

**YANGON UNIVERSITY OF ECONOMICS
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**FACTOR ENHANCING ON USAGE OF FTTH BROADBAND
SERVICES
(CASE STUDY: LANMADAW TOWNSHIP, YANGON)**

**Mg Htun Aung Ko
EMDevS - 14
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JUNE, 2025

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This is to certify that this thesis entitled **Factor Enhancing on Usage of FTTH Broadband Services (Case Study: Lanmadaw Township, Yangon)** submitted as partial fulfilment towards the requirements for the degree of Master of Development Studies has been accepted by the Board of Examiners.

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ABSTRACT

This research examines the key factors enhancing of Fiber-to-the-Home (FTTH) broadband service usage and customer satisfaction in urban Myanmar, with a case study focusing on Lanmadaw Township, Yangon. The research employs descriptive methods, utilizing primary and secondary data. Primary data are collected from 200 participants who are users of five FTTH Internet Service Providers in Lanmadaw Township. The results highlight that perceived usefulness, particularly internet speed and reliability, significantly impacts adoption decisions. However, perceived ease of use factors, especially customer service quality, demonstrate even stronger influence on user preferences. While overall customer satisfaction remains moderate, the analysis reveals notable gaps in service quality, particularly in customer support responsiveness and service consistency. These findings suggest that while technical performance remains important, service providers must place greater emphasis on customer experience enhancements, including improved support systems and service reliability, to drive broader FTTH adoption and strengthen customer retention in Myanmar's evolving broadband market.

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LIST OF ABBREVIATIONS

4G/LTE	Fourth Generation / Long-Term Evolution
5G	Fifth Generation
ADSL	Asymmetric Digital Subscriber Line
AR	Augmented Reality
DSL	Digital Subscriber Line
EMI	Electromagnetic Interference
FESR	Framework of Economic and Social Reform
FTTB	Fiber to the Building
FTTC	Fiber to the Curb
FTTH	Fiber to the Home
FTTN	Fiber to the Node
FTTx	Fiber to the X (Generic term for fiber networks)
GDP	Gross Domestic Product
IoT	Internet of Things
IPTV	Internet Protocol Television
ISP	Internet Service Provider
ITU	International Telecommunication Union
LAN	Local Area Network
MBT	Myanmar Broadband Telecom
MPT	Myanma Posts and Telecommunications
MOTC	Ministry of Transport and Communications
NBN	National Broadband Network
ODN	Optical Distribution Network
OLT	Optical Line Terminal
ONT	Optical Network Terminal
PON	Passive Optical Network
PPPs	Public-Private Partnerships
PTD	Posts and Telecommunications Department
SLA	Service-Level Agreement
SMEs	Small and Medium Enterprises
VR	Virtual Reality
WDM	Wavelength Division Multiplexing
XGS-PON	10-Gigabit Symmetrical Passive Optical Network

CHAPTER I

INTRODUCTION

1.1 Rationale for the Study

Since the 1990s, the Internet's user base and extent of use have expanded beyond its scholarly beginnings. Dial-up fixed connection has given way to broadband, while mobile broadband was launched with each generational upgrade. Static personal computers gave way to smart gadgets and the Internet of Things (IoT). Lastly, services evolved from serial downloads and text-based chats to real-time multimedia interactions. When Tim Berners-Lee first envisioned the World Wide Web in 1989 in Geneva, it was a completely different Internet from what it is now. The Internet gained popularity as a result of its commercialization. From nearly zero users in 1990 to an estimated 5.4 billion users in only three decades, the Internet has grown gradually. 5.4 billion people, or over 67% of the world's population, are currently online. Compared to the 3.5% growth seen between 2021 and 2022, this indicates a rise of 4.7% since 2022. In 2023, the expected number of offline individuals dropped to 2.6 billion, or 33% of the world's population.

The evolution from ADSL to FTTH represents a quantum leap in broadband technology, with ADSL's copper-based infrastructure (offering ≤ 24 Mbps speeds and high latency) being progressively replaced by FTTH's fiber-optic networks capable of 10 Gbps symmetrical speeds and sub-5ms latency (ITU-T G.992.5 vs G.984, 2005-2020). While ADSL served as a cost-effective interim solution leveraging existing telephone lines, its limitations in bandwidth, reliability (susceptibility to EMI), and asymmetric speeds rendered it obsolete for modern applications like 4K streaming and cloud computing (OECD, 2020). FTTH's superior performance characteristics - including unlimited scalability, future-proof architecture for IoT/5G, and 60% lower energy consumption per bit (Corning, 2019) - have made it the global standard, with the FTTH Council Europe (2021) reporting 70% faster adoption rates in fiber-enabled markets compared to legacy copper networks. This transition reflects the telecommunications industry's response to exponentially growing data demands and the need for sustainable, high-performance digital infrastructure.

Myanmar's telecom sector has experienced a remarkable transformation since the political shift in 2010, when the country transitioned from military rule to an elected democracy. This change paved the way for significant economic and social reforms, with the telecom sector becoming a focal point for modernization. The government introduced the Framework of Economic and Social Reform (FESR) in early 2013, which emphasized the liberalization of mobile communications, broadband internet access, and investment in infrastructure. These reforms aimed to position Myanmar as a modern, connected nation, attracting both local and international interest in the telecom industry. A major milestone in this transformation was the enactment of the Myanmar Telecommunication Law (2013), which came into effect on 8 October 2013. This law allowed for the issuance of five categories of telecom licenses, including Nationwide Telecom Licenses, Network Facilities Services, Network Services and Application Services. By opening the market to competition, the law ended the era of monopoly and created a more dynamic and competitive environment. As a result, the Post and Telecommunications Department (PTD) issued a total of 265 licenses, enabling a diverse range of companies to provide telecom services.

Following the liberalization of Myanmar's telecom sector, mobile internet penetration has surpassed 100%, but fiber (FTTH) adoption remains extremely low at just 1.2 million users (2% of the population)-far behind neighboring countries like Thailand (18%) and Laos (2%), as well as developed nations such as Japan and China (40%+). With the global FTTH average at 18%, expanding high-speed fiber internet is critical to support education, healthcare, and e-commerce. Addressing infrastructure and adoption barriers will be key to accelerating Myanmar's digital growth. In recent years, the demand for high-speed internet has grown exponentially, driven by the increasing reliance on digital technologies for work, education, healthcare, and entertainment. FTTH (Fiber-to-the-Home) broadband is one of the most advanced solutions for delivering high-speed internet, offering unparalleled speed, reliability, and scalability. In Yangon Region's 45 townships, there are approximately 470,000 FTTH service users. The top five service providers in Yangon-Yatanarpon Teleport, 5BB, Horizon Telecom, Myanmar Net, and MBT-have been selected for evaluation. A survey will be conducted on the services provided by these five companies in Lanmadaw Township subscribing approximately 6000 user, one of the six downtown townships in Yangon. However, despite its benefits, the adoption of FTTH services in many

townships, including Lanmadaw Township, Yangon, remains limited due to various challenges such as high costs, lack of awareness, and service quality issues.

This study aims to address these challenges by identifying the key factors that enhance the adoption of FTTH broadband services and evaluating user satisfaction and its impact on customer retention. By focusing on Lanmadaw Township, this research provides localized insights that can help Internet Service Providers (ISPs) and policymakers improve FTTH infrastructure, pricing, and service quality, ultimately enhancing internet access for the community. The adoption of FTTH broadband services in Lanmadaw Township, Yangon, faces several challenges, including: **Low Adoption Rates:** Many residents and businesses are unable to access FTTH due to high costs or lack of awareness. **Service Quality Issues:** Users often experience slow speeds, frequent disconnections, and poor customer support, which hinder satisfaction and retention. **Affordability Concerns:** The high cost of FTTH services makes it inaccessible for low-income households and small businesses. **Customer Retention Challenges:** ISPs struggle to retain customers due to competition and poor service quality. The important characteristics that increase FTTH adoption and user happiness and customer retention are examined in this study to address these issues. The findings will help ISPs and governments enhance FTTH services and close the digital gap in Lanmadaw Township.

1.2 Objective of the Study

The objectives of this study are:

1. To Identify the key factor enhancing on the usage of FTTH Broadband services in Lanmadaw Township, Yangon and
2. To examine customer satisfaction with FTTH Broadband Services

1.3 Method of the Study

This study employs a quantitative methodology to analyze user experiences with FTTH broadband services. Numerical data was collected through a semi-structured survey questionnaire distributed to 200 FTTH users in Lanmadaw Township, which was selected due to its high concentration of broadband users. The respondents will be collected by five major ISPs providing FTTH services in the area: Yatanarpon Teleport, Global Technology, Horizon Telecom, Myanmar Net, and Myanmar Broad

band Telecom. The data aims to provide insights into factors enhancing of FTTH usage and customer satisfaction.

1.4 Scope and Limitation of the Study

The scope of this study is focused on Fiber-to-the-Home (FTTH) broadband services provided by five ISPs within Lanmadaw Township, Yangon, excluding other technologies like Fixed wifi, DIA, mobile broadband, and non-FTTH services. It investigates factors influencing FTTH usage, customer satisfaction, and service quality, targeting residents in the area. However, the study has limitations, including its geographical restriction to Lanmadaw Township, exclusion of non-users and other broadband technologies, reliance on self-reported data, and a sample size that may not fully represent the population. These constraints highlight the need for cautious interpretation of findings and suggest areas for future research.

1.5 Organization of the Study

Five chapters make up this thesis. Chapter One introduces the study's motivation, aim, techniques, scope, limitations, and organization. Chapter Two discusses the development of FTTH broadband service in the telecom sector, its definition and technology, its impact on digital empowerment, its good characteristics, and its penetration into fixed broadband internet access. Finally, review past research.

Chapter 3 covers Myanmar's telecom sector development, telecom regulatory reform, the Posts and Telecommunications Department's role, private sector telecom service participation, Yatanarpone Teleport (YTP), Global Technology Co.,Ltd (5BB), Horizon Telecom International (HTI), Frontiir (Myanmar Net), and Myanmar Broadband Telecom. Chapter Four covers survey profile, design, and results. Chapter Five concludes with conclusions, suggestions, and research directions.

CHAPTER II

LITERATURE REVIEW

2.1 Development of FTTH Broadband Service in Telecom Sector

The telecommunications sector has witnessed a significant transformation over the past decade, driven by the increasing demand for high-speed internet and reliable connectivity. Among the various technologies deployed to meet this demand, Fiber-to-the-Home (FTTH) has emerged as a leading solution. FTTH refers to the installation of optical fiber directly to individual residences, providing unparalleled bandwidth and speed compared to traditional copper-based networks. This technology has become a cornerstone in the development of broadband services, enabling telecom operators to deliver ultra-fast internet, high-definition video streaming, and low-latency applications such as online gaming and video conferencing (ITU, 2021).

The adoption of FTTH broadband services has been fueled by the exponential growth in data consumption worldwide. With the proliferation of smart devices, Internet of Things (IoT) applications, and cloud-based services, consumers and businesses alike require robust and scalable connectivity solutions. FTTH addresses these needs by offering symmetrical upload and download speeds, which are essential for activities such as remote work, virtual learning, and telemedicine. Moreover, FTTH networks are future-proof, as they can support emerging technologies like 5G, augmented reality (AR), and virtual reality (VR) without requiring significant infrastructure upgrades (GSMA, 2022).

