YANGON UNIVERSITY OF ECONOMICS
MASTER OF ECONOMICS

TELECOMMUNICATION SECTOR IN MYANMAR
(MYANMA POST AND TELECOMMUNICATION)

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ABSTRACT

Telecommunication service is important aspect for people's daily life around the world. The study mainly focuses the period, 2007-2017, to study the improvement of Myanma Post and Telecommunication (MPT) and advantages and disadvantages of telecommunication services by using descriptive method and secondary data. Myanmar's telecom market has been changed from public regulated system to competitive system in 2013. MPT is the sole provider of Myanmar's telecom market. After 2013, government awarded operating licenses to Telenor and Ooredoo and established of a joint operating partnership with the Japanese business group in 2014. This paper found that MPT provide postal service, telegraph service, telephone service and internet service. These services are growing year by year and the number of subscribers has increased but Myanmar's telecommunication penetration rate still low in ASEAN countries because lack of supporting infrastructure. People can have advantages to access information easily and save time but some rural area cannot easily access it and the radiation of the magnetic waves is danger for life. The government should provide more telecom infrastructure because good infrastructure leads to economic growth.

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LIST OF ABBREVIATIONS

1G	First Generation
2G	Second Generation
3G	Third Generation
4G	Fourth Generation
ACD	Automatic Call Distributer
ADST	Asymmetric Digital Subscriber Telecommunication
APT	Asia Pacific Tele-Community
AMPS	Accelerated Mobile Pages
ASEAN	Association of South East Asia Nations
AMT	Automated Teller Machine
CDMA	Code Division Multiple Access
DAMPS	Damage Associated Molecular Patterns
DSL	Digital Subscriber Line
EMS	Express Mail Service
FIL	Foreign Investment Law
FY	Fiscal Year
GDP	Gross Domestic Product
GSM	Global System for Mobile Communication
ICT	Information and Communication Technology
IDR	Intermediate Data Rates
IP	Internet Protocol
ISPs	Internet Service Providers
IT	Telecommunication Infrastructure
ITU	International Telecommunication Union
LAN	Local Area Network
LTE	Long Term Evolution
MCIT	Ministry of Communications and Information Technology

MCPT	Ministry of Communications, Posts and Telegraphs
MHz	Mega Hertz
MNTC	Myanmar National Tele and Communications
MPT	Myanmar Posts and Telecommunications
MRTV	Myanmar Television
OLS	Ordinary Least Square
PBX	Private Branch Exchange
PSTN	Public Switch Telephone Network
PTD	Post and Telecommunication Department
SAARC	South Asian Association for Regional Cooperation
SCPC	Single Channel Per Circuit
SIM	Subscriber Identity Module
SMS	Short Message Send
TCP	Transmission Control Protocol
TDMA	Time Division Multiple Access
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network
WCDMA	Wideband Code Division Multiple Access
WLL	Wireless Local Loop
WWW	World Wide Web
YPT	Yananarpon Teleport

CHAPTER I

INTRODUCTION

1.1   Rationale of the Study

Communication is hugely important aspect for people around the world. It is the process of sending and receiving messages through verbal or nonverbal. Long distance communication began thousands of year ago with the oldest methods that the use of smoke signals, sound from drums, horns, lumps and flags. If anybody want to convey a message to a person who is living far way, that message used to be sent with human being only and for a longer distance and more detailed message pigeon post was used. But these all means were very costly uncertain and time consuming also.

Before the emergence of the internet and other data networks, telecommunications (the telephone) was an application of technology that allowed people to communicate at a distance by voice. Telecommunications at a distance using electrical signs or electromagnetic waves. It occurs when the exchange of information between communication participants include the use of technology. These technologies start develop with wire line and become a necessary asset for people to communicate with more convenience way around the world. Examples are the telephone networks, the radio broadcasting system, computer network and internet (Modden, 2014).

Telecommunication can increase the efficiency of economic, commercial, administrative activities, the effectiveness of social, culture, emergency services and so forth. The balance growth of all sector is very important for any country to become super power in the world. The development in one sector is not enough for that. Because there was a great need to efficient means of communication to save time and money and hard work. It can also enhance living standard of the people, therefore communication is important in social sector.

In the digitized world, telecommunication is crucial part of modern lifestyle and has significant influence over the growth of economy. For instance, companies used telecommunication to construct an international business empire, that cannot survive without computer application services, and other digital telecom technology for the support of business operation. Therefore, technologies involve as essential particles and acts as a primary tool for business network and business activities. Some people use to order and arrange the variety of services. It is also to promote better society awareness and better human life. This made better solutions and gathered issues what happened in different part of the world. Because of the development of telecommunication, the earth is now much closer and safer for people (Fink, 2009).

In Myanmar, it was introduced in 1884 as small Department of Post and Telegraphs has grown in to the present day. In 2012, Myanmar started political and economic reforms. In 2013 Myanmar's business enterprises are making more demand on the available Post and Telecommunication services with the transition into market economy. After telecom reform, the government allowed two foreign companies, Telenor and Ooredoo, to invest in Myanmar's telecom sector in 2013. For economic growth, good infrastructure is the important role to attract foreign direct investment. Dramatic increase of foreign investment drives for local executive to upgrade qualification and skills in order to gain better position (Bohlin, 2014). The developing country, especially Myanmar, needs to improve many good infrastructures. Among of these infrastructures, telecommunications service is also important. There are many telecom services providers, MPT telecom service is one of them in Myanmar's telecom sector. In this case, this study selected to analysis that the development of Myanmar telecom service sector, increase in competition in telecom services and improving quality of services. And it also shows the supportive policy framework for rapid growth of the telecom sector.

1.2 Objective of the Study

The objectives of the study are to study the improvement of Myanma Posts and Telecommunications (MPT) in Myanmar and to examine the advantages and disadvantages of telecommunication services.

1.3   Method of Study

This study is used descriptive method. The secondary data and information are collected from library of Yangon University of Economic, Statistical Year Book, Ministry of Communication and Information Technology (MCIT), and Internet website.

1.4   Scope and Limitation of the Study

The scope of study is focused on telecommunication sector in Myanmar for the period from 2007 to 2017. The limitation of the study is the effect of telecommunication services on social welfare.

1.5   Organization of the Study

The research paper consists of five chapter. Chapter one is Introduction which consists rationale of the study, objective of the study, methods of study, scope and limitations of the study and organization of the study. Chapter two contains Literature Review. Chapter three includes history background of telecommunication industry and revolution of the telecom sector. Chapter four describes the improvement of Myanma Post and Telecommunication (MPT) in Myanmar and the advantages and disadvantages of telecommunication sectors and Chapter five expresses conclusion which consists findings and suggestions.

CHAPTER II

LITERATURE REVIEW

2.1   The Importance of Telecommunications

Telecommunication is hugely important aspect, not only for people around the world, but also for small and large businesses. The world without telecommunications, it would be impossible. Long distance communication has been around for years with the oldest methods that can be remembered to data being the use of smoke signals. With time, methods such as horns became a means of communication. But with time there has been a lot of development and with that came the more advanced technologies such as radio, phone, television and the internet.

The greatest technological advancement that is the creation of phone and internet. The phone, was a major piece of communication, instantly communicate with another person that was on the other side of the world. Almost every household now has at least one phone, with most having several. The development of the internet was the major turning point and it sees the potential future expanding services (Fife,2014).

The importance of telecommunication has been experienced by every sector of life, for examples, education sector, health sector, agriculture sector and business sector.

Education sector

The internet, a part of the telecommunication service helps students enjoy what is known as distance learning or e-learning. This basically helps student decide for higher education to prefer courses. Almost all types of courses can available in such distance learning institutions, and students have lecturers who give classes and notes to students. The only telecommunication products required is a computer with internet connection, are very easy as far as distance learning is concerned, and then

the students can start with the course study. Students need not leave city/country to join institution of choice. Many well-known institutions make use of telecommunication offer a great variety of courses that students can join from the home. Students can save a lot of money that would otherwise be spent on airfare, hostel rooms, and other charges, and also save the conveyance charges that would have to travel to and from institution every day.

Since such online courses allow students to choose the hours of learning, students can easily continue with the job and education at the same time. Students may complete the job during the day and study at night. Most of these courses are certified and hold as much importance as the traditional education curriculum, and the certificates are equally valuable with full-time school. So, students deciding for distance learning have the opportunity to get the dream jobs on completion of such online courses.

Human resources development based on improved education and better resources health information and treatment. A better education leads to accumulation of human and social capital and increase incomes.

Healthcare Sector

Information and telecommunications technologies play very important role to provide and support health care when distance separates the participants. Telecommunication is receiving increasing attention not only in remote areas where health care access is troublesome but also in urban and suburban locations.

With the help of telecommunication equipment, the healthcare providers, and the patients enjoy a lot of benefit. ICT provide mobile health services application, that can be used for monitoring of patients, facilitating information exchange between health care providers, tracking diseases and epidemics. The potential of mobile services includes improved access to information for patients and providers, as well as reduced costs.

In Myanmar, Ooredoo has partnership with Population Service International Myanmar and KoeKoe Tech, has launched the 'May May' (Mommy) Android App for pregnant women. That allows users to receive weekly health notifications and locate doctors nearby. Telenor Myanmar has also partnership with Marie Stops

International Myanmar to launch future Health services. Programs are powerful tools for disseminating health information and connecting patients with healthcare professions (Evans, 2013).

The health care industry broadly defined includes a wide range of business: drug manufactures, including pharmaceuticals and biotechnology; hospitals; insurance providers; and health technology and information providers. Multinational health care plays critical roles not only in improving access to medicines and quality care for citizens of developing countries, but also in expanding economic opportunities in countries.

Agriculture Sector

Agricultural sector plays a strategic role in the process of economic development of a country. This is the most important sector in an economy as Myanmar country is mostly depend in the agriculture for its economic development. For a long time, farmers were in bad conditions because of lack of proper information regarding the weather, regarding the price of the commodity, regarding the proper advice from the agri expert, regarding the market conditions etc. The farmers were not able to communicate with counterpart in different parts of the country and abroad to know about the prices of the crops. But now due to the revolution in the telecommunication sector the farmers even from rural areas who can take the advantage from the various telecom devices. Now farmers can discuss the problems and can take the advice regarding farming by using different types of telecommunication devices. The development of agriculture requires roads, market yards, storage, transportation railways, postal services and many other for an infrastructure creating demand for industrial products and the development of commercial sector (Madden, 2014).

The benefits of ICT in agriculture are (i) increasing efficiency, productivity and sustainability of small scale farms, (ii) information about pest and disease control, especially early warning system, new varieties, new ways to optimize production and regulations for quality control, (iii) better of markets resulting from informed decisions about future crops and commodities and best time and place to sell and buy goods, (iv) up to date market information on prices for commodities, inputs and

consumer trends, (v) increasing employment opportunities for rural people and (vi) enhance national GDP.

Business Sector

Today telecommunication is the lifeblood of business sector. Telecommunication, which is essential to today's smooth business operations, is the transmission of data and information from one point to another. None of the essential business services such as faxing, e-mail, the World Wide Web, telephone services, internet services and so on, the business would not be impossible.

