The role of Information and communication technology (ICT) in Myanmar

Ye Win Htut

ID: 6117192031

SUBMIT IN THE PARTIAL FULLFILEMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER IN BUSINESS ADMINISTRATION GRADUATE SCHOOL SIAM UNIVERSITY, BANGKOK, THAILAND

2019

SIAM UNIVERSITY

Independences Study Title: The role of Information and communication technology (ICT) in Myanmar

Author: **Mr. Ye Win Htut**

ID: **6017192031**

Degree: **Master of Business Administration (MBA)**

Major: **Strategic IT**

This is Independences Study has been approved to potential fulfillment of the requirement for the Degree of Master of Business Administration in Hotel and Tourism Management

Advisor.....

Dr.Tanakorn Limsarun

Date..... 24 January 2020 .....

Dean.....

Associated Prof. Dr. Jomphong Mongkhonvanit

(Dean of Graduate School of Business)

Date..... 25 Jany 2020 .....

Siam University, Bangkok, Thailand

Abstract

Title: The role of Information and communication technology (ICT) in Myanmar

Researcher: Ye Win Htut, ID: 6017192031

E-mail: htut,yesccess@gmail.com

Degree: Master of Business Administration (International Program)

Major: MBA in Strategic IT

Advisor: .....

(Dr. Tanakorn Limsarun)

21 / January / 2020

Dean: .....

(Associate Professor Dr. Jomphong Mongkhonvanit)

25 / Jan / 2020

Technology, science, and innovation, which has been a decisive factor in economic and social development has made great contribution to the modern world. Innovations and new technologies provide not only an increase in GDP, but also its qualitative, progressive change (Yanfei Li, 2018). The case of investigation is the Republic of the Union Myanmar, which is the second ASEAN country by extension with 676,578 km and the fifth by population, with 52.45 inhabitants in 2015 according to statistical sources from the country. Myanmar is trying to follow the advanced ICT technology of developed countries at the national level. The expansion of ICT infrastructure is relatively slow compared to efforts. ICT infrastructure as well as e-commerce, e-government and distance education is possible to

utilize full number of elements if they are all equipped. The findings of this research found that ICT is knowledge-intensive in Myanmar and it requires a certain level of education and thinking skills (KY Nam, 2015). However, according to the United Nations Development Program (UNDP), the average duration of Myanmar education is four years. This low level of education and the lack of skilled workers resulted in Myanmar. It can be said that this is an important task. In Myanmar, the training of ICT technical personnel is carried out by the Ministry of Science and Technology.

Keywords: Myanmar ICT infrastructure, Myanmar ICT development, Myanmar ICT industry

Approved by

.....

...../...../.....

Contents

Acknowledgement

In this section, I would like to express my special thanks to Dr. Rungroje Songsraboon, advisor, Dr. Vijit Supinit, dean, Dr. Tanakorn supervisor, Graduate School of Business, Siam University, Bangkok, Thailand, for their assistance and attentive people. educational excellence I learned many new things, so I am very grateful to you.

Secondly, I want to thank my parents and friends who helped me a lot to complete this independent study in a limited time.

Chapter 1: Introduction

1.1 Research Background

Technology, science, and innovation, which has been a decisive factor in economic and social development has made great contribution to the modern world. The volume of products production, goods and services, and their diversity are constantly increasing with the help of innovation, science, and technology (Mormina.M, 2018). As the same time, energy and significantly huge amount of primary resources has been used to negatively influence modern production and consumption on the environment. Technologies of new generations are focused on increasing their progressive advantages and retaining the influence of negative factors of socio-economic development within the given limits. (West S, 2018).

The harmonization of production and consumption processes in the world economy is regulated by many factors: prices, taxes, customs duties, bank rates, and the level of scientific and technological development. The contribution of innovations and new technologies to the development of the economy is exceptionally high and continues to increase. Therefore, if in the USA from 1920 to 1957, the increase in per capita national income due to "progress in knowledge" was 40%, in the last two decades the share of GDP growth due to innovations and new technologies has reached 90% (Batchelor & Norrish, 2005). The economic growth of the countries of Western Europe, Japan and South Korea is also based on innovation and new technologies (Kim S-H, 2017).