Despite its advantages, the deployment of FTTH broadband services faces several challenges. One of the primary obstacles is the high initial investment required for laying fiber optic cables and building the necessary infrastructure. This includes costs associated with trenching, permits, and labor, which can be particularly prohibitive in rural or underserved areas. Additionally, the installation process can be disruptive, requiring extensive digging and construction work. To overcome these challenges, governments and telecom operators have increasingly collaborated on public-private partnerships (PPPs) to share costs and accelerate deployment.

Regulatory reforms, such as streamlined permitting processes and tax incentives, have also played a crucial role in facilitating FTTH expansion (OECD, 2020).

The competitive landscape of the telecom sector has further driven the development of FTTH broadband services. As traditional revenue streams from voice and SMS services decline, telecom operators are increasingly focusing on broadband as a key growth area. FTTH has become a strategic differentiator, allowing operators to attract and retain customers by offering superior service quality. In many markets, the presence of multiple FTTH providers has led to increased competition, resulting in lower prices and improved service offerings for consumers. This competitive dynamic has also spurred innovation, with operators investing in advanced technologies such as wavelength-division multiplexing (WDM) and passive optical networks (PONs) to enhance network performance (Fiber Broadband Association, 2023).

Looking ahead, the future of FTTH broadband services appears promising, with significant growth potential in both developed and developing regions. In developed markets, the focus is on upgrading existing networks to support higher speeds and greater capacity, while in developing regions, the emphasis is on expanding coverage to bridge the digital divide. Governments and international organizations are also playing a pivotal role by setting ambitious targets for universal broadband access. For instance, the European Union's "Gigabit Society" initiative aims to ensure that all households have access to internet speeds of at least 1 Gbps by 2030 (European Commission, 2021). Such initiatives underscore the importance of FTTH in achieving global connectivity goals.

In conclusion, the development of FTTH broadband services has revolutionized the telecom sector, offering a reliable and scalable solution to meet the growing demand for high-speed internet. While challenges such as high deployment costs and regulatory hurdles persist, collaborative efforts between stakeholders and technological advancements are paving the way for widespread adoption. As the world becomes increasingly interconnected, FTTH will continue to play a critical role in shaping the future of broadband connectivity, driving economic growth, and enhancing the quality of life for millions of people worldwide.

2.2 Fiber to the Home (FTTH) Technology: Definition and Overview

Fiber to the Home (FTTH), also known as Fiber to the Premises (FTTP), uses optical fiber to offer high-speed broadband internet to homes, apartments, and businesses. Fiber optic cables composed of tiny strands of glass or plastic may carry data over great distances using light signals that are less prone to interference and signal loss than copper cables. The characteristics guarantee much faster and more efficient data transmission compared to traditional broadband networks and make FTTH an ideal choice for providing internet access to residential and commercial customers in urban, suburban, and rural areas.

FTTH technology is part of the broader Fiber to the X (FTTx) family, which includes Fiber to the Building (FTTB), Fiber to the Curb (FTTC), and Fiber to the Node (FTTN). The key distinction of FTTH is that the fiber-optic connection extends all the way to the customer's premises, eliminating the signal degradation associated with copper-based solutions (Rao & Kumar, 2012). This results in symmetrical upload and download speeds, low latency, and enhanced reliability, making FTTH the preferred choice for modern digital applications, including remote work, telemedicine, online education, and smart home integration.

The deployment of FTTH networks requires substantial investment in infrastructure, including fiber-optic cables, optical network terminals (ONTs), and passive optical network (PON) components. Despite high initial costs, FTTH offers long-term economic and technological benefits, including lower maintenance expenses, energy efficiency, and scalability for future broadband demands (Alavi et al., 2017).

An FTTH network's core is made up of various essential parts:

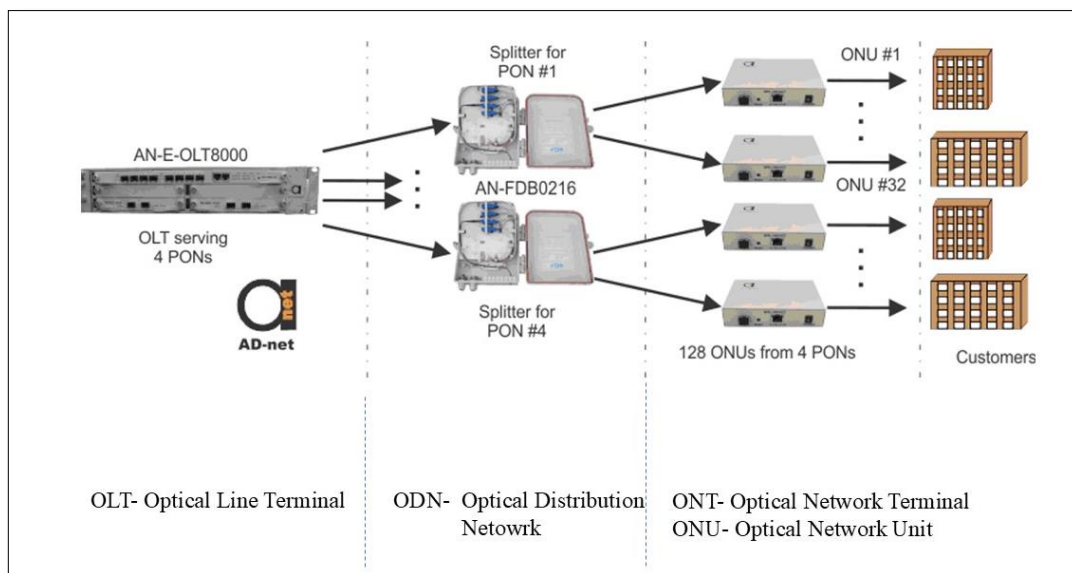
Optical Line Terminal (OLT): The OLT, located in the service provider's central office, efficiently handles network traffic by converting electrical impulses into light signals.

Optical Distribution Network (ODN): Optical fibers and splitters deliver light signals from the OLT to various Optical Network Terminals in this passive network.

Optical Network Terminal (ONT): FTTH (Fiber to the Home) systems require ONTs. The terminus of the fiber-optic cable at the customer's premises converts optical signals into electrical signals for devices like computers, TVs, and phones. ONTs connect to local networks via Ethernet ports to enable internet, telephony, and IPTV services (Cisco, 2021).

FTTH networks are in demand because bandwidth-intensive applications like telecommuting, online gaming, and HD video streaming require fast, dependable internet. FTTH's electromagnetic interference resistance and low signal degradation over long distances give consumers and companies quicker and more consistent connections as digitalization develops. Fiber optics-based FTTH's scalable infrastructure can handle future data demand growth without major improvements. FTTH is a sustainable solution for present and future digital demands, preserving its relevance as technology evolves (Green & Lee, 2021).

Figure (2.1) FTTH (Fiber to the Home) Network



Source: <https://www.ad-net.com.tw/introduction-to-olt-optical-line-terminal-and-ont-optical-network-terminal-onu-optical-network-unit/>

2.3 Importance of FTTH Broadband on Digital Empowerment and Good Characteristics of FTTH

The digital revolution has changed the way people, businesses, and governments work. High-speed internet is becoming essential for digital economy participation. FTTH internet technology, which distributes optical fiber directly to homes and businesses, is essential to digital empowerment. (ITU, 2021).

Bridging the Digital Divide: In rural and underdeveloped locations, FTTH helps bridge the digital divide by offering high-speed internet. For the UN Sustainable Development Goals, the International Telecommunication Union (ITU) recommends reliable broadband. FTTH gives remote residents access to online education,

healthcare, and government services, boosting social and economic participation (World Bank, 2020).

Enabling Economic Growth: High-speed internet boosts economic growth. By supporting e-commerce, cloud computing, and digital marketing, FTTH helps SMEs expand. A study by the Fiber Broadband Association (2020) found that communities with FTTH networks experienced higher GDP growth compared to those without. Additionally, FTTH supports the gig economy by providing the bandwidth required for remote work and freelancing (OECD, 2019).

Revolutionizing Education: FTTH broadband transforms the educational landscape by providing reliable and fast internet connections essential for e-learning platforms, virtual classrooms, and access to vast online resources. Students in remote areas gain the ability to participate in online courses, access digital libraries, and collaborate with peers globally, thereby enhancing the quality of education and promoting lifelong learning. The COVID-19 pandemic underscored the necessity of robust internet connections for uninterrupted learning, a need effectively met by FTTH infrastructure.

Supporting Smart Cities and IoT: The deployment of FTTH is essential for the development of smart cities and the Internet of Things (IoT). High-speed, low-latency connectivity is required for smart infrastructure, such as traffic management systems, energy grids, and public safety networks. FTTH provides the backbone for these technologies, enabling efficient urban management and improved quality of life (Cisco, 2022).

Advancing Healthcare Services: In the healthcare sector, FTTH broadband enables telemedicine, remote patient monitoring, and the efficient exchange of medical data. Patients can consult healthcare professionals virtually, reducing the need for travel and expediting access to medical advice. This is particularly beneficial in rural or underserved regions where medical facilities may be scarce. High-speed connections ensure the transmission of high-quality video consultations and large medical files, such as imaging data, facilitating better diagnosis and treatment plans.

Promoting Social Inclusion: Access to FTTH broadband fosters social inclusion by connecting individuals to social networks, government services, and community resources. It empowers marginalized groups by providing platforms for

voice and participation in societal discourse. For instance, persons with disabilities can utilize assistive technologies that rely on high-speed internet, enabling greater independence and integration into society.

Supporting Environmental Sustainability: FTTH networks contribute to environmental sustainability. Fiber-optic technology is more energy-efficient compared to traditional copper-based networks, reducing the carbon footprint of data transmission. Additionally, high-speed internet facilitates telecommuting, decreasing the need for commuting and, consequently, lowering greenhouse gas emissions. A report by the Inter-American Development Bank highlights that FTTH requires less energy to transmit data over longer distances, enhancing energy efficiency.

High Bandwidth: FTTH offers significantly higher bandwidth compared to traditional broadband technologies like DSL and cable. This allows for seamless streaming, gaming, and downloading, even during peak usage hours. The symmetrical upload and download speeds of FTTH are particularly beneficial for businesses and content creators (Fiber Broadband Association, 2020).

Reliability and Low Latency: FTTH networks function consistently due to low interference and signal deterioration. Real-time applications like video conferencing, online gaming, and financial transactions require FTTH's low latency (Cisco, 2022).

Scalability: FTTH networks are highly scalable, capable of supporting future increases in data demand without requiring significant infrastructure upgrades. This makes FTTH a future-proof investment for both service providers and consumers (OECD, 2019).

Energy Efficiency: FTTH networks use less energy than copper-based networks, decreasing broadband's carbon impact. This supports worldwide sustainable development and climate change efforts (GSMA, 2021).

Security: FTTH networks are more secure than wireless or copper-based networks, as they are less vulnerable to hacking and eavesdropping. This is particularly important for businesses and governments that handle sensitive data (ITU, 2021).

