

2024 KRI Discussion Paper No.1

Comparative Policy Studies: Korea and Southeast Asia
Korea Research Initiatives ▪ University of New South Wales ▪ Australia

Policy Case Studies

A POLICY STUDY: SHARING KNOWLEDGE IN THE AREA OF DIGITAL TRANSFORMATION FOR NATIONAL DEVELOPMENT BETWEEN ASEAN AND KOREA - CASES FROM KOREA, INDONESIA, THAILAND, CAMBODIA, AND LAOS

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AND LAOS**

KRI Research Team

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Korea Research Initiatives (KRI)

The University of New South Wales
Sydney NSW 2052 Australia

Tel: +61 2 9385 4466

E-mail: kri@unsw.edu.au

Web: <http://www.kri.unsw.edu.au/>

2024 KRI Discussion Papers

Since the 2010s, Korea and ASEAN have rapidly expanded their cooperation and exchange in a wide range of areas including politics, economy, society and culture. To further strengthen this close relationship, the Korea Research Initiatives at the University of New South Wales, Australia (KRI @ UNSW) has promoted and supported the establishment of a new platform for policy exchange and cooperation between Korea and ASEAN countries.

The series of 2024 KRI Discussion Papers are specially published by KRI @ UNSW as part of its efforts to establish the Korea-ASEAN Community of Policy Exchange (KACPE) amongst researchers, policy makers and experts from Korea and eight ASEAN countries including Cambodia, Indonesia, Laos, Malaysia, Myanmar, Thailand, the Philippines and Vietnam.

These Discussion Papers examine policy development and exchange between Korea and the above mentioned ASEAN countries based on three key areas of discussion including economic development, public sector reform and socio-cultural exchange and cooperation. Using a comparative perspective, they seek to expand the possibility of policy formation and implementation in these countries.

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A Policy Study: Sharing Knowledge in the Area of Digital Transformation for National Development between ASEAN and Korea - Cases from Korea, Indonesia, Thailand, Cambodia, and Laos

I. INTRODUCTION

There is widespread acknowledgment that digital technology has successfully transformed governance (UNDP, 2024). Digital transformation creates opportunities for governments and organizations to improve public services, streamline business processes, update policy design, and foster collaboration among various stakeholders, leading to increased accountability, transparency, and public satisfaction (Rykkja et al., 2024; Mergel et al., 2019; Curtis, 2019). The COVID-19 pandemic in 2020 further underscored the importance of digital transformation in supporting government operations and daily life. It compelled governments, international organizations, and society to rapidly adapt to the use of digital technologies.

Several countries have successfully accelerated their development goals by leveraging advanced technology to transform governance. For instance, the Estonian government reported that its use of digital technology through e-government infrastructure has generated annual savings of around 2% of GDP and saved more than 800 years of working time for the public and private sectors in a single calendar year (Kattel and Mergel, 2019). In Singapore, the digital economy contributes 17.3% of the total GDP, with an added economic value of S\$106 billion, outpacing overall economic growth (IMDA Singapore, 2024; LKYSPP, 2024). India has leapfrogged its development timeline from 47 years to just seven years through the effective implementation of Digital Public Infrastructure (DPI), a model recommended and endorsed by G20 member countries (The Carnegie Endowment, 2024; Outlook India, 2023). Similarly, China has made significant strides in poverty reduction from 2011 to 2020 through digital inclusive finance, particularly benefiting low-income groups in eastern China (Lyu et al., 2023; Xie, 2023). South Korea's targeted approach to high-tech, export-oriented production has not only boosted its economy but also established

its position as a global leader in digital transformation. The country's strategies offer valuable lessons in harnessing digital technology for comprehensive societal and economic development.

The rapid growth of digital transformation in Asia, especially within ASEAN, is also noteworthy. The region's digital economy is projected to reach a value of US\$330 billion by 2025, increasing to US\$2 trillion by 2030 (ASEAN, 2023a; ASEAN, 2023b). As Southeast Asia's largest economy, Indonesia leads the region in gross merchandise value (GMV) of the digital economy, reaching US\$82 billion in 2023. This figure is expected to rise further to between US\$210 billion and US\$360 billion by 2030.

