

Comparative Analysis of Digital Economy in Lao PDR and Malaysia: An Overview

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Abstract. Widespread use of the internet and the development of high-speed computing have led to the emergence of a new economic structure known as the "digital economy." In ASEAN, the digital economic revolution has had tremendous growth rates. According to Think with Google, the Southeast Asian (SEA) internet economic worth increased by a staggering 40% between 2018 and 2019. Lao PDR and Malaysia as countries in ASEAN are facing a challenge on digital economy adoption. This paper analyses an overview of the digital economy in Lao PDR and Malaysia by 2019-2022. The paper methodology is based on a qualitative analysis of six major components: connectivity, privacy and cybersecurity policies, transformation, creation, and regional collaboration. Data collection gathered by literature review on relevant studies. The results of the studies showed a huge gap between Lao PDR and Malaysia in digital economy adoption according to mentioned benchmarking components. Infrastructure, regulation and cybersecurity are the main obstacles in implementing the digital economy in Lao PDR whereas Malaysia has yielded more results with tremendous growth in the digital economy sector on the contrary. The gap between Lao PDR and Malaysia has ignited urgent regional collaboration between both countries.

1. Introduction

The digital era has arrived in Southeast Asia, and consequently shifted individuals' activities to the internet. In Southeast Asia, people from all walks of life—from youngsters to adults—have embraced the adoption of internet technology. The internet may infiltrate the dimensions of its users' lives, time, and even space, allowing anybody, anywhere, and at any time to use it. As an example, the number of internet users in Southeast Asia is expected to increase annually in 2022 by 3.1%. It defines Southeast Asia as the world's second fastest-growing area in terms of internet penetration. The number of Southeast Asian internet users has increased by 53.9 million since 2019 when 54.0% of the population is online [1].

The "digital economy" is a new type of economic structure that has emerged as a result of the Internet's widespread use and the advancement of high-speed computing. Our society has undergone a profound upheaval as a result of the digital economy. Online economic transactions that utilize the internet-based tools or new information and communication technologies (ICT) are a rapidly growing sector of the

economy as well as the main vehicle of the economic growth. In global economy, the role of the digital economy in facilitating cross-border transactions has grown. A multitude of factors, including the uses of smartphone, accessibility of high-speed internet, changes in consumer behaviour, service sector deregulation, the convenience of processing payments online, and others, have laid the groundwork for a rapid increasing cross-border economy [2]. As part of the ASEAN, Singapore, Malaysia, and Indonesia are considered as parts of the top markets with the greatest rates of the digital economy adoption worldwide. The expansion of global e-commerce will contribute to a growing share of private consumption during the next five years. The continued growth of online shoppers provides a solid foundation for e-commerce purchases. By 2025, it is anticipated that The digital economy of ASEAN would have grown 5.5 times overall. [2], [3, p. 2].

The rapid increase in the number of internet users in ASEAN is a further proof of the region's tendency toward digital transformation as a new hub for the advancement of regional digitalization. With its potential, ASEAN has also been successful in promoting the use of the internet and social media in a number of ways that can spur the economic growth through economic activities related to health, education, entertainment and travel [3, p. 8]. Maximizing the potential of digital technology is an obvious challenge for the ASEAN members in pursuing growth and prosperity, including through their regional integration agenda. As a result, they will face many of the same challenges as other developed and developing economies, such as increasing technology adoption in all companies and individuals, ensuring people have the skills to make the most of it, and putting in place the necessary infrastructure, macroeconomic, and regulatory circumstances to help their economy adapt to and gain from the new digital realities [4].

Malaysia and Lao People Democratic Republic as part of ASEAN have faced challenges to optimise implementation of the digital economy. According to We are Social, Lao PDR internet users have reached 3.8 million users or 51% of the population with 7.5% annual growth by 2022 [6]. Digital technologies have given Lao people and enterprises new ways to connect with local and global markets as the only landlocked nation in ASEAN. Compared to Malaysia, Malaysia has contributed double-digit market shares in the region in 2018. The economic growth of Malaysia, Indonesia, Singapore, and Thailand are anticipated to rapidly increase by double-digit numbers in the years to come.. Though their combined market share in regional markets will be less than 30% by 2023, declining from 40% in 2018, their combined market size will have doubled by that time [3].

