

Business transformation from connectivity to digital: case study “PT. MNO Indonesia”

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Abstract: The telecommunications industry plays a role in meeting the needs of digital connectivity services to the community, especially in line with the community's need for internet connections which is increasing rapidly. As one of the telecommunications service operators in Indonesia, "PT. MNO Indonesia" must meet this need to get maximum profit and the best service to the customers with the right business strategy. However, the current connectivity business model is still the mainstay, with revenue levels that tend to stagnate and even experience a decline. The provision of network services and investment in infrastructure development are still the main concerns, so a change in business strategy is needed. This study proposes several recommendations for business strategies to increase revenue based on reviewing and analyzing financial data and statistics for Indonesian and international telecommunications businesses. In this study, financial report data and digital sector statistical data were analyzed and divided into four aspects: traffic, finance, network development, and digital service with the min-max method, standard deviation, and average. From the analysis conducted in this research, "PT. MNO Indonesia" needs to transform its business into digital business model.

Keywords: business transformation, connectivity business model, digital

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Introduction

A digital business is a business that uses technology as an advantage in internal and external operations. Another definition of digital business is the most advanced business today, which is expected to continue to grow every year and increase sharply [1]. Digital technology has revolutionized the entire joint of life, giving birth to a new civilization. All service companies are competing to provide digital version services for consumers and are committed to maximizing the use of digital technology by presenting a variety of service digitization solutions that are increasingly integrated.

The development of information technology and telecommunications greatly impacts the business sector. Business systems that previously used traditional patterns were transformed into digital by following the needs of people who demand speed and efficiency in service and buying and selling goods. Digital businesses also provide benefits in ease of transactions by connecting sellers and buyers using online media. It makes many companies that create platforms (websites or startups) to support the business.

5G technology is a 5th generation cellular network that is the wireless standard after 1G, 2G, 3G, and 4G networks [2]. 5G technology is designed to connect all objects, machines, and devices simultaneously by providing high data speed capabilities up to 20 times faster than the previous generation (4G), i.e., based on IMT-2020 reaching 20 Gbps. 5G technology is also designed for services with large network capacity and wide bandwidth as in the mmWave frequency band spectrum to provide faster responses with very low latency so that users as a whole get a more uniform experience despite the user's moving conditions.

5G technology was officially launched in Indonesia in early 2021 through a press conference between the Ministry of Information and Communication (Kominfo) and one of the operators. The operation of 5G networks is a form of accelerating digital transformation in Indonesia. 5G services connect communication between people and provide human integration services with machines. For 5G services to run optimally in Indonesia, it requires the allocation of the frequency spectrum in three layers, namely low band, middle band, and high band. Each layer can later be used according to the services needed. Currently, operators are preferred to use the middle band layer for mobile broadband development. Together with industry players, the government prepares ecosystems and devices such as smart cities, e-commerce, and the Internet of Things (IoT) in the industry.

The development of telecommunication technology to the fifth generation (5G) encourages mobile network operator companies to adapt by carrying out digital transformation. The Covid-19 pandemic is one factor driving the acceleration of digital transformation, where people switch to utilizing telecommunication technology to carry out various activities. This condition makes the acceleration of cell operator companies follow the digital transformation process. Mobile operator companies in the last ten years (decade) are still relying on connectivity businesses model with stagnant revenue levels and even tend to fall [3].

Continuous advances in high-speed mobile services and internet connectivity between devices continue to drive competition and innovation in the telecommunications service provider sector. Much of the main focus of the business rests on providing faster data services, including high-resolution video transmission services. Other driving factors of the telecommunications business are the demand for increased connectivity and multiplication. This condition places the mobile operator company as a network provider (dump-pipe), where other parties such as application providers, OTT, and others manage the implementation of network services.

From an investment point of view, 5G technology infrastructure requires very large costs, including coverage of the 5G area of narrower telecommunication devices, contributing to development costs. In addition, the deployment of fiber optics as a backbone network also increases the investment costs of mobile operators. Network-related capital expenditures are expected to increase by 60% from 2020 to 2025, resulting in a two-fold increase in total cost ownership (TCO) [4]. Nonetheless, mobile operators must upgrade existing 4G networks to 5G networks to cope with the growing demand for data year after year [4]. In addition, the service innovations, e.g., machine-to-machine communication and virtual reality that cannot be supported by 4G technology, encourage operators to build 5G networks [5]. As one of the mobile operator companies in Indonesia, "PT. MNO Indonesia" has a rather high investment burden for the development (CAPEX) of telecommunication networks while revenue conditions have not increased significantly. During the last five years, from 2016 to 2021, the CAPEX average of 15% was allocated for mobile network improvements. Revenue conditions were no longer rising in double digits as in the previous year. This condition provides a tendency that is not good for running the company's business, so the right strategy is needed to maintain the sustainability of both the business and the provision of services for customers.