Telecommunication that can be used by business to connect with employees and customers around the world. Companies can use video conferencing, video calling, telepresence video streaming and data sharing applications to communicate with major business players. Using a robust call management system, it can be easier to handle incoming calls from different customers. Managers can use telecommunication technology for better controlling mechanism and better administration. Companies enable to communicate effectively with customers and deliver high standards of customer service. It is allowing employees to collaborate easily remote or local. Mobile telecommunication gives companies the opportunity to introduce more flexible working by allowing employees to work efficiently from home or other remote locations. All employees use the same telecommunications device to access data, send and receive messages, work on documents, or participate in multimedia conferences. The growth of telecommunication technologies that can advertise the products and services (Kaniewls,2004).

Telecommunications technology can reduce geographical distance to an irrelevant factor. E-mail, voice mail, faxing, file transfer, cellular telephony, and teleconferencing allow for full communication between managers and the staffs and among different organizations. For instance, when the sales department receives a purchase order from a customer, it must communicate the order to the warehouse, which needs the information to prepare the package. The warehouse workers must forward shipping documents to the accounts receivable department for billing, and so forth. With telecommunications, all documents can be accessed electronically by many different departments at the same time.

The telecommunication makes the world as a global village. The distance of people from different countries gets closer. Some major benefit of telecommunications systems in business sectors are cost savings, time savings, team collaboration and flexibility (Naman Shah, 2008).

2.2   Telecommunication Systems and Networks

Telecommunication system transmit data or signals over short or long distance between networks for the usage of communications between networks for the usage of communication. Telecommunication system require three elements, (1) information that is taken by a transmitter and turned into signal, (2) the signal is carried out through a network medium, and (3) Signal is then received and translate back into information. Telecommunication system of today are transferred through many mediums such as the telephone, radio, television,and internet. The system has made communication easier, and has globally connected everyone together. Types of telecommunication system are optical telecommunication system, power line telecommunication system, radio communication system, duplex communication system, emergency communication system and automatic call distributer (ACD) communication system (Kaniewsl, 2004).

Telecommunication is the transmission of signs, signals, messages, words, writings, images and sounds or information of any nature by wire, radio, optical or electromagnetic systems. It occurs when the exchange of information between communication participants includes the use of technology. It is transmitted either electrically or physical media, such as cables, or via electromagnetic radiation. It also included internet, microwave and wireless equipment.

A telecommunication network is a collection of transmitters, receivers, and communication channels that send messages to one another. Some digital communications networks contain one or more routers that work together to transmit information to the connect user. An analog communications network consists of one or more switches that establish a connection between two or more users. For both types of network, repeaters to amplify or recreate the signal when it is being transmitted over long distances. This is to combat attenuation that can render the signal indistinguishable from the noise (Brynjolfsson, 2000).

Telecommunications facilitates interaction and information transfer over large distances. Business use telecommunications to expand and grow the networks. Business can allocate the resources efficiently with internet, computer, and telephone networks. These core types of networks will be discussed below:

Computer Network (Data Network) is a digital telecommunication network which allows nodes to share resources. In computer networks, computing devices exchange data with each other using connections (data links) between nodes. These data links are established over cable media such as wires or optic cables, or wireless media such as Wi-Fi. Network computer devices that originated, route and terminate the data are called network nodes. Nodes can include hosts such as person computers, phones, severs as well as networking hardware. Two such devices which networked together one device is able to exchange information with the other device. Computer network support an enormous number of applications and services such as access to the World Wide Web, digital video, digital audio, shared use of application and storage servers, printers, and fax machines, and use of e-mail and instant messaging applications as well as many other. Computer network differ in the transmissions medium used to carry the signals, communication protocols to organize network traffic, the network's size, topology, traffic control mechanism and organizational intent. The best computer network is known as internet (Droca,2007).

Internet Network, there are three types of networks, LAN (connects computer systems and devices in the same geographic area), WAN (ties together large geographic regions using microwave and telephone lines), and International network (links system between countries). It is a concept for a communications network that connects voice and data endpoints within a cloud environment over IP. It is the global system of computer networks that use the internet protocol suite (TCP/IP) to link devices worldwide. It is a network that consists of private, public, academic, business and government networks of local to global scope, linked by a broad array of electronic, wireless and optical networking technologies.The internet carries a vast range of information resources and services, such as the interlinked hypertext documents and applications of the World Wide Web(WWW), electronic mail, telephony, and file sharing. It accesses to the network allows users to use many resources. This will enable users to discover information instantly and apply concepts to different situations. The internet can be used for recreational, governmental,

educational, and other purpose. It has enabled accelerated new form of personal interactions through instant messaging, internet forum, and social networking. Online shopping has grown both for major retailor and small business and entrepreneurs to serve a large market or even sell goods and services entirely online. Business use the internet network for research or to service customers and clients (Akerman, 2015).

Telephone Network is the network that connects people to one another. This network can be used in a variety of ways. Many businesses use the telephone network to route calls and service to the customers. Some use on a greater scale through a private branch exchange. It is a system where a specific business focuses on routing and serving calls for another business. Majority of the time, the telephone network is used around the world for recreational purposes. There are a number of different types of telephone network; (i) A landline network where the telephones must be directly wired into a single telephone exchange. This is known as the public switched telephone network or PSTN, (ii) A wireless network where the telephones are mobile and can move around anywhere within the coverage area, (iii) A private network where a closed group of telephones are connected to each other and use a gateway to reach the outside world. This is used inside companies and call centers and private branch exchange(PBX) (Kaniewsl, 2004).

2.3   Telecommunication Infrastructure

Infrastructure refers to the fundamental facilities and systems serving a country including the services and facilities necessary for its economy to function. Infrastructure is composed of public and private physical improvements such as roads, bridges, tunnels, water supply, sewers, electrical grids, transportation and telecommunication. The interrelated systems providing commodities and services essential to enable, sustain or enhance society living conditions.

Telecommunication infrastructure that specialize in building telecommunication network connecting intra-cities, towns, highways and links to overseas countries as well. Transmission of data can travel over diverse range of communication media: telephone wires, fiber optic cables, satellites, microwaves and wireless connection (OlenaStetsenko,2007).

A standard ICT infrastructure consists of the following components:

1.   Hardware (servers, computers, data centers, switches, hubs and routers and other equipment),

2.   Software (enterprise resource planning, customer relationship management, productivity applications) and

3.   Network (Network enablement, internet connectivity, firewall and Security).

In the world, the expansion and technological improvements of telecommunications infrastructure are the most important. The introduction of first and second-generation wireless telecommunications networks, the development of wireless telecommunication networks, allowed large part of the world's population, especially in developed countries, to communicate for personal communications. Broadband internet technologies such as Digital Subscriber Line (DSL) or Cable Internet have created unprecedented opportunities for worldwide data transmission. The development of next generation broadband network has facilitated much faster up and download speeds as fiber-based wireline broadband access technologies like Fiber-to-the-Home, Fiber-to-the-Building or hybrid Fiber-to-the-Cabinet and Fiber-to-the-Nodes technologies have started to replace the slower entirely copper or coax-based first generation wireless technologies. Today, the introduction of the (4G) mobile broadband technology Long Term Evolution (LTE) in 2010 brought substantial speed improvement for the wireless telecommunication network (Irene Bertschek,2016).

Development of telecommunication infrastructure play a major role in economic growth. Telecommunication infrastructure affects economic growth both directly and indirectly. An efficient telecommunication infrastructure generates benefits through lower transaction costs, improve marketing information and skills, as well as creating indirect benefits due to the accelerated diffusion of information and network externalities. Telecommunication infrastructure is one of the most important infrastructure because good infrastructure will enhance the economy and people living standard (Oda Kristin Korneliussan, 2007).

2.4 Telecommunication and Economic Growth

Many countries in developing world must decide how allocate scare resources for improved economic development. An ITU study of telecommunications and development, concluded that "telecommunications can increase the efficiency of economic, commercial and administrative activities, improve the effectiveness of social and emergency services and distribute the social, culture and economic benefit of the process of development more equitably throughout the country". A wide range of studies indicate that expanded telecommunication investment is essential, not only for growth, but also to remain competitive within the increasingly information-oriented global economy (James Alleman,2000).

There are basically two distinct research methodologies to study the effects of telecommunications on economic development. One uses the macroeconomic approach and the other uses the microeconomic approach. Both have advantages and disadvantages. Macroeconomic analysis, which is based on national aggregate statistical data, provides an overview of the basic economic indicators. Microeconomic analysis can substantiate the positive effects of telecommunications in a specific situation, industrial sector or region, but is dependent on the small sample size analyzed and cannot be expanded to a larger universe (Carl Hunt,2000).

Governments and public agencies in most countries, both developed and less developed, spend large of money in telecom infrastructure. The purpose is positively influence economic activity in terms of employment, value added, productivity, capital formation and income. Infrastructure investment also were help with the social and political integration of a region. Investment in physical infrastructure generally fall into four broad categories: utilities, communication, transportation and land development.

In recent years telecommunication infrastructure (IT) became an important determinant of economic growth and development worldwide. IT creates global telecommunication connection, promotes knowledge and technology diffusion and also increase market efficiency and production.

Telecommunication is a crucial part of modern life style and significant influence over the growth of economy. Telecommunication is one of the most impact factors that support the promotion of the business sector as well as other vital aspects

of the economy. It is also the blood flow of the modern economy which intensities the productivity level that toward the various important economic factors like increasing the growth rate ofGDP or GDP per capita (Johan Karner& Reginald Onyeji, 2007).

In the globalization process, the world is now a global village due to the advanced technology and newer innovation. The overall economic activities of financial institution, credit market, stock market, and so on are largely depends on the utilization of the advanced technology of communication. The continuous day to day economic activities from government to private sectors largely depends on the availability of information. The telecommunication sector enhances the economic growth of a country by connecting not only the international financial market but also the domestic financial market and commodity market. As a results telecommunication ensures the continuous flow of the addition value of GDP growth or increase GDP per capita.

The world is quite aggressive. In the emerging economy the telecom industry will be able to play a significant role in the economic development by enhancing the productivity level in economic activities which in return may have influential positive impact on many macroeconomics factors such increasing GDP growth rate, enhancing foreign direct investment and etc (Mohammed Rahman,2010).

2.5   Review on Previous Studies

Naman Shah (2008) studied Critically Analyze the Customer Preference and Satisfaction Measurement in Indian Telecom Industry during 2000-2007. The aim of this study is to analyze that with the increase in competition in telecom services, higher levels of customer satisfaction with affordable prices and improved quality of services achieving or not. The author founded that the supportive policy framework needs to be in place during the period of rapid growth and transformation. The government has undertaken the implementation telecom policy with earnestness in competition of all the services sectors. The liberalization of telecom sector of the Indian economy aims at improving accessibility, availability, reliability and connectivity through private sector participation and to bring about much needed improvement in the quality of service. Through increased competition, the service providers are expected to become more sensitive and responsive to the customers

need and choice. The author suggested that the implementation of 3G technology have solved many problem and make easy and comfortable for customers.

Martin Chege Wainaina (2012), investigated Telecommunication Infrastructure and Economic Growth: A Case of Sub-Saharan Africa during 1988-2010, to analyze the relationship between economic growth and mobile tele-density. The purpose of the study is the government of Sub-Saharan countries implement policies that enhance the development of the telecommunication sector in respective countries. It uses the panel data of Sub-Sharan Africa countries and neoclassical growth model. Modern telecommunication sector is crucial to economic growth in transaction countries. Telecommunication services especially telephone services are increasingly being recognized as key components in the infrastructure of economic development. The author discovered that other have to influence growth included; population growth, investment and trade openness. The government should formulate policy would also guide in instituting reforms in various sectors of the economy allow more investment to bring efficiency and raise revenue and eliminate or reduce barriers to trade.

