficult features of digital banking channels, users need the helps from providers or bankers to understand the digital banking channels. Thus, private banks need to provide more convenient ways to understand and to use digital banking channels.

Although the users have good awareness and using digital banking channels, they sometimes face problems and bad experiences related to digital banking channels. Among them, most of users mentioned that they face the internet connection failure when they used the digital banking channels. Other problems are not enough money in ATMs and ATMs are usually breakdown in paydays, bank holidays and sometimes the users received the old, tear and damage money from the machines. And the users face card errors and delay to payment transactions at weekends. After office hours and on bank holidays, the users face bank system breakdown and they cannot use the digital banking channels in those times.

As per the qualitative approach to merchants and bankers, the merchants know well the digital banking channels, their business operations are smoother and their sales volume transactions increase than before by using digital banking channels. But some

of them also have bad experiences related to digital banking channels, they disappointed when the internet connection is decline while making receiving transactions and they need proper training from private banks for using digital banking channels although the banks arrange the training for them. Sometimes, they face weak customer services from banks and they need 24/7 support and monitoring from the bank. The important thing they are facing is the cost like MDR (Merchant Discount Rate), of using digital banking channels. For the point of bankers, the digital banking channels can support to develop the financial sector, to reduce the money printing cost, to go the cashless society as other countries, support for taxation and they expressed that if the people in our country broadly use the digital banking channels, the digital banking users and businesses will more smoother in personal life and businesses can reduce management cost and human transactions. So, to improve the digital banking channels, the bankers also need the exact policies, rules and regulations from policy-makers.

5.2 Suggestions

In the banking sector, only having the technological advances cannot call the sectorial development. Because of advances in technology, the advantages received and to control the potential effects of such policies, rules and regulations and laws imposed by technical counter controls will only be able to perform the actual increase and will get the confidence of the people. In addition, not only the private, public banks also state-owned banks need to change the technology for public consumption to bank digital services and domestic industries could be wider and more and more users.

In Myanmar Banking Sector, most of the quantities of digital banking channels increase because of private bank's promotion and some awareness factors like social media campaigns but less amount of actual users because of infrastructures, trust upon banks and digital banking channels, insufficient technical skills, other challenges and limitations. To solve these problems, the banks need to check and monitor their system 24/7, they need to do system maintenance on weekdays of sleeping time, need to check the minimum level of money in machines and need to fix currency filling team to fill insufficient money in machines, need to do regular checking with skill-full technicians, need to set up required machines in proper locations, need to support adequate information to users, need the good infrastructures of excellent internet connection, fully network coverage, the proper linking between inter banks and to avoid the confusing of users, all of local banks need to have same features and procedures of

digital banking channels. Local banks need to prepare the online portal or online registration link with KYC verification for applying digital banking channels like cards, internet banking, POS, e-commerce and SMS banking alert. Private Banks need to conduct the easier and flatter ways of applying, understanding, managing, using and resolving for digital banking channels users. CBM and government need to impose the exact policies, rules and regulations for banks, users, merchants and digital banking channels.

For the improvements and more awareness of digital banking channels, need to expand the more digitalization in all places of making payment and receiving transactions even though in road shops and by expanding the network of digital banking channels also in rural area to increase more users. For more growth of actual users of digital banking channels, need to conduct to change traditional cash-based society to digital-based society. To mature the digital banking channels trend, for users and merchants, the banks need the exact policies, regulations, rules and lawful factors from CBM, Government's policymakers and need to learn the lessons of digital banking channels from other successful countries.

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APPENDIX

Table 1 Private Banks List in Myanmar

Sr.No	Name of Bank	Date of Licence Issued
1	Myanmar Citizens Bank Ltd	25.5.1992
2	First Private Bank Ltd	25.5.1992
3	Co-operative Bank Ltd	3.8.1992
4	Yadanabon Bank Ltd	27.8.1992
5	Myawaddy Bank Ltd	1.1.1993
6	Yangon City Bank Ltd	19.3.1993
7	Yoma Bank Ltd	26.7.1993
8	Myanmar Oriental Bank Ltd	26.7.1993
9	Asia Yangon Bank Ltd	17.3.1994
10	Tun Foundation Bank Ltd	8.6.1994
11	Kanbawza Bank Ltd	8.6.1994
12	Small & Medium Industrial Development Bank Ltd	12.1.1996
13	Global Treasure Bank Ltd	9.2.1996
14	Rual Development Bank Ltd	26.6.1996
15	Innwa Bank Ltd	15.5.1997
16	Asia Green Development Bank Ltd	2.7.2010
17	Ayeyarwady Bank Ltd	2.7.2010
18	United Amara Bank Ltd	2.7.2010
19	Myanma Apex Bank Ltd	2.7.2010
20	Naypyitaw Sibin Bank Limited	28.2.2013
21	Myanmar Microfinance Bank Limited	2.7.2013
22	Construction and Housing Development Bank Limited	12.7.2013
23	Shwe Rural and Urban Development Bank Limited	28.7.2014
24	Ayeyarwaddy Farmers Development Bank Limited	17.11.2015
25	Glory Farmer Development Bank Limited (G Bank)	8.6.2018
26	Mineral Development Bank Limited	6.7.2018
27	Myanma Tourism Bank Limited	9.7.2018

