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ROLE OF DIGITAL ECONOMY TO ECONOMIC DEVELOPMENT IN THAILAND

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ABSTRACT

This research examines the role of the digital economy in supporting economic development in Thailand. Using a qualitative method with a case study approach, the study identifies how Thailand has adopted a strategic framework known as the 5-E strategy, which consists of e-Government, e-Industry, e-Commerce, e-Education, and e-Society. Digital technology plays a vital role in both daily life and national economic activities, serving as a foundation for innovation and modernization. The government's digital economic policy focuses on advancing key sectors such as the automotive and electronics industries, medical tourism, smart healthcare services, and agriculture through the use of automated and intelligent machinery. These initiatives aim to accelerate digital transformation and promote sustainable economic growth. The study emphasizes the importance of integrating economic policy, political strategy, and technological innovation to drive the digital economy effectively. Thailand's experience provides valuable insights for other ASEAN countries, particularly Indonesia, as a practical reference for optimizing the digital economy to enhance national development. This case highlights how a structured and inclusive digital strategy can strengthen a country's economic resilience and global competitiveness in the digital era.

Keywords: Digital economy, Economic development, Thailand

INTRODUCTION

The process of globalization today is marked by rapid advancements in various sectors such as communication, transportation, information, and technology, which have significantly shaped broader patterns of international relations. This phenomenon has altered the nature of interdependence among countries and communities, creating new forms of interaction and cooperation between international actors. Globalization has not only increased the intensity of these interactions but has also encouraged the exchange of ideas, resources, and technology across national boundaries. In this global dynamic, the digital economy has emerged as a central element in supporting Thailand's economic development. It plays a vital role in driving national growth through sectors such as e-commerce, digital advertising, and the online gaming industry while improving productivity and operational efficiency. The digital economy enables businesses to streamline their processes, minimizing time and financial costs. The concept of the digital economy was first introduced by Tapscott (1996) as a transformation of socio-political and economic systems in the digital era, with Zimmerman (2000) further explaining its significant impact on both global macroeconomic and microeconomic frameworks.

Economic development has experienced continuous transitions, beginning with Economy 1.0, where agrarian societies depended on labor and simple trade. This was followed by Economy 2.0, an era of industrialization characterized by mass production and structured work systems. The subsequent Economy 3.0 integrated information technology into the workplace, enhancing performance and productivity. At present, the global community has entered the Economy 4.0 phase, marked by the merging of virtual and physical worlds through digital platforms. This era emphasizes knowledge, creativity, and innovation, with digital technology playing a crucial role in daily life and economic operations. The benefits of digital transformation are increasingly felt by producers, consumers, investors, and capital owners globally. In response to these developments, ASEAN as a regional organization is actively formulating regulatory frameworks to manage the growth of the digital economy. Among its member states, Thailand stands out as a country that has successfully adapted to digital economic trends, becoming a key player in Southeast Asia's digital transformation.

Thailand is one of the countries that views digital technology as a key driver for its economic advancement. In the past, Thailand's economic growth was primarily sustained by maximizing the use of its natural resources. However, as these resources became increasingly limited and the economy based on traditional industries began to stagnate, the government sought alternative development strategies. This led to the adoption of the creative economy concept, which emphasized the importance of knowledge, intellectual capacity, and cultural identity in producing innovative and high-value products and services. Although this approach initially contributed to economic development, it faced challenges such as fluctuating product values, political instability, and market unpredictability, preventing it from achieving long-term goals. In response, the Thai government shifted its focus towards digitalization, combining the value of knowledge and intellectual resources with the potential of digital technology. The government now aims to stimulate economic growth through the creation and application of domestic digital innovations. Thailand has also faced issues such as the middle-income trap, economic inequality, and structural imbalances. The adoption of a digital economy is expected to enhance national competitiveness and strengthen capacity across all economic sectors. Globally, the digital economy has shown rapid growth, especially in developing regions, driven by economic, political, and technological factors (WEF, 2015).