Innovations and new technologies provide not only an increase in GDP, but also its qualitative, progressive change. The term "sustainable development", which became common after the UN Conference in Rio de Janeiro in 1992, implies the harmonization of the world community as a whole (Yanfei Li, 2018). Sustainable development is not limited to consistent, sustainable economic growth, as reflected, for example, by non-negative GDP growth (BCG, 2019). Digital literacy remains low in Myanmar but the enthusiasm of people in trying new things and being able to adapt to the new environment can create technology that is growing in the country by encouraging new entrepreneurs (Khin Kyaw, 2019).

1.2 Problem to be investigated

Myanmar is absolutely lack of infrastructure system for the activation of IT and contents business (CHAN-MYA H and THIHA K, 2019). The digital ecosystem is currently discouraging to technological advancement required to develop Myanmar. The high levels of

corruption in the country make it unattractive to foreign investors since the ease of doing business in this country is unfavorable to them (KY NAM, 2015). The digital structure necessary for improving Myanmar's digital structure is already in place with the 80% mobile phone penetration and the already running 4G network. The government should build on this and formulate policies for increasing the penetration to the rural areas (Grunwald, 2019). Myanmar does not yet have a clear policy framework for criminal law on ICT, therefore the majority of misinformation and disinformation in Myanmar is made by radical groups with the intention of influencing public opinion about politics, women, members of the LGBT community, the most common religious minorities and ethnicity (Stanley S, 2017). For these facts, I would like to study this thesis on the ICT power that is low development level and would like to help something for this case.

1.3 The objective of the study

The main objective of this research is to identify the correlation between technology and economic development and how it can be improved in Myanmar to increase the ICT development in the country. It will identify how information technology has impacted the lives of the citizens of Myanmar.

1.4 The scope of the study

The research focuses on impact of using information technology in Myanmar affecting country growth and convergence process. In addition, the model uses relevant control variables based on economic growth theories and previous empirical studies to establish the influence technology has in the development of Myanmar. This study focuses on the various technological advancements in Myanmar and how they have impacted the education, health, information communication and other sectors of the economy. It analyzes the impacts of the application of technology in these sectors both negative and positive and also addresses the challenges that are hindering further economic advancement.

1.5 **Research Significance**

The need to explore the effects of information technology in Myanmar has never been greater considering that the country is trying to grow its economy for uniform economic growth and economy throughout the nation (Carneiro, 2016). In addition, there is need for job creation

and encouragement of invention and innovation especially among the youthful population and the education system needs to accommodate the technological advancement happening throughout the world. To deal with emerging issues in information technology there is need to evaluate the impact that technology has on people's lives and the economic development of Myanmar (Carneiro, 2016). By identifying the discrepancies in the policy formulation process and loopholes in the frameworks for creating a digital economy the research will help the policy makers to understand the implications that not fixing the problems will have on the economy. The analysis of the issue will also add on to the existing body of knowledge about the development of technology in Myanmar and how important it is in the economic transformation of the future (Barry, 2019). It will also act as a basis for future study for people who wish to explore the topic.

Chapter 2: Literature Review

2.1 Background

Myanmar is the second largest country in Southeast Asia, with a population of 52.89 million. Myanmar is a middle- and low-income country with a total value of production ($ 63.2 billion). This is one of the fastest growing economies in East Asia and the Pacific. The GDP growth rate in 2016-2017 is 6.4%, mainly from the services, industry and agriculture sectors. However, access to basic infrastructure and services in rural and urban areas is still a challenge, and national networks can only use a third of the population. With the liberalization of the telecommunications sector, cellphone and internet penetration has increased significantly by 40% and 15% over the past two years (World Bank, 2018).

Information technology bridges the time gap between people from one corner of the world to the other. The geographical distribution of work has been changed by technology by enabling companies to hire professionals from countries where the wage rate is lower, or the business operation costs are lower. That has led to the creation of job opportunities for the people of Myanmar and has also led to economic growth since the subsidiaries of foreign companies in the country pay taxes to the government (Carneiro, 2016).