In order to sustain and improve the implementation of the digital economy, it is important to grasp the current situation and resources and understand the advantages and disadvantages of such implementation as it helps in deciding how resources and policies will be used to make the sector better in the future. In analysing the implementation of the digital economy in certain countries, previous research lacked a systematic approach.

Previous studies from Sengpunya (2020) shows that the potential of digital economy in Lao through e-commerce is highly potential and important. E-commerce, as part of the digital economy, has the potential to help Small and Medium Enterprises (SMEs) reduce the high costs of participating in trade while also increasing survival rates and participation for small businesses. Additionally, Lao PDR has a great deal of potential to develop as the transportation and communication hub for the region given its advantageous geographic location and political-social stability. Landlocked status has become One of the challenges for Lao PDR in developing the digital economy infrastructure. [5]. The studies from Naszariah et al. (2021) titled "Issues and Challenges Of Online Shopping Activities On The Impact Of Corona Pandemic: A Study On Malaysia Retail Industry" reveal that during the pandemic, most of the consumers' purchasing behaviours substantially changed in favour of shopping online. While the majority of consumers has shifted to online shopping, Malaysia is still regarded to be developing its e-commerce industry slowly, lagging behind other ASEAN countries like Singapore. This is a first-step test and chance for the retail sector to adapt, investigate, and utilise internet purchasing platforms [6].

Thus, further studies in measuring the successful implementation of the digital economy are needed to provide useful guidelines for Laos, Malaysia and other countries that aim to improve the quality of the digital economy in their countries. The purpose of this study is to analyze the implementation of the digital economy in Laos and Malaysia and compare it to study the constraints and best practices that would possibly be adopted by the two countries. To analyse the implementation of the digital economy in Laos and Malaysia, Digital Economy Framework from Joey Erh (2021) will be used in this studies with slight changes to the analysis components which consist of connectivity, privacy and cybersecurity regulations, transformation, creation and regional collaboration.

2. Methodology

The method used in this study is qualitative research and the data collection technique that will be used is library research, which is a study that relies on data from libraries such as books, journals, magazines, and others, then the examination of number of these data with the aim of describing or reconstructing certain social phenomena in a holistic manner, objectively and accurately. Subsequently, the data that has been collected will be analysed qualitatively and then presented descriptively. The data collection process carried out in this study is to collect data from international and local media, journals, as well as online searches by accessing websites related to Digital Economy in Lao PDR and Malaysia.

3. Literature Review

3.1. Digital Economy

Various definitions of digital economy may emerge throughout its development, yet there are no exact definition cause of broad interpretation from different perspectives. For instance, Center of Development Informatics (2016) in Hanna (2020) defines "digital economy," which includes the digital sector as well as areas of the economy that are fundamentally digital and have no analog equivalent, may be referred to as the "digitalized economy." [7]. Brynjolfsson & Kahin (2000) in Bukht & Hecks (2017) defines the phrase "digital economy" refers specifically to the massive unfulfilled revolution overall economic fields brought about by the information's digitization through computer technology. While "information economy" phrases currently refers to the broad, long-term trend toward the expansion of information and knowledge-based assets and value relative to the tangible assets and goods connected with manufacturing, mining, and agriculture [8].

The idea of the digital economy is one of prominent model that developed from a combination of rhetoric and reality. It is asserted by some scholars to be the main engine of economic growth and to bring about "life-changing economic upheavals" and "deep regional repercussions on businesses, employment, and people." There is a widespread belief that the digital economy will assist the developing countries in expanding their economies, including increasing labour and capital productivity, cutting transaction costs, and making global markets more accessible. However, there are difficulties that go along with these chances. Risks of being left out of opportunities exist, such as those associated with low levels of digital ability and technology adoption both inside and between nations [8].

3.2. Economic Development

Schumpeter in his book "The Theory of Economic Development" defines that economic development has been merely the object of economic history that is essentially a subset of universal history that has been separated from the rest for expositional purposes. Because of the inherent reliance of the economic aspect of development, an economic change cannot be explained just by previous economic conditions. This is exemplified by the framework of Schumpeter's key work, which divides economic activities "into three different classes: those of the circular flow, those of development, and those that hinder the latter's undisturbed progression." [9, p. 37]

Schumpeter's idea of economic development differs from the stationary processes of the circular flow in three key ways: It arises from within the economic system and is not simply a reaction to changes in external data; it occurs abruptly rather than gradually; and it introduces qualitative changes or "revolutions" that fundamentally displace existing equilibria and produce significantly different situations. According to Schumpeter, the "entrepreneurial class" dynamic innovations are a major competitive force in economic progress. The "perennial gale of creative destruction," in which new products and processes supplant older ones, is far more essential than price rivalry between existing enterprises and goods. He also states that economic development is accompanied by growth, which is defined as a consistent increase in national income, savings, and population.