The growth of the digital economy not only impacts areas such as international cooperation, e-commerce, and digital banking but also brings unintended consequences. One of these is the expansion of the underground economy. The rapid development of digital technology has made it easier for individuals to access and engage in illicit economic activities through online platforms. Beyond legal business transactions, internet accessibility has facilitated the spread of illegal practices, including online gambling, prostitution services, and the trade of prohibited goods, often found through simple keyword searches. In the context of Thailand, this phenomenon is particularly concerning as many young people, driven by curiosity and opportunity, are increasingly drawn to participate in underground economic activities. This presents new challenges for the government in balancing the benefits of digital economic growth with the need to regulate and monitor its negative social and economic impacts.

LITERATURE REVIEWS

To strengthen the analysis of the digital economy's influence on economic development in Thailand, this study incorporates relevant previous research as a theoretical and empirical foundation. One significant reference is the work of **Noppasit Chakpitak, Paravee Maneejuk, Somsak Chanaim, and Songsak Sriboonchitta** from Chiang Mai University, titled ***"Thailand in the Era of Digital Economy: How Does Digital Technology Promote Economic Growth?"*** This study, explores the growing role of digital technology in everyday life and economic activities, reflecting global patterns where individuals increasingly rely on e-commerce, social media platforms, and online information. Recognizing this shift, Thailand has repositioned digital technology as a strategic instrument for economic expansion, moving beyond its earlier emphasis on knowledge-based development alone. The authors employed a quantitative research method using the Stochastic Frontier Model (SFM) to examine the effects of digital technology variables, such as gross capital formation (GCF), on economic growth. The results indicate a positive, albeit limited, contribution of digital technology to national economic performance, revealing untapped potential for further optimization. The primary distinction between their study and the present research lies in scope and focus; while the former concentrates on measuring economic growth through quantitative modeling, this study emphasizes the broader framework of economic development through digital economic policy initiatives in Thailand.

Another relevant study was conducted by **Posmaria Sianturi**, published in Journal Inspiration, Volume 8 No. 2, September 2017, under the title "**The Role of the Digital Economy in Encouraging National Economic Growth.**" The study's background discusses the growing influence of the global economy, particularly the surge in consumption driven by the increasing ease of buying and selling through various digital platforms. This shift has significantly simplified access to goods and services for consumers, primarily through online shopping, commonly referred to as e-commerce. Employing a qualitative research method, the study gathered data from independent institutions such as Bank Indonesia and other relevant sources. The findings illustrate how online shopping activities in Indonesia have successfully connected consumers with producers across businesses of all sizes, from large corporations to small and medium enterprises (SMEs). Additionally, the banking sector, through its e-banking services, plays a pivotal role in accelerating the formation of a digital-based society. The study further highlights the rapid development of e-commerce in Indonesia, which has expanded market opportunities for SMEs and strengthened business transaction networks via the internet. Furthermore, Bank Indonesia has actively participated in establishing institutional frameworks for payment systems, including cross-border arrangements. The primary distinction between this research and the present study lies in its geographical focus; while Sianturi's study examines Indonesia's e-commerce growth, this research concentrates on Thailand's digital economic strategies and the sharp rise in online business activities, particularly amid the digital era and the COVID-19 pandemic.

A further relevant study was conducted by **Tanpat Kraiwanit**, published in Review of Integrative Business and Economics Research, Vol. 5(4), from Rangsit University, Thailand, entitled ***"Underground Digital Economy in Thailand."*** The study's background highlights how the advancement of digital technology has driven economic growth across various sectors. However, alongside its positive impacts, digital technology has also facilitated the rise of underground economic activities. With greater ease of access to online services such as e-banking and digital transactions, individuals can quickly engage in both legal and illicit activities. The study reveals a concerning statistic, indicating that 57% of individuals aged 13–21 in Thailand have participated in online gambling. Utilizing a convenience sampling technique and interviews for data collection, the research describes how online gambling platforms operate, allowing users to create login IDs, transfer funds to personal gambling accounts, and access these services continuously throughout the day. Additionally, the study notes the proliferation of illegal activities such as copyright violations in films, music, applications, and games, which are easily obtainable at significantly lower prices than legitimate products. The key distinction between Kraiwanit's research and the present study lies in its focus; while the former emphasizes the negative consequences of digital technology's misuse, particularly within the underground economy, this study concentrates on the constructive role of digital economy policies in promoting Thailand's broader economic development.