FTTH broadband is a transformative technology that drives digital empowerment by providing high-speed, reliable, and scalable internet connectivity. Its ability to bridge the digital divide, support economic growth, and enable innovative

applications makes it indispensable in the digital age. The superior characteristics of FTTH, including high bandwidth, reliability, and energy efficiency, further underscore its importance as a foundation for modern connectivity. As the world continues to embrace digital transformation, the widespread deployment of FTTH will be crucial for achieving inclusive and sustainable development (World Bank, 2020).

2.4 Fixed Broadband Internet Access Penetration: Focus on Fiber-to-the-Home (FTTH)

Fixed broadband internet access penetration is a critical measure of internet connectivity, reflecting the proportion of households or individuals in a specific geographic area with access to fixed broadband technologies. Among these technologies, Fiber-to-the-Home (FTTH) stands out as a leading solution for high-speed, reliable internet access. FTTH involves the use of fiber-optic cables to deliver broadband directly to residences, offering significantly faster speeds and greater bandwidth compared to traditional technologies like DSL or cable. This paper explores the role of FTTH in fixed broadband penetration, focusing on global variations, regional differences, government initiatives, private sector contributions, and technological advancements.

2.4.1. Global Variations in FTTH Penetration

The adoption of FTTH varies significantly across countries, influenced by factors such as “economic development, regulatory frameworks, and infrastructure investment”. Developed nations with robust economies, such as South Korea, Japan, and Sweden, have achieved high FTTH penetration rates due to early investments in fiber-optic infrastructure. For instance, South Korea leads globally, with over 80% of households connected to FTTH, driven by government support and a competitive ISP market.

In contrast, developing countries often face challenges in deploying FTTH due to “high costs, limited infrastructure, and geographical barriers”. For example, in many African nations, FTTH penetration remains low, with less than 10% of households having access. However, international organizations like the “International Telecommunication Union (ITU)” and the “World Bank” are working to bridge this

gap by promoting global broadband initiatives and providing funding for infrastructure development.

The ITU's annual reports highlight these disparities, offering insights into the progress of FTTH adoption worldwide. These reports emphasize the need for public-private partnerships and international collaboration to accelerate FTTH deployment in underserved regions.

2.4.2 Regional Differences in FTTH Deployment

Within regions, FTTH deployment often reflects a divide between urban and rural areas. Urban centers, with their higher population densities and greater economic activity, tend to attract more investment in fiber-optic infrastructure. For example, in the United States, cities like New York and Los Angeles have extensive FTTH networks, while rural areas lag behind due to the high costs of deploying fiber in sparsely populated regions.

In Europe, countries like Spain and Portugal have made significant strides in expanding FTTH to rural areas through government-led initiatives and subsidies. Similarly, in Asia, China has achieved remarkable progress in FTTH deployment, with over 90% of urban households and a growing number of rural households connected to fiber-optic networks.

Regional economic organizations, such as the European Commission and the Asia-Pacific Economic Cooperation (APEC), play a crucial role in promoting FTTH adoption. Their reports and policies often highlight the importance of addressing the urban-rural divide to ensure equitable access to high-speed internet.

2.4.3 Government Initiatives and Policies Supporting FTTH

Government policies and initiatives are pivotal in driving FTTH adoption. Many countries have implemented national broadband plans to expand fiber-optic infrastructure and reduce digital disparities. For example:

- South Korea's government has invested heavily in FTTH infrastructure since the early 2000s, resulting in one of the world's most advanced broadband networks.
- Australia's National Broadband Network (NBN) initiative aims to provide FTTH access to 93% of households by 2025, with a focus on underserved rural areas.
- India's BharatNet project seeks to connect over 600,000 villages with fiber-optic networks, prioritizing rural and remote regions.

Regulatory policies also play a key role in fostering competition and encouraging private sector investment in FTTH. For instance, open-access policies, which allow multiple ISPs to use the same fiber infrastructure, have been successful in countries like Sweden and Singapore. These policies reduce duplication of infrastructure and lower costs for consumers.

Publications from government agencies, such as the Federal Communications Commission (FCC) in the U.S. and the European Telecommunications Network Operators' Association (ETNO), provide valuable insights into the impact of these policies on FTTH penetration.

2.4.4 Private Sector Contributions to FTTH Expansion

The private sector is a major driver of FTTH deployment, with Internet Service Providers (ISPs) investing heavily in fiber-optic infrastructure. Companies like Google Fiber, Verizon Fios, and China Telecom have played a significant role in expanding FTTH access in their respective regions.

In the U.S., Google Fiber's entry into the broadband market spurred competition and accelerated FTTH deployment by other ISPs. Similarly, in Europe, companies like Deutsche Telekom and Orange have invested billions in fiber-optic networks, often in collaboration with government initiatives.

Financial reports and industry analyses reveal the strategies employed by ISPs to expand FTTH coverage. For example, many ISPs are adopting fiber-sharing agreements to reduce costs and accelerate deployment. Additionally, the rise of fiber wholesalers, such as Openreach in the UK, has enabled smaller ISPs to offer FTTH services without building their own infrastructure.

2.4.5 Technological Advancements in FTTH

FTTH technology continues to evolve, offering faster speeds and greater reliability. Recent advancements include:

- XGS-PON (10-Gigabit Symmetrical Passive Optical Network): This next-generation technology offers up to 10 Gbps, making it perfect for 4K streaming and virtual reality.

- Wavelength Division Multiplexing (WDM): This technique transmits many data streams across one cable, enhancing capacity and efficiency.

Smart fiber networks use AI and ML for predictive maintenance and optimal performance.

Industry reports from organizations like the Fiber Broadband Association and the Broadband Forum highlight these advancements and their potential to transform broadband connectivity. As FTTH technology continues to improve, it is expected to play an increasingly important role in achieving global digital inclusion.

Fiber-to-the-Home (FTTH) is a cornerstone of fixed broadband internet access, offering unparalleled speed and reliability. While global and regional disparities in FTTH penetration persist, government initiatives, private sector investments, and technological advancements are driving progress. By addressing challenges such as high deployment costs and the urban-rural divide, stakeholders can ensure that FTTH becomes a universal solution for high-speed internet access, fostering digital inclusion and economic growth worldwide.

2.5 Technology Acceptance Model (TAM) – Detailed Explanation

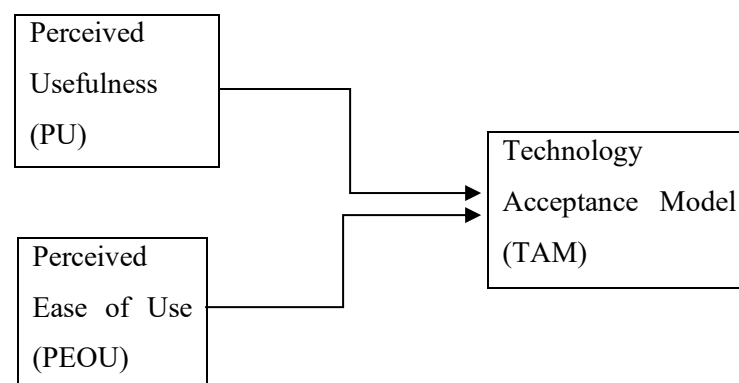
The Technology Acceptance Model (TAM), developed by Fred Davis (1989), is one of the most widely used theories to explain how users accept and adopt new technologies. It focuses on two key determinants:

Perceived Usefulness (PU) "Will FTTH improve my internet experience?"

Perceived Ease of Use (PEOU) "Is FTTH easy to install and use?"

PU: Focus on performance gains (speed, reliability) and relative advantage over alternatives. PEOU: Target usability (setup, interface, support) to assess frictionless adoption. These factors influence a user's attitude toward using the technology, which in turn affects their behavioral intention to use and actual usage.

Figure (2.1) The Conceptual Framework of TAM



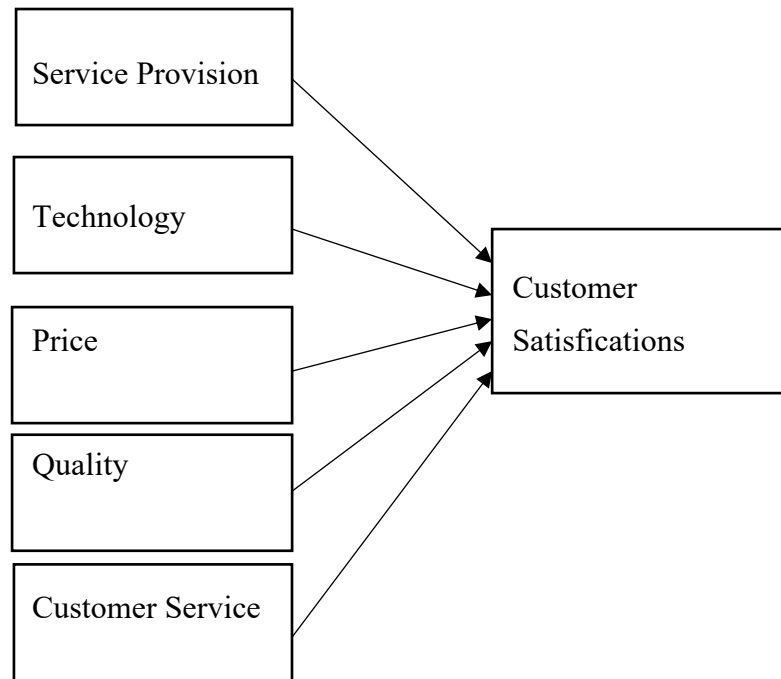
Source: Own Compilation based on TAM (2025)

Application of TAM to FTTH Broadband Services, Perceived Usefulness (PU) means users adopt FTTH if they believe it offers faster speeds, reliability, and better streaming/gaming experiences. Perceived Ease of Use (PEOU) means if installation is simple and user-friendly, adoption increases. TAM provides a strong theoretical foundation for analyzing FTTH adoption by focusing on usefulness and ease of use.

2.6 Customer Satisfaction

The evaluation of customer satisfaction in FTTH broadband services hinges on five interlinked factors: service provisioning, technology, price, quality, and customer service. Service provisioning – the efficiency of installation and activation processes – forms the first touchpoint, where delays or complications can immediately diminish satisfaction (Akamavi et al., 2015; Gerpott & Thomas, 2014). The technological dimension, encompassing measurable parameters like speed and latency (Lee & Lee, 2021), must align with subjective user expectations, as discrepancies between advertised and actual performance frequently drive dissatisfaction (Kim et al., 2019). Price perceptions extend beyond absolute cost to encompass value relativity and transparency, with customers weighing service benefits against monetary outlays (Oliver & Swan, 1989; Zeithaml, 1988). Quality, operationalized through SERVQUAL's five dimensions (Parasuraman et al., 1988), is increasingly defined by consistency rather than peak performance, as evidenced by regulatory shifts toward typical-speed disclosure (Ofcom, 2023). Finally, customer service acts as both a satisfier and recovery mechanism, where effective complaint resolution can paradoxically enhance post-failure loyalty (Singh, 1988; Bitner et al., 1990), particularly when supported by 24/7 accessibility and first-call resolution (Hassan et al., 2020). Collectively, these factors operate within the service-profit chain (Heskett et al., 1994), where internal service quality (technology/provisioning) drives external value (price/quality), ultimately mediated by customer service efficacy to determine overall satisfaction and retention outcomes.