Derived from his main ideas above, Schumpeter believes that innovation encounters enormous challenges. First, the knowledge required for decision-making on entrepreneurial fields exists outside of the circular flow's known and reliable data, hence is cloaked in uncertainty. Second, objective uncertainty is exacerbated by individuals' subjective unwillingness to venture into the unknown. Third, there is non-innovator hostility toward the pioneer, shown in the shape of political and legal impediments, customs, social mores and so on [9, pp. 10–14].

From this perspective, Schumpeter's argument is consistent that innovation and its application can be hampered and have implications for economic development in Lao PDR, Malaysia and other countries in ASEAN.

4. Result and Discussion

4.1. Connectivity

According to We are Social (2022), Lao PDR internet users have reached more than 3.8 million people or 51% of the population with 7.5% annual growth by 2022 [10]. Lao PDR perceives information and communication technology (ICT) as a critical component in achieving socioeconomic development. It improves people's access to ICT across the country, stimulates investment on ICT construction and development infrastructure by foreign and local investors, embraces research and development in technological advancement, and builds institutional and human resources capacity. Overall, it strives to ensure that the legal framework, sectoral circumstances, and institutional and human capacities are in place to help Laos fulfil its needs and tackle the upcoming challenges [5].

On recent agendas, Lao PDR is actively attempting to strengthen its economy, especially the digital economy. However, Lao PDR is still struggling in ensuring connectivity to both digital infrastructure and logistic infrastructure. Compared to Malaysia, Chen (2020) implies when it comes to the simplicity to arrange affordable shipments and high frequency of their arrivals at their destinations on time or ahead of schedule, Malaysia does not have many significant issues. [3] Figure 1 shows the comparison of Logistic Infrastructure Quality both in Malaysia and Lao PDR.