Ideally, communication needs in Indonesia should be able to reach all regions from Sabang to Merauke, providing equitable access to data communication. However, the penetration rate of telecommunication infrastructure is still uneven. About 40% of rural areas, especially in the Front, Remote, and Disadvantaged areas, still do not get the reach to telecommunication services [6]. The Government of Indonesia supports digital development in Indonesia through The Minister of Communication and Information Regulation No. 2 of 2021, concerning the acceleration of digital transformation [7] with the condition of the Eastern Indonesia Region (KIT), which has 11 provinces with eight industrial estate locations as targets for the development of mobile telecommunication networks. One of the programs launched in the '3T' area ("Terdepan, Terluar & Tertinggal") was inducted in 2015-2020. From 2021 to 2022, the government continues to provide BTS (Base Transceiver Station) in 7,904 Villages, where the largest allocation is in the Eastern Indonesia Region [8].

In some of the scientific literature that has been reviewed, the discussion in this study is about business transformation to increase revenue potential and maintain sustainability. Based on literature related to research topics reviewed from the point of view of background and research methods, discussions are still limited to the development of technology (smart city, IoT,

and wire-less sensors), investment, 5G infrastructure, and industry changes to digital, where no specific discussion with business strategy is associated [9-28].

This research focuses on preparing a proposed recommendation for "PT. MNO Indonesia" to transform the telecommunications business from Legacy /Connectivity towards Digital Business to be able to survive to become the largest operator in Indonesia with a decent level of profitability, accelerate the development of targeted 5G infrastructure, make investments and innovations on the platform. Digital and automation to create new business opportunities.

Methodology

To formulate recommendations for the business strategy, the collected data was processed and analyzed using quantitative and qualitative secondary data approaches. These data were divided into four aspects: traffic, financial, network deployment, and digital services as summarized in Table 1. Figure 1 shows a flow chart of the research carried out in this study.