This paper explores the evolution of digital transformation in Korea and Southeast Asia, with a specific focus on Indonesia, Thailand, Cambodia, and Laos. The primary aim is to facilitate knowledge exchange on digital transformation for national development between ASEAN and Korea, and to examine avenues for enhanced collaboration and partnership.

The paper begins by presenting detailed case studies from Korea, Indonesia, Thailand, Cambodia, and Laos. Each case study provides an analysis of the historical trajectories of digital transformation in these countries, investigating significant milestones, policy frameworks, and the pivotal role of governments in promoting digital innovation. Additionally, the analysis highlights the distinct challenges and opportunities encountered by each country, emphasizing the diverse contexts shaping their digital transformation pathways.

Building on this analysis, the paper identifies critical areas for cooperation between Korea and ASEAN countries in promoting national development. Particular attention is given to opportunities for knowledge transfer, capacity building, and joint initiatives. The discussion also considers Korea's potential to share its expertise and experiences in various aspects of digital transformation with its ASEAN counterparts.

In conclusion, the paper assesses the feasibility of establishing a sustainable, collaborative framework for digital transformation between Korea and ASEAN countries. This framework could include joint research endeavors, capacity-building programs, and the development of shared best practices. By fostering ongoing collaboration and mutual knowledge sharing, Korea and ASEAN can collectively drive digital transformation, contributing to regional economic growth, social development, and sustainable progress.

II. COUNTRY CASE STUDIES: KOREA, INDONESIA, THAILAND, CAMBODIA AND LAOS

1. South Korea: Digital Transformation and in Search of Best Practices- Policy Implementation, Outcomes, and Challenges

1.1 The Evolution of Digital Transformation in Korea: Government-Led Initiatives

South Korea's journey towards digital transformation began in the 1980s with the introduction of e-government initiatives aimed at enhancing administrative efficiency through Information and Communication Technology (ICT). This initial phase focused on computerizing basic administrative tasks and establishing a foundation for a more interconnected public sector.

The 1990s saw a significant expansion of e-government efforts, with the implementation of a national e-government promotion plan and the construction of a national backbone network to connect central and local administrative agencies. This era witnessed the transition towards a more networked and integrated government, laying the groundwork for the later development of a comprehensive digital government system.

The 2000s marked a pivotal period for South Korea's e-government development. The country's focus shifted towards realizing the goals of e-government: efficiency, democracy, and transparency. The enactment of the Electronic Government Act in 2000 provided a legal framework for e-government development. The government implemented several projects and programs, including the construction of a national backbone network and the completion of administrative computerization. Capacity-building initiatives for public officials were also implemented to address resistance to the use of information technology in administrative work.

The transition to digital government began in earnest after 2010, building upon the success of South Korea's e-government initiatives. This new phase emphasized not only enhancing efficiency and convenience but also expanding the value of public services by re-establishing the relationship between people and the government through ICT.

1.2 Pillars of Progress: Four Key Factors Driving Korea's Digital Success

- **Factor 1: State Capacity for Planning and Implementing Policy**

South Korea's remarkable success in digital transformation can be largely attributed to the government's strong capacity for strategic planning and policy implementation. The nation's journey towards digital excellence began with visionary leadership and proactive policymaking, which laid the foundation for a comprehensive digital ecosystem (Kim & Chung, 2016).

A pivotal moment in this journey was the enactment of the e-Government Act in 2002, which provided a robust legal framework for coordinating and implementing e-government initiatives (Ministry of the Interior and Safety, 2021). This act underscored the government's commitment to digital transformation and ensured a cohesive approach across various government agencies.

The government's dedication to digital transformation is further evidenced by ambitious initiatives such as the "Digital New Deal," proposed by the Moon administration in 2020. This comprehensive plan aimed to invest 76 trillion won (\$62 billion) over five years to foster economic recovery through technology, with a particular focus on artificial intelligence (AI), 5G networks, and data infrastructure development (Ministry of Science and ICT, 2020).

South Korea's state capacity is also reflected in its ability to create and maintain specialized agencies dedicated to digital transformation. For instance, the National Information Society Agency (NIA) and the Ministry of the Interior and Safety (MOIS) play crucial roles in implementing and overseeing digital government services (United Nations, 2020). These institutions ensure the continuity and coherence of digital policies across different administrations.

Moreover, the government has demonstrated its commitment to transparency and innovation through its open data policies. By making a vast array of government data available to the public, South Korea has fostered a culture of accountability and spurred the development of new services and applications, contributing significantly to the country's digital ecosystem (Open Government Partnership, 2021).