Another important study was carried out by **Asst. Prof. Dr. Paul IT Louangrath**, titled ***"Thailand 4.0 Readiness."*** The research background highlights the Thai government's announcement of its Thailand 4.0 development policy, which seeks to achieve economic prosperity, social security, human capital advancement, and environmental sustainability. These objectives are pursued by enhancing competitiveness across four primary sectors: agriculture, small and medium-sized enterprises (SMEs), high-value services, and the national workforce. Furthermore, Thailand 4.0 aspires to transition the country from a developing economy into an advanced, innovation-driven economy. The methodology applied in this study involved data sourcing, determining sample sizes, and conducting data validation tests. The study yielded three main findings: first, Thailand's GDP gap over the last decade (2008–2017) has remained relatively constant. Second, based on ten global economic characteristics, Thailand scored 0.295, indicating a 29.5% probability of achieving its expected economic goals, or a 57.84% success rate toward attaining First World Economy (FWE) status. With a threshold set at 51%, Thailand still requires an additional 21.5 percentage points to reach the target. Third, according to the Asian Development Bank's (ADB) partial indicator for sustainable economies, Thailand has yet to meet the standard. In contrast to this study's focus, the present research highlights how Thailand 4.0 has increasingly supported national economic development, particularly through the implementation of digital economic activities, which have become central to driving growth in the modern era.

Lastly, a study conducted **by Varuth Tanomvorsin** and **Wimol San-U**m, published in the International Journal of Future Computer and Communication, Vol. 7, No. 4, December 2018, titled **"A Holistic Architecture of Internet of AI-Centric as a Conceptual Framework for Supporting Thailand Digital Economy,"** offers further relevant insights. The background of this study discusses how the acceleration of economic growth through digital technology has drawn significant interest from both the government and private sector in Thailand. The digital-based industry remains in its early stages within Thai society, particularly in exploring the broad potential of its physical applications. Consequently, the study emphasizes the importance of artificial intelligence (AI) as a pivotal factor for Thailand's next industrial era, proposing the concept of an Internet-of-X framework that integrates physical objects, services, and data. The discussion highlights the AI-Centric Internet's contributions to the industrial sector's development, supporting the advancement of Thailand's S-Curve industries in 2020 — including automotive, smart electronics, agriculture, medical services, and food innovation — under the Thailand 4.0 strategy. This strategy aims to enhance competitiveness and expand the diversity of internet-connected devices, computing methods, and digital communication skills. While this study shares common ground with the current research in recognizing internet intelligence and digital economy drivers through services, data, and physical infrastructure, the primary distinction lies in the focus. This research specifically examines the role of digital economic policy in fostering Thailand's broader economic development.

METHODOLOGY

The method applied in this research is a qualitative research approach. A research method refers to the procedure used by researchers to gather, process, and scientifically analyze data or information. The use of a qualitative approach is considered suitable for this study, which carries the title "The Role of Digital Economy in Economic Development in Thailand." This is because the study falls within qualitative research, which produces descriptive information presented in verbal form. The qualitative method is also aimed at collecting relevant information and exploring phenomena concerning the research subject in greater depth.

This research applies a case study design. A case study research design is a type of study that provides a more detailed analysis of a specific issue, rather than relying on statistical surveys or comparative assessments. The objective of adopting this case study design is to narrow down a broad research area into a more focused and specific topic. For this reason, the study concentrates solely on examining the role of the digital economy within the context of Thailand.

The process of screening journals in this study involves several steps. First, it includes restrictions based on the publication year. This is intended to help select journals according to their year of release, so that the sources and data obtained are current and align with previous research developments. The set criteria limit the selection to journals published within the last ten years. Second, a duplication check is conducted. In this stage, the researcher manually verifies whether the same journal appears in multiple sources, and if duplicates are found,

only one version is selected. Third, an eligibility assessment is carried out. Here, the researcher examines the journal's title and abstract to ensure suitability with the research topic.

In the journal search strategy, the researcher performs a literature review by gathering and searching for information based on relevant keywords connected to the research topic. The journal search is done through internet-based platforms by accessing several websites such as Google Scholar, Libgen, and the e-resources of the National Library. The selected keywords used in this process include: digital economy, Thailand, and economic development.