Figure (2.2) The Conceptual Framework of Customer Satisfaction



Source: Own Compilation based on Customer Satisfaction (2025)

2.7 Review on Previous Studies

Kim and Park (2016) investigated the impact of service quality on customer satisfaction and loyalty in FTTH broadband services. The study finds that reliability, speed, and responsive customer support are key determinants of customer satisfaction. Customers who perceive FTTH services as high-quality are more likely to remain loyal and continue using the service. The authors emphasize that providers must prioritize consistent service delivery and address customer concerns promptly to enhance satisfaction and retention. These findings highlight the importance of service quality as a critical factor in driving FTTH usage and ensuring long-term customer loyalty.

Lei Hninn Zin (2019) studied on users' perceptions of telecommunication sector liberalization in Myanmar provides valuable insights into the socioeconomic impacts of the 2014 liberalization. The research, conducted through a survey of 264 mobile users in Yangon, highlights significant improvements in service accessibility, affordability, and quality following the liberalization. These changes have contributed to enhanced digital inclusion, expanded economic opportunities, and improved access to education. In the context of FTTH broadband, the study underscores the importance of a competitive telecom market in driving innovation and improving service quality.

The findings emphasize the need for robust regulatory frameworks that promote fair competition among service providers, which is essential for the successful deployment and expansion of FTTH services. This study offers a foundational understanding of how liberalization can transform the telecom sector and its broader socioeconomic implications.

Sai Nyan Lynn Swe 2019 examined the factors influencing customer satisfaction with fixed broadband internet services, including FTTH, in Yangon, drawing insights from a survey of 376 users across multiple providers such as Yatanarpon Teleport, 5BB, Fortune Telecom, and Myanmar Net. The research highlights service provisioning, pricing, quality, and customer support as critical determinants of satisfaction, with competitive pricing and service reliability emerging as the most influential factors. The study underscores the necessity for continuous infrastructure improvements and transparent pricing strategies to maintain customer trust and loyalty. Additionally, it advocates for regulatory policies that foster competition and innovation among service providers, ensuring a higher standard of service delivery and customer satisfaction in the broadband market.

The study by Chen, X., Li, Y., & Wang, J. (2022), examined "Factors Enhancing FTTH Usage in Shanghai, China," explores the key drivers of Fiber-to-the-Home (FTTH) broadband adoption in Shanghai using a mixed-methods approach, including surveys of over 1,200 users and interviews with service providers, experts, and government officials. The research identifies high-speed internet performance, service reliability, competitive pricing, value-added services (e.g., IPTV, smart home integrations), and effective customer support as critical factors enhancing FTTH usage. Additionally, government initiatives like subsidies and public-private partnerships significantly promote adoption. The study highlights that users are more likely to adopt FTTH when they perceive clear benefits, such as faster speeds, low latency, and seamless multi-device connectivity. It offers actionable recommendations, including tiered pricing, improved transparency, and infrastructure investment, providing valuable insights for stakeholders aiming to increase broadband adoption in urban regions.

CHAPTER III

OVERVIEW OF THE MYANMAR TELECOM INDUSTRY

This chapter provides Development of Telecom Sector in Myanmar, Telecom Regulatory Reform in Myanmar, Roles of Posts and Telecommunications Department, including the historical background. It highlights the profiles of selected Internet Service Provider (ISP) companies, such as Yatanarpon Teleport, 5BB (GlobalNet), Horizon Telecom, Myanmar Net (Frontiir), and MBT. Additionally, it outlines the current internet service plans and value-added services offered by ISPs in Myanmar.

3.1 Development of Telecom Sector in Myanmar

Before 2013, Myanmar's telecommunications sector was entirely controlled by the government. In less developed regions, the government was solely responsible for funding and managing telecom services. At the time, under the state-owned enterprises law, only the government was permitted to operate in the telecom industry, with Myanma Posts and Telecommunications (MPT) serving as the sole provider of telecom services for more than 130 years.

This changed in 2014 when the government introduced the Telecommunications Law, which allowed private companies to enter the sector, marking the beginning of its liberalization. The Ministry of Transport and Communications (MOTC) has been driving the government's telecom reform agenda. Significant milestones include the passage of the 2014 Telecommunications Law, the deregulation of the market, and the development of key regulatory frameworks addressing connectivity, frequencies, access, licensing, and competition. Ooredoo company and Telenor company were issued licenses on (5-2-2014). The local operator MyTel was issued license on 12th January 2017.

The government's communication requirements are being addressed through a competitive market involving two local and two foreign operators. This competition has allowed citizens to enjoy reliable and high-quality telecommunications services at lower costs. Myanmar is currently in the process of expanding its telecommunications infrastructure, partnering with international mobile firms and undertaking extensive regulatory reforms. This ambitious effort requires a commitment to corporate social

responsibility to promote digital rights and potentially foster greater freedom of expression in the nation.

Myanmar’s telecom expansion involved major infrastructure development, foreign investment, and regulatory changes. These reforms encouraged corporate social responsibility, digital rights, and greater freedom of expression. The liberalization of the sector led to a significant increase in connectivity, with telecom’s contribution to GDP rising from 2.7% (2012-2013) to 4.8% (2014-2015). By 2015, tele-density reached 35.7%, marking substantial progress in the country’s digital transformation.

Table (3.1) Improvement of Mobile Phone and Internet User in Myanmar

Fiscal Year	Number of Fixed Phones	Number of Mobile Phones	Number of Internet User
2011/2012	476,352	1,637,637	692,443
2012/2013	530,473	3,804,507	1,092,121
2013/2014	533,883	7,725,573	2,777,218
2014/2015	52,6,792	27,568,244	17,988,570
2015/2016	521,626	49,414,671	39,608,778
2016/2017	516,831	54,783,425	37,847,723
2017/2018	520,372	53,161,259	50,298,435
2018/2019	522,760	73,659,541	58,984,161
2019/2020	524,205	78,574,916	76,691,381
2020/2021	524,847	75,060,582	68,045,542
2021/2022	526,312	61,349,880	54,505,592
2022/2023	538,939	60,411,874	55,792,024

Source: Various Myanmar Statistical Year Book

Table (3.1) shows Myanmar's phone count. The number of landline phones is decreasing while mobile phones are rising. The mobile phone is more convenient than the landline phone. Customers can only utilize fixed phones in one place with a wired telephone network connection. Mobile phones function anyplace a wireless network is active.

As shown in table (3.1), the data illustrates a clear and consistent upward trend in internet usage over the twelve-year period from 2011/2012 to 2022/2023. Starting at approximately 10 million users in 2011/2012, the number grew steadily, reaching 90 million by 2022/2023- a ninefold increase. The growth was particularly strong in the

early years, with user numbers rising by roughly 10 million annually until 2017/2018. From 2018/2019 onward, the rate of increase slowed slightly but remained robust, reflecting near-universal adoption in later years. This trend highlights the rapid expansion of digital connectivity, driven by technological advancements, infrastructure development, and the increasing integration of the internet into daily life. The data underscores the internet's transformation from a luxury to a global necessity, shaping economies, education, and social interactions worldwide.

3.2 Telecom Regulatory Reform in Myanmar

Myanmar's Posts and Telecommunications Department regulates telecom. The Ministry of Transport and Communications oversees it. Before 1960, the Departments of Posts and Telegraphs controlled posts and telegraphs separately. On January 25, 1960, they became the Department of Posts and Telegraphs. On March 15, 1972, the agency was split into the Posts and Telecommunications agency and the Telecommunications Corporation, currently Myanmar Posts and Telecommunications.

The Myanmar government has stressed that ICT growth is essential to the nation's development. The Ministry of Transport and Communications has improved the sector by building communication networks, adopting modern technologies to deliver high-quality services, and implementing local and international ICT cooperation programs.

Once Myanmar gained independence, postal and telegraph services were run separately. These became the Departments of Posts and Telegraphs in 1960. After the consolidation into the Department of Posts and Telegraphs on January 25, 1960, the Ministry of Transport and Communications oversaw communications. The department had a Director General and Directors of Posts and Telegraphs, who oversaw 11 postal divisions, 2 wireless divisions, and 3 telegraph divisions.

The Revolutionary Council reorganized the Ministry of Transport and Communications into the Posts and Telecommunications Department (responsible for regulating and supervising ICT sectors under local and international laws) and the Telecommunications Corporation on March 15, 1962. On January 29, 1992, the State Law and Order Restoration Council split the ministry into the Ministries of Transport, Railway Transport, and Communications, Posts, and Telegraphs. This reform sought to boost economic growth, overall development, transportation and communication.

The Ministry of Communications, Posts, and Telegraphs had two departments and one enterprise: Myanmar Posts and Telecommunications, Meteorology and Hydrology, and Posts and Telecommunications. The Department of Meteorology and Hydrology was moved to the Ministry of Transport on August 20, 1999, for procedural reasons.

The Posts and Telecommunications Department regulates Myanmar's ICT industry. It represents the nation in worldwide ICT conferences. Organizationally, the department has changed multiple times. It was founded as a Grade 3 department in March 1972 with 9 executives, 40 staff, and 49 workers. Following Cabinet approval (7/99), it was reformed into a Grade 2 department with 16 officials, 61 staff, and 77 workers on February 11, 1999. Later, with Cabinet permission (3/2013), it was promoted to a Grade 1 department with 196 officials, 623 personnel, and 819 workers on January 17, 2013. Finally, with Cabinet permission (2/2015), the department was restructured on January 15, 2015, with 163 officials, 566 personnel, and 729 workers, preserving Grade 1 rank.

3.3 Roles of Posts and Telecommunications Department

Posts and Telecommunications Department (PTD) purchased frequency spectrum monitoring equipment to avoid frequency interference. PTD collects spectrum and licensing payments from local and foreign telecommunications firms that competed under international criteria. Its major job is inspecting and monitoring Telecommunications Services Licensees' compliance with the License Agreement and performing QoS and Drive Tests for service coverage. PTD must efficiently use the nation's limited frequency spectrum, telecommunications numbering, and electronic addressing. It must keep the telecommunications sector competitive and provide high-quality, affordable services to the people. According to legislation, PTD must safeguard telecommunications service providers and users. To efficiently oversee the telecommunications sector, PTD wants to establish Myanmar Communications Regulatory Commission and Universal Service Fund for universal service programs. Covering over 90% of the population with telecommunications is its goal.

The Myanmar Telecoms Law was enacted in October 2013 after PTD sought to adopt it after late 2012 liberalization. It has five Rules: Licensing, Interconnection,

Competition, Numbering, Spectrum. The law instructs MNOs on mobile user registration and international gateway services.

Two new Integrated Nationwide Licenses were granted by PTD on February 5, 2014. It granted MPT an Integrated Nationwide License on March 24, 2015, and My Tel a Fourth License on January 12, 2017. PTD has issued 265 licenses, including 4 Nationwide Telecommunications Licenses, 106 Network Facilities Service (Individual) Licenses, 30 Network Service Licenses, 73 Network Facilities Service (Class) Licenses, and 52 Application Service Licenses. A total of 265 communication licenses has been granted, and communication infrastructure along with FTTH internet services are being provided across the entire nation of Myanmar.