- **Factor 2: Economic Aspect**

The economic dimension of South Korea's digital transformation success is multifaceted, encompassing both public and private sector initiatives. The government's substantial investments in digital infrastructure have created a robust foundation for economic growth and innovation in the digital sphere.

South Korea's commitment to developing its digital economy is evident in its consistent high rankings in global digital competitiveness indices. According to the IMD World Digital Competitiveness Ranking 2021, South Korea ranked 12th globally, showcasing its strong performance in technology and future readiness factors (IMD, 2021).

The "Digital New Deal" initiative, part of the broader Korean New Deal, exemplifies the government's economic strategy in the digital realm. This initiative aims not only to foster economic recovery post-COVID-19 but also to position South Korea at the forefront of the global digital economy. The plan includes significant investments in AI, blockchain, and the Internet of Things (IoT), which are expected to create numerous job opportunities and drive economic growth (OECD, 2020).

Furthermore, South Korea's thriving IT industry has been a key driver of its digital transformation. The synergy between the government and private sector giants such as Samsung and LG has propelled the country to the forefront of the global tech scene. These partnerships facilitate research and development in cutting-edge technologies, ensuring that South Korea remains at the vanguard of innovation (Lee & Kim, 2018).

The economic impact of South Korea's digital transformation is also evident in its export-oriented production of high-tech goods. The country has successfully leveraged its digital capabilities to enhance its competitiveness in global markets, particularly in sectors such as semiconductors, displays, and smartphones (World Bank, 2021).

- **Factor 3: Socio-Cultural Aspect**

The socio-cultural landscape of South Korea has played a crucial role in facilitating the nation's digital transformation. The country's high literacy rate, strong educational system, and tech-savvy population have created an environment conducive to the rapid adoption of digital technologies and e-government services.

South Korea's education system, with its emphasis on STEM fields, has been instrumental in developing a workforce capable of driving and sustaining technological advancements. Digital literacy is a key component of the curriculum from elementary schools to higher education, preparing citizens to thrive in a digital economy (OECD, 2019).

The cultural receptiveness to innovation in South Korea is particularly noteworthy. A national survey on the use of e-government services revealed that 90.6% of Koreans use digital services offered by the government, with 93.8% expressing a high level of satisfaction (National Information Society Agency, 2021). This high rate of adoption and satisfaction underscores the societal acceptance and enthusiasm for digital solutions.

Moreover, the Korean government has implemented various lifelong learning initiatives to ensure that the workforce can adapt to technological changes. Programs aimed at upskilling and reskilling workers in areas such as AI, cybersecurity, and data science are helping to create a dynamic and adaptable labor market. Initiatives like K-Digital Training, the AI Graduate School Program, and the Naver AI Colloquium exemplify these efforts (Ministry of Employment and Labor, 2021).

The socio-cultural aspect of South Korea's digital transformation is also reflected in the country's "working fast" culture, which values speed and efficiency. This cultural trait has contributed to the rapid adoption of new technologies and digital services across all age groups, further accelerating the nation's digital transformation (Shim & Shin, 2019).

- **Factor 4: Technological Aspect**

South Korea's technological prowess has been a cornerstone of its digital transformation success. The country's world-class internet connectivity, cutting-edge infrastructure, and commitment to emerging technologies have positioned it as a global leader in digital innovation.

At the heart of South Korea's technological advancement is its exceptional internet infrastructure. The nation boasts one of the fastest internet speeds globally, with an average connection speed of 28.6 Mbps as of 2021 (Speedtest Global Index, 2021). This robust connectivity serves as the backbone for the country's tech-driven economy and enables the seamless delivery of e-government services.

South Korea's commitment to maintaining its technological edge is evident in its ambitious plans for 5G technology. The country was among the first to launch nationwide 5G networks in April 2019, which has had a transformative impact on industries ranging from healthcare to entertainment. As of 2021, South Korea had achieved a 5G penetration rate of 28%, the highest in the world (GSMA, 2021).

The government's investment in cloud computing infrastructure, particularly the Government Cloud (G-Cloud) initiative launched in 2012, has been crucial for Korea's digital government efforts. The G-Cloud has enabled more efficient and coherent construction and operation of e-government systems, enhancing interoperability and standardization across government services (National Information Resources Service, 2021).