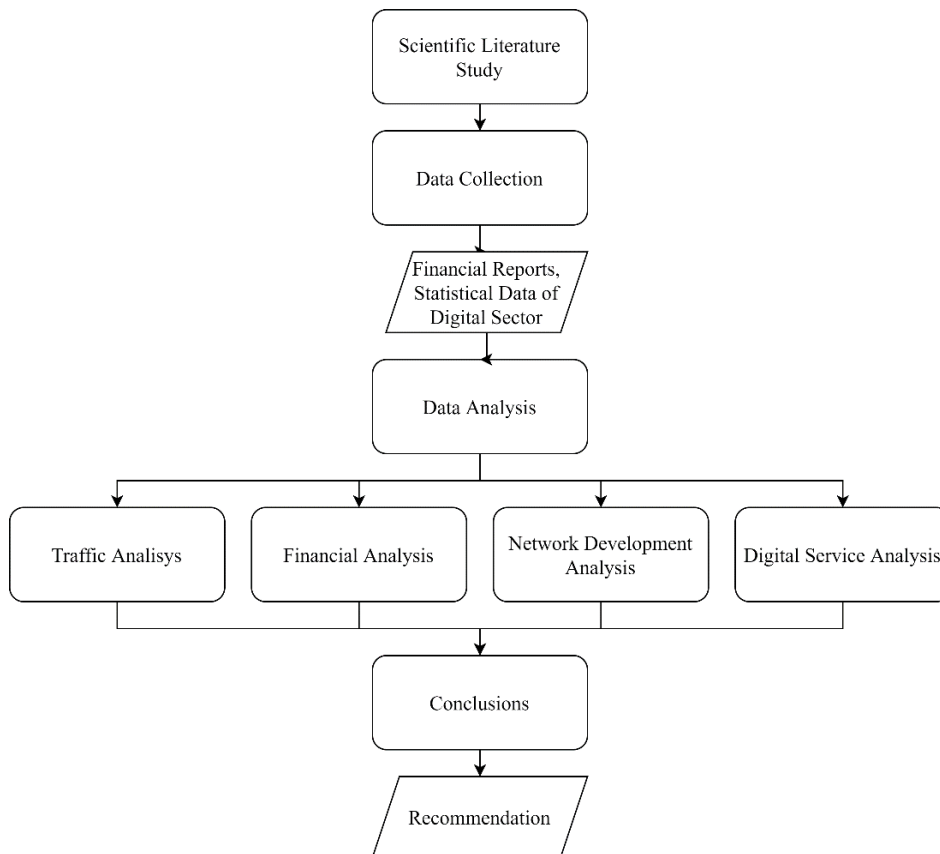


Figure 1. Research flowchart

Table 1. Data categories to be analyzed

Aspect	Parameter	Description
Traffic	Connections	Data of customer total measured connections to the digital services of "PT. MNO Indonesia".
	ARPU	Data of average income of the digital services of "PT. MNO Indonesia" per connected customer.
Financial	Data Revenue	Data of total annual income of "PT. MNO Indonesia".
	Data CAPEX/Revenue Ratio	Data of percentage ratio of "PT. MNO Indonesia" income with annual CAPEX.
	Data Net Profit	Data of total annual net profit of "PT. MNO Indonesia".
Network Deployment	Internet Access Distribution	Data on the level of connectivity of service users to internet access per region in Indonesia at "PT. MNO Indonesia".
Digital Services	ICT Market	Market data from the ICT business in Indonesia in recent years and forecasts for the next few years.
	Market Shifting	Data pointer shifting market model in Indonesia
	Digital Platform Investation Data	Digital service investment data on digital platforms by "PT. MNO Indonesia".

1. Scientific Literature Study

At this stage, we review scientific articles and popular news, which are used as material to review the research topics to obtain problems and urgency in the telecommunications industry.

2. Data Collection

This research considers secondary data, both quantitatively and qualitatively, from various sources related to the telecommunications business. The data used are the financial report data of "PT. MNO Indonesia", statistical data on the digital sector of Indonesia, as well as comparative data from other countries. These data will be analyzed and used to support the recommendations at the end of the study. The data used is limited to the range of the last ten years to retain relevancy.

3. Data Analysis

The data analysis process is the next step after data collection. The four categories of existing data can be reviewed on statistical parameters such as the average parameter, standard deviation, and min-max. The analysis was done by comparing the data values between periods in one particular aspect, as shown in Table 2. Based on the analysis obtained, it will be used to provide conclusions in determining whether or not a business transformation is necessary.

4. Conclusions

This research aims to produce business strategy recommendations from the analyzed data. The results of the analysis of this study are in the form of recommendations for "PT. MNO Indonesia" and other companies both nationally and internationally with appropriate conditions.