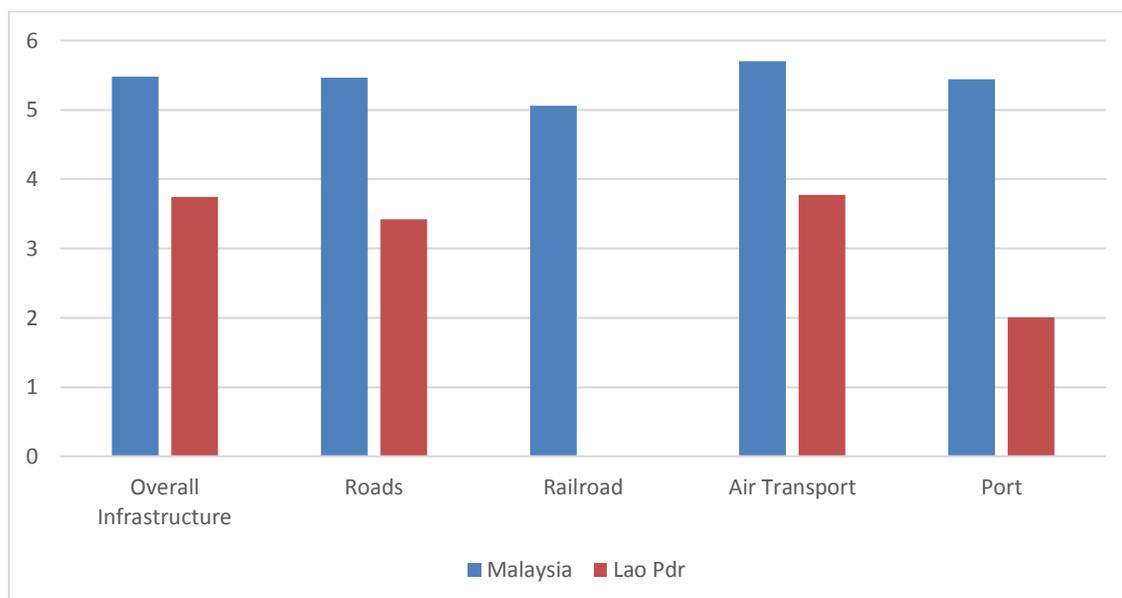


Figure 1 Logistic Infrastructure Quality, 2020

On the side of internet connectivity on mobile services, about 80 percent of the population is now covered by the fastest available mobile broadband networks (4G/LTE). But this coverage does not necessarily equate to access. The actual 4G/LTE broadband subscriptions in Lao PDR significantly lags behind compared to other countries in the region (Table 1). The quality of mobile broadband is improving yet varies significantly within the country. Based on the Ookla Speedtest crowdsourced data (February 2022), mobile broadband performance in Lao PDR is proved to be slower than in Thailand and Vietnam, faster than Cambodia, Indonesia, and the Philippines and comparable to Malaysia [11, p. 28]. Table 1 shows the connectivity to Mobile Communication Services among ASEAN countries in 2022 [11].

Table 1 Connectivity to Mobile Communication Services, 2022

Mobile Technology	Lao PDR	Cambodia	Vietnam	Thailand	Malaysia	Indonesia	Philippines	China
GSM	902,080	4,235,413	21,622,204	2,682,273	2,312,500	52,300,000	51,181,550	18,648,745
GSM%	11%	25%	37%	8%	9%	14%	32%	1%
3G	3,798,230	3,873,000	37,500,000	20,914,563	856,000	112,886,000	18,768,000	36,000,000
3G%	32%	18%	30%	21%	2%	30%	13%	2%
LTE	2,545,000	12,550,000	64,550,000	70,952,889	43,215,000	204,645,000	85,894,200	1,285,000,000
LTE%	30%	61%	52.2%	72%	53%	50%	54%	78%
5G	10,750	0	0	3,700,000	0	390,000	1,879,000	301,370,255
5G%	0.1%	0%	0%	0.8%	0%	0.1%	1.2%	18.4%
Total	7,346,000	20,485,413	123,762,204	96,250,725	46,390,500	308,995,000	157,742,750	1,640,819,000
Mobile Penetration	96.50%	121.10%	128.30%	140.50%	141.80%	134.20%	142.50%	113.70%

In comparison with several countries of ASEAN, Malaysia has made plenty of investments in its digital infrastructure. However, the problems with the fixed broadband market structure have had a negative

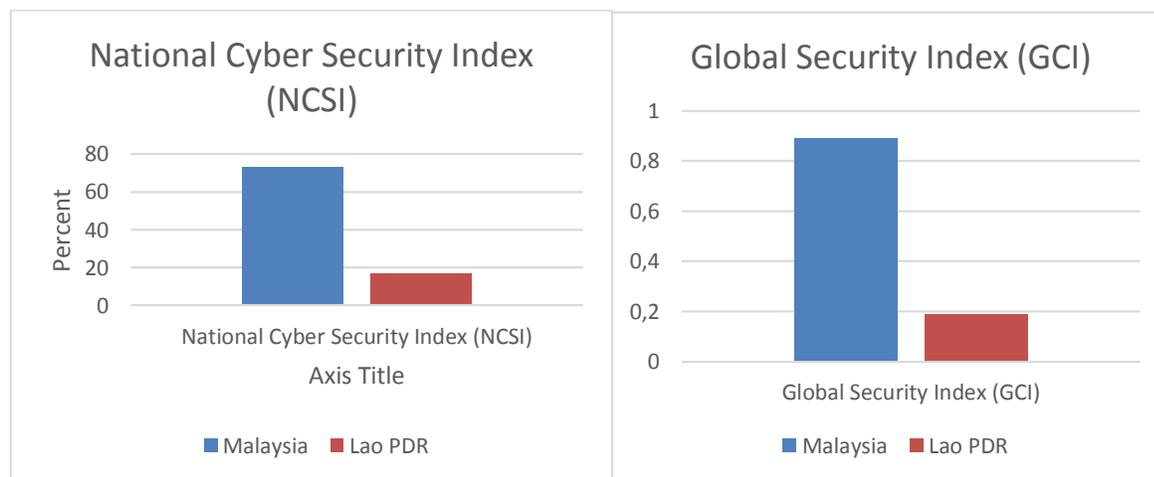
influence on the service's price as well as the deployment of fixed broadband and the quality and speed of the internet. Despite the fact that the Malaysian government has previously implemented the Mandatory Standard on Access Pricing (MSAP) to solve the affordability issue, there ought to be more changes to promote competition in this industry to address other difficulties that Malaysians confront [12].