South Korea's technological advancement is also reflected in its robust cybersecurity measures. The National Information Resources Service (NIRS) safeguards 45,000 public sector systems, including servers and data centers, supporting 1,460 digital government services across 45 government agencies. This comprehensive approach to cybersecurity ensures the integrity and reliability of the country's digital infrastructure (Korean Internet & Security Agency, 2021).

Furthermore, South Korea has made significant strides in the application of artificial intelligence in public services. The government is implementing AI solutions for various purposes, such as enhancing traffic management in large cities and monitoring potential cases of child abuse online. These initiatives demonstrate South Korea's commitment to leveraging cutting-edge technologies to improve public services and address societal challenges (National Information Society Agency, 2021).

1.3 Digital Korea 2.0: Current Government Strategies for Transformation and Platform Development

The Korean government's current digital transformation strategy is driven by the recognition of digital technology as a catalyst for economic growth and social innovation. This vision has expanded beyond e-government to encompass a broader concept of digital government. The establishment of e-Government Day on June 24th, celebrated annually since 2018, reflects the government's commitment to raising public awareness and solidifying Korea's position as a global leader in e-government.

Since the early 2000s, Korea has implemented numerous large-scale national e-government projects and roadmaps, integrating more than 16,000 information systems. This extensive digital infrastructure has enabled the country to transition smoothly to digital government, achieving high rankings in the UN E-Government Survey since 2010.

The Korean government's vision for digital government is built on the premise that digital platforms can enhance government services and create new opportunities for public-private cooperation. The government's digital platform government strategy is designed to be user-oriented, leveraging big data and artificial intelligence (AI) to anticipate citizens' needs and provide customized services. This approach aims to improve public services, empower citizens, and foster a more participatory and inclusive government.

The government has also invested in expanding digital infrastructure and enhancing the digital capabilities of public officials. The conversion of the government communication network to a 5G wireless network has enabled faster business processing and on-site administration. Training programs have been implemented to ensure that all civil servants are equipped with the necessary skills to participate in digital government innovation. Furthermore, the government has focused on nurturing expertise in new technologies, such as AI and data analysis, to support the ongoing digital transformation.

1.4 Navigating the Digital Frontier: Korea's Technological Challenges and Opportunities

Despite South Korea's remarkable success in digital transformation, several challenges and opportunities remain:

Data Privacy and Security: As digital government services expand, ensuring the protection of personal information and maintaining robust cybersecurity measures become increasingly critical. The government must continue to balance the benefits of data utilization with the need for privacy protection.

Digital Divide: While South Korea boasts high digital literacy rates, efforts must be made to ensure that all segments of society, particularly the elderly and low-income groups, can fully participate in and benefit from digital government services.

Regulatory Framework: The rapid pace of technological advancement often outpaces regulatory development. South Korea must continue to adapt its regulatory framework to support innovation while addressing potential risks associated with new technologies.

Corporate Digitization: Despite the government's advanced digital infrastructure, the digitization of enterprises, particularly small and medium-sized enterprises (SMEs), lags behind. Encouraging wider adoption of digital technologies in the private sector remains a challenge.

Continuous Innovation: Maintaining South Korea's position as a global leader in digital government requires ongoing investment and innovation. There is a risk of complacency and a need for continuous upgrading of systems and services.

International Cooperation: As a leader in digital government, South Korea has the opportunity to share its expertise and best practices with other nations, fostering international cooperation in digital transformation.

Emerging Technologies: The continued exploration and integration of emerging technologies such as AI, blockchain, and quantum computing present both challenges and opportunities for further advancement of digital government services.

User-Centric Design: While South Korea's digital government services are advanced, there is always room for improvement in terms of user experience and accessibility. Ensuring that services are designed with a user-centric approach remains an ongoing challenge and opportunity.

2. Indonesia: The Digital Transformation - Current Status, Challenges and Future Development

The development of Digital Transformation has gone through various stages since 2003 until now. Developmental progress can be seen by the increasingly better electronic government index in Indonesia and the increasing use of advanced technology in public services. On the other hand, there are still many basic challenges and problems that Indonesia is currently facing to carry out digital transformation, including cyber security, data integration, internet networks that are not evenly distributed throughout the region and digital literacy. To accelerate digital transformation, the Indonesian government has established a Gov-tech (Ina Digital) policy in various public services. Currently, an Indonesian digital transformation agency has been established which is tasked with accelerating the development of shared applications, data integration, and strengthening interoperability between government agencies. The critical factor is of course the issue of political commitment and the sustainability of transformation which is often experienced by many countries and Indonesia is no exception.