Source: Central Bank of Myanmar

APPENDIX

Table 2 List of Digital Banking Channels of Private Banks in Myanmar

Sr.No.	Private Bank's Name	Automated Teller Machines Channels								Electronic Payment Channels			Digital Receiving Channels	Digital Banking Channels		E-commerce (online Gateway) Channels		Other Digital Channels	
		ATM	CDM	CRM	CEM	CNIM	Forex Machine	PUM	VTM	Prepaid Cards	Debit Cards	Credit Cards	POS	Online/Internet Banking	Mobile Banking	MPU acceptance	Master/Visa acceptance	SMS Channel	Contact Center Channel (IVR)
1	Myanmar Citizens Bank Ltd	√								√	√	√	√	√				√	
2	First Private Bank Ltd													√					
3	Co-operative Bank Ltd	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
4	Yadanabon Bank Ltd																		
5	Myawaddy Bank Ltd	√								√		√	√	√	√			√	
6	Yangon City Bank Ltd																		
7	Yoma Bank Ltd	√								√				√			√	√	
8	Myanmar Oriental Bank Ltd	√							√	√		√							
9	Asia Yangon Bank Ltd																		
10	Tun Foundation Bank Ltd	√								√			√	√					
11	Kanbawza Bank Ltd	√							√	√	√	√	√	√	√	√		√	
12	Small & Medium Industrial Development Bank Ltd	√							√			√						√	
13	Global Treasure Bank Ltd										√		√	√			√		
14	Rual Development Bank Ltd	√								√									
15	Innwa Bank Ltd	√								√				√					
16	Asia Green Development Bank Ltd	√								√	√	√	√	√					
17	Ayeyarwady Bank Ltd	√							√	√	√	√	√	√	√		√	√	
18	United Amara Bank Ltd	√							√	√	√	√	√	√	√		√	√	
19	Myanma Apex Bank Ltd	√							√	√	√	√	√	√				√	
20	Naypyitaw Sabin Bank Limited																		
21	Myanmar Microfinance Bank Limited																		
22	Construction and Housing Development Bank Limited	√								√									
23	Shwe Rural and Urban Development Bank Limited	√								√	√	√		√	√			√	
24	Ayeyarwaddy Farmers Development Bank (A Bank)																		
25	Glory Farmer Development Bank Limited (G Bank)																		
26	Mineral Development Bank Limited																		
27	Myanma Tourism Bank Limited																		

Source: Inquiry from All Private Banks (websites, facebook, contact centre)

APPENDIX

Survey Questionnaires Format

This survey is to identify the users' awareness, understanding and usage of Digital Banking Channels of the private banks of Myanmar. Your inputs will be converted to data that is crucially needed to finish my thesis. The survey will not take too much of your time. Thank you very much for your time and your help in answering the questionnaires. **(Please note that the information and answered filled in are crucial data needed for analysis and conclusions. They will be treated with utmost confidentiality and the respondents' information will not be revealed. The information and data will surely be used for academic purposes.)**

Section A: Demographic Characteristic

1. Gender of the Respondent

() Male / ကျား

() Female / မ

2. Age of the respondent / ဖြေဆိုသူ၏ အသက်အရွယ်

() 16-25

() 26-35

() 36-45

() 45-65

() Above 65

3. Educational Level of the respondent / ဖြေဆိုသူ၏ ပညာအရည်အချင်း

() High school / အထက်တန်း

() University Graduate / ဘွဲ့ရ

() Professional Level/Master Level / မဟာဘွဲ့ရ

() Ph.D

4. Occupation of the respondent / ဖြေဆိုသူ၏ အလုပ်အကိုင်

() Unemployment / မှီခို

() Business Owner/လုပ်ငန်းပိုင်ရှင်

() Company Staff/ ကုမ္ပဏီဝန်ထမ်း

() Government Staff/ အစိုးရဝန်ထမ်း

() Retired/ပင်စင်

5. Income level of the respondent per month / ဖြေဆိုသူ၏ တစ်လဝင်ငွေ

() 100,000-200,000 (တစ်သိန်း မှ နှစ်သိန်းကြား)

() 200,001-500,000 (နှစ်သိန်းတစ်ကျပ် မှ ငါးသိန်းကြား)

() 500,001-1,000,000 (ငါးသိန်းတစ်ကျပ် မှ ဆယ်သိန်းကြား)

() 1,000,001-1,500,000 (ဆယ်သိန်းတစ်ကျပ် မှ တစ်ဆယ့်ငါးသိန်းကြား)

() Above 1,500,000 (တစ်ဆယ့်ငါးသိန်း နှင့် အထက်)