4.2. Privacy And Cybersecurity Policies

As a part of its ongoing efforts to build an all-encompassing e-commerce legal framework that will support the ICT development and broad adoption of e-commerce, Lao government has also approved a number of laws that are pertinent to e-commerce activities. In addition, it encourages the development and use of electronic stamps and signatures both in private and public sectors' operations, businesses, and services. This promotes e-commerce services and other electronic transactions that advance the economy and benefit society. It also encourages users to access the internet in a way that is secure, quick, convenient, and fair [5].

To enable the free flow of data with trust, cybersecurity precautions are essential. Potential cyber threats within this means includes personal data theft, intellectual property rights violations, disruption of critical infrastructures, private information leaks and denial of service. Cyber threats complexity and organization have significantly grown [13]. It is vital to improve cyberspace security in terms of digital connectivity and prevent consumers from being disrupted by unwanted cyber activities [13]. Figure 2 shows Preparedness and Commitments on Cybersecurity measured by National Cybersecurity Index and Global Security Index in Malaysia and Lao PDR.

Table 2 Preparedness and Commitments on Cybersecurity



According to the data, Malaysia is shown to have outperformed the Lao PDR in terms of cybersecurity preparedness and commitments. The majority of countries in ASEAN have a high level of commitment to implementing cybersecurity measures, yet the CLM countries such as Lao PDR are still falling behind. From a regional standpoint, imbalanced cybersecurity development would impede regional data flows and raise the cost and risk of doing business online. Improving national capacities in cybersecurity adoption and integration will necessitate efforts in law enforcement, education, intra-state cooperation, and public-private partnerships.

4.3. Transformation

Improvements in transportation and payment infrastructure have led to the recent expansion of Lao PDR e-commerce, since purchasing commodities online is increasingly popular among young people. E-commerce is still not commonly used in Laos due to undeveloped telecommunication infrastructure and low usage of banking and credit cards. Nonetheless, he has made significant strides in trade liberalisation. The access to telecommunications services, notably mobile phone services, has increased during the previous 10 years, particularly in Lao PDR. However, the sector's continued development is limited by licensing system limitations, independent authorities, and an egalitarian market. In addition to increasing mobile connectivity in recent years, to promote the use of digital financial services (DFS), Laos needs to strengthen its Internet infrastructure. The Lao PDR had more than 80% of the population had a mobile phone as of 30 June 2019 and had 2.5 million internet users, or about 35.4% of the total population; however, only 40% of the population used DFS, and the lack of technological literacy in rural areas continues to be a major obstacle for the country's implementation of DFS [5].

As Laos progresses in its digital transformation, the governance structure needs to be further consolidated. Effective implementation of the digital strategy requires an appropriate institutional framework which is believed to help institutions to break with the traditional culture of working in isolation. The MTC's position as the lead institution of the ecosystem is key, but better coordination is necessary. Giving priority to coordination of planning and implementation with other entities would be beneficial. Priority areas that should be addressed include; (1) strengthening coordination mechanisms, providing a formal institutional forum to facilitate and promote dialogue among stakeholders and (2) strengthening key enablers such as digital payments, digital skills, and cyber security [11, pp. 17–18].

On the other hand, Malaysia had established the Malaysia Digital Economy Corporation to promote the expansion of e-commerce (MDEC). The Malaysian government earmarked US\$19.7 million for the Digital Free Trade Zone's (DFTZ) first phase establishment in its 2018 budget. The DFTZ is Malaysia's first attempt to profit from the convergence and rapid expansion of the digital economy and international e-commerce. By 2020, it will contribute RM211 billion (US\$48 billion), and by 2025, the growth rate will have doubled. It will do by providing customers with an e-services platform to connect them with the government and other business providers, promote seamless cross-border trade, and more [14].