2.2 Myanmar's ICT development status

Although Myanmar has been using ICT since 1981, it is recognized throughout the world as the last ICT Greenfield country. Therefore, the progress achieved in ICT development is not planned, and the full potential of ICTs in Myanmar cannot yet be realized (USAID, 2016).

The government uses information technology for citizen engagement (Byrne & Kirwan, 2019). MyCitizen.net is a free platform for people in and from Myanmar to support citizen engagement and gives them a chance to share important information amongst themselves. The website also has a mobile App through which Myanmar citizens in and out of the country can engage to discuss issues affecting their communities and how they can be resolved (Egreteau & Robinne, 2016). Information technology also plays an essential role in community development in Myanmar (James, 2016).

The Ministry of Science and Technology operates 25 universities and computer colleges throughout the country. In addition, many private institutions teach various IT courses, ranging from basic computer skills to advanced programming skills. Although these private schools have a varied quality and execution of programs, and it is often difficult to determine their credentials, many of them teach certified courses. The private education sector in Myanmar is experiencing an increase in business, and there is also a growing number of ICT education institutions. Currently, one of the biggest challenges for the local ICT industry is to avoid "brain digging" by qualified and experienced professionals. to more advanced countries (Information matrix, 2016).

The Myanmar health sector also benefits from technology, and the Telenor and Marie Stopes International Myanmar (MSIM) partnership show how much technology can help in the growth of the health sector (Barry, 2019). The partnership helps in the provision of mother and child care through Small and medium-sized enterprises in underserved areas in the country. The initiative is tasked with advising women about reproductive health, about prenatal and postnatal matters and other health matters affecting mothers and their children (Eisencraft et al., 2014).

In the field of education, technology is also widely used (Eisencraft et al., 2014). The Cisco Networking Academy initiative empowers students by imparting information technology and networking skills to design in them and also teaches them how to build, and maintain the infrastructure highway. The initiative aims at facilitating the releasing of students with great information and communications technology skills into the job market and donates networking equipment for laboratories. The Connect to Learn initiative by Ericsson helps in

empowering girls to remain in schools and pursue their dreams in Myanmar (Kleinmen & Moore, 2019).

The advancement of technology has also had a positive effect on the medical field in Myanmar It has led to the digitization of health records in hospitals to replace paper records which make the ease of access to the electronic health records faster and effective. The healthcare specialists can keep track of patients' vitals accurately and clearly, and it also increases the privacy of patient records unlike with the paper records (Barry, 2019).

2.3 Myanmar ICT Infrastructure Status

Myanmar is trying to follow the advanced ICT technology of developed countries at the national level. The expansion of ICT infrastructure is relatively slow compared to efforts. ICT infrastructure as well as e-commerce, e-government and distance education is possible to utilize full number of elements if they are all equipped. Therefore, for the industry to utilize the ICT field properly, it is necessary to precede the construction of the latest technology ICT infrastructure to manage them (KY Nam, 2015).

The five-year National ICT Master Plan was first formulated in 2000 to promote infrastructure formation and ICT implementation planning. Currently, Myanmar is in the implementation stage of the 4th ICT Master Plan, with an emphasis on electronic governance. Myanmar needs more experienced and experienced ICT experts. There are alumni with high ICT competence from universities all over Myanmar, but there is still a lack of ICT expertise in both the government and private sectors. Furthermore, there is a need to significantly improve the IT literacy of government officials at all levels, and basic education on ICT is an important strategy for human resource development. Appropriate technological knowledge, hybrid skills of business and IT, critical thinking, problem solving, and cognitive skills and actions regarding communication skills are essential to the development of ICT in Myanmar (Asia development bank, 2015).

Myanmar’s telecommunications have long lagged behind most developed countries and other Asian countries, but the situation has changed. Although only a small percentage of the population has access to fixed-line channels, cell phone penetration is growing and infrastructure is rapidly increasing. Given the lack of development in Myanmar, the availability of Internet access is very common: even in remote areas, we can find internet cafes or hotels with wireless networks. However, the Internet may be slow, especially in rural areas. The price of internet cafes is usually around K500 per hour, although it may be higher outside the city. We can find free Wi-Fi in many restaurants and bars. Due to bandwidth

limitations, Internet speeds can change significantly in demand in one day. If we use Gmail and we work in Myanmar or it takes a long time, the best is to download Gmail Offline; this works better than regular Gmail with a slow connection, and also allows you to work offline. Previous government Internet restrictions have now been revoked, so people have free access to most websites and services - including Facebook, Twitter, Gmail, and more (Go-Myanmar, 2016).