DISCUSSION

Thailand has followed its economic trajectory to stay aligned with the global economy. During the economy 1.0 phase, the country's focus was on the agricultural sector. Moving to economy 2.0, Thailand shifted its focus to light industries, utilizing its natural resources and lower labor costs. Most products were sourced locally, rather than imported. As industrial production increased, Thailand's economy entered the 3.0 phase, which centered around heavy industry. This period saw Thailand become a global hub for mass production and export of goods. In the present day, Thailand has entered the Thailand 4.0 era, driven by an innovative and technologically advanced economy.

The primary goal of economic development is to ensure balanced growth, resulting in widespread prosperity and a dynamic national economy. The effects of development are felt more rapidly by the population if they experience fundamental shifts in the country's economic structure. As Todaro (2000) explains, economic development is a multifaceted process involving significant changes in social structures, societal attitudes, and national institutions. This includes accelerating economic growth, reducing inequality, and addressing absolute poverty.

In the past, the country's development efforts were guided by the National Economic and Social Development Plan, which has been pursued in a sustainable manner. However, Thailand currently faces various challenges, including widespread poverty, significant inequality, and a reliance on foreign technology. In response, the Thai government has introduced the Thailand 4.0 policy. The goal of this policy is to break free from the "middle-income trap" and transform the economy into one that is "value-based." This involves shifting from commodity production to innovative goods, moving from an industry-driven economy to one that is technology-driven, and emphasizing creativity and innovation. The focus has now moved from manufacturing products to providing services.

The new economic development program reflects Thailand's determination to establish itself as a hub for global investors within the Asian region. Under Thailand 4.0, the digital economy plays a crucial role in promoting the sustainability of community prosperity by leveraging available resources. The aim is to achieve a balance between happiness, prosperity, and national development. The Asian region, supported by economic powerhouses such as China, Japan, South Korea, India, and ASEAN, is a key driver of global trade growth. Thailand, situated within this dynamic region, has significant potential to become a central hub for trade, tourism, and various investments in both ASEAN and the Pacific.

Thailand is transitioning its economy by moving away from industry-driven growth, where manufacturing accounted for 40% of GDP in 2010, towards a high-tech, innovation-driven economy. In addition to launching the Thailand 4.0 policy in 2016, the government also introduced the Thailand Digital Package. As part of the Thailand 4.0 strategy, the government aims to build a technology-driven economy and establish Thailand as a digital leader, positioning it to compete within the ASEAN Economic Community. According to Brynjolfsson & Kahin, the digital economy refers to the broad trend of expanding assets and value based on information and knowledge, which has become increasingly important compared to traditional tangible assets linked to agriculture, mining, and manufacturing. This term highlights the global transformation of economic sectors, largely due to the digitalization of information supported by computers.

To further its digital ambitions, Thailand has implemented a 5-E strategy, encompassing e-Government, e-Industry, e-Commerce, e-Education, and e-Society. This strategy is focused on long-term goals, emphasizing the

development and application of digitalization to foster the growth of the digital economy. The Digital Economy Master Plan outlines five key areas to propel Thailand's digital economy forward:

1. Infrastructure: The Thai government aims to reduce the digital divide by establishing a robust digital infrastructure, which includes both fixed and mobile networks with reliable connectivity. These networks must offer appropriate capacity, coverage, and affordability to support the growth of the digital economy.
2. Service Infrastructure: This type of infrastructure facilitates innovation in services provided by both the government and private sectors. It involves creating platforms that provide access to e-government services such as paperless transactions, one-stop services, citizen-focused solutions, and eliminating the need for physical documents in identity verification.
3. Soft Infrastructure: This focuses on building public trust in digital technologies by ensuring the security of online platforms. It emphasizes the importance of secure electronic sites with identity verification processes to guarantee safe and trustworthy digital transactions.
4. Promotion of Digital Economy: The acceleration of the digital economy is driven by the development of a business ecosystem that supports SMEs and entrepreneurs. This includes enhancing the digital capabilities of businesses in sectors such as e-commerce and digital marketing to ensure they are well-prepared for the digital era.
5. Society and Knowledge Digital: This involves providing affordable universal access to technology for all Thai citizens, aiming to build a digital society that enhances the quality of life, reduces poverty, and promotes lifelong learning. It also focuses on improving digital literacy and ensuring that citizens are knowledgeable in using technology and information effectively.