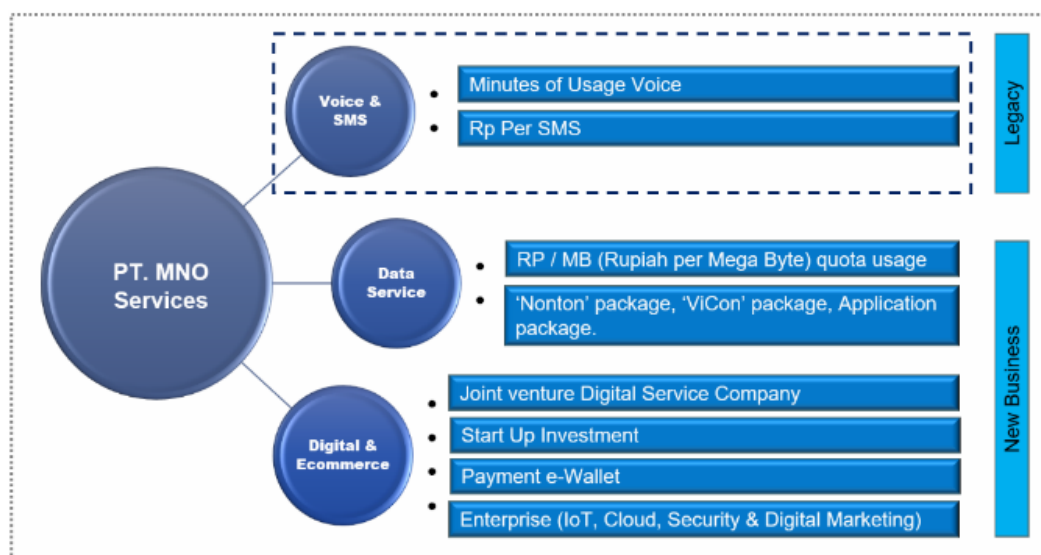


Figure 2. Research mind map

Figure 2 shows a mind map illustrating the "PT. MNO Indonesia " services with the legacy (legacy) and the new business potential in the digital transformation process. The beginning of the telecommunications business was voice and SMS services for mobile communications, and the development of cellular technology provided additional services, namely data services. Previously, data services only served the needs of the internet, video calls, and chats. Still, it has been developing since the existence of other services from sharing applications that are very easy to find in the smartphone system. This condition makes the business in "PT MNO Indonesia " remain competitive and sustainable by developing previous services in 4G technology (digital payment, video conference platforms, watching packages, and application packages), new businesses in 5G technology (IoT, security, cloud) and digital marketing as well as investing with other digital companies.

Results and Discussions

There are 4 (four) aspects of elaboration needed to pay attention to the transformation points of "PT. MNO Indonesia", namely aspects of traffic, finance, network deployment, and digital services.

Figure 3 shows a trend graph of Total Cellular Connection and total ARPU from "PT. MNO Indonesia " from 2012 to 2021. Total Cellular Connection tends to stagnate at 178 million connections in Q4-2021 and does not increase compared to the previous four years (181 million connections in Q2-2017). It can be seen that the increasing number of users will support the probability of traffic growth, as well as indirectly also increase revenue for the operator company, so "PT. MNO Indonesia" needs to maintain or increase provider users with products or services that are affordable, attractive, and up-to-date. The potential that digital business will continue to grow, with services from 5G technology services will bring interest and positive impact for users and providers.

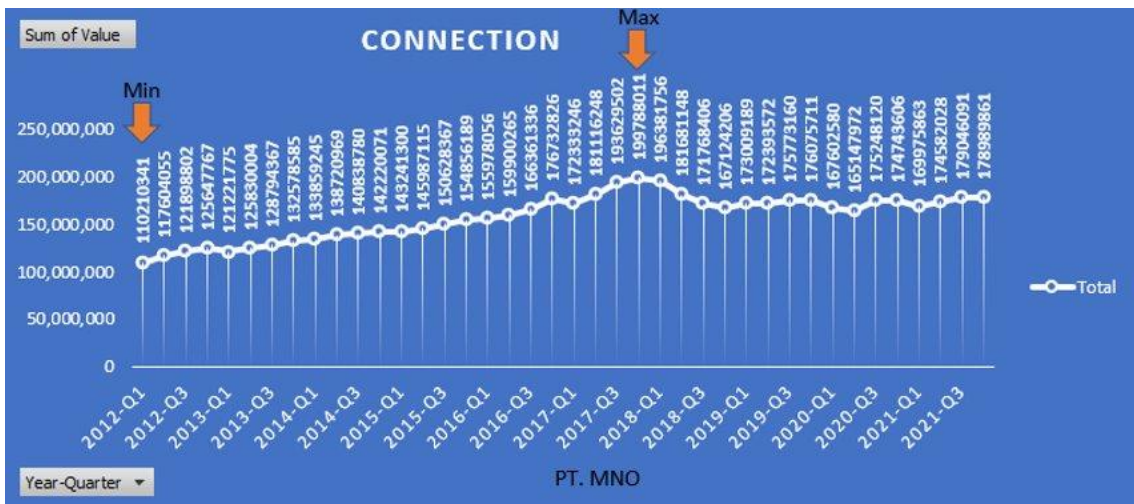


Figure 3. Total cellular connection "PT. MNO Indonesia" [3]

Figure 4 shows the average revenue per user (ARPU) of the company "PT. MNO Indonesia". It indicates that the total ARPU has not increased since six years ago, which was 3.01 USD in Q4-2015 to 3.01 USD in Q4-2021. This condition encourages the company to grow user connections by growing the potential for new service penetration. With the increase in the ARPU value, the revenue per user will provide value growth for the company.