The speed and quality of available services increased due to the launch of 4G services in June 2017 (, in addition to the significant price reductions for fixed-line broadband connections in several regions (Kanale H, 2017). However, internet bandwidth per user remains much lower than the average throughout the Asia Pacific (ITU, 2017). Users in most cities still have worse quality connections than those in big cities, and worse in villages. Chronic power outages, service disruptions, and infrastructure problems continue to hamper efficient use of the internet.

According to the International Telecommunication Union (ITU), in 2015, wired communication and broadband penetration are 0.97% and 0.35%, respectively; the penetration rate has soared from 7% in 2012 to 76.67% in 2015. Most online activities are mobile with features that are being done on one device; Myanmar is the fourth fastest in the world. We are adapting to the mobile environment as fast as the smartphone market is growing. Since Myanmar prefers to buy mobile devices rather than laptops or PCs, while the market is booming, the computer penetration rate is only 2.3% (Butt & Sarker, 2009).

Competition among telecoms has become even more intense. The emergence of new operators in the Myanmar telecommunications market made Myanmar's communication infrastructure is improving rapidly as the war is intensified. As of December 2016 MPT, a state-run company, has a mobile network that covers 95% of Myanmar's total (World Bank, 2018).

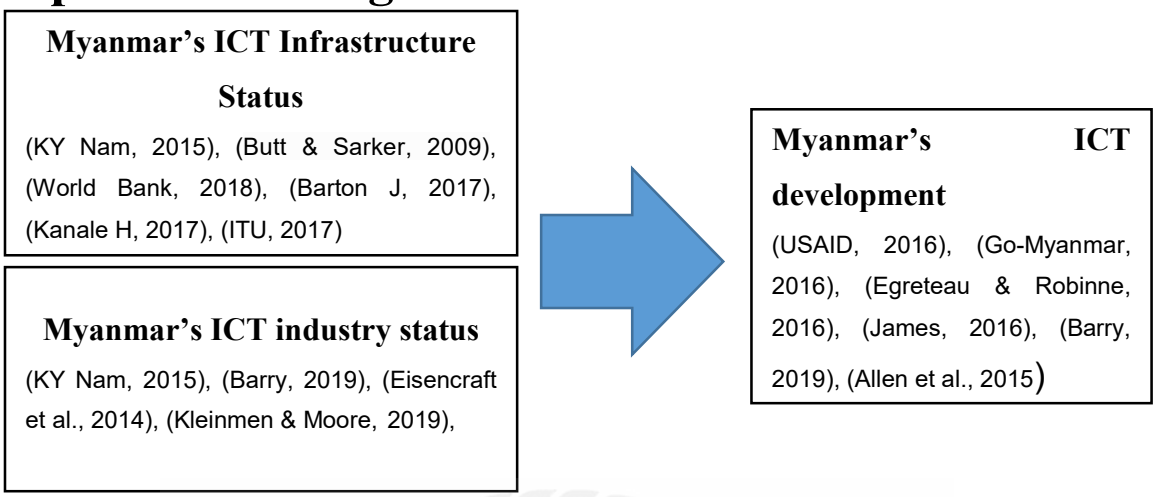
Myanmar's limited and unstable ICT infrastructure and the direct involvement of foreign companies and poor communication networks are the main obstacles to ICT development in Myanmar. However, with the stabilization of Myanmar's situation, the government of Myanmar actively supports the ICT sector. Myanmar's ICT infrastructure is highly likely to develop through international cooperation.

2.4 Myanmar ICT Industry Status

Although the current ICT in Myanmar has not contributed significantly to overall trade and employment, the ICT industry plays a role in promoting national and social interaction as a driving force of economic development. In the future, the development of ICT in Myanmar will be the driving force of economic development in Myanmar. However, because Myanmar's business and industry use of ICT is so low, Myanmar's ICT Hardware industry vendors are still dominating, and most hardware goods are being procured through imports (KY Nam, 2015).