Rahul Venkatram and Xue Zhu (2012) examined An Analysis of Factors Influencing the Telecommunication Industry Growth (A case study of China and Indian) during 2006-2011, school of management Blekinge institute of technology. The aim of this thesis is to research the most influencing factors affecting the telecommunication industry growth, by analyzing data for both China and Indian telecom industries. In this study, the author showed the telecom industry is not only a significant contributor towards the economic activities of countries, but also towards the growth of other industries. The booming and emerging economies of China and India have been impacted the most by the rapid growth of the telecom industry in the past decade. Factors such as technology innovation and government regulation and policies were found to be the most influential and contributing factors towards the growth of the telecom industry in China and India.

Pwint Mon Thein, (2016),studied Managerial Digital Literacy in Myanmar at Ritsumeikan Asia Pacific University during 2000-2015. This research is to determine the managerial digital literacy of Myanmar executives. Information and Communication Technology plays crucial role in modern business world. The author founded that many new devices and software systems are introduced in the market, to

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enhance the daily activities of business procedure. The main purpose of this study is making sure to understand Digital Literacy and different levels of ICT proficiency among executives. For detail understanding of the Myanmar Managerial Digital Literacy, author used qualitative data collection methods. Author was forecasted that the Managerial Digital Literacy level of Myanmar is significantly lower compared to ASEAN countries, after conducting the research, author found out that Managerial Digital Literacy can be level with other ASEAN countries because dramatic increase of mobile industry and internet usage. This research will provide insight into the digital literacy requirement for business matters of the current firms in Myanmar. The suggestions concerning with the future training of digital literacy which might be required for the working efficiently in firms are also recommended and government should promote telecom digital literacy. It will also supplement informative considerations for the future research focusing on the digital literacy of managerial level executives in Myanmar.

Sajjad Hossine Sharif (2017), examined Telecommunication and its impact over the Economic Development of SAARC Countries during 1975-2015, at Independent University of Bangladesh. The main objective of this paper is to determine to what extent the telecommunication influence the economic growth of the SAARC countries. This paper is aim to determine the relationship between the telecommunication and economic growth. Author discovered that the telecommunication is a crucial part of our modern life style and has significant influence over the growth of economy. It is the blood flow of the modern economy which intensifies the productivity level that will in return make contribution toward the various important economic factors like increasing the growth rate of GDP or GDP per capita. It uses OLS regression models and secondary data where economic growth is determined in terms of relevant influential variables such as tele-density, investment in telecom sector, revenue from telecom industry, revenue percentage of GDP, internet users. This paper indicates that telecom industries have strong and positive relationship with the economic growth.

CHAPTER III

DEVELOPMENT OF TELECOMMUNICATION

SECTORS IN MYANMAR

3.1 Historical background of Telecommunication

In 1861, the first telegraph lines were built in Myanmar. The telephone services in Myanmar started in 1884. While Myanmar was under military control, its telecoms markets were firmly regulated by the Ministry of Communications and Information Technology (MCIT), which was formerly referred to as the Ministry of Communications, Posts and Telegraphs (MCPT). MCIT was founded in 1884. The total number of telephones in Yangon at that time was about 1,300.

In 1937, telegraph and telephone services are launched by using open wires lines and open wire carrier systems and Myanmar became a member of the International Telecommunication Union (ITU). Crossbar automatic exchanges were introduced in 1956. In 1960, the first low capacity microwave transmission system was established for national long-distance communication. High frequency radio communication was used for international telephone and telex sector. By the early 1970's, there were 143 exchanges in the country of which 6 were located in Yangon. The total number of telephone had grown to 17,400 in Yangon and nationwide numbered about 22,000. The standard-B satellite earth station with an international gateway switch and 6 GHz 960 channel baseband analog microwave system was installed in 1978. The satellite earth station had a capacity of 60 SCPC/IDR (single channel per/ intermediate data rates), circuits and had direct connections to six countries. In 1987, digital electronic exchanges were installed which led to the growth of telephones to around 73,000. Domestic satellite earth stations and VSAT system were employed in 1991 to provide long distance telephone services (Nomura Research,2012).

In the 1990's, the following technologies were introduced mainly in Yangon: cellular mobile telephone system (Analog AMPS 800), Digital AMPS (D-AMPS), standard-A satellite earth station with a new international gateway switch, International Direct Dialing Service, Wireless in the Local Loop (WLL) automatic radio telephone system (TDMA), Digital European Cordless Telecommunications radio telephone system and CDMA network (800 MHz). at the time, Myanmar was the first country that had introduced the CDMA 800 MHz in South-East Asia (Evans,2013). MPT commissioned GSM (900 MHz) in 2002, targeted 70,000 connections in Yangon and 30,000 in Mandalay. As shown in table 3.1, third generation network, W-CDMA (2100). Due to infrastructure inadequacies, MPT introduced 3G on a limited basis. As of 2013, MPT was still performing a limited LTE trail in the 1,800 MHz (Tele Geography, 2013; Evans, 2013).

Table(3.1) Mobile Network in Myanmar

Mobile Service	Generation	Frequency	Service Provider	Launch
AMPS	1 G	800 MHz	MPT	1993
D-AMPS	2 G	800 MHz	MPT	1993
TDMA	2 G	800 MHz	MPT	1995
CDMA	2 G	800 MHz / 450 MHz	MPT	1997/2008
GSM	2 G	900 MHz	MPT	2002
W-CDMA	3 G	2100 MHz	MPT	2008
LTE	4 G	1800 MHz	MPT	Trail

Source: Ministry of Communication and Information Technology, Tele Geography (2013)

Until 2012, Myanma Posts and Telecommunications (MPT) dominated Myanmar's telecommunication sector and MPT was the primary provider of telecommunications services in the country. Furthermore, Posts and Telecommunications Department (PID) has acted as Myanmar's telecom regular. Both MPT and PID are operating under MCIT and were founded in 1972. Myanmar now has three Internet Service Providers (ISPs) that include MPT, Yatanarpon

Teleport (YPT), which is partially owned by government and Redlink Group, a private owned company, which is owned by family members of government officials. In the beginning of 2012, international roaming services for GSM and WCDMA were launched in Myanmar, through a contract with France Telecom/Orange (Bushell-Embling, 2014).

Myanmar's four main operators- MPT, Ooredoo, Telenor and MyTel signed up a total of 50 million mobile subscribers for launching services. With Myanmar's population standing at 52.8 million at the end of 2016, according to the World Bank, that's a penetration rate of close to 95%. In 2013, Myanmar's tele density was just over 12%, mobile services were expensive and also a SIM card cost was around $300.

The telecom gave credit to the government's efforts to the liberalize the telecoms sector starting in 2013. In 2014, a telecom market has changed from public regulated system to competitive system, Ooredoo and Telenor launched commercial telecom services.Telenor suggested its 4G network covers over 120 cities with more than 19 million customers. Ooredoo offered its 4G+ network covered 200 localities in Myanmar and is available to over 15 million customers.

MPT, Ooredoo and Telenor reaffirmed commitment to further progress mobile network growth, in particular to rural areas, and effort to provide much needed investment for the development of cutting-edge 4G infrastructure and services to better serve the public. The companies also promised to comply with the government's floor pricing outlined in its Pricing and Tariff Regulatory Framework, issued in June 2017, which prohibits practices like free distribution or sales of SIM card, and subsidizing services and handsets below cost.

Last year, 2017, the Ministry of Transport and Communication granted a fourth mobile license to Myanmar National Tele & Communications (MNTC), MyTel, a venture between Viettel, Myanmar National Telecom and Star high Public Company (owned by the military controlled Myanmar Economic Corporation), which is owned by the Vietnamese Defense Ministry. Improving telecommunication system can be utilized for the improvement of the people's lives and the availability of communication services through various telecom firms was part of the government's efforts to promote transparency as it carries out tasks related to political reform and development. This operator will provide only 4G service. Before the launch of Mytel,

Myanmar's telecom market has been dominated by MPT which holds a 42% market share, followed by Telenor with 35% and Ooredoo with 23%, shown in figure (3.1).

Figure 3.1 Number of telecom market share in Myanmar
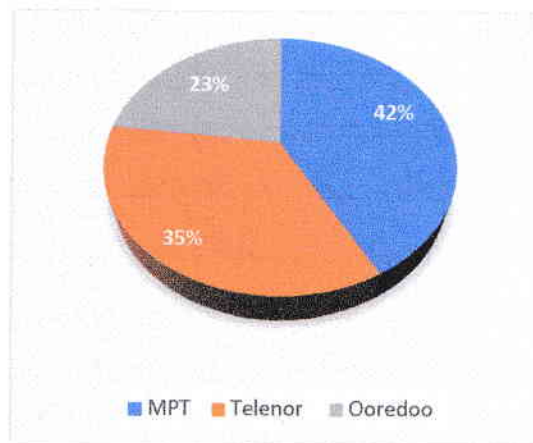
As for broadcasting, TV broadcasts were not available in Myanmar until 1985. All broadcasting within the country was heavily regulated by the government. Until 1995, there was only one government-run TV station, Myanmar TV (MRTV-3). The channel has long been used as a propaganda tool of the ruling military elite. In 1995, a new TV channel, Myawaddy TV was established in order to reach a younger audience with its propaganda. Both channels were strictly controlled by the government (Fink,2009).

The existing telecom infrastructures in the country remain poor and insufficient. At present, Myanmar has approximately 400 base stations, 1,800 towers and 15,000 km of fiber (TMT Finance,2013). These facilities are mainly located between the major cities of Yangon, Nay Pyi Daw and Mandalay. Due to the lack of submarine cable links, Myanmar has very limited capacity (Nomura Research, 2012). Myanmar currently has about 2.8 million telephone lines; 2 million are mobile lines and the rest are fixed lines. In terms of tele density, even including mobile telephony, it is only 1.32% which is the lowest in the ASEAN (Fife, 2014). Official Myanmar government reports showed that market irruption was 5.44 million subscribers in 2012 (Nomura Research, 2012).

3.2 The Revolution of Telecommunication

Myanmar has a violent history, the state was under military rule in 1962, which prevented democratic uprising and freedom of speed and undertook large-scale human right abuses. But the 2010 election ended the military rule. Consequently, the EU and the US implemented economic, trade and political sanctions toward Myanmar. Myanmar is undergoing a large-scale transaction from economic isolation to openness and integration in the global economy. Economic reform was improved the social, political and some economic growth, development and investment.

In 2011 Myanmar had one of the worst mobile phone and internet penetration rates in the ASEAN countries. Only a little more than 3% of the country's 51 million people had mobile phones, putting it behind Cambodia in the mobile phone subscription rates in figure (3.2). The telecommunication sector was controlled by the state. The state-owned Myanmar Posts and Telecommunication (MPT), part of the Ministry of Communications, Posts and Telegraph was the only SIM card provider in the country. The price of a SIM card was around US$500.