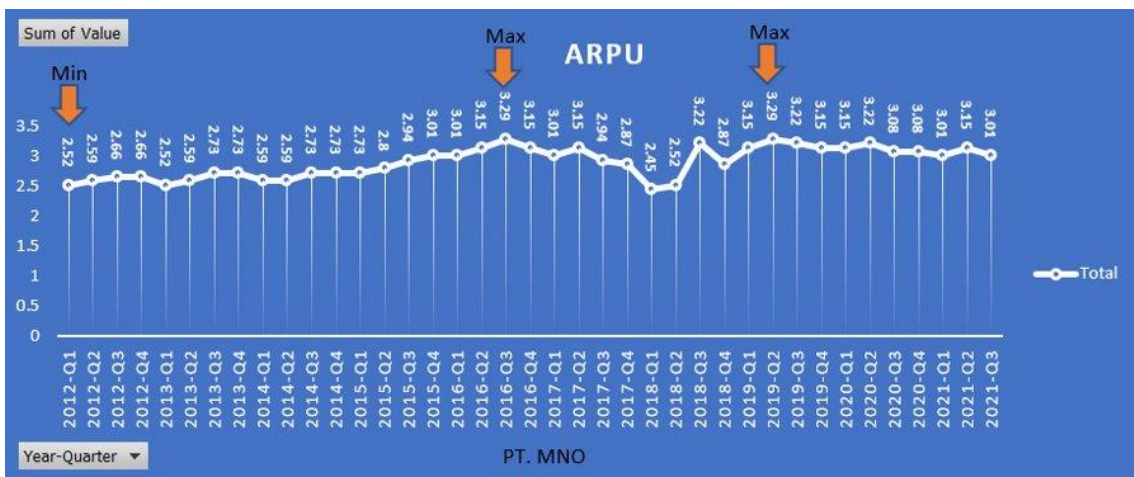


Figure 4. ARPU by connection "PT. MNO Indonesia" [3]

Figure 5 shows revenue trends for the period 2012 to 2021. It has a positive business trend, and it is observed from the results that revenue has continued to grow over the last three years, namely from 2.1 billion USD in Q2 -2018 to 2.5 billion USD in Q3-2021. The company's total revenue continues to grow, although it should be noted that its revenue has been saturated in the last two years. Until now, the company is still the largest provider in Indonesia. Similar to the traf-fic aspect, the financial aspect will grow by increasing the penetration of the cellular telecommuni-cations market from the company "PT. MNO Indonesia "and maintaining stability in terms of de-velopment and operational costs of the company.



Figure 5. Revenue "PT. MNO Indonesia" [3]

Figure 6 shows a graph of the percentage ratio of the CAPEX/revenue value. The CAPEX/revenue ratio value shows relatively stable results (between the last two years, namely 15.33% in Q2-2019 and 15.81% in Q3-2021). With the shifting streamline from legacy business to digital, any development to maintenance action will be a big factor that has the potential to reduce revenue. It shows that the company needs to continue to maintain it, extend assets and deployment from the access infrastructure sector to the core in a stable manner, and adjust to the income earned by the company.

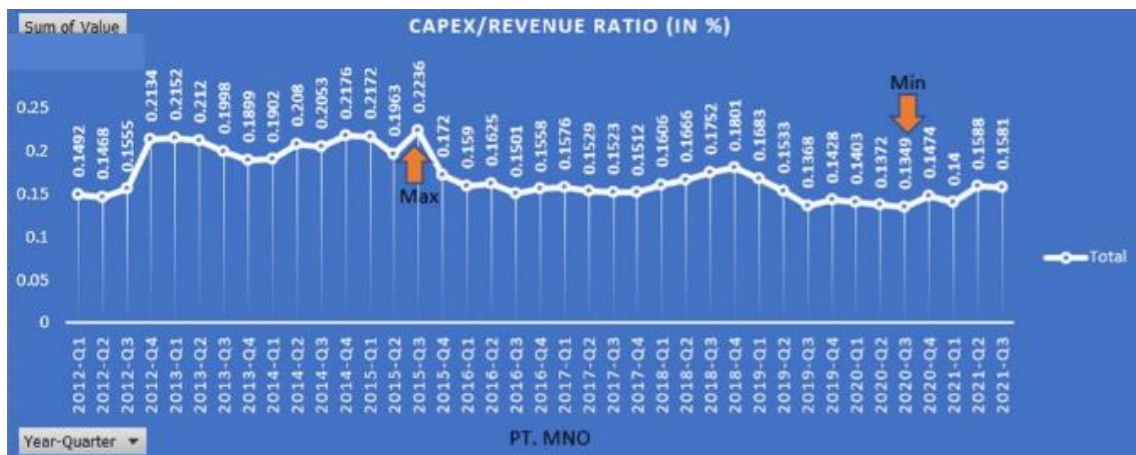


Figure 6. CAPEX to revenue ratio "PT. MNO Indonesia" [3]

Figure 7 shows a graph of the net profit value. The data found that the company's net profit was in a stable range of values, reaching 507 billion USD in Q4-2018. After that, it was at 470 billion USD, and the latest data in Q3-2021 Net Profit was 467 billion USD. The company "PT. MNO Indonesia" earns relatively healthy profits due to slowly growing profits, so the company's market in the telecommunications business is running well. These three parameters show that the company's business is still healthy. The increase in revenue and net profit needs to be maintained so that the company's condition continues to run.