3.4 Private Sector Participation in Telecom Services

Prior to 2014, Myanmar's telecommunications industry was dominated by the government, with the state-owned MPT operating both fixed and mobile networks. The government also maintained strong control over the media sector, where private and opposition-affiliated entities had minimal presence. Recognizing the need for private investment to meet national development goals, Myanmar introduced reforms to open up the telecom market.

The government passed the Union Law No. (31) to modernize the sector, granting licenses to international telecom companies Ooredoo and Telenor on February 5, 2014. Later, the domestic operator MyTel was licensed on January 12, 2017. This created a competitive market with two local and two foreign operators, improving service quality and lowering costs for consumers.

As of now, PTD has distributed 265 communication licenses, including four Nationwide Telecommunications Licenses, along with numerous Network Facilities Service (Individual) Licenses, Network Service License, Network Facilities Service (Class) Licenses, Application Service Licenses. These licenses support the expansion of telecom infrastructure, ensuring FTTH internet services are available across Myanmar. **Appendix II** shows that there are 46 licensees providing FTTH services in Yangon.

By analyzing table (3.2) the telecom sector's evolution, fueled by private sector participation, is evident in the dramatic rise of both teledensity and its economic contribution. In 2011/2012, teledensity began at a modest level, but over the decade, it

surged to over 90 million subscribers- a growth trajectory enabled by private investment in infrastructure, competitive service offerings, and expanded coverage. Parallel to this, the share of telecom GDP climbed from a marginal figure to a significant portion of the national economy, peaking at nearly 6% of total GDP. This correlation underscores how private enterprises transformed the sector: by driving subscriber growth, they simultaneously amplified its macroeconomic impact. The dual expansion of connectivity and economic value highlights the success of market liberalization, demonstrating that private capital and innovation are pivotal to sustainable sectoral development.

Table (3.2) Teledensity and Share of Communications GDP

Fiscal Year	Mobile User	Teledensity (%)	Share of Communications GDP (%)
2011/2012	2113989	4.1	0.96
2012/2013	4334980	8.4	2.69
2013/2014	8259456	16.0	3.16
2014/2015	27568244	53.5	4.58
2015/2016	49936297	97.0	4.67
2016/2017	55300256	107.4	4.92
2017/2018	53681631	104.3	5.13
2018/2019	74182301	144.1	2.60
2019/2020	79099121	153.6	2.77
2020/2021	75585429	146.8	3.05
2021/2022	61876192	120.2	2.33
2022/2023	60950813	118.4	3.18

Source: Various Myanmar Statistical Year Book

3.5 Profile and Services of Selected FTTH Internet Service Providers in Yangon

In this study, selected Internet Service Provider companies in Yangon are (1) Yatanarpon Teleport (YTP) (2) Global Technology Co.,Ltd (5BB) (3) Horizon Telecom International Co.,Ltd (HTI) (4) Frontiir Company Limited (Myanmar Net), (5) Myanmar Broadband Telecom (MBT).

3.5.1 Yatanarpon Teleport (YTP)

With an ultimate vision to be remained as the leading ISP in Myanmar, Yatanarpon Teleport, backed with talented professionals, continues its legacy since 2001 in the industry. Based in Yangon, widespread backbone network infrastructure, data centers, fully equipped NOC, 24/7 helpdesk, customers' support teams, YTP is serving Corporate, Business and Residential customers in Yangon, Mandalay and Pyin Oo Lwin offering Internet services on optic fiber and Fiber-To-The-X technology that can carry enormous unlimited amount of data packages at speeds up to 1 Gbps. We proudly claim as a largest ISP In the wired broadband category, and the largest non-telco ISP in Myanmar.

YTP vision is by constantly probing for technological innovation to provide performance- enhancing products and striving for the highest standard of services, YTP continues to champion the advancement of internet service provider in Myanmar that creates radical social transformation. YTP mission is deploying cutting edge technology to continuously innovate vast array of tailored made services for each and every need of customers, setting up new operational excellence standard, offering new benchmarks for customer care with real time support, providing a vibrant and fulfilling work environment for our team members.

YTP provide various types of services like: Metro Ethernet (Dedicated Internet Access), IP Transit, FTTX (Fiber to the Home), Broadband Wireless, MPLS VPN Domestic, Data Center service, Co-LoNET, Co-Location, Public IP, Domain Name Registration, Web hosting, Certification Authority Service (Sign& Encryption, SSL (Server, Client), Wildcard SSL).

YTP provides various affordable plan for FTTH services starting 25 Mbps for 34,155 ks, 30 Mbps for 45,425 ks, 40 Mbps for 60,375 ks, 50 Mbps for 83,260 ks and 70 Mbps for 109,480 ks.

3.5.2 Global Technology Co.,Ltd (5BB)

Global Technology is Myanmar's flagship of innovation and leading business conglomerate in Telecom, Media and Technology Industry. Leading the young, active, organic and integrated ability business organization implementing in a group of various sectors mainly in TMT (Telecom, Media, Technology), in the Republic of the Union of Myanmar since 2002. With over 23 years' experience, Global Technology has strong visions to transform our group to innovative and advance technology group cover in the area of infrastructure development, media & entertainment industry and digital solutions. Global Technology offers integrated ICT solutions for mobile, voice, and data infrastructure, managed services, cloud computing, IT services, and professional consulting to businesses and governments.

All the critical infrastructure services like financial institutions, banking, ATM network, central bank network, credit bureau and air traffic control network are using Global Technology infrastructure. 5BB is a key brand of Global Technology which relied all of its infrastructure on Global Technology as Internet broadband service provider. As a second portfolio of Global Technology, world leading content providers including Google, Netflix and leading games and entertainment content peering services are also another unique position of the organization. Digital solutions and system integration portfolio provide cloud computing, managed services, cloud first connectivity infrastructure which enable digital transformation for the thousands of Myanmar businesses including public sector such as YCDC building permit system used Global Technology cloud and real time fiber connectivity to provide services to the people of Yangon.

Global Tech Digital Life strives for digital leadership. It emphasizes digital marketing, data analytics, and other opportunities. With its large regional customer base, payment mechanisms, data analytics engine, and extensive customer touch points, Global Technology aims to create and seize opportunities that add value to its core business while helping customers discover new and amazing experiences through digital services.

Global Technology is a member of World Economic Forum as Tech Titan Company of Myanmar. To step to the next era, Global Technology is partnership to

salesforce, G-Suite, workplace, Velocloud, aws and VMware (Cloud masters). CSR Excellence Awards: Global Technology became a gold member of the AMCHAM Myanmar CSR awards in 2019 for their constant efforts in creating long-term economic and social benefits in Myanmar communities. Being a gold member means that Global Tech has been awarded for the past 4 consecutive years. Global Technology contribute COVID-19 Donations to Various Hospitals and healthcare center across the country as well as PPE & Mask Donations, Emergency Response Network, and WiFi installations in Phaung Gyi, COVID 19 Center of Myanmar.

Global Technology received the 2015 Network Facilities Services (Individual) License. Telecommunications services such network facilities, network, and application services are provided by these licenses in Myanmar. On October 2016, Global Technology won 2.6 GHz Spectrum License Wireless Broadband Access (4G + LTE) at the Naypyitaw Spectrum Auction. Global Technology was granted International Gateway License in 2017. In Myanmar, the business of installing, operating and maintaining a nationwide telecommunication network infrastructure, the business needs Nationwide Network Facilities Services (Individual) License and Right of Way Permission from Respective Regional Government. Global Technology was granted the full flash of these licenses.

Global Net (5BB) offer various internet plans categorized by speed (Mbps), price, and type (Prepaid or Postpaid). The Prepaid plans range from 34 Mbps at 31,000 to 50 Mbps at 51,500, offering flexibility for users who prefer upfront payment. On the other hand, the Postpaid plans provide options from 10 Mbps at 26,000 to 40 Mbps at 51,500, catering to those who prefer billing at the end of the usage cycle. Both Prepaid and Postpaid plans are designed to meet different user needs, balancing speed and cost-effectiveness.

3.5.3 Horizon Telecom International Co.,Ltd (HTI)

Horizon Telecom International, formerly known as Hi Internet, is a subsidiary of Tumul Holdings. Established in 2012, the company initially catered to mobile operators before transitioning into a WIFI provider for general internet access. In 2018, Hi Internet launched its Fiber to the Home (FTTH) business, revolutionizing the delivery of high-speed internet directly to residential customers. In 2021, under new

management, the company adopted a strategic shift, committing to becoming a dedicated FTTH provider, with a focus on delivering exceptional service to its clientele.

The company has witnessed substantial growth in both its subscriber base and workforce over the years. In 2021, the subscriber base reached 17,000++, while the company expanded its team to 200+++ employees. In 2022, the number of FTTH subscribers reached 57,000++, while the workforce experienced a growth of 200 to 400. In 2023, the number of FTTH subscribers reached 60,000++, while the total workforce experienced 400-600 increased. In 2024, FTTH subscribers reached 65,000++, while the current workforce stands at 920. These milestones demonstrate Hi Internet's unwavering dedication to expanding access to high-quality Internet services and reinforcing its position as a preminent FTTH provider. The company has the following vision in "to provide high-quality, innovative internet services through the latest technology, ensuring a superior customer experience and continuous customer satisfaction."

Hi Internet mission is "to provide unparalleled communication services to the citizens and businesses of Myanmar, thereby becoming an integral part of their daily lives." Horizon provides the Home Starter 15 Mbps broadband package is an affordable option priced at 28,600 Ks, ideal for basic internet needs. For those seeking faster speeds, the Diamond package offers 65 Mbps at 74,800 Ks, while the Platinum plan provides 55 Mbps for 62,700 Ks. The Gold package delivers 40 Mbps at 46,200 Ks, and the silver plan offers 25 Mbps for 39,600 Ks. For budget-conscious users, the bronze package provides 20 Mbps at 32,000 Ks, ensuring a range of options to suit different requirements and budgets.

3.5.4 Frontiir Co.,Ltd (Myanmar Net)

Frontiir, an international corporation with a major operational unit in Myanmar, was founded in 2013 by Myanmar-born MIT PhD and ICT specialist Dr. Godfrey Tan (Wai Lin Tun), Dr. Allen Miu, and Mr. Minn Thein. Frontiir controls Godfrey and his pals despite having renowned western investors that follow global governance requirements. He is known as "Ko Wai Lin" by his friends and colleagues and leads Frontiir and its popular Myanmar Net service with a love for engineering and creativity and a relentless emphasis on providing affordable internet connection in Myanmar. Frontiir employs several thousand Myanmar-born workers in numerous places. Frontiir

prides itself on worldwide quality innovation. In 2015, Myanmar people chose “Myanmar Net” over “Frontiir Net” or other fancy names so they may be happy that a team of Myanmar-born individuals devoted to its objective makes inexpensive and high-quality internet service feasible.

Frontiir bridges the worldwide digital gap by providing inexpensive digital access and relevant information services. Myanmar Net brand internet services currently offer low-cost high-speed broadband internet to 2 million Myanmar subscribers for as little as US\$ 0.13 a day, achieving this mission. Myanmar Net, the world's biggest single-home WiFi network, uses Frontiir's cost-effective proprietary technology (US-Patented on the Network Access Gateway design). In addition to the unique network and systems architecture, Frontiir's world-class engineers created many hardware devices for effective network deployment. Frontiir won the 2018 ASEAN Business Award for Innovations and the 2019 ASEAN Outstanding Engineering Award for Technology. Five years after deploying the Myanmar Net network in Myanmar, Frontiir has improved its technical design and cost effectiveness, enabling rural network development.