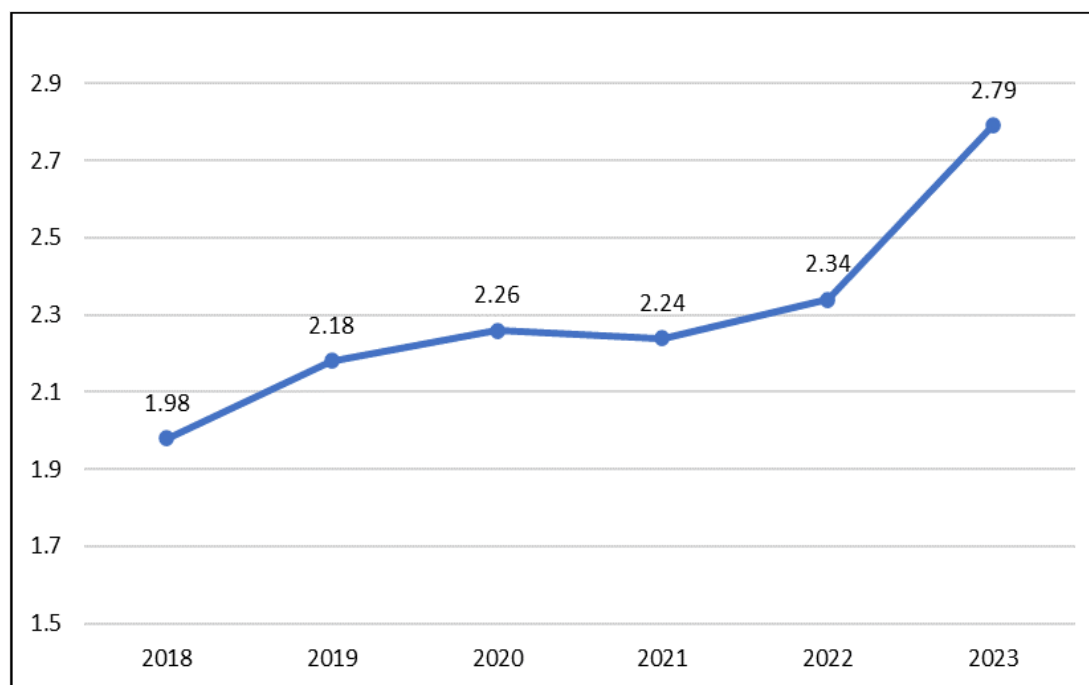
2.1 The Digital Transformation Development in Indonesia

Since 2003, Indonesia has embraced digital transformation as a key initiative, starting with the implementation of Presidential Instruction Number 3 of 2003 concerning National Policy and Strategy for E-government Development. This instruction aims to leverage information technology to remove bureaucratic barriers and establish integrated management systems and processes, thereby facilitating easier access to government information and public services. The use of information technology involves two main activities: (1) electronic data processing, information management, and work processes, and (2) leveraging advancements in information technology to make public services more accessible and affordable for the entire community.

After receiving the Presidential Instruction, Indonesia has encountered numerous problems and challenges in implementing its digital transformation. Currently, there are 27,000 applications operating across the country at various levels of government, an increase from the previous 24,000 applications (Ministry of Empowerment of State Apparatus and Bureaucratic Reform, 2023). The coordinating minister for Maritime Affairs and Investment has noted that the large number of applications is due to the involvement of numerous vendors. However, these applications lack multifunctionality, leading to inefficiency and wastage of the state budget. The Minister of Finance has also expressed concerns about the procurement process for these applications, whether through auctions or direct appointments (Kompas, 2023). The 27,000 applications are not interconnected, resulting in fragmented and siloed services. This makes it more challenging for people to access services, as it often requires repeated data input.