Section B: Digital Banking Channels of Private Banks in Myanmar

1. Do you have bank account? (သင် ဝင် ဘဏ်စာရင်းရှိပါသလား)

() Yes

() No

2. Which bank account the respondents have? (သင်သည်မည်သည့် ဘဏ်စာရင်းကို အသုံးပြုပါသနည်း)

() CB Bank

() KBZ Bank

() AYA Bank

Other Bank Name

3. Do you use any digital banking channels? (ဘဏ်များမှ ထုတ်သော digital banking channel များကို သုံးပါသလား)

() Yes

() No

4. What kind of digital banking channels do you use? (မည်သည့် digital banking channels ကို အသုံးပြုပါသနည်း။ တစ်မျိုးထက် ပို အသုံးပြုပါကလည်း ဖော်ပြပေးပါ)

() Automated Teller Machine (ATM)

() Cash Deposit Machine (CDM)

() Cash Recycler Machine (CRM)

() Passbook Update Machine (PUM)

() Currency Exchange Machine (CEM)

() Video Teller Machine (VTM)

() Small Notes Issuing Machine

() Point of Sales Terminal (POS)

() Prepaid Cards

() Debit Cards

() Credit Cards

() Ecommerce Gateway (Online)

() Internet Banking

() Mobile Banking

() SMS Banking Alert

() Contact Centre /IVR (Interactive Voice Response)

5. Do you use digital banking channels for which purposes? (Digital banking channel

များကို အောက်ပါ အချက်များအတွက် သုံးပါသည်)

- () Money Transfer / ငွေလွှဲရန်
- () Cash Withdrawal / ငွေထုတ်ရန်
- () For Payment Transactions / ပေးချေမှုများအတွက်
- () For Receiving Transactions / လက်ခံရန်အတွက်
- () For Other factors / အခြားအချက်များအတွက်
- () For Above all factors / အထက်ပါ အချက်များအားလုံးအတွက်

6. How many time frequently you have use the digital banking channels? (Digital

banking channel အသုံးပြုသော အကြိမ်အရေအတွက် မည်ရှိသနည်း)

- () Daily / နေ့စဉ်
- () Once a week / တစ်ပတ်လျှင် တစ်ကြိမ်
- () Once a month / တစ်လလျှင် တစ်ကြိမ်
- () Rarely / အသုံးပြုမှုနည်းပါး

7. Please mention your problems and experiences concern with digital banking

channels. (Digital banking channel များအသုံးပြုရာတွင် ကြုံတွေ့ရသော အခက်အခဲ

ပြဿနာများအား သင်၏ အတွေ့အကြုံအရ ဖော်ပြပေးပါရန်)

- 1)
- 2)
- 3)
- 4)
- 5)

Section C: The awareness, understanding and usage of digital banking channels by respondents

1. Where did you know about digital banking channels?

(Digital banking channel များကို မည်သည့် နေရာမှ သိရှိခဲ့သနည်း)

- () Newspaper/Journals/Magazines (Printed Media) / သတင်းစာများ၊ ဂျာနယ်များ၊ မဂ္ဂဇင်းများ
- () TVCs / တီဗွီကြော်ငြာ
- () Social Media / websites / လူမှုရေးကွန်ယက်များ၊ web pages များ
- () Billboards / ဘော်လ်ဘုတ်ကြော်ငြာများ
- () Direct Marketing / တိုက်ရိုက် Marketing လာရောက်ခြင်းမှ တဆင့်
- () FM Radios / ရေဒီယိုများ
- () Promotion Events

Question No.	Description	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
2	People are fully aware of the digital banking channels of private banks in Myanmar.					
3	Digital banking channels are easy to understand and use.					
4	For using the digital banking channels, the costs and time are more saving than using traditional methods and going physical bank-branches.					
5	Private Banks in Myanmar provide the required knowledge related with Digital Banking Channels to people.					
6	Digital Banking channels from private banks are easy to manage.					

Question No.	Description	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
7	Digital Banking Channels of private banks are easier and more convenient for user.					
8	There is no reliable security infrastructure in Myanmar for the digital banking channels. Less Trust on the digital banking channels.					
9	Myanmar's current Telecommunication and electricity infrastructures fully support to use the digital banking channels for Internet connections, Network coverage, electric... Etc.					
10	Digital banking channels can be used 24/7 and any location.					
11	In term of transaction cost, do you think using digital banking channels is cheap and worth?					
12	Digital banking channels are needed for digital financial services development than brick and mortar banks.					
13	Digital banking channels are trust worthy for people.					
14	Digital banking channels are quite popular nowadays rather than physical banking and cash.					

15. Any suggestion and your personal point of view on the digital banking channels of private banks in Myanmar.

(မြန်မာနိုင်ငံရှိ ပုဂ္ဂလိကဘဏ်များ၏ digital banking channel များ နှင့် ပတ်သက်သော သင်၏ ပုဂ္ဂိုလ်ရေးအမြင်နှင့် အကြံပြုချက်များရှိပါက လွတ်လပ်စွာ ရေးသားပေးနိုင်ပါသည်)