Figure 3.2   ASEAN Wireless Penetration Rates (2011)
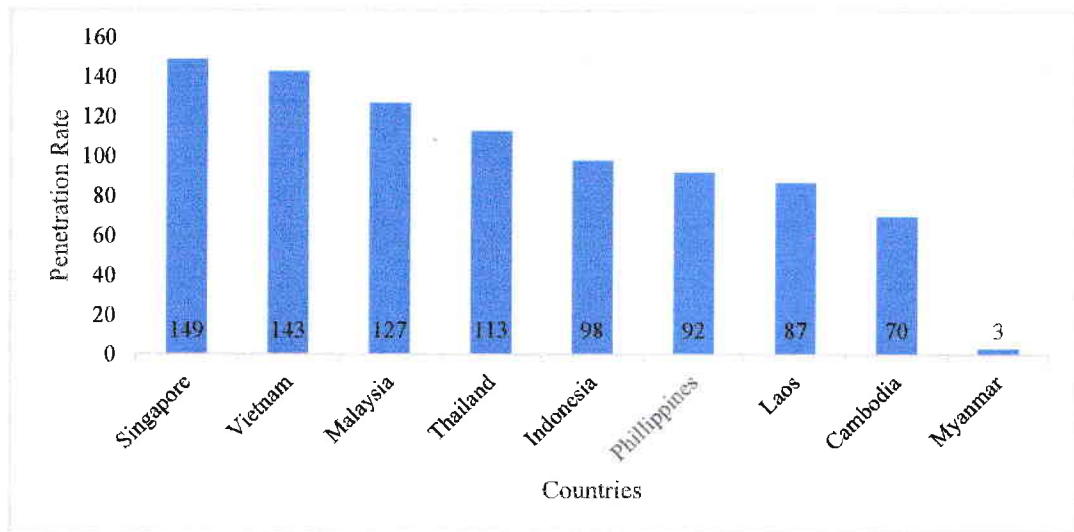
Source: Ministry of Communications and Information Technology, ASEAN Master Plan (2012)

In 2012, the legal framework governing the telecommunication in Myanmar was changed, from state monopoly system replaced by a regulated market to foreign investment according to the Telecommunication Law (2013). The number of mobile

phone usage in Myanmar increase from 1,637,637 (2011-2012) to 54,783,425 (2016-2017) in figure (3.3). By the late 2015, mobile phone penetration rates in Myanmar had reached 60% of the population, and the country had become the fourth fastest growing market for SIM cards in the world (Pwint Mon Thein,2016).

Among the key changes have been the state-owned telecommunication license to foreign-owned entities and foreign support services companies to enter the market. Additionally, the Telecommunication Law (2013) sets new rules and regulations to replace the old Telegraphy Act.

The reform of telecommunication sector, which began in 2012. The reform consisted of following significant changes;

1.   The introduction of new telecommunications law in 2013,

2.   The decision to liberalize the sector and awarded operating licenses to two international companies, Ooredoo and Telenor,

3.   The establishment of a joint operating partnership between the incumbent operators MPT and the Japanese business group, KDDI Sumitomo, which has set in motion MPT's corporation,

4.   The award of a fourth license based on a joint venture agreement between a local company and Vietnamese operator Viettle, My-Tel and,

5.   The establishment of the Posts and Telecommunications Department (PTD) as the country's telecoms regulating authority.

Figure (3.3) Mobile Phone Usage in Myanmar (2011-2017)

Source: Myanmar Statistical Year Book (2017)

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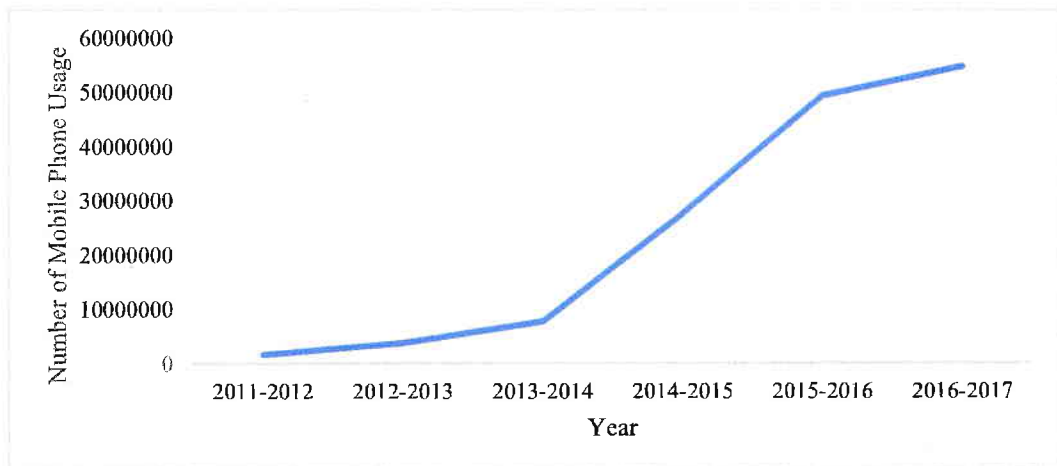
3.3 Myanmar's Telecom Regulatory Background

To regulate the telecommunication sector, the primary instruments of legislation have been the Myanmar Telegraph Act, 1885 and the Myanmar Wireless Telegraph Act, 1934 (Tele Geography, 2013). The State-owned Economic Enterprises Law, enacted in 1989, assigned the property of the radio waves, all telecommunication services and facilities to the government. The Computer Service Department Law was issued in 1996 to develop computer networks in Myanmar. According to this law, any individual who imported or purchased computer technology is required to apply and register with the government. In 2002, the Government developed an ICT master plan to harness the ICT industry, emphasize potential employment opportunities and an identify priority area such ICT infrastructure, legal and regulatory frameworks, human resource development and education. To support the electronic transaction technologies, it passed the Electronic Transactions Law in 2004.

Table (3.2) Laws and regulation in Myanmar

Year	Law and Regulation
October, 1885	Myanmar Telegraph Act
January, 1934	Myanmar Wireless telegraph
March, 1989	State-owned Economic Enterprises Law
October, 1993	Amendment of Myanmar Wireless Telegraph Act
September, 1996	Computer Science Development Law
April, 2004	Electronic transaction Law
January, 2011	Myanmar Special Economic Zone Law
October, 2013	Telecommunications Law
December, 2013	Licensing Rules, Interconnection and access Rules, Spectrum Rules, Numbering Rules and CompetitionRules

Source: Ministry of Communication and InformationTechnology, Electric and Telecommunication Research Institute (2014)

In October 2013, the new regulatory regime, based on the Telecommunication Law, was promulgated. The law provides a broad-based framework governing the

conduct of telecommunication-related activities in Myanmar. The approval of the Telecommunications Law was followed by the issuance of two new telecommunications service licenses and the adoption of five key regulations. The five regulations were intended to implement the Telecommunications Law and set out the framework for MCIT and PTD to follow. The next set of regulatory instruments that will be developed include universal assess strategy, consumer protection, standardization and type approval. Steps for establishing an independent regulator by 2015 are noted in the Telecommunications Law. The independent regulator will be established either through amendments to the existing Telecommunication Law or through the approval of new legislation that exclusively creates the regulator in 2015. Until then, MCIT acts as the policy maker and PTD as the regulator and licensor. The law also provides MCIT the ability to set up various mechanisms to fulfil universal service obligations, including the establishment of a Universal Service Fund (World Bank, 2013).

Telecommunication Law

The Pyidaungsu Hluttaw enacted the Telecommunication Law (No.31/2013), Article 66 (d) in 8th October 2013. The provision of this law apply to Myanmar citizens who are anywhere beyond the limits of the Republic of the Union of Myanmar and any person, department and organization within the territory which includes the land, water and airspace of the Republic of the Union of Myanmar.

The objectives of this Law are as follows:

(a)   To enable to support the modernization and development of the nation with telecommunications technology;

(b)   To enable to bring out Telecommunications Services that will be able to provide high quality and worthy services to the users by allowing fair and transparent competitions from domestic and abroad in the telecommunications sector which is developing;

(c)   To enable to give more opportunities to the general public to use Telecommunications Service by expanding the Telecommunications Network in the entire country along with the telecommunications technology which is developing;

(d)   To enable to protect the Telecommunications Service providers and users in accord with law;

(e)   To enable to supervise Telecommunications Services, Network Facilities and Telecommunications Equipment which require license for national peace and tranquility and for public security.

Telecommunications Equipment License

Person, department and organization from domestic and abroad who desires to keep in possession or use any Telecommunications Equipment determined by the Ministry to use only after acquiring the Telecommunications Equipment License, apply to the Department to get license in accord with the stipulations. Provided that, it is not required to apply the Telecommunications Equipment License for, keeping in possession and using Telecommunications Equipment bought and invested by the Service License for use, keeping in possession and using Telecommunication Equipment obtained from the Service License.

The department, may issue or refuse to issue license after scrutinizing the application of license for the relevant Telecommunications Equipment under section 13, shall specify terms and conditions as well as license term in issuing the license.

Offences and Penalties

Whoever provides Telecommunications Service without a license shall, on conviction, be liable to imprisonment for a term not exceeding five years and may also be liable to a fine. Whoever commits any of the following acts shall, on conviction, be liable to imprisonment for a term not exceeding three years or to a fine or to both.

(a)   Accessing and disturbing a Telecommunications Network, altering or destroying the determination of technical standards or the original form without the permission of the owner or a person who has the administrative right.

(b)   Releasing a virus or using any other means with an intention to cause damage to the Telecommunication Network.

(c)   Stealing, cheating, misappropriating or mischief of any money and property by using any Telecommunication Network.

(d)   Extorting, coercing, restraining wrongfully, defaming, distributing, causing undue influence or threatening to any person by using any Telecommunication Network.

Whoever keeps in possession or uses any Telecommunications Equipment restricted as requiring a license without having such a license shall, on conviction, be liable to imprisonment for a term not exceeding one year to a fine or to both.

Whoever commits any of the following acts shall, on conviction, be liable to imprisonment for a term not exceeding one year or to a fine or to both.

(a)   Communications, reception, transmission, distribution or conveyance of incorrect information with dishonesty or participation;

(b)   Prohibiting, obstructing or interfering the transmission, reception, communication, conveyance or distribution of information without permission;

(c)   Entering without the permission into the place restricted with the approval of the Department where Telecommunication Service are provided;

(d)   Prohibiting, obstructing or disturbing any person who has been assigned duty on any Telecommunications Service by a license from serving his duty;

Whoever, unless for the matters concerning prosecution regarding Telecommunications, and unless authorized under court order to disclose, discloses any information which is kept under a secured or encrypted system to any irrelevant person by any means shall, on conviction, be liable to imprisonment for a term not exceeding one year or to a fine or to both. Any license who uses, keeps in possession, supplies or imports any Network Facility or Telecommunications Equipment that does not meet the prescribed technical standards shall, on conviction, be liable to imprisonment for a term not exceeding one year to a fine or to both. Whoever deters, obstructs or disturbs the discharge of official duty by the Department or inspection team formed by the Department under this Law shall be liable to imprisonment for a term not exceeding six months or to a fine or to both. Whoever contravenes any prohibition contained in rules, regulations, by law, notifications, order, directions and procedures issued under this Law shall, on conviction, be liable to imprisonment for a team not exceeding six months or to a fine or to both. Whoever attempts to commit any offence under this Law, or conspire or abets the commission of an offence shall be liable to the punishment provided in this Law for such offences.