Figure 7. Net profit "PT. MNO Indonesia" [3]

This aspect shows how the penetration of internet access in Indonesia is. Indonesia still has gaps in telecommunications network infrastructure, especially for provinces with limited last-mile physical networks. Figure 8 shows internet access in the provinces in Indonesia. Based on BPS data, most penetration of Internet Access distribution is dominated by big cities in Indonesia. These cities including DKI Jakarta, D.I. Yogyakarta, Riau, East Kalimantan, and Bali already have the infrastructure and a high population. Meanwhile, several provinces in the Eastern Indonesia Region (KIT) are included in the distribution of Internet access from the lowest, namely Papua, NTT, North Maluku, West Sulawesi, and Maluku. The potential shown should serve as a benchmark so that the company can expand its network development to become larger in cities that have the potential to increase revenue for the company, especially for 5G services.

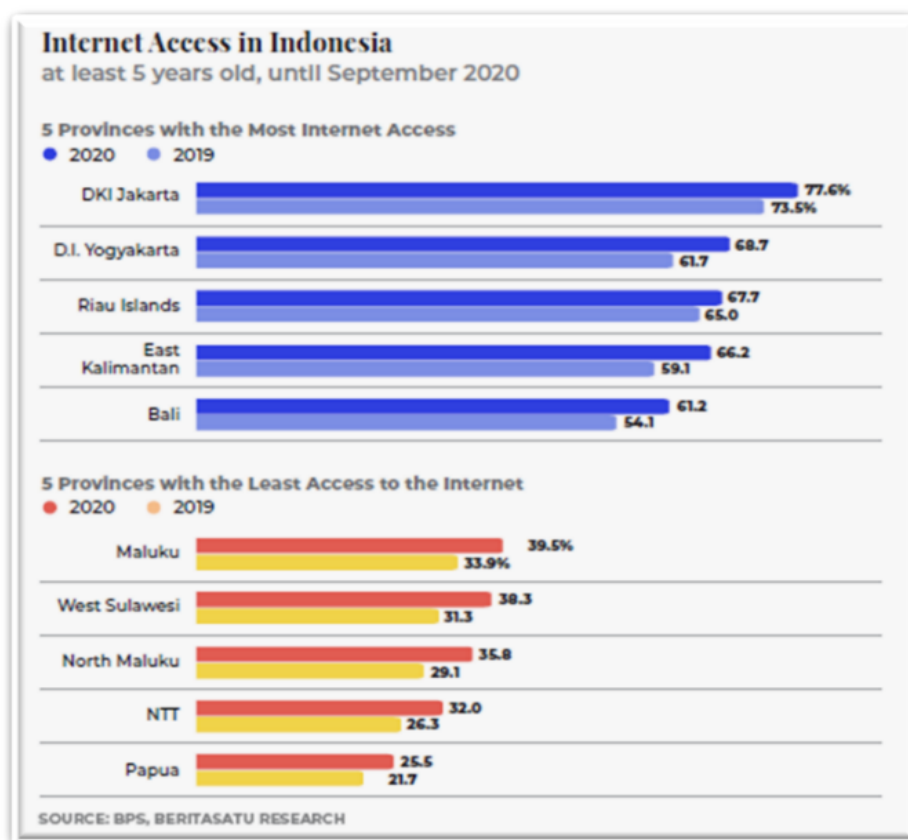


Figure 8. Distribution of internet access in Indonesia to Provinces [6]

This aspect illustrates that digital business is expected to trigger new penetration for companies. The current trend in almost all countries has the same portrait related to the telecommunications business. The presence of digital services provides productive potential in the future and the saturation of the pure telecommunications business. Figure 9 shows a graph of the ICT market in Indonesia, where the telecommunications sector tends to be saturated, and the cyber security sector has not grown significantly. Still, the trend will become an important factor in the future, and the Digital Service sector is a factor that is expected to grow rapidly in the next few years.