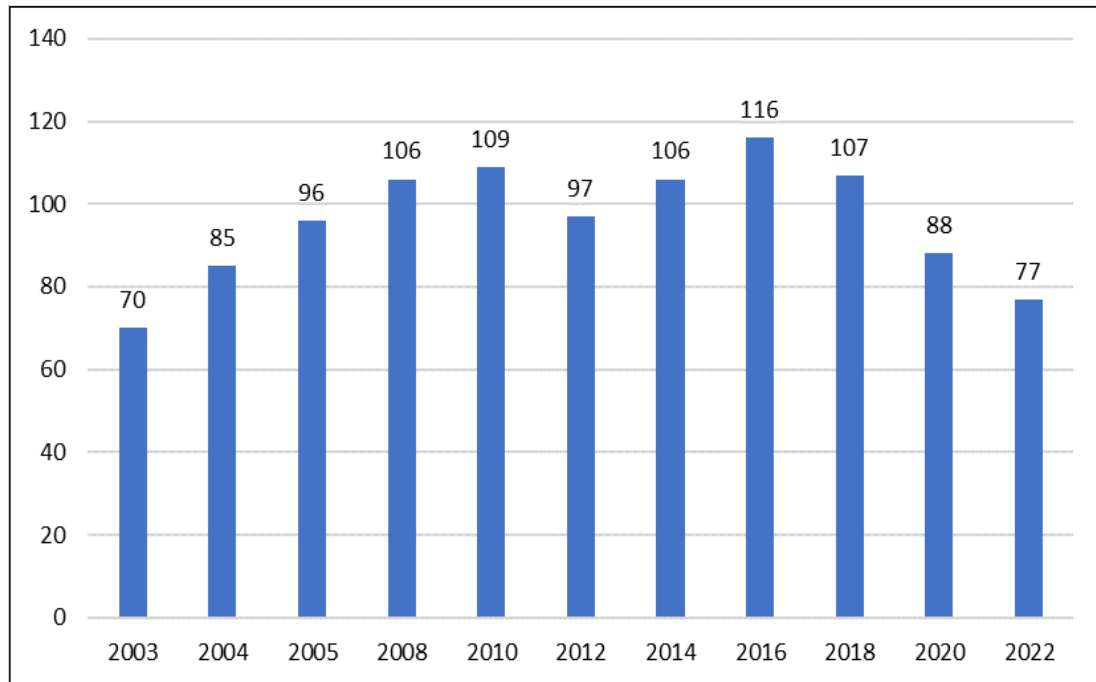
In 2018, the government took steps to address various issues by directly improving information and communication technology (ICT) governance through Presidential Regulation Number 95/2018, which concerns the Integrated Electronic-Based Government System (SPBE). The SPBE Architecture serves as the fundamental framework that integrates business processes, data and information, SPBE infrastructure, SPBE applications, and SPBE security to generate integrated SPBE services. This regulation specifies that the preparation of the National SPBE Architecture for the 2020-2024 period must be completed no later than 6 months after the National Medium-Term Development Plan for the same period. Furthermore, this will be followed up through Presidential Regulation Number 132 of 2022, focusing on the National SPBE Architecture. Apart from these two regulations, digital transformation in Indonesia is supported by other policy foundations, including Presidential Regulation Number 39 of 2019, which pertains to One Data Indonesia, Law Number 27 of 2022, addressing Personal Data Protection, and Law Number 1 of 2024, which centres on Electronic Information and Transactions.

The Indonesian government has identified nine priority services, including health, education, and social assistance, as key areas for digital transformation. These services will be made interoperable through the Digital Public Infrastructure (DPI). On the other hand, from an institutional perspective, the coordinating ministry plays a crucial role in overseeing this transformation by monitoring and evaluating the progress of service interoperability across different ministries. Additionally, the coordinating ministry addresses various institutional issues, such as sectoral conflicts, organizational capabilities, and the allocation of infrastructure and budgets.

Figure 1. National SPBE Index 2018-2023

Source: Ministry of Administrative and Bureaucratic Reform, (2024)

In the national context, the achievement of SPBE continues to increase. The National SPBE index value in 2023 reached 2.79, which is considered good and exceeded the target of the medium-term national development plan (2.6) (see Figure 1). The quality of digital transformation in Indonesia is also showing improvement on a global scale. Indonesia's E-Government Development Index (EGDI) ranking rose from 107th in 2018 to 77th in 2022 (see Figure 2). In 2022, Indonesia's EGDI exceeds the world average, indicating that government commitment, as stated in laws and regulations, has resulted in improvements in Indonesia's digital transformation on the global stage. However, Indonesia still lags countries like Singapore, South Korea, and Denmark as the world's best practices in digital transformation (United Nations, 2024).