The initiative increases internet accessibility through mobile broadband and also formulates professional development programs for tutors, educational materials for learners, and child-friendly computing solutions to improve literacy and numeracy among women. Ericsson works with UNESCO, the Earth Institute at Columbia University, Finja Five, Qualcomm Incorporated, through its Qualcomm© Wireless Reach initiative, and the external evaluator EduEval to deliver the program (Barry, 2019). Technology enables international organizations to reach disadvantaged students, even in rural Myanmar and help them stay in school.

Chapter 3: Findings



The findings of the study about the role of ICT for economic and ICT development Myanmar as the country of focus can be summed up as:

1. Technology is essential for economic development since it improves all the sectors of the economy such as the health sector, the education sector, the agricultural sector and all the other sectors of the economy.
2. Increasing the internet penetration rates in Myanmar and reducing the disparities between the rich and the poor and between the urban and rural areas is important for bridging the gap between the rich and the poor and facilitating equitable development in the country (World Bank, 2018).
3. Technology has been widely adopted in all sectors of the Myanmar economy and the positive impacts include bridging the time and distance gap, facilitating trade and e-commerce, attracting foreign direct investment and improving healthcare and education (Eisencraft et al., 2014) (Kleinmen & Moore, 2019).
4. It however also has some negative impacts such as leading to trade deficits, encouraging laxity in students and killing the socialization process in society and also leading to cybercrimes (Stanley S, 2017).

Chapter 4: Conclusion and Recommendation

Recommendation to the government of Myanmar

1. The government should build the law for ICT that is still lack in Myanmar.

2. The government should curb the high levels of corruption to make Myanmar an investor destination to facilitate the growth of the technology sector and develop the economy (Egreteau & Robinne, 2016). They should enact and enforce strict laws that punish people involved in corruption to deter others from engaging in the vice and to increase the faith of foreign investors in the government.
3. To further make the digital ecosystem favorable, the government should put in place policies and laws that protect the investors and local innovators who come up with technological inventions (Trace, 2016). The government should look into laws regarding data privacy, intellectual property rights, cybersecurity and a lawful interception which have been identified as problem areas.
4. The regulatory bodies that enforce these laws should be empowered to reassure the foreign and local investors in the technology sector that their rights will be protected (Zweig, 2016). The bodies enforcing these laws and policies should be independent of the government to ensure that there is no government interference in the business of both local and international investors.
5. The government should also put policies and frameworks in place to ensure that the gap in internet penetration in rural and urban areas and between the rich and the poor is bridged (Grunwald, 2019). The policies will ensure that even the marginalized areas develop and are not forgotten to ensure that there is equitable development everywhere.

Recommendation to ICT companies

1. At the enterprise level, the role of specific competencies, such as entrepreneurship, with respect to analytical outliers, can also present valuable ways for future research in the field of software and IT service companies (Neumann A, 2006). This may help explain how companies can develop and internationalize their market intelligence without using the external inputs decisively.
2. At the group level, the creation of business networks is also an important feature of knowledge-based competition. This is related, for example, to the transfer of knowledge, innovation, and reputation (Capaldo et al., 2003). Although the cooperation strategy can help companies to overcome limitations related to size, software and IT service companies in Myanmar do not develop the structures and resources needed for network activities (Van Slyke, Craig, 2008).

3. At the global level, as demonstrated by company cases, in addition to technological aspects, there is a strong awareness of customer needs and for further integration into the global economy (RPJ Rajapathirana, 2018). This suggests that more attention is paid to the gradual sophistication of organizations from companies that might be increasingly internationalized with overseas subsidiaries.

Research Limitation

Like other research papers, this document has several limitations. This is a documentary investigation, and the data collected in this study come mainly from a series of research papers due to the limited time given to complete the study. Therefore, this study cannot be considered as a complete study of the importance of brand personality for customer loyalty in the Myanmar telecommunications industry. On the other hand, modifications and more information must be empirically tested. In addition, this study was conducted in the telecommunications sector in Myanmar. Future studies can be carried out in other sectors such as banking, education, retail in certain countries or geographical contexts. It is recommended that the research model in this research be modified and developed in a better research construction model.