3.4   Asia Pacific Tele-Community

The Asia Pacific Tele-Community (APT) was founded on the joint initiatives of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and the International Telecommunication Union (ITU).

The objective of the Tele-Community shall be to foster the development of telecommunication services and information infrastructure throughout the region and particularly focus on the expansion in less developed areas.

The telecommunication may:

1.   Promote the expansion of telecommunication services and information infrastructure and the maximization of the benefits of information and telecommunication technology for the welfare of the people in the region;

2.   Develop regional cooperation in areas of common interest, including radio communications and standards development;

3.   Undertaken studies relating to developments in telecommunication and information infrastructure technology and policy and regulation in coordination with other international organizations:

4.   Encourage technology transfer, human resource development and the exchange of information for the balance development of telecommunication services and information infrastructure within the region; and

5.   Facilitate coordination within the region with regard to major issues pertaining to telecommunication services and information infrastructure with a view to strengthening the region's international position.

The APT was established by international treaty titled: "Constitution of the Asia Pacific Tele-Community" concluded in Bangkok on 27 March 1976 and came into force on 25 February 1979. After the treaty came into force, APT was formally organized on 1 July 1979. The APT is an intergovernmental organization and operates in conjunction with telecom service providers, manufactures of communication equipment, and research and development organization active in the fields of communication, information and innovation technologies.

APT serves as the organization for ICT in the region. The APT covers 38 members which are Afghanistan(1979), Australia(1979), Bangladesh(1979), Bhutan(1998), Cambodia(2007), China(1979), Cook Island(1987), North

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Korea(1994), Fiji(1999), Hong Kong(2009), India(1979), Indonesia(1985), Iran(1980), Japan(1979), South Korea(1979), Lao People's Democratic Republic(1989), Macau(1993), Malaysia(1979), Kiribati(2011),Maldives(1980), Marshall Islands(2005), Micronesia(1994), Mongolia(1991), Myanmar(1979), Nauru(1979), Nepal(1979), New Zealand(1993), Niue(2002), Pakistan(1979), Palau(1996), Papua New Guinea(1993), Philippines(1979), Samoa(2000), Singapore(1979), Solomon Islands(2010), Sri Lanka(1979), Thailand(1979), Tonga(1992), Tuvalu(2011), Vanuatu(2011), Vietnam(1979).

Throughout the past years, APT has been able to assist members in the preparation of Global conferences such as ITU Plenipotentiary Conference, World Telecommunication Development Conference, World Radiocommunication Conference, World Summit on the Information Society, World Standardization Assembly, and ITU meetings. APT is also involved in promoting regional harmonization of program and activities in the region. The APT has three major functioning organs: The General Assembly, Management Committee and General Secretariat.

The APT is divided into five sectors each managing different aspects of the matter handled by the Tele-Community. These sectors are Policy and Regulations, Radiocommunication, Standardization, Human Resource Development, and ICT Development.

3.5   Service Sectors to Myanmar Economy

In 2012, the new government implemented reforms for the Myanmar's economy. There have three main sectors to enhance economic growth in Myanmar which are agriculture sector, industrial sector and service sectors. Through Myanmar still depend on the traditional agriculture which comprised 37% of GDP in 2010, it gradually decreased to 25% of GDP in 2016. On the other hand, the share of manufacturing sector in GDP has been significantly increase from 26% of GDP in 2010 to 35% of GDP in 2016. Service sectors have also increased from 37% of GDP in 2010 to 40% of GDP in 2016. It is due to the liberalization of service sectors particularly in the banking, transportations and telecommunications sectors. Because entrance of two international mobile operators in mobile telecom market since 2013.

In additional, In November 2012, the Foreign Investment Law (FIL) allows for attracting foreign investments in various sectors including infrastructure, telecommunications, energy and manufacturing. FIL also allows for up to 100 percent foreign ownership with the exception of Telecommunication Law awarding two international mobile network operators brought significant impact to Myanmar's economic development. The contribution of telecommunication sector in GDP and service sector increase that shown in figure (3.4). Thus, the development of the service sector is largely contributed by the growth of telecom service sector (Cho Cho Thein and Tha Pye Nyo, 2017).

Figure (3.4) Sectoral Share in GDP of Myanmar(%)
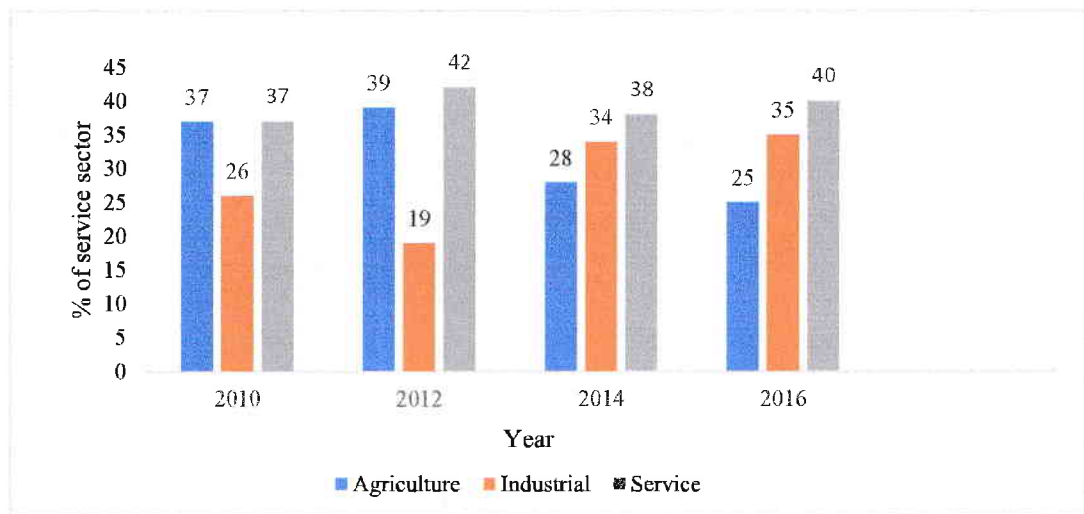
Source: Ministry of Communications and Information Technology, Annual report of Planning and Financing (2017)

Digital Telecom Service Sectors

There are some popular local digital telecom services in Myanmar, such as local media, Wunzin, Pyone Play and Duwun. However, low digital literacy as highlighted in the digital skill focus area lead to a continued high user reliance on social media, communication and entertainment, with low awareness of how to acquire or use other digital services. This is further compounded by the overall lack of Myanmar language digital content beyond Facebook, low localization of global

digital services (Google Maps, Uber and Grab), low English comprehension among most users and non-standard Myanmar fonts on services and devices.

Digital telecom services can help rural economies more sustainable by providing vital economic information and access to global markets. However, there is limited agricultural, livestock or fishery local language content or services available or accessible due to difficulties in monetizing content, low ability to play, low digital literacy, and devices issues (affordability, unstandardized fonts).

The state governments have been largely receptive to private sector digital telecom services. Ministries at all levels of government are widely using Facebook for direct citizens engagement from distributing government statements, new laws and information about service outages, weather and natural disasters to directly answering citizens' questions and complains.

The Yangon and Mandalay regional governments have invited Uber and Grab to provide ride hailing services to resolve traffic issues and improve availability of public transport, while incident crowdsourcing is used by the Yangon traffic police and Yangon Bus Service, as seen on Facebook.

These actions also support the development of a future smart city, as data collected form Uber and Grab, smart traffic lights and GPS trackers in Yangon Buses could facilitate big data analytics and government decision making in future urban planning.

Another type of digital service sector is mobile banking. In December 2013, the Central Bank of Myanmar issued the "Mobile Banking Directive" allowing banks to offer mobile money services. The Central Bank of Myanmar is reportedly in the process of drafting mobile money regulations that would allow entities outside of financial institutions, such as mobile network operators, the ability to provide mobile money services. MPT and MECTel have partner with Myanmar Mobile Money. Telenor has announced plans to partner with Yoma Bank to offer mobile money services. While Ooredoo has not announced specific mobile money plans for Myanmar, Ooredoo is a member of the GSMA's Mobile Money Interoperability (MMI) Program.

As mobile penetration continues to increase in the country, there is an opportunity for a variety of new financial services that utilize mobile technology

online banking (mobile banking) refers to customer accessing formal baking services through a mobile or desktop device connected to the internet. In Myanmar, a variety of banks currently offer online banking services which allow customers to view account balances, send money, check exchange rates and find ATM locations nearby. But mobile services are still lacking customers trust because of many barriers and difficulities.

CHAPTER IV

TELECOMMUNICATION SERVICES IN MYANMAR

4.1 The Role of Private Sector in Telecommunication

The government has identified the key barrier to telecommunication access to be high costs and limited infrastructure. To achieve the target of increasing mobile phone density to 75-80% and internet penetration over 50% by FY2015/16, the government has committed to undertaking several reforms. Under the framework for economic and political reforms, to enhance ICT adoption in the country and strengthen industrial competitiveness by promoting information and technology and knowledge management. The government is drafting the new Telecommunication Law and Cyber Law, which are expected to set out the government's plans to separate the policy, regulatory and operational roles of the government in the telecommunication sector. An independent regulator will be expected to supervise the ongoing process of liberalization and opening process of telecommunication sector. A significant development in the sector is the move by the government in 2013, invite two foreign companies Telenor and Ooredoo. In table (4.1) the two blocks of 2x5MHz spectrum in the 900MHz band and two blocks of 2x10MHz spectrum in the 2100MHz were allowed MPT, Telenor and Ooredoo in 2013.

Table 4.1 Spectrum assignment to new operators (2013)

Operators	Frequency Band	Bandwidth(MHs)	LicenseFees (USD)	Duration
MPT	900MHz / 2100MHz	2x5MHz / 2x10MHz	-	-
Telenor	900MHz / 2100MHz	2x5MHz / 2x10MHz	500 million	15 Years
Ooredoo	900MHz / 2100MHz	2x5MHz / 2x10MHz	500 million	15 Years

Source: Ministry of Communications and Information Technology, International Cooperation Agency (2013)

4.2 ICT for Development

ICT is being used increasingly worldwide to facilitate humanitarian and development work, supporting and improving coordination, mapping, information dissemination, access to knowledge and servings, monitoring and evaluation, and so on. In Myanmar, ICT penetration rate has been very low, however the growing network coverage with planned new towers and improving access to electricity is beginning to make ICT more accessible to the population and also in areas which previously had no access. A wide variety of stakeholder are involved in ICT and humanitarian and development work, including government, global governance organizations, non-government organization, the private sector and the people of Myanmar as a whole.

In May, 2014, the ICT for development working group (ICT4D) has been convened through the Inter-Agency Information Management Network to promote improved coordination, sharing of best practices and humanitarian processes so as to more effectively and efficiently improve the lives of the people in Myanmar.

Many argue that access to digital technologies, such as internet and mobile phones, can facilitate development and economic growth.

The government has laid down the policy framework for developing the telecommunication and ICT industry by introducing competition for domestic operators. The main objectives of the policy are increasing the country's mobile tele-

density to 80% by FY2015 and making telecommunications services available to the public at affordable prices.

ASEAN Tele and Information Technology Ministers, and ASEAN Master Plan 2015 was formulated to establish the ASEAN Economic Community. The objectives of the Master Plan are to (i) develop ICT as an engine of growth for ASEAN countries, (ii) gain recognition for ASEAN as a global ICT hub, (iii) enhance the quality of life for the people of ASEAN, and (iv) contribute toward ASEAN integration.