Figure 2. E-Government Development Index (Indonesia)

Source: United Nations, (2024)

Indonesia has drawn lessons from various countries, recognizing that Gov-tech plays a pivotal role in the success of digital transformation. To this end, Indonesia has established INA Digital (Indonesia's Gov-tech) under Peruri, a state-owned enterprise. INA Digital serves as a coordinator for integrating the digital service ecosystem of the Indonesian government (Peruri, 2024). According to the World Bank (2024), Indonesia's Gov-Tech Maturity Index has improved from a "B" in 2020 to an "A" in 2022. Initially, INA Digital collaborated with nine ministries/institutions to facilitate the development, integration, and interoperability of the SPBE Priority application, which spans various sectors such as education, health, social services, and population administration. This integration encompasses Digital Identity, state financial transactions, state apparatus, Public Service Portal, Satu Data Indonesia, and police services (Ministry of Administrative and Bureaucratic Reform, 2024).

2.2 Indonesia's Digital Transformation Challenges

Indonesia has faced a wide range of issues and challenges over the last twenty years while trying to speed up digital transformation. These include institutional, ecosystem and infrastructure, as well as technical obstacles that can impede the progress of digital transformation

▪ **Cyber Security**

Data security plays a crucial role as the first line of defence in implementing digital transformation. The cybersecurity economy grew twice as fast as the world economy in 2022 and four times faster in 2023 (World Economic Forum, 2024). Based on The National Cyber Security Index 2023, Indonesia is ranked 49th with a score of 63.64 (NCSI, 2024). This position is far below Malaysia (22), Singapore (31), and Thailand (45). In 2023, Indonesia experienced the highest number of cyber-attack anomalies, totalling 78,463,385 incidents (State Intelligence Agency, 2024). These anomalies were primarily caused by Generic Trojan RATs, which pose a threat to communication and control systems. The country also suffered a cyber-attack on the National Data Centre (Pusat Data Nasional/PDN), resulting in inaccessible data from 239 government agencies and institutions (Tempo, 2024). The Centre of Economic and Law Studies (Celios) estimated the potential economic loss due to this hack to be up to IDR 6.3 trillion (MetroTV News, 2024). Additionally, the cyber-attack caused several public services to become unavailable.

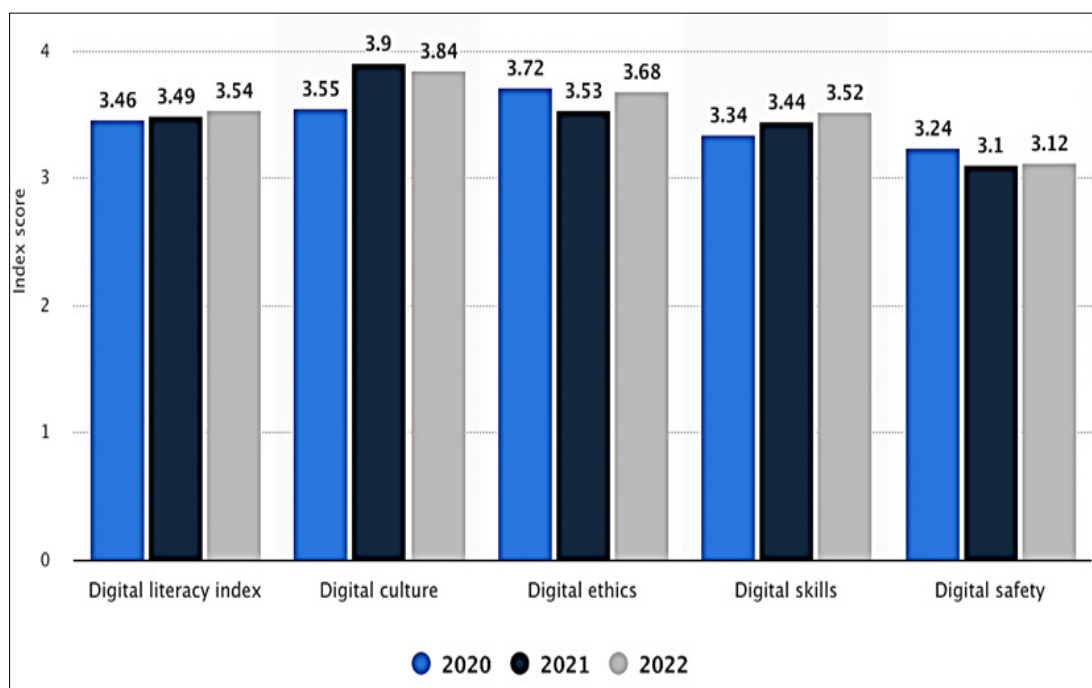
The various issues stem from regulations that have not adequately addressed the handling of wiretapping practices (interception) in cyber governance and have failed to cover all aspects of cybersecurity, which are extensive. Additionally, there is a lack of specific regulation governing coordination between agencies, leading to ineffective operations that are driven by the demands of individual institutions. For instance, coordination between the National Cyber and Crypto Agency, the Ministry of Defence, the Indonesian National Armed Forces, the Police department, and the State Intelligence Agency is not effectively regulated. Cybersecurity issues continue to pose a significant challenge for Indonesia today.