An important factor that drives Thailand towards success is also by empowering Thai people with knowledge for the digital era like today. to be able to understand as the first step needed, which then makes the people involved in each procedure, aware of driving Thailand's progress towards success. Reaching target groups that are steps to educate the community, with the aim of making the community see the value of participation in driving Thailand. Development in all dimensions, this is a step to make life smarter public For can act in every dimension sustainably. Preparing a society that has opportunities and is capable, this is so that the community can see sustainable achievements where the community can see the opportunity to develop themselves from their own abilities, for communities with high opportunities and have a high level of ability to develop especially for five target groups, namely small farmers, hard workers, poor people in the city, parents and SMEs. Educating or conveying knowledge to the community in society cannot be achieved by just one or several work units, it must come from the cooperation of all parties. Therefore, it is the duty of every person to educate others in the society they are in, with the authority and duty to help propel Thailand towards success within a specified time frame.

The Thailand government has established a new ministry, the Ministry of Digital Economy and Society, to drive the adoption of digital technology across all sectors, fostering both economic and societal progress. This ministry is responsible for overseeing the development and management of Thailand's telecommunications infrastructure and promoting the use of digital innovations to support the country's socio-economic advancement. Within this framework, the Digital Economy and Society Committee takes several actions to encourage the growth of the digital economy:

1. National Broadband Development, this initiative focuses on utilizing the over 310,000 km of fiber optic cables owned by both the public and private sectors to ensure widespread internet access across Thailand. The goal is to provide high-speed internet at affordable prices for all individuals.
2. Data Center Development, efforts are made to stimulate investment in data centers within Thailand while minimizing the redundancy of such investments, particularly in the public sector.
3. Promotion of Digital Commerce, Digital Content, and Digital Entrepreneurs, this involves helping Thai businesses and industries grow and gain a competitive edge through digital technology-driven innovation in products and services. Initiatives include building e-commerce capabilities for SMEs, promoting the use of electronic supply chain management, fostering startups to become digital entrepreneurs, and supporting the creative economy.

4. Promoting Lifelong Learning in Thai Society, the government is leveraging ICT to enhance lifelong learning opportunities, especially in marginalized communities. It also supports the development of online learning platforms such as Thai Massive Open Online Course (Thai-MOOC), facilitated by the Ministry of Education.
5. Updating Digital Law, the government continues to follow through with plans to update existing laws and introduce new legislation that aligns with the evolving digital economy.

In Thailand's digital economy, the next generation of automotive technology includes electric vehicles equipped with Intelligent Battery Management Systems (BMS). These systems can be integrated into embedded devices and utilize vehicle hardware such as GPS, speed sensors, and distance measurement tools from smartphones, all of which can be operated remotely. The smart electronics industry has also become a major focus in the smart electronics-based industry, for example in the use of smart everyday products, smart product design and manufacturing processes and advanced electronic designs such as micro-electronics. In reducing medical tourism and health in Thailand experiencing some difficulties due to the lack of adequate support to generate more value from tourism resources and the ability to compete in the world. Therefore, Thailand focuses on digital tourism that involves the help of data analysis in finding relational knowledge and also creating intelligent systems for tourists through web-based or mobile applications. In health, it is also explored based on the perspective of *Hospitality Bridging Healthcare* (H2H) which transforms ordinary health centers into comfortable places that consider a human-centric approach with smart devices, systems, and real-time data centers. In the agricultural sector, Thailand is developing smart agriculture to enhance the value of natural products and resources. This approach incorporates the use of sensors, actuators, multifunctional drones, and automated machinery in farming. Additionally, it focuses on managing the sales and marketing of agricultural products, ensuring high-quality output through smart farming techniques.

Digital economic activities demonstrate that technology can positively impact Gross Domestic Product (GDP) growth, albeit not significantly. This growth became evident once Thailand gained access to the internet. The digital economy has expanded not only in Thailand but also across ASEAN nations. The number of internet users has rapidly increased, alongside the growth of broadband internet. As digital economic activities become more advanced and accessible, it enables people to perform various tasks online, making it easier and more time-efficient for everyone. However, within Thailand's digital economy, there are also illegal economic activities that complicate and undermine economic management. The profits from these activities are often used for luxury consumption or speculative investments in the stock and property markets. Thailand has gained an international reputation as a country where illegal businesses prosper due to weak law enforcement. These activities contradict government policies aimed at controlling consumption, promoting savings, curbing inflation, and regulating speculative behavior in markets such as stock trading, commodity trading, and forex trading.