ICT Trend in Myanmar

Since 2000s, Myanmar IT status is emerging slowly and after 2012, an Information and Communication Technology (ICT) sector is developing rapidly because of the encouragement of the government and new economy reform. Currently, ICT is positioning as one of the most important issue in business process. There is a very good chance that Myanmar can compete effectively in the international ICT industry especially in software industry because of the availability of open sources software from internet. People are able to access many pirated software with a mere price compared to international market of the original software. Although, copyrighted law for software are planning to implement in near future, Myanmar is enjoying almost free access to many types of software.

Easy access of pirated software will create high opportunities in socio-economic organizations to increase the productivity, market penetration, reducing cost and improving services to complete global market. On the other hand, government support and systematic efforts on development of ICT will create future opportunities to advance and catch up with the development of ICT will create future opportunities to advance and catch up with the developed countries since Myanmar still has capacity for expansion in ICT sector as well as many other business sectors. Myanmar government is now trying to sign agreement regarding Myanmar and Japan cooperation in ICT development for mutual benefits of both parties for Economic and Technology Growth.

The Ministry of Communication and Information Technology's (MCIT) policy framework for developing Myanmar's telecommunications sector on increasing overall tele-density penetration, improving the affordability of

telecommunication services in urban and rural areas, and providing the population and enterprises the freedom to choose telecommunication services and providers.

4.3   Growth of Telecommunication Services in Rural and Urban

Telecommunications require advanced infrastructure, can lower operation cost and have positive externalities for different sectors, which can simplify the development of public infrastructure such as water, sanitary, transportation and electricity (Omyeji, 2007).Moreover, telecommunications can encourage the searching and sharing of information, which improves coordination and cooperation between different economic actors, people and the state (World Bank, 2016).

Telecommunications increase individual's access to digital information, which can facilitate social change and contribute to poverty reduction. Access to telecommunications can increase poor and rural household's access to delivery of important products and services. A further potential benefit is growing education levels, thus improving the human resources of a country. Digital communications can improve the quality of the state institutions, as it allows citizens to obtain more and better information (Nemes, 2015). Before the internet, it was difficult for many to participate in a market transaction due to barriers such as high cost and lack of trust.

Difference in income, population size and geography have created a digital divide between urban and rural areas. At the regional level, a sizeable population would have access to mobile connections or fixed telephone lines.ICT infrastructure has been developing steadily in countries around the world. ICT is generally coverage in major cities, but in rural areas is far from satisfactory, many people have no ICT access.

Installation of fixed line has expanded mostly in major cities and highly populated areas, with high installation costs and geographical barriers in rural areas inhibiting installation and complicating maintenance of physical infrastructure such as cables.Wireless technology has provided alternative telecommunications access to rural and remote areas.

With 80 percent of people living in rural areas, and three-quarters living without power, Myanmar's major challenge for economic development is electricity.

Poor domestic connectivity due to inadequate support infrastructure and unreliable supply of electricity constrain that could expand Myanmar's ICT infrastructure. Because ICT is heavily reliant on electricity. The poor accessibility to various divisions and area of the country will also make it difficult to establish needed ICT infrastructure such as communication and cell site towers, and underground cables.

Availability of ICT services in villages are limited. Few resources are available, telecommunication infrastructure development has favored urban area, even though 75% to 80% of the population lives in rural areas. Rural areas are still on manual switching, while urban areas have upgraded to automatic switching systems.

The huge challenge for providing energy access to rural area is the cost of building large transmission and distribution lines. Most rural villagers don't have the money to contribute those high cost. Growing private sector in the ICT sector has not benefited rural areas, where penetration rates range from close to zero, 2% for internet services among 52 million of people, in table (4.2) and figure (4.1).

Table (4.2) Percentage of Population with Access to ICT sector

	Fixed Telephone	Mobile Cellular	Computer	Internet
Urban	15.83	14.66	7.19	3.35
Rural	1.29	1.85	0.39	0.02

Source: Ministry Communication and Information Technology, National Planning and Economic Development (2011)

Figure (4.1) Percentage of population with access to ICT sector (2011)
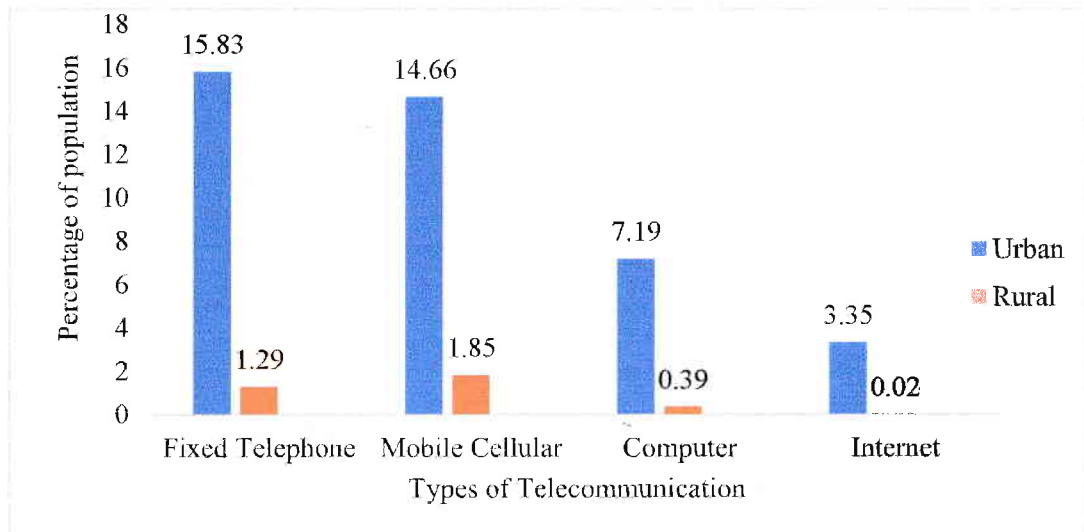
Source: Ministry Communication and Information Technology, National Planning and Economic Development(2011)

4.4 Myanma Post and Telecommunication Services

MPT is the sole provider of telecommunication service in Myanmar since 1884 to present day. Before 2015, 1st of April, MPT is under the Ministry of Communication and Information Technology. But in 2016, the Ministry of Communication and Information Technology (MICT) has been changed as the Ministry of Transport and Communication.

MPT is the first and leading telecommunication operator in Myanmar and has been championing the development of the telecom industry for over 130 years. MPT is making continuous efforts to develop telecommunication infrastructure. It also provides an essential tool for the administration, economic, social, and culture. The development of telecommunication sector truly supports the growth of the economy, improving in the trade, boosting up of the productivity, and development of living standard. In the recent years demand for telecommunication services has significantly increased due to existing economic situation based on market orient economy.

MPT is committed to drive the development of the sector, upholding its value of social responsibility and moving Myanmar forward. In July 2014, MPT signed a Joint Operations Agreement with KDDI Corporation and Sumitomo Corporation.

Together with KDDI and Sumitomo have committed to invest over 2 billion dollars to accelerate the development of MPT and Myanmar's telecom sector. This commitment is among the largest historical Japanese investment in the country.

Myanma Post and Telecommunication includes postal service, telegraph services, telephone services and internet services.

Postal Service

The mail or post is a system for transporting postcards, letters, and parcels. Postal service is running throughout the country. Prices vary at different post offices and items that are going to be transferred. Myanmar became a member of Universal Postal Union (UPU) on 4 October, 1949.

Local Express Service was introduced in Yangon and Mandalay since April 1992 and its services are now extended to 129 townships. Foreign Express Postal Parcel Service is also being carried out between Yangon and Singapore, Yangon and Bangkok, Yangon and Korea vice versa. Myanmar DHL Limited, joint venture of Myanmar Communications Service and DHL World-Wide Express B.V of Netherlands was contracted and set up on 1st January 1997 and International Package Service is being carried out between Yangon and 227 foreign countries. Foreign dispatch, package of dispatch and postal parcel from Myanmar are sent and delivered all over the world through 33 countries. International mail is delivered to Myanmar through 59 countries.

Incoming and outgoing International EMS was introduced on 2nd January 1995 with Singapore. On 2nd September 1996, MPT was able to provide international EMS between Yangon and Bangkok, and international EMS routes between Yangon and Seoul were also connected on 19th December 1997. This service was extended with Thailand in 1996, Republic Korea in 1997, Japan in 2002 and Hong Kong in 2003. At present International EMS Service are serviced with 102 countries.

Postal service is expanding throughout the whole country, not only expanding post offices but also promoting services. Myanmar's postal services are (1) The sale of stumps, (2) Registration/distribution recipients, (3) Sharing register to receive parcels, (4) Causal/distribution recipients, (5) Accepted values selected dispatch/parcels/distribution, (6) Sharing accept ordinary parcels, (7) Simply accept

the money invoice/distribution, (8) Receive quick cash invoice/distribution, (9) Domestic express accepted/ distribution, (10) Sharing of oversea express accepted, (11) PAC tax, (12) Po Box rental, (13) Mail certificate issuance, and (14) Stamp machine rental.

Postal services are slowly growing annually. The status of Myanmar postal sectors development shown in table (4.3) and figure (4.2). Expansion and upgrading total number of post offices was increased 1364 to 1380 post offices during the year of 2007-2013. The development of post office has the slow growth rate 1.17 % during 2007-2013. During 2013-2017, the development of growth rate is 0.007% and during 2007-2017 the development of post office growth rate is 1.24%. In 2012-2013, MPT provides services through 1380 post offices throughout the country and has more than 4000 employees.

Postal services are critical to the daily operations and business offices. Office administrators use postal service to send out and to receive important notifications, signed contracts, written correspondence. Cell phones, text messages. E-mail and fax transmission have reduced the use of general letter services but cannot entirely replace the importance of postal services.