References

Barry, J. J. (2019). *Information communication technology and poverty alleviation: Promoting good governance in the developing world*. Abingdon, Oxon: Routledge.

Batchelor, S., & Norrish, P. (2005). *Framework for the assessment of ICT pilot projects: Beyond monitoring and evaluation to applied research*. Washington, DC: World Bank

Butt, D., & Sarker, P. P. (2009). ICT for development in Asia Pacific: Emerging themes in a diverse region. In *Digital review of Asia Pacific 2009–2010*. Montreal: Sage Publications.

Carneiro, A. (2016). Maturity in Health Organization Information Systems:. *International Journal of Privacy and Health Information Management, 4*(2), 1-18. doi:10.4018/ijphim.2016070101

Capaldo et al. (2003). *The Evaluation of Innovation Capabilities in Small Software Firms: A Methodological Approach.* Retrieved from https://www.researchgate.net/publication/226335010_The_Evaluation_of_Innovation_Capabilities_in_Small_Software_Firms_A_Methodological_Approach

Chan-Mya, H. and Thiha, K. (2019). *'US keen to invest, strengthen ties with Myanmar, but faster reform needed'*. Retrieved from https://www.mmtimes.com/news/us-keen-invest-strengthen-ties-myanmar-faster-reform-needed.html

Egreteau, R., & Robinne, F. (2016). *Metamorphosis: Studies in social and political change in Myanmar*. Singapore: NUS Press.

Eisencraft, M., Attux, R. R., & Suyama, R. (2014). *Chaotic signals in digital communications*. Tokyo: CRC Press.

Grunwald, A. (2019). *Technology assessment in practice and theory*. Abingdon, Oxon: Routledge.

James, J. (2016). *The impact of mobile phones on poverty and inequality in developing countries*. New York: Springer.

Kleinmen, D. L., & Moore, K. (2019). *Routledge Handbook of Science, Technology, and Society*. S.L.: Routledge.

Kim, S-H. (2017). *Science, Technology, and the Imaginaries of Development in South Korea*. Retrieved from https://hanyang.elsevierpure.com/en/publications/science-technology-and-the-imaginaries-of-development-in-south-ko

KY, NAM. (2015). *Developing Myanmar's information and communication technology sector toward inclusive growth*. Retrieved from https://www.adb.org/publications/developing-myanmar-ict-sector-toward-inclusive-growth

Mormina, M. (2018). *Science, Technology and Innovation as Social Goods for Development: Rethinking Research Capacity Building from Sen's Capabilities Approach*. New York: Springer.

Neumann, A. (2006). Strategies of ICT Firms in Developing Countries: Strategic Group Analysis on Tunisia's Software and IT Service Industry. *Management*, 9(1), 1-42. doi:10.3917/mana.091.0001.

RPJ Rajapathirana. (2018). *Relationship between innovation capability, innovation type, and firm performance.* New York: Springer.

Stanley,S. (2017). *Misinformation and hate speech in Myanmar*. New York: Springer.

The World Bank. (2018). *Myanmar*. Retrieved from http://www.worldbank.org/en/country/myanmar

Trace, S. (2016). *Rethink, retool, reboot: Technology as if people and planet mattered*. Rugby, Warwickshire, UK: Practical Action Publishing.

USAID (2016). *ICT development for innovation and growth in Myanmar*. Retrieved from https://www.nathaninc.com/wp-con-tent/uploads/2018/02/MooreMadden-ICT-reducedsize.pdf

Van Slyke, Craig. (2008). *Information Communication Technologies: Concepts, Methodologies, Tools, and application*. Retrieved from https://books.google.co.th/books/about/Information_Communication_Technologies_C.html?id=48Qntj9GO_AC&redir_esc=y

Yanfei, Li. (2018). *Understanding China's Technological Rise*. Retrieve from http://www.eria.org/news-and-views/understanding-chinas-technological-rise/

Zweig, K. (2016). *Socioinformatics - the social impact of interactions between humans and IT.* S.l.: Springer International Pu.