After Myanmar's telecommunications industry was liberated in 2014, internet use surged from 6 million to over 22 million in 2019. In 2015, Frontiir introduced Myanmar Net, the first service provider that offers low-cost unlimited fast broadband internet using prepaid cards for US\$ 0.13 a day to the underprivileged. Frontiir is delighted to have helped increase internet access in Myanmar, as part of its aim to provide inexpensive digital access and relevant information services and bridge the worldwide digital gap. As of 2020, Frontiir's Myanmar Net is Myanmar's largest ISP with over 2 million monthly subscribers in seven main cities and is quickly increasing. Frontiir's innovative WiFi mesh technology provided Yangon and Mandalay two of the few cities in the world with citywide WiFi coverage, allowing residents to use the internet in public settings. Since job creation is one of Frontiir's goals, 99.9% of its 2,400 employees from Myanmar send money home to their rural families. Over the next five years, Frontiir will rapidly expand to the remaining regions in Myanmar, including 8% of rural areas, producing more employment and a better feeling of connectedness.

FTTH Internet is available in Yangon by Myanmar Net (Frontiir). Their options include basic internet connectivity and CANAL+ Live Channels and Myanmar

Cast video streaming. All programs require 18,000 kyats for setup and 10,000 for deposit. The base plan costs 14,000 kyats per month for 3 Mbps downloads speed. Other plans include 11 Mbps for 23,500 kyats, 15.5 Mbps for 26,500, and 22 Mbps for 30,500. All plans require a 3-month commitment. Myanmar Net also offers LAN Network Installation, IP CCTV surveillance, and IT Infrastructure quality enhancements.

3.5.5 Myanmar Broadband Telecom (MBT)

MBT was founded in Myanmar in 2013. We pride ourselves on offering high-quality internet services to our consumers across Myanmar as a major ISP. We serve companies and homes with dependable and fast internet access through 28 strategically positioned locations across Myanmar. Our flagship offering, FTTH (Fiber to the Home), brings high-speed internet to clients' homes or businesses using fiber optics. This technology offers quicker and more stable internet connections than copper-based networks.

Besides FTTH, we provide DIA, DPLC, and IPLC to meet our clients' different demands. We tailor our services to each client's needs by scaling and customizing them. Our operations revolve around a team of competent and motivated individuals that provide excellent customer service. We endeavor to surpass client expectations in every connection because we think our success depends on them. To stay ahead of the competition, we continually innovate and explore new technology and services. We strive to be Myanmar's premier internet and telecom provider.

We are proud of our reputation as a trustworthy, innovative, and customer-focused ISP firm in Myanmar, and we look forward to serving our clients in the future. MBT provides Domestic Private Leased Circuit (DPLC), International Private Leased Circuit (IPLC), Business Internet Access Service FTTx, Enterprise Level VPN, Enterprise & Home CCTV Surveillance System and Business LAN & WLAN Solutions. MBT provides 21 Mbps (27,500Ks/Month + 15% commercial tax), 25 Mbps (41,400Ks/Month + 15% commercial tax), 30 Mbps (47,150Ks/Month + 15% commercial tax), 40Mbps (64,400Ks/Month + 15% commercial tax), 60Mbps (98,900Ks/Month+ 15% commercial tax) and 100Mbps (167,900Ks/Month+ 15% commercial tax).

CHAPTER IV

SURVEY ANALYSIS

4.1 Profile of Survey Area

A pivotal step in Myanmar's telecom reform was the 2013 Telecommunications Law, implemented on 8 October 2013, which introduced five license types—including nationwide, network facilities, and service provider licenses—breaking the state monopoly and encouraging private sector participation. The Post and Telecommunications Department (PTD) granted 265 licenses, diversifying the market. While mobile internet penetration has exceeded 100%, fiber-to-the-home (FTTH) adoption remains stagnant at just 2% (1.2 million users), significantly lower than Thailand (18%), Laos (2%), and global leaders like Japan and China (40%+). With the worldwide FTTH average at 18%, Myanmar must accelerate fiber expansion to boost digital education, healthcare, and e-commerce, necessitating targeted policies to overcome infrastructure and affordability challenges.

Lanmadaw Township is a densely populated urban area in central Yangon, Myanmar, with an estimated population of 34,578 residents (Census, 2024). The township serves as a commercial and residential hub, hosting a mix of middle-to-high-income households, small and medium enterprises (SMEs), and educational institutions. This demographic diversity makes it an ideal location for assessing FTTH broadband adoption, as demand for high-speed internet is driven by remote work, e-commerce, and digital education. The area's well-developed infrastructure supports widespread fiber-optic connectivity, with over 50% of households having access to broadband services (Myanmar Ministry of Transport and Communications, Nov, 2023).

The study focuses on five major ISPs operating in Lanmadaw: Yatanarpon Teleport (YTP), 5BB Broadband (GlobalNet), Horizon Telecom Co.,Ltd (HI), Frontiir (Myanmar Net) and Myanmar Broadband Telecom (MBT) which collectively cover 30% of the FTTH market in the township. Competition among providers has led to competitive pricing, with monthly FTTH packages ranging from 25,000 MMK to 160,000 MMK for speeds between 20 Mbps to 100 Mbps. However, disparities exist—

while 75% of businesses in the township use FTTH, residential adoption lags at 50%, partly due to affordability concerns (Yangon Digital Economy Report, 2023). User satisfaction hinges on reliability (e.g., downtime <5% for premium ISPs) and customer service responsiveness, which varies significantly across providers.

4.2 Survey Design

This study employs a structured quantitative survey to examine FTTH broadband usage and customer satisfaction across five major ISPs in Lanmadaw Township. The survey is divided into four sections: (1) General Informations of Respondents; (2) Usage of FTTH Broadband Internet (3) Factors Enhancing FTTH Usage; (4) Influencing Factor For customer satisfaction (service provision, technology, price, quality, customer service). Sample size calculation balances statistical significance, accuracy, and efficiency with population size, margin of error, and confidence level to estimate the minimal number of participants needed for trustworthy results.

Sample Size Formula for FTTH Broadband Service (Yamane Formula, 1967)

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = required sample size (finite population)

N = Total population size of FTTH users of Lanmadaw Township

e = margin of error (typically 0.055 for a 5.5% margin of error)

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{400}{1+(400) (0.055)^2}$$

$$= 181 \sim 200$$

This study uses 200 subjects, somewhat more than 181, to improve accuracy and dependability.

The survey targets 200 residential and business users, selected through stratified random sampling to ensure balanced representation across providers Yatanarpon Teleport (YTP), 5BB Broadband (GlobalNet), Horizon Telecom Co.,Ltd (HI) , Frontiir (Myanmar Net) and Myanmar Broadband Telecom (MBT). Data will be collected via online forms and email, covering key metrics like pricing, speed reliability, and customer service quality. The questionnaire uses 5-point Likert scales and multiple-choice questions.

4.3 Analysis of Survey Results

The survey is divided into four sections: there are six questions in part A: General Information of Respondents; there are three questions in part B: Usage of FTTH Broadband Internet, there are eight questions in part C: Factors Enhancing FTTH Usage and there are eighteen questions in part D: Influencing Factor For customer satisfaction (service provision, technology, price, quality and customer service).

Part A: General Information

Demographic data is collected from 200 respondents who are using the selected broadband; Myanmar Net, Horizon, MBT, YTP and 5BB. Table (4.1) presents the demographic data of gender, age, education, township, occupation and income.

Table 4.1: General Information

No	Description	No of Respondents	Percentage
1	Gender		
	Male	101	50.5
	Female	99	49.5
	Total	200	100
2	Age		
	18-34	131	65.5
	35-44	37	18.5
	45 more	32	16.0
	Total	200	100
3	Education Level		
	Undergraduate Level	52	26.0
	Bachelor's Degree	116	58.0
	Master's Degree	30	15.0
	Doctoral Degree	2	1.0
	Total	200	100

4	Township		
	Lanmadaw	200	200
	Total	200	100
5	Occupation		
	Student	9	4.5
	Self-employed	25	12.5
	Government Staff	28	14.0
	Unemployed	2	1.0
	Company Staff	129	64.5
	Others	7	3.5
	Total	200	100
6	What is your average monthly income		
	300,000 Kyats or less	28	14.0
	Kyats 600,001 – 900,000	25	12.5
	Kyats 1,200,001 – 1,500,000	17	8.5
	Kyats 300,001 – 600,000	66	33.0
	Kyats 900,001 – 1,200,000	26	13.0
	More than 1,500,001 Kyats	38	19.0
	Total	200	100

Source: survey data, 2025

According to Table 4.1, based on the 2025 survey data for the study on factors enhancing the usage of FTTH broadband services in Lanmadaw Township, Yangon, the gender distribution among the 200 respondents is nearly equal, with 50.5% male and 49.5% female. Most respondents are young adults aged 18–34 (65.5%), followed by 18.5% in the 35–44 age group and 16% aged 45 and above. In terms of education level, a majority hold a Bachelor’s degree (58%), while 26% have completed undergraduate studies, 15% hold a Master’s degree, and only 1% have a Doctoral degree. All participants are living in Lanmadaw Township.

Regarding occupation, the largest group is company staff (64.5%), followed by government staff (14%) and self-employed individuals (12.5%). Only 4.5% are students, 3.5% fall into other job categories, and 1% are unemployed. Income levels vary: 33% earn between 300,001–600,000 kyats per month, 19% earn more than 1,500,000 kyats, while 14% earn 300,000 kyats or less. This demographic profile suggests that the majority of FTTH users are young, educated professionals with moderate to high income, making them likely users of modern internet services.

Part B: Usage of FTTH Broadband Internet

This survey highlights customer usage patterns for Fixed Broadband Internet services. It examines user tenure, preferred providers, and subscribed bandwidth plans. The data reflects responses from 200 participants, offering insights into market trends and consumer preferences. There are three questions for the usage of FTTH broadband internet as shown in table 4.2.

Table 4.2 Usage of FTTH Broadband Internet

No	Description	No of Respondents	Percentage
7	How long have you used Fix Broadband Internet Service?		
	Less than 1 year	19	9.5
	1 to 2 years	42	21
	More than two years	139	69.5
	Total	200	100
8	Please indicate which Fixed Broadband Internet Service you are using?		
	YTP	10	5.0
	5BB	35	17.5
	Horizon Telecom	6	3.0
	Myanmar Net	56	28.0
	MBT	93	46.5
	Total	200	100
9	Please indicate which Internet service plan (Bandwidth) you are using?		
	under 4 Mbps	4	2.0
	4 Mbps to 10 Mbps	26	13.0
	10 Mbps to 20 Mbps	80	40.0
	20 Mbps to 40 Mbps	84	42.0
	above 40 Mbps	6	3.0
	Total	200	100

Source: survey data, 2025

According to Table 4.2 from the 2025 survey on FTTH broadband internet usage in Lanmadaw Township, most respondents (69.5%) have been using fixed broadband internet services for more than two years. About 21% have used it for 1 to 2 years, while only 9.5% are recent users with less than one year of experience. This suggests that FTTH internet is well-established among residents.