Table (4.3) Number of Post Offices in Myanmar

Fiscal Year	2007/ 2008	2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015 2016	2016/ 2017
Post Office	1364	1369	1373	1385	1389	1380	1387	1384	1378	1381

Source: Myanmar Statistical Year Book (2017)

Figure (4.2) Number of Post Offices in Myanmar
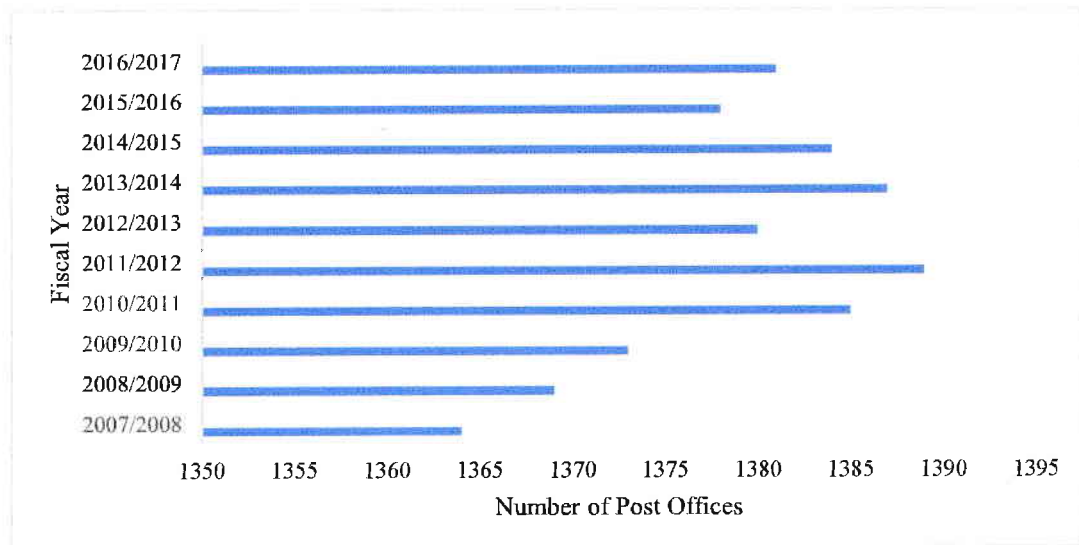
Telegraph Service

National and international Telex Services was first introduced in Myanmar it was very popular among business. The telegraph service has opened telegraph offices all over the country. Satellite links international telegraph service is being carried out through Japan, Hong Kong, Thailand, Singapore, India and England.Computerized telegraph service was started in Yangon and Mandalay on 1 April 1993 and now it is extended to 65 towns. Public Domestic Fax Service began on 1 September 1992 and now fax service is available in 88 towns including Yangon and Mandalay. Oversea fax service is available at Yangon telegraph office and it can contact with 89 other countries. In September, 1999, MPT had a total of 175 telex machines. It was in 1999 October that MPT changed its connection route and machine with long line telex services with Singapore telecom. MPT has 28 subscribers in Myanmar. A total number of 2,477 telex subscribers are still using telex services at the central telegraph office because of reliability and secrecy.

According to the data of MPT: enterprises, the development of Myanmar telegraph is shown in table (4.4) and figure (4.3). MPT has established 178 telegraph offices in 2007-2008 to 262 offices in 2012-2013. And in 2016-2017, the number of telegraph office was 263. The growth is 47.1% during 2007-2013 and 11.8% during

2013-2017. But the development growth rate is slow because replacing by the more convenience telecommunication services.

Table (4.4)   Number of Telegraph Offices in Myanmar

Fiscal Year	2007/ 2008	2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015	2015/ 2016	2016/ 2017
Telegraph Office	178	182	199	225	252	262	276	285	260	263

Source: Myanmar Statistical Year Book (2017)

Figure (4.3) Number of Telegraph Offices in Myanmar
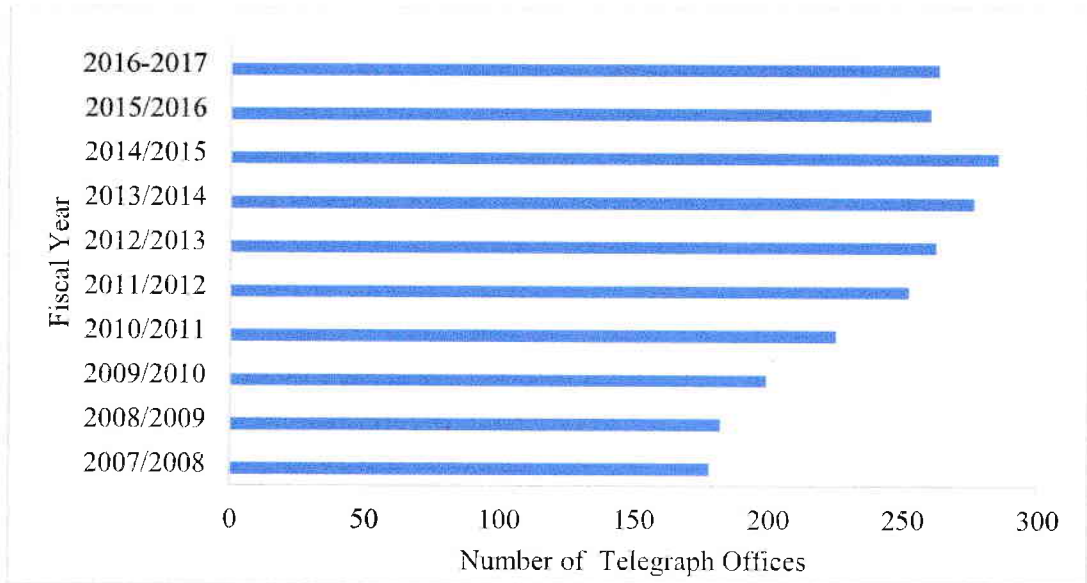
Source: Myanmar Statistical Year Book (2017)

Telephone Service

From 1995 to 1997, 857 wire miles of long distance telephone lines were installed for promotion of smooth communication. The system is introduced in Yangon Auto Telephone Network stating from 16.9.1992.

MPT is the first leading telecommunication system in Myanmar by providing both fixed and mobile telecommunication services. It operates a nationwide network infrastructure, with the widest mobile network coverage of 96% throughout the country. In 1987, Local automatic exchanges implemented during the first and second telecommunication development projects provided Subscribers Trunk Dialing (STD) service to 120 towns including Yangon and Mandalay. These two development projects contributed significant telecommunication services for the promotion and strengthening of the socio-economic situation of the country.

The liberalization of Myanmar's telecom sector began in 2012. Significant changes in the number of fixed and mobile services developed and the number of services in operation have grown. The government and public sectors have helped to grow the telecom service sector.

MPT telecom service sector has three kinds of voice plans for customer choices. There are Swe Thahar, Shal Pyaw, and Shwe Zagar, which shown in table (4.5). All these plans are subscribed for GSM and WCDMA users. Additional commercial tax is 5% starting at 1st April, 2016.

Table (4.5) Voice Plan Services

Types of plans	Starting Date	MPTon-net calls(Ks/min)	Off-net calls(Ks/min)	SMS (Ks)	Data (Ks/Mb)
Swe Thahar	10.8.2015	23	10	10	6
Shal Pyaw	1.4.2016	15	25	15	8
Shwe Zagar	12.10.2017	10	24	15	8

Source: Myanma Post and Telecommunication, Service Planning Report (2017)

As shown in table (4.6) and figure (4.4), the total number of telephone in Myanmar. In 2007-2008fiscal years, the number of the fixed phone was 1,071,637 and mobile phone was 598,264. In 2012-2013the number of fixed phone was 530,473 and mobile phone was 3,804,507. In 2016-2017, the number of fixed phone was

516,831 and number of mobile phone was 54,783,425.The number of fixed phone is decreased but the number of mobile phone is increased year by year. Because the mobile phone is more easier and convenience than fixed phone. Customers can only use fixed phone in single location where a wired connection to the telephone network. Mobile phones are operational anywhere the user can get signal from a wireless network.

Table (4.6) Number of Fixed phones and Mobile phones in Myanmar

Fiscal Year	Number of Fixed Phones	Number of Mobile Phones
2007/2008	1,071,637	598,264
2008/2009	856,249	602,176
2009/2010	697,123	879,909
2010/2011	412,931	1,119,703
2011/2012	476,352	1,637,637
2012/2013	530,473	3,804,507
2013/2014	533,883	7,725,573
2014/2015	526,792	27,568,244
2015/2016	521,626	49,414,671
2016/2017	516,831	54,783,425

Source: Ministry of Post and Telecommunication& Statistical Year Book (2017)

Figure (4.4) Number of Fixed Phones and Mobile Phones in Myanmar
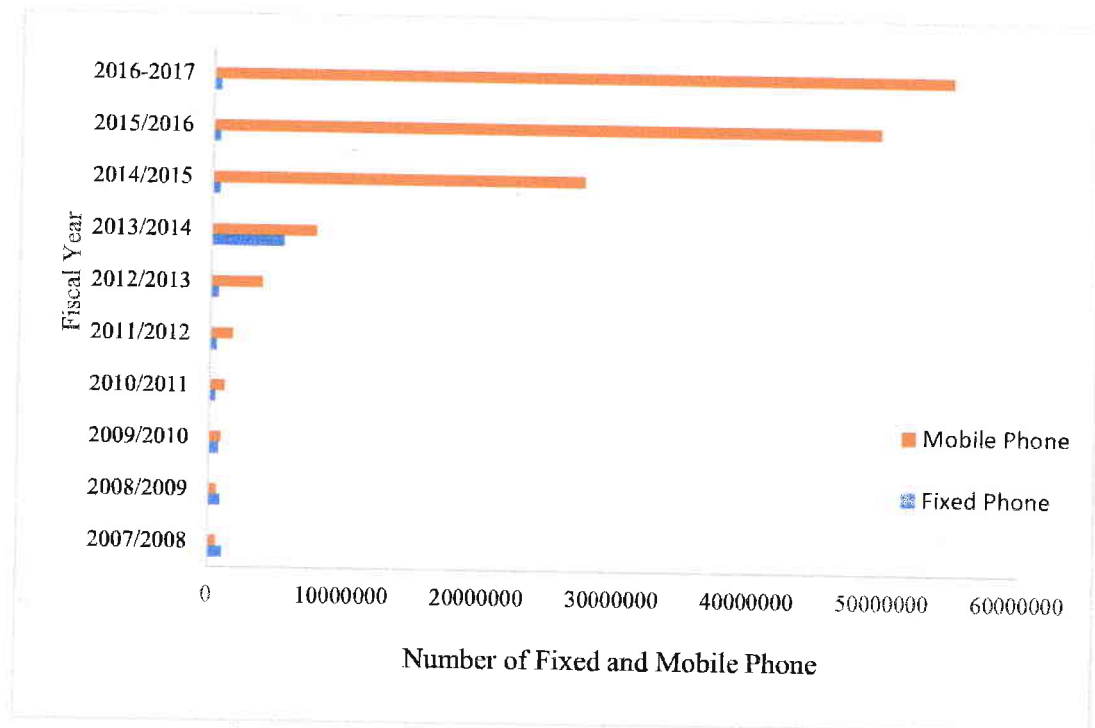
Source: Ministry of Post and Telecommunication& Statistical Year Book (2017)

Internet Service

In Myanmar, the first wireless mobile communication network was launched in 1995 based on Cellular Radio System and Code Division Multiple Access (CDMA) technology was implemented in 1999. Then Global System for Mobile Communication (GSM) has been introduced in 2002 and Third Generation WCDMA (3G) network was launched in 2008.

The MPT's e-mail and internet services in Myanmar has been available in 1998 when the first internet connections were established. In 2005, ADSL and optical access system for internet and e-mail were established. In 2005-06, ADSL and metro access system were established in Nay Pyi Taw. Then, ADSL service was implemented during 2007 in Yangon especially for government offices. In September 2011, the military government worked aggressively to limit control internet access through software. Myanmar has a very low internet penetration rate due to government restrictions on pricing and lack of facilities and infrastructure. In June 2012, over 600,000 internet users (1% of the population) with the vast majority of the users hailing from the two

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largest cities, Yangon and Mandalay (World internet statistics 2012).Before 2011, Internet Cafés were common access center for internet users in the country and most use different pieces of software to bypass the government's proxy servers. The popularity of internet café declined with the emergence of cheap mobile internet with the improvement in telecommunication infrastructure.