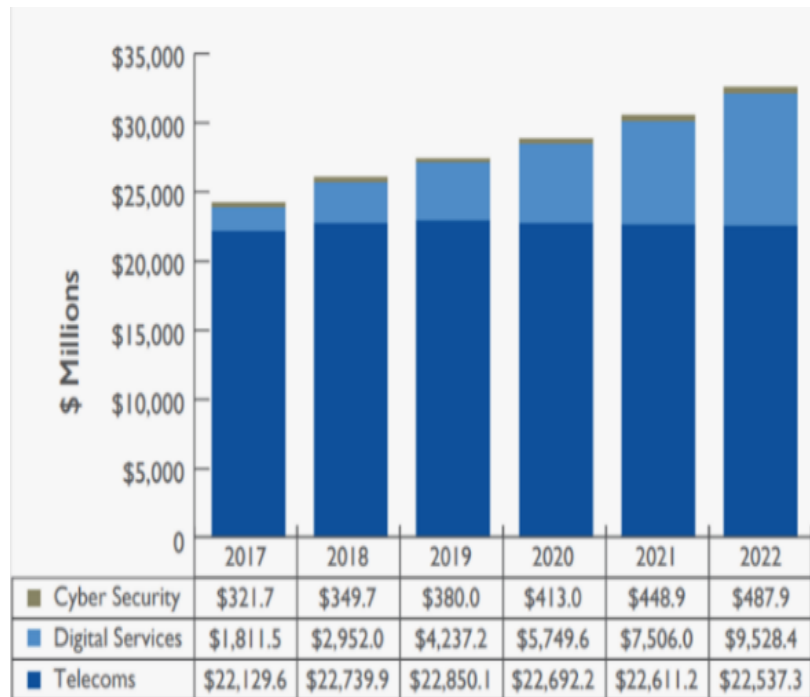


Figure 9. The market value of the Indonesian ICT sector 2017 – 2022 [29]

Moreover, being driven by the COVID-19 pandemic, which is a factor in accelerating changes in the ICT world, the telecommunications sector must start moving from the legacy telecommunications business (Voice, SMS) to the digital business. Figure 10 shows a graph of the Digital Telco Indonesia market specifically, which is not much different from the explanation in the previous section. The declining connectivity-legacy business has forced companies to move to-wards other businesses, namely data-connectivity, enterprise ICT, and digital life & smart platforms (Telkom Indonesia, 2020). It is expected that some of these business service products can increase CAGR up to 11-12%.

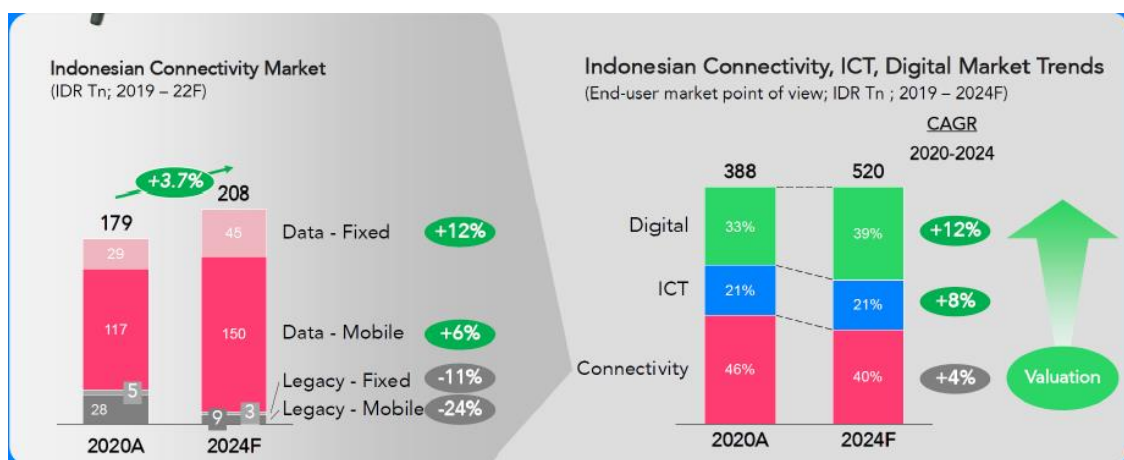


Figure 10. Indonesian digital telco market 2019 – 2025 [30]

In addition, the telecommunications company also needs to think about ways to enter a targeted and strategic digital business stream. The business stream is divided into dependent parts, each with its focus on product investment to generate maximum profitability. Figure 11 shows that three parts focus on digital business attention: Digital Connectivity, Digital Platforms, and Digital Services. 5G technology as an enabler of aspects of digital business is expected to be a new business opening for other digital platforms and services.