In terms of service providers, MBT is the most commonly used, with 46.5% of respondents subscribing to it. This is followed by Myanmar Net (28%), 5BB (17.5%), Horizon Telecom (3%), and YTP (5%). The dominance of MBT may reflect its broader coverage, competitive pricing, or better service quality.

When looking at internet speed plans, most users (42%) use 20 to 40 Mbps, followed by 40% using 10 to 20 Mbps. Only 13% use 4 to 10 Mbps, while very few use speeds under 4 Mbps (2%) or above 40 Mbps (3%). These figures indicate that a large number of users prefer medium to high-speed plans suitable for streaming, remote work, and online learning, reflecting increasing digital needs in the township.

Part C: Factors Enhancing FTTH Usage

Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), both derived from the well renowned Technology Acceptance Model (TAM), are used to assess variables driving FTTH usage in this study. To score and rate responses, utilize the Likert scale. Analyzing mean and standard deviation for each measure shows all data. The following tables show the outcomes.

Table (4.3) Perceived Usefulness (P E) (speed, reliability)

No	Description	Mean	St.d
10	How would you rate internet speed is important to consider for choosing a broadband service?	4.54	0.63
11	How would you rate FTTH is faster than other technology?	4.00	1.41
12	How would you rate the speed of your current using FTTH broadband service?	3.25	0.88
13	How would you rate the reliability of your FTTH connection?	3.62	0.79
	Overall Mean	4.08	0.71

Source: survey data, 2025

According to Table 4.3 from the 2025 survey data, users consider internet speed highly important when selecting a broadband service, with a mean score of 4.54, the

highest in this category. This indicates that speed is a critical factor in their decision-making.

Users also perceive FTTH as faster than other technologies, scoring 4.00, reinforcing its competitive advantage. However, their actual experience with current FTTH speed (3.25) and reliability (3.62) shows moderate satisfaction, suggesting that while expectations are high, real-world performance could be improved.

The overall mean of 4.08 for Perceived Usefulness confirms that users value FTTH primarily for its speed potential, even if their current service does not fully meet expectations.

Table (4.4) Perceived Ease of Use (PEOU) (setup, interface, support)

No	Description	Mean	St.d
14	How important is good customer service when selecting a broadband provider?	4.64	0.55
15	How would you rate the installation process of your FTTH service?	3.67	0.71
16	How would you rate the responsiveness of your ISP's customer support?	3.48	0.93
17	How would you rate your ISP's handling of equipment retrieval after terminating your FTTH service?	4.00	1.41
	Overall Mean	4.32	0.98

Source: survey data, 2025

A Table 4.4 reveals that good customer service is extremely important to users when choosing a provider, with a strong mean score of 4.64, the highest across both tables. This highlights that beyond technical performance, service quality strongly influences user decisions.

The installation process (3.67) and equipment retrieval after termination (4.00) received moderately positive ratings, indicating that users are generally satisfied with these aspects. However, customer support responsiveness (3.48) was the lowest-rated factor, with a high standard deviation (0.93), suggesting inconsistent experiences—some users had good support, while others faced delays or poor service.

The overall mean of 4.32 for Perceived Ease of Use is higher than that of Perceived Usefulness, meaning that factors like customer service, smooth setup, and post-service handling play a stronger role in enhancing FTTH adoption than speed alone.

The adoption of Fiber-to-the-Home (FTTH) broadband services is influenced by various factors, primarily categorized into Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Based on the 2025 survey data, this analysis compares these two dimensions to determine which plays a more significant role in enhancing FTTH usage. While PU focuses on performance aspects like speed and reliability, PEOU examines usability factors such as customer service and installation processes. The findings suggest that while both are crucial, PEOU has a stronger overall impact on user satisfaction and adoption.

Part D: Influencing Factors for Customer Satisfaction

This section discusses customer satisfaction aspects. This research measures customer satisfaction using Service Provisioning, Technology, Price, Quality, and Customer Service. To score and rate responses, utilize the Likert scale. Analyzing mean and standard deviation for each measure shows all data. Table 4.5 shows the outcomes.

Table (4.5) Influencing Factors for Customer Satisfaction

No	Description	Mean	St.d
	Service Provisioning		
18	I got clear information and consultation from the Internet Service Provider company about Fixed Broadband Internet Service before I subscribed to the service.	3.34	0.79
19	FTTH Broadband Internet Service is accessible, and everyone can subscribe to the service	3.48	0.82
20	The number of days it takes to get the Fixed Broadband Internet Service is reasonable	3.35	0.75
21	The requirements used to subscribe to Fixed Broadband Internet Service are convincing.	3.40	0.68
	Overall Mean	3.39	0.76
	Technology		
22	The Internet Service Provider company provides up-to-date end-user equipment.	3.37	0.84
23	Internet Service Provider company provide customized products for the user need	3.32	0.94
24	This Internet Service Provider company value-added-service for their product.	3.31	0.92
	Overall Mean	3.33	0.90
	Price		
25	The subscription and installation fee for FTTH Broadband Internet Service is fair.	3.54	0.88

26	The usage charge (monthly fee) for the service is rational	3.46	0.71
27	The pricing scheme encourages subscribers to subscribe higher bandwidth.	3.33	0.73
28	I am getting better service compared to the payment I made.	3.37	0.72
	Overall Mean	3.42	0.76
	Quality		
29	I often access the actual bandwidth I subscribed for.	3.40	0.69
30	The FTTH Broadband Internet service that ISP provides has less interruption.	3.33	0.65
31	I am getting reliable service based on the SLA.	3.45	0.70
32	ISP uses up-to-date equipment to make the service reliable.	3.57	0.733
	Overall Mean	3.43	0.69
	Customer Service		
33	When I face a problem, I can get sufficient information to solve it.	3.41	0.85
34	Employees are professional and respond to customer requests promptly.	3.33	0.87
35	How do you rate the time it takes to get your problem solved?	3.26	0.77
	Overall Mean	3.33	0.83
	Overall Customer Satisfaction	3.38	

Source: survey data, 2025

According to Table 4.5 from the 2025 survey data, the mean scores for **service provisioning** factors influencing customer satisfaction with FTTH broadband services range between 3.34 and 3.48, indicating moderate satisfaction. The highest-rated item was the accessibility of the service (Mean = 3.48), suggesting that most users find it easy to access and subscribe to the service.

The clarity of information and consultation provided before subscription scored 3.34, and the reasonableness of installation time received a similar rating (3.35), showing that users see room for improvement in communication and processing speed. The subscription requirements were rated at 3.40, implying a generally positive but not strong perception of how convincing or clear the process is.

The overall mean of 3.39 and standard deviation of 0.76 suggest that while most users are moderately satisfied with the service setup and accessibility, consistency and clearer communication could further enhance the customer experience.

According to Table 4.5 from the 2025 survey data, **the technological features** influencing customer satisfaction with FTTH services show moderate ratings. The

highest-rated item is the provision of up-to-date end-user equipment (Mean = 3.37), suggesting that users are fairly satisfied with the hardware offered by ISPs.

The availability of customized products for user needs scored slightly lower at 3.32, indicating that some users may feel the services are not fully tailored to individual requirements. The value-added services such as additional features or bundled options received the lowest mean score of 3.31, which implies that users may not perceive strong added benefits beyond basic connectivity.

With an overall mean of 3.33 and a standard deviation of 0.90, the data shows moderate and consistent satisfaction. These results suggest that while technological offerings are adequate, improvements in product customization and added service features could further boost user satisfaction.

According to Table 4.5 from the 2025 survey data, **price-related** factors influencing customer satisfaction with FTTH services received moderate ratings overall. The subscription and installation fee was rated highest (Mean = 3.54), indicating that users generally view the initial costs as fair. The monthly usage fee also received a favorable score of 3.46, suggesting that most users find the ongoing charges acceptable.

The pricing scheme's ability to encourage higher bandwidth upgrades scored lower at 3.33, implying limited motivation for users to switch to faster plans. The perception of value for money (getting better service compared to payment) rated 3.37, reflecting average satisfaction.

The overall mean score of 3.42 and standard deviation of 0.76 suggest consistent and moderate satisfaction with pricing. To improve user perception, ISPs may consider clearer pricing models and promotional offers that better link cost to service quality and speed.

According to Table 4.5 from the 2025 survey data, the **quality-related** factors influencing customer satisfaction with FTTH services show moderate to slightly positive ratings. The highest-rated item is "ISP uses up-to-date equipment to make the service reliable" with a mean score of 3.57, suggesting users trust in the provider's technology to maintain service quality.

The reliability based on SLA received a mean of 3.45, indicating fair satisfaction with service commitments. Accessing the actual subscribed bandwidth

scored 3.40, while low interruption scored slightly lower at 3.33, pointing to occasional connectivity issues.

With an overall mean of 3.43 and a standard deviation of 0.69, the results reflect generally stable satisfaction, though there is room to improve service reliability and speed consistency to further enhance customer experience.

According to Table 4.5 from the 2025 survey data, **customer service** factors influencing FTTH subscriber satisfaction received moderate ratings. The highest-rated aspect is the availability of sufficient information to solve problems, with a mean score of 3.41, showing that users generally find the support helpful when issues arise.

The professionalism and promptness of employees scored 3.33, suggesting a fair level of satisfaction with staff responsiveness. However, the time taken to resolve problems received the lowest score of 3.26, indicating that delays in resolving service issues may be a common concern among users.

With an overall mean of 3.33 and a standard deviation of 0.83, the data reflects average satisfaction in customer service. To improve overall user experience, ISPs should focus on faster response times and more efficient problem-solving processes while maintaining clear communication and professionalism.

The average customer satisfaction score of 3.38 reflects a generally favorable but not outstanding experience with the Fixed Broadband Internet Service. Customers rate Quality (3.43) and Price (3.42) as the strongest aspects, suggesting they find the service reliable and reasonably priced. However, Technology (3.33) and Customer Service (3.33) score slightly lower, indicating room for improvement in areas like modernized equipment and faster, more professional support. While the service meets basic expectations, enhancing these weaker areas could help elevate overall satisfaction.

CHAPTER V

CONCLUSIONS

5.1 Findings

The study reveals that Myanmar's telecom sector liberalization, initiated in 2013 through the Telecommunication Law, triggered remarkable growth in connectivity, breaking the state monopoly of Myanma Posts and Telecommunications (MPT) and introducing competition from private operators like Ooredoo, Atom, and MyTel. This shift led to a dramatic surge in mobile penetration (exceeding 100%) and internet usage (growing from 10 million to 90 million users between 2011 and 2023), while FTTH adoption remained low (2%) due to high costs and infrastructure limitations. The Posts and Telecommunications Department (PTD) played a pivotal role in regulating the sector, issuing 265 licenses and fostering private investment, yet challenges such as urban-rural disparities, service reliability, and affordability persist, highlighting the need for further policy interventions to achieve equitable digital access.

The study conducted in Lanmadaw Township, Yangon, provides several critical insights into the factors enhancing FTTH broadband usage and customer satisfaction. From a survey of 200 respondents, demographic data reveals a youthful, educated population, with 65.5% aged between 18 and 34 and 58% holding a bachelor's degree. The majority (64.5%) are employed in companies, indicating a technologically inclined user base with moderate to high income levels.