The government was upgraded the internet services by using Fiber, MPT Satellite Terminal, ET Line, ADST Line, Mobile internet access point system. Education, health, agriculture, information, economics, trade and communications services can be speedily and cheaply provided to public and government sectors due to introduction of internet services. According to MPT survey result, table (4.7) shown in the number of internet users in Myanmar. In 2007/2008, the percentage of internet user was 0.15%, in 2012/2013, the percentage of total internet user was 2.05%. And in 2016/2017, the percentage of total internet user was 68.8%.

After 2012 election, the government allows unrestricted access to the internet. Many people are using the internet freely, with widely available smart phones. In 2015, the internet users significantly increased with the introduction of faster mobile 3G internet services. The state owned MPT, Yadanarpon Teleport, satellite internet provider Skynet, We-link Myanmar, Myanmar Net, 5BB Broadband, Myanmar Speednet, AGB Communication, Fortune Broadband and Kinetic Myanmar Technology are the internet service providers in Yangon and Mandalay. The internet is very important because it is the limitless space where people have access much infinite amounts of information easily. Internet service performance is better measured from its usage and service quality rather than simply the availability and accessibility of the infrastructure.

Table (4.7) Percentage of Total Internet Users in Myanmar

Fiscal Year	Percentage of Total Internet Users (Government and Public)
2007/2008	0.15
2008/2009	0.88
2009/2010	1.09
2010/2011	1.13
2011/2012	1.32
2012/2013	2.05
2013/2014	5,17
2014/2015	23.9
2015/2016	56.6
2016/2017	68.8

Source: United Nation Department of Economic and Social Affairs; Population Division (2018)

4.5 Advantages and Disadvantages of Telecommunication Services

The development of telecommunication technologies causes changes in all aspects of life. Regarding professional life, new technologies influence the way of working. Telecommuting is a new way of working, which makes use of those new technologies, in which high speed internet is most important.

Advancements in telecommunication technologies have greatly impacted on the way people interact with one another at the global level. Globalization can be defined as the process of change, increasing interconnectedness and interdependence among countries and economies, bringing the world closer through better world-wide communication. This process is changing the world dramatically and quickly, affecting economic, social, political and cultural aspects of life. Globalization is an ongoing process that is linking regions, neighborhoods, people, cities and countries

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much more closely together. Nowadays, individuals can communicate easily through voice calls, video calls and data sharing applications.

The world has become so quickly global and is showing no signs of slowing down. The ability to interact with the world so simply and cheaply is invading each part of the people's daily lives, whether in the home, workplace, school, or society as a whole.

The advantages and disadvantagesof telecommunication services are as follow;

Advantages

People can quick and accessible communication, saves time, lack of travel, and more than two people can communicate to one another at the same time. Calls can be made and routed from office phone, mobile phone, desktop computer, laptop, and iPad/tablet devices and easy to exchange ideas and information via phone and/or fax. Enable users to communicate electronically and share hardware, software, and data resources. Enable a company to process transactions immediately from many remote locations, exchanges business documents electronically and builds a good management between employers and employees, customers and suppliers, or remotely monitor and control production process. Develops new products and inventions. People can see video or satellite-based programs like TV programs using technologies and enables video calls, therefore, business conferencing between cities, states, and even countries.The vast impact that telecommunication has had on the world can be seen anywhere and everywhere, what is happening. Telecommunication provides better awareness of the society, it makes people to communicate with every corner of the world a much safer place.People now have the ability to communicate with the other side of the world at the click of a button.

Disadvantages

There are culture barriers, misunderstanding, brain drain of ICT human resources, prank calls, sometimes expensive, high electric bills, poor connections or downed powerlines during/after storms, remote areas do not access and data security is low. In telecom sector, there is much competition, so the companies have a very marginal price for facilities. The radiation of magnetic waves generated with the heavily use of the wireless system will affect life also. The radiation of the magnetic

waves is danger for life. A long use can affect brains. In business as workers are more focused on electronic tools the direct contact between employees reduced. It results in the increase of inability of communicate in person.

In 2008, Cyclone Nargis devastated Myanmar, when less than 1% of Myanmar had access to mobile phone, damaging nearly 140,000 lives and displacing 2.4 million people. There were no early warning system in place and the Government of Myanmar was harshly criticized for its response to the disaster. After the telecom sector reform, Myanmar's Telecommunications infrastructure continues to improve, more people were have reliable mobile phone services, presenting a major opportunity to leverage ICTs for disaster reduction and relief, seen most recently in July 2015 floods. National early warning system can be designed to function over SMS messaging, voice calls, and mass messaging of weather alerts or evacuation notices through cellular broadcasting. Cellular broadcasting used for mass messaging alerts to users in a network area. Technology companies are also offering services to assists in disaster relief. Both Facebook and Google offer services that can be used to locate people impacted by a natural disaster. Facebook's tool, 'Safety Check', uses location data to identify a user in a natural disaster area and users can verify who are safe the use of application. Google's tool, 'People Finder' focus on crowd sourcing information on missing people, which is then shared with responders in the area. While not having developed a specific too, Viber recently offered free Viber Out (calling from Viber to any phone number in the world). Any such services need to work emergency specialists to ensure that protections are built into systems (Thaw Tar Min, 2014). In developing countries, Myanmar, people face low internet connection especially in rural areas. Because of low telecom infrastructure. Until 2013, the price of SIM cards were very expensive and cannot buy easily. The internet connection was low, some people were go to internet shop to use internet. But today, people the price of SIM card is cheap and can buy easily. The internet connection is better than before.

CHAPTER V

Conclusions

5.1   Findings

Communication is very important aspect for people around the world. It is the transmission of sounds, signs, signal, messages, words, writings and information, by using smoke signals, drum, lumps, flags, wire, radio, optical or electromagnetic systems, that send to one another

The world without telecommunication, it would be impossible. Telecommunication also have the advantages and disadvantages of using it. Advantages includespeople can quick and accessible communication, saves time, lack of travel, easy to learn advanced knowledge and technology and more than two people can communicate to one another at the same time. Telecommunication provides people to communicate with every corner of the world andpeople now have the ability to communicate with the other side of the world easily. Disadvantages consists culture barriers, misunderstanding, brain drain of ICT human resources, prank calls, sometimes expensive, high electric bills, poor connections or downed powerlines during/after storms, remote areas do not access and data security is low. The radiation of the magnetic waves is danger for life. A long use can affect brains.

In Myanmar, about 75% of population live in rural areas. In 2011, 15.83% of urban population used fixed telephone, 14.66% used mobile cellular, 7.19% used computer and 3.35% used internet service and in rural areas 1.29% used fixed telephone, 1.85used mobilecellular, 0.39% used computerand 0.02% used internet service. Urban population used more telecommunication services than rural population. Because installation of fixed line has expanded mostly in urban areas and barriers in rural areas inhibiting installation and complicating maintenance of physical infrastructure such as cables. Some rural areas are still use on manual switching, while urban areas have upgraded to automatic switching system.

Myanma Post and Telecommunication (MPT) is the sole provider of telecommunication services in Myanmar which controlled under the military rule. Until 2012, the state-owned monopoly, MPT, dominated Myanmar's telecom service sector. Myanmar's major policy changes were occurred in 2013. It is going through its transition stage from the traditional administration to the market-based economy. According to Telecommunication Law (2013), government allowed two foreign telecom companies (Telenor and Ooredoo) with 15 years license and 500 million (USD) license fees agreement.

In 2013, telecommunication density was just over 12%, mobile services were expansive and also a SIM card cost was around $300. Myanmar population is about 53 million telecommunications density is close to 95% (World Bank 2017).

Myanma Post and Telecommunication (MPT) provide postal service, telegraph service, telephone service and internet service. The number of total offices increase from 1364 in 2006/2007 to 1380 in 2012/2013 and1381 in 2013/2017. The development of post offices has the slow growth rate with 1.17% during 2007 to 2013 and 1.24% during 2007 to 2017. Computerized Myanmar telegraph service was started in Yangon and Mandalay on 1st April 1993. Myanmar has link international telegraph service is being carried out through Japan, Hong Kong, Thailand, Singapore, India and Thailand. MPT established 178 telegraph offices in 2007-2008 to 262 offices in 2012/2013. And in 2016/2017, the number of telegraph office was 263. The growth is 47.1% during 2007 to 2013 and 47.7% during 2007 to 2017. But the development growth rate is slow because replacing by the more convenience telecommunication services.

MPT provided fixed phone and mobile phone service in Myanmar. In 2007/2008, the number of the fixed phone was 1,071,637 and mobile phone was 598,264. In 2012/2013 the number of fixed phone was 530,473 and mobile phone was 3,804,507. In 2016/2017, the number of fixed phone was 516,831 and number of mobile phone was 54,783,425. Today, the number of fixed phone is less than the number of mobile phone. Because the mobile phone is more easier and convenience than fixed phone. After liberalize telecom market, telecommunication service was increased year by year.

In Myanmar, the first wireless mobile telecommunication network was launched in 1995. Under military control Myanmar internet penetration rate was very low because government restricted on telecom infrastructure. After 2012, the government released restrict to the internet service. Therefore, the percentage of total internet user increased significantly. In 2007/2008, the percentage of internet user was 0.15%, in 2012/2013, the percentage of total internet user was 2.05%. And in 2016/2017, the percentage of total internet user was 68.8%.

Myanmar has three main economy sector which are agriculture sector, industrial sector and service sector. During 2010-2016, the service sector was increased from 37% to 40%. In the service sector, digital telecom service sector also included. Digital telecom service sector provide service to citizens such as social media (Wunzin, Pyone Play and Duwun), transport services (Grab and Uber) and mobile banking services.

Increase the number of telecom services leads to economic development, increase productivity, and increase people living standard.

5.2   Suggestions

In the globalization process, the world is now a global village due to advanced technology. People can communicate easily and know what happening around the world. If the country is to integrate into global economy, the government and private sector should provide billions of dollars investment to improve network infrastructure.

The digital service sector as a long-term approach with international cooperation and efforts is very important for Myanmar now. Although with many difficulties and barriers, Myanmar still has great opportunity. Mobile Banking service sector is still lacking significantly in terms of digital technology implication, customer trust and awareness issue. It creates to enhance the managerial digital standard, especially for the finance and accounting professionals' literacy. Dramatic increase of social media usage in Myanmar executives to improve digital skills and create different approach to business activities. The government should promote technologies to telephone and internet access and need to reduce telecommunication cost and improve the quality of communication to promote telecommunication

infrastructure development and should create upward trend in digital literacy of Myanmar.

The rate of telecom penetration still low compared with ASEAN countries. In post service and telegraph service development were slow growth rate because newer advanced telecom technology. To increase these service sector the government should not only expand post office but also promote services such as postal saving, post shop, postal insurance and international linkages. And should promote telegraph service not only Delta Mountain and marginal area but also using for back up communication of emergency disaster.

In Myanmar, towers will be needed to improve mobile phones. This means that telecom towers will be relatively widespread, even in rural area where people currently don't have access to electricity. Those towers will have a source of power and the towers can be at least powered by renewable energy such as solar energy. The government should upgrade the telecommunication infrastructure such as telecom towers and cable and should try to ensure new information technologies are available to everyone in the nation and encourage to improve the using of mobile phone and internet access in order to achieve socioeconomic development.

The radiation of magnetic waves are dangerous for people life. Therefore, the telecom tower should build away from the public area and houses. State-owned MPT should provide to customers with better services, reasonable price, good network system, technical advancement, domestic jobs, and investment opportunity.

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