4.4. Creation

According to World Bank Report (2022), the data shows that the digital economy in Laos is estimated at around 3% of GDP, with hopes that it will grow to 10% of GDP by 2040. Lao digital economy is close to the size of the other manufacturing sectors and slightly larger than financial activities (4.4 percent of GDP in 2020) and insurance (3.0 percent) [11, p. 6]

However, e-commerce is still in its early stages in Lao PDR, and e-commerce operations are relatively new to the Lao people. Consumer and business adoption of e-commerce is still restricted. There are now numerous projects underway in Laos to boost the usage of e-commerce among SMEs. Plaosme is one of example fantastic effort that was launched in 2017. Plaosme is a Lao PDR government-created e-commerce platform designed to help SMEs in the country improve their e-commerce and export capacities by providing access to trade associations, business matching and digital marketplaces across ASEAN. [5]. Besides of Plaosme, there also Oolaa and Yula which have played the role as the most popular e-commerce platforms in tge Lao PDR [15].

On the other hand, Malaysia had tremendous growth with the expansion of e-commerce and its related advantages. It is fair to say that online shopping is currently prospering. Consumers are becoming more and more accustomed to making purchases online in Malaysia. Simon and Sarah (2019) in Erh (2021) report that 80% of Malaysians made an online transaction. Customers' intention to make online purchases has been strengthened by the convenience provided by websites, such as practicality and saved time and energy [12].

Participants acknowledged Malaysia's SMEs have a great opportunity to engage in the e-commerce industry, but they also emphasized that legislation and technical obstacles provide difficulties. The region's delayed adoption of e-commerce was attributed to a number of factors, including uncertainty about the security and privacy of online financial transactions and a shortage of qualified workers. It was also mentioned that choosing the best model to use can be challenging because cross-border trade involves various e-commerce platforms, incentives, and bundles and may highlight cultural divides. Lazada, Shopee, Mudah, and other local marketplaces are used in Malaysia. The biggest obstacle for Malaysia's SMEs to compete with major online retailers on the global market is a lack of novel concepts and goods. Participants emphasized that Malaysian SMEs may encounter two major issues, namely a lack of effective e-payment gateways and a backlog in e-payment supporting logistics [3].

4.5. *Regional Collaboration*

Another endeavour to boost e-commerce in the Lao PDR is electronic payment services provided by Banque pour le Commerce Extérieur Lao, a state-owned commercial bank (BCEL). In collaboration with CyberSource, a California-based e-commerce credit card payment system, BCEL has been providing online payment services, allowing businesses to accept payments more freely around the world. To promote e-commerce in Lao PDR, Thai currency exchange firms named SuperRich introduces a digital platform for e-payment, foreign exchange, and cash transfer services. Those platform are few of many requesting Lao PDR Government authorization. [5].

On the other hand, Malaysia has to increase its capacity for e-commerce adoption in order to compete with international business partners. The Economic Transformation Programme, which introduced and developed various major industries, including e-commerce, such as the "virtual mall" initiative, is only one example of the tremendous support the government has given in recent years. Aiming to expand the Internet-based retail market by utilizing Malaysians' increasing disposable money, the government's initiative, through the Performance Management and Delivery Unit, also produced better broadband services and access to more cutting-edge mobile devices.

This innovation is reflected in the National E-commerce Strategic Roadmap's six main goals, which are to (i) acceleration of e-commerce adoption by merchants, (ii) improving e-procurement adoption, (iii) remove non-tariff barriers (as well at the cross-border transaction, national level, consumer protection and e-payment services), (iv) realign economic incentives, (v) improving investments at strategic sector, and (vi) promote Malaysian businesses to increase cross-border e-commerce [14].

5. **Conclusion**

A new economic structure known as the "digital economy" has emerged as a result of the widespread usage of the Internet and the advancement of high-speed computing. The digital economic revolution has experienced incredible development rates throughout ASEAN. Lao People's Democratic Republic is actively attempting to strengthen its economy, especially the digital economy. However, Lao PDR has still struggled on ensuring connectivity both digital infrastructure and logistic infrastructure. The implementation of the digital economy in the Lao PDR is also slowed down by government policy and regulations. Comparatively speaking, Malaysia has a significant market share in the ASEAN region's digital economy. It demonstrates this by investing heavily in its digital infrastructure. The Malaysian government is particularly supportive of maintaining the ecosystem's quality in the digital economy. The Malaysian government has previously implemented the Mandatory Standard on Access Pricing (MSAP) to address the affordability issue and the Digital Free Trade Zones to increase foreign investment in the digital economy. However, more changes to promote competition must be made in this sector to address other challenges that Malaysians face. Additionally, there is still no regional cooperation between any of those nations to expand the digital economy environment. Thus, author suggests enhancing regional collaboration on the digital economy both through ASEAN Economic Community or with other parties.

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