FTTH adoption is well-established in the township, as 69.5% of respondents have used FTTH services for more than two years. MBT emerged as the dominant service provider with a 46.5% share, followed by Myanmar Net (28%) and 5BB (17.5%). Most users opt for medium to high-speed plans, particularly in the 20–40 Mbps range (42%) and 10–20 Mbps range (40%).

For factors enhancing FTTH usage, the study reveals two critical dimensions influencing FTTH adoption through the Technology Acceptance Model framework. Regarding Perceived Usefulness (PU), the data shows internet speed is the most valued factor when selecting broadband services (mean=4.54), confirming its status as a primary decision driver. While respondents recognize FTTH's speed advantage over competing technologies (mean=4.00), their actual experience ratings are more modest

for both speed (3.25) and reliability (3.62), indicating a noticeable expectation-reality gap. The overall PU score of 4.08 demonstrates that performance potential remains a key adoption motivator despite current service limitations.

For Perceived Ease of Use (PEOU), customer service quality emerges as the single most influential factor (mean=4.64), surpassing even technical considerations. Service installation (3.67) and equipment handling (4.00) receive satisfactory ratings, but customer support responsiveness (3.48) appears as a relative weakness with higher variability (SD=0.93). The significantly higher overall PEOU mean (4.32 versus PU's 4.08) clearly establishes user experience factors as more decisive than pure performance metrics in adoption decisions. This suggests that in a competitive market, service quality and usability may represent more effective differentiation points than technical specifications alone.

For influencing factors for customer satisfaction, analysis of customer satisfaction reveals generally moderate ratings across all measured dimensions. Service provisioning scores highest on accessibility (3.48), though information clarity (3.34) and setup time (3.35) indicate room for process improvement. Technology factors show adequate equipment quality (3.37) but lag in customization (3.32) and value-added services (3.31), suggesting underexploited opportunities for service differentiation.

Pricing demonstrates relative strength in fee fairness (3.54 installation, 3.46 monthly), though the ability to incentivize upgrades (3.33) and perceived value (3.37) remain limited. Service quality presents a similar pattern - while equipment modernity scores well (3.57), actual service consistency (3.33 interruptions) and bandwidth delivery (3.40) show reliability challenges. Customer service metrics reveal particular vulnerability in problem resolution time (3.26), contrasting with better ratings for information availability (3.41) and staff professionalism (3.33).

The aggregate satisfaction means of 3.38 reflects this mixed performance - while no dimension scores poorly, none achieves excellence either. The data particularly highlights three priority improvement areas: customer support efficiency (lowest at 3.26), service reliability (interruptions at 3.33), and value-added offerings (3.31). These findings suggest that while FTTH services meet basic expectations, closing the identified gaps could significantly enhance overall customer satisfaction and retention.

5.2 Suggestions

Based on the findings of the study, several recommendations can be proposed to improve the adoption and satisfaction of FTTH broadband users in Lanmadaw Township.

To enhance FTTH usage and adoption, several strategic improvements are necessary, particularly in aligning perceived benefits with actual user experience. The data clearly show that internet speed is the most influential factor in broadband selection, yet actual user ratings for both speed and reliability fall short of expectations. This gap suggests a need for service providers to invest in infrastructure improvements to deliver more consistent performance and reduce service interruptions. In addition, providing users with performance transparency through real-time monitoring tools or dashboards can help manage expectations and build trust.

Meanwhile, factors related to Perceived Ease of Use (PEOU) play an even greater role in influencing user decisions, as reflected in the higher mean score compared to Perceived Usefulness. Among these, customer service quality stands out as the most critical element. Improving responsiveness, reducing problem resolution time, and offering multiple, user-friendly support channels can significantly boost user experience. Streamlining the installation process and simplifying equipment handling through better guidance and self-service tools will further strengthen ease of use. Since users appear to value service experience over technical specifications, service providers should emphasize usability and support quality in both marketing and service delivery strategies.

In terms of customer satisfaction, most dimensions are rated as moderate, indicating a generally acceptable but unexceptional experience. The analysis highlights three priority areas for improvement: customer support efficiency, service reliability, and value-added services. Addressing these weaknesses could involve reducing downtime, offering more personalized or bundled services, and speeding up response to user issues. Furthermore, simplifying communication about installation, upgrades, and billing will improve clarity, while targeted loyalty incentives can enhance perceived value without necessitating price cuts.

Overall, the findings suggest that FTTH providers should shift focus from merely offering high-speed internet to delivering a seamless and customer-friendly

experience. In a competitive market, differentiating based on service quality, usability, and customer support may be more impactful than relying solely on technical performance. Adopting a customer-centric approach and continuously gathering user feedback will allow providers to stay responsive to evolving expectations and improve customer retention over time.

APPENDIX I
(QUESTIONNAIRE)

My name is Mg Htun Aung Ko. I am currently writing the MDevS thesis entitled “FACTOR ENHANCING ON USAGE OF FTTH BROADBAND SERVICES (CASE STUDY: LANMADAW TOWNSHIP, YANGON)”. Completion of this information is voluntary and its confidentiality is assured. No individual data will be reported. Thanks for taking the time to help me out.

Part A: General Information of Respondents

1. Gender? Female Male

2. Age?
 - 18-34
 - 35-44
 - 45 more

3. Education level?
 - Under Graduate Level
 - Bachelor’s Degree
 - Master’s Degree
 - Doctoral Degree
 - Others -----

4. Township? Lanmadaw

5. Occupation?
 - Student
 - Self-employed
 - Government Staff
 - Unemployed
 - Company Staff
 - Others

6. What is your average monthly income?

- 300,000 Kyats or less
- Kyats 600,001 – 900,000
- Kyats 1,200,001 – 1,500,000
- Kyats 300,001 – 600,000
- Kyats 900,001 – 1,200,000
- More than 1,500,001 Kyats

Part B: Usage of FTTH Broadband Internet

7. How long have you used Fix Broadband Internet Service?

- Less than 1 year
- 1 to 2 year
- More than two year

8. Please indicate which Fixed Broadband Internet Service you are using?

- YTP
- 5BB
- Horizon Telecom
- Myanmar Net
- MBT

9. Please indicate which Internet service plan (Bandwidth) you are using?

- under 4 Mbps
- 4 Mbps to 10 Mbps
- 10 Mbps to 20 Mbps
- 20 Mbps to 40 Mbps
- above 40 Mbps

Part C: Factors Enhancing on FTTH Usage

How would you rate the following items on a scale of 1-5, where 1 = very poor and 5 = excellent

Perceived Usefulness (P E) (speed, reliability)	(1)	(2)	(3)	(4)	(5)
1. How would you rate internet speed is important to consider for choosing a broadband service?					
2. How would you rate FTTH is faster than other technology?					
3. How would you rate the speed of your current using FTTH broadband service?					
4. How would you rate the reliability of your FTTH connection?					
Perceived Ease of Use (PEOU)					
5. How important is good customer service when selecting a broadband provider?					
6. How would you rate the installation process of your FTTH service?					
7. How would you rate the responsiveness of your ISP's customer support?					
8. How would you rate your ISP's handling of equipment retrieval after terminating your FTTH service?					

Part D: Influencing Factor for Customer Satisfaction

How would you rate the following items on a scale of 1-5, where 1 = strongly disagree and 5 = strongly agree

Service Provisioning	(1)	(2)	(3)	(4)	(5)
1. I get clear information and consultation from Internet Service Provider company about Fixed Broadband Internet Service before I subscribe the service.					
2. FTTH Broadband Internet Service is accessible and everyone can subscribe the service					
3. The number of days it takes to get the Fixed Broadband Internet Service is reasonable.					
4. The requirements used to subscribe Fixed Broadband Internet Service are convincing.					
Technology					
5. Internet Service Provider company provide up-to-date end-user equipment.					
6. Internet Service Provider company provide the customized product for the user need					
7. This Internet Service Provider company value-added-service for their product.					
Price					
8. The subscription and installation fee for FTTH Broadband Internet Service is fair.					
9. The usage charge (monthly fee) for the service is rational					

10. The pricing scheme encourages subscribers to subscribe higher bandwidth.					
11. I am getting better service compared to the payment I made.					
Quality					
12. I often access the actual bandwidth I subscribed for.					
13. The FTTH Broadband Internet service that ISP provides has less interruption.					
14. I am getting reliable service based on the SLA.					
15. ISP use up-to-date equipment to make the service reliable.					
Customer Service					
16. When I face a problem, I can get sufficient information to solve it.					
17. Employees are professional and respond to customer request promptly.					
18. How do you rate the time it takes to get your problem solved?					

APPENDIX II

List of Telecom Licensees providing in Yangon

No	Company Name	License Issued Date
1	Atom Myanmar Limited	2014
2	Ooredoo Myanmar Limited	2014
3	AGB Communication Co.,Ltd	2015
4	Asia Mega Link Co.,Ltd	2015
5	Campana Mythic Co.,Ltd	2015
6	Chiyoda & Public Works Co.,Ltd.	2015
7	Fortune Telecom Company Limited	2015
8	Global Technology Company Limited	2015
9	GNE Company Limited	2015
10	Golden TMH Telecom Co.,Ltd	2015
11	Kinetic Myanmar Technology Co., Ltd	2015
12	Myanma Posts and Telecommunications	2015
13	Myanmar Country Company Limited	2015
14	Myanmar Network Co.,Ltd	2015

No	Company Name	License Issued Date
15	Myanmar Technology Gateway Co.,Ltd	2015
16	Shwe Pyi Tagon Co.,Ltd	2015
17	STREAM NET COMPANY LIMITED	2015
18	TMH Telecom Public Co., Ltd	2015
19	Yatanarpon Teleport Public Co.,Ltd	2015
20	Amara Communications Co., Ltd.	2016
21	China Unicom (MYA) Operations Co., Ltd	2016
22	Frontiir Company Limited	2016
23	Marga Global Telecom Limited	2016
24	Myanmar APN Co.,Ltd	2016
25	Myanmar Information highway Limited	2016
26	Myanmar Speed Net Co.,Ltd	2016
27	Spectrum Life Co.,Ltd	2016
28	TrueNET Co.,Ltd	2016
29	AST System Technology Co.,ltd	2017
30	Horizon Telecom International Co.,Ltd	2017

No	Company Name	License Issued Date
31	Myanmar Broadband Telecommunication Co.,Ltd	2017
32	Telecom International Myanmar Limited	2017
33	Myanma UNILINK Communication Company Limited	2018
34	Trusty Family Co., Ltd	2018
35	Galaxia @Net Co.,Ltd	2020
36	Broadband World Technology Co.,Ltd	2021
37	Myanmar Online Creation Co.,Ltd	2021
38	Myanmar Shwe Pyone Co.,Ltd	2021
39	Treasure Chindwin Land Co.,Ltd	2021
40	Anynet Myanmar Technology Co.,Ltd	2022
41	Giga-Net Co.,Ltd	2022
42	DigiBridge Company Limited	2023
43	Find Solution and Services Co., Ltd	2023
44	Future Global Telecom Co.,Ltd	2023
45	T-Link Group	2023
46	WCC Co.,Ltd	2023

Source: Posts and Telecommunication Department, 2025