Digital economic activities have been widely carried out now. Before the pandemic occurred, Thai traders generally did their work by adapting to the digital era. Traders also created websites for buyers to be able to make transactions and also conduct data analysis to better understand buyer needs. Then in early 2020, the implementation began social distancing , lockdown and other measures, which ultimately make consumers change their behavior such as online shopping, use media s o c i a l using internet phones to communicate, and stream videos or film consequence pandemic covid-19. This has also resulted in a surge in online shopping businesses, especially in *business-to-consumer* (B2C) sales. as well as *e-commerce business-to-business* (B2B). According to the Electronic Transactions Development Agency (ETDA), online sales This estimated reach $49 billion in 2020, up from around $33 billion in 2017.

The Thai government has also worked on expanding broadband networks to reduce the digital divide and foster economic development through e-commerce, allowing villagers to start selling local products and services online. Thailand currently has about 48.6 million internet users, an increase of 3.4 million (7%) between 2020 and 2021. Additionally, there are 47.5 million mobile phone users and 55 million social media users. The most popular social media platforms in Thailand include Facebook, YouTube, Line, Instagram, Twitter, and TikTok. Specifically, Thailand has approximately 51 million Facebook users, 45 million Line users, 37 million YouTube users, 16 million Instagram users, and 7 million Twitter users. The pandemic has accelerated the shift towards a cashless society in Thailand, with more people making payments online.

Thailand's ambitious digital economy policy aims to position the country as a key player not only in the ASEAN region but also on the global stage. The goal is to propel Thailand out of the middle-income trap and into a high-income economy. To achieve this, the digital economy policy applies the value chain concept, integrating primary and support activities in a way that drives Thailand toward sustainable development. As the government and society at large embrace digital transformation, the reach of Digital Thailand is expected to expand, impacting more than just digital economic policies. However, like many other developing nations, Thailand still faces challenges in terms of updating its digital economic laws.

CONCLUSION

To foster the rapid growth of the digital economy in developing countries, it is essential to integrate economics and politics with technological innovation. Thailand has consistently adapted to changes, evolving from an agrarian society to an industrial one in line with global economic trends. However, as the global economy advances to Economy 4.0, Thailand risks falling behind if its development doesn't keep pace. In response, Thailand introduced the Thailand 4.0 policy to align with Economy 4.0. The goal of the Thailand 4.0 policy is to move the country out of the middle-income trap and transition its economy to one based on value, shifting production from commodities to innovation. This includes focusing on technological, creative, and innovative advancements while emphasizing services over products. Thailand's economic development is guided by a 5-E strategy: e-Government, e-Industry, e-Commerce, e-Education, and e-Society. This long-term strategy aims to support the growth of the digital economy, with the Digital Economy Master Plan focusing on hard infrastructure, service infrastructure, soft infrastructure, digital economy promotion, and a digital society and knowledge. The Thai government has also formed a Digital Ministry, namely the Ministry of Digital Economy and Society. The Ministry of Digital Economy and Society also helps develop economy with carry out broadband development, data center development, digital trade promotion, lifelong learning promotion in Thai society, and follow up on the completion of digital law. With the existence of this digital economy, economic development in Thailand continues to grow. advanced, such as in automotive in Thailand has electric vehicles with *Intelligent Battery Management System* (BMS) that can be embedded in the vehicle. In the industrial sector of Thailand smart electronics industry with intelligent product design and manufacturing processes and sophisticated electronic design for example Microelectronics. In Thailand medical tourism focuses on intelligent systems for tourists through web-based or mobile applications. In health, it is explored based on the perspective of Hospitality Bridging Healthcare (H2H) which transforms ordinary health centers into comfortable places that consider a human -centric approach with device intelligent, system, and center data real time. In sector Thai agriculture creates smart farming through utilization sensors, actuator, drone multipurpose as well as machine automated farming.

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