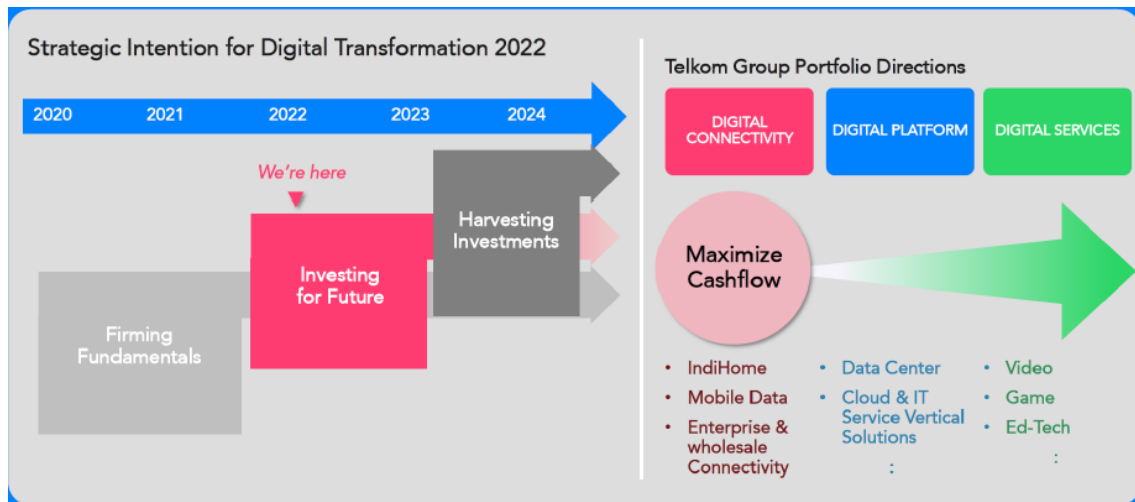


Figure 11. Strategic Intention for Digital Transformation [30]

Summary of data analysis result for these aspects: traffic, finance, network deployment, and digital services:

1. Traffic PT. MNO
Total Cellular Connection tends to stagnant at 178 million connections in Q4-2021 and has not increased compared to connections 4 years ago (181 million connections in Q2-2017). ARPU has not increased since 6 years ago, namely from 13.01 USD in Q4-2015 to 3.01 USD in Q4-2021.
2. Financial PT. MNO
Revenue has increased in the last 3 years, namely from 2.1 billion USD in Q2-2018 to 2.5 billion USD in Q3-2021.
Capex/Revenue Ratio has been relatively stable (between 13% - 14%) in the last 2 years, namely 15.33% in Q2-2019 and 15.81% in Q3-2021.
Net Profit was at the level of less than 500 Million USD in the last 2 years, Net Profit reached 507 million USD in Q4-2018 after that it was at the level of 4xx Millions USD including the latest data in Q3-2021 Net Profit of 467 million USD.
3. Network Deployment
Network development in Indonesia is still uneven and there is a digital divide. Based on BPS data, the Top 5 Internet Access Distributions are the most consecutive in DKI Jakarta, D.I.Yogyakarta, Riau, East Kalimantan, and Bali. Meanwhile, The Bottom 5 Distribution of Internet Access is the lowest in Papua, NTT, North Maluku, West Sulawesi, and Maluku.
4. Digital Services
Based on the ICT Market in Indonesia, Telecommunications revenue has experienced saturation, but Digital Services continues to show growth since the last 5 years (2017 until now).
After Covid, the legacy telecommunications market fell rapidly, and the market moved from Legacy to Data Connectivity and Digital Business (for example Digital Life and Smart Platform rose by 11% with a market share of 18%).
To maximize cash flow (profitability), PT. MNO makes Investments in the Digital Platform domain.

Based on those analyses (ARPU has not increased, Net Profit was less than 500 Million USD, Network development in Indonesia is still uneven and there is a digital divide), clearly shows that PT. MNO urges to do Business Transformation.

Conclusion

As one of the largest telecommunications companies in Indonesia, "PT. MNO Indonesia" should move from connectivity to a digital business. Some of the aspects of measuring business performance consist of traffic, finance, network development, and digital services. It is very important to transform the telecommunications business from connectivity to digital business to sustain itself as the largest operator in Indonesia with a decent level of profitability. With the increasing interest in digital applications, the company should make investments and innovations in digital platforms that can create new business opportunities and maximize the monetization of digital services. The community's need for high-speed services increases rapidly, especially after Covid-19. Three interrelated digital business domains can be implemented: Digital Connectivity, Digital Platforms, and Digital Services.

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