▪ **Digital Literacy**

The rapid development of technology and digital services poses challenges for both operators and users to keep up with ongoing advancements. Digital literacy has become crucial for everyone worldwide, enabling people to

communicate, find employment, access comprehensive education, and critically engage with the digital world (CSIS, 2022). In Indonesia, the significance of digital literacy for civil servants and the public has been recognized.

Figure 3. Digital Literacy Index in Indonesia 2020-2022



Source: Ministry of Communications and Informatics (2024); Katadata Insight Center (2024); Statista (2024)

The Ministry of Communication and Informatics uses the digital literacy index to assess digital literacy skills in Indonesia from various perspectives. This assessment helps in developing evidence-based policies and appropriate programs to enhance the digital literacy of the Indonesian population. The measurement of the Indonesian Digital Literacy Index in 2022 is based on the 2020-2024 Digital Literacy Road Map, which includes four pillars of digital literacy measurement: Digital Skill, Digital Ethics, Digital Safety, and Digital Culture. Although the Digital Literacy Index has shown slight increases annually, Indonesia's digital literacy rate (62%) is the lowest among ASEAN countries, with an average of 70% (CNBC, 2023).

Based on the practices, digital literacy in Indonesia has not become a strategic issue in the government. On the other hand, in many other countries, digital literacy is given priority. In the past, many advanced applications and systems could not be used by government employees and the public. As a result, people were unable to experience the benefits of these applications directly. To address this issue, several countries began to focus on digital literacy, emphasizing the importance of keeping up with technological developments. After all, sophisticated technology is of no use if it cannot be properly operated.

The high potential of the digital economy and technological developments in Indonesia should be followed by quality digital literacy. This condition illustrates that the government has not properly prepared digital literacy to utilise various future digital economic potentials. It appears that the government is struggling to fully integrate digital literacy into its institutions. The responsibilities for overseeing digital literacy within the civil service and the community are currently shared between the Ministry of Administrative and Bureaucratic Reform and the Ministry of Communications and Informatics, leading to confusion in addressing this issue.

▪ **Leadership and Political Commitment**

It is indisputable that political officials play a crucial role in driving digital transformation progress, particularly in Indonesia. In Indonesia, the primary challenges to digital transformation are leadership and political commitment (Nurdin and Purna, 2023). Given the hierarchical decision-making structure in Indonesia, leaders at the highest levels significantly influence the formulation of digital transformation policies. Strong and decisive leadership is essential to drive the swift implementation of digital transformation across all government levels - national, provincial, and local.

The central government sets strategic policies that serve as the foundation for implementing agencies. At the central government level, the commitment of leaders (in this case, ministers) is crucial for determining strategic steps for future digital transformation. However, decision-making between central government agencies faces obstacles. Aside from being constrained by a narrow perspective based on primary tasks and functions, there are also sectoral ego issues between ministries and institutions. For instance, it took a long time (hundreds of meetings) to decide on the Single Identity Number that would form the basis for Single Sign-On. The conflicting interests and authority struggle significantly influenced the entire process of coordination and consolidation

between Ministries and Institutions. Thus, not only is the commitment of leaders or political commitment important, but also a joint political commitment among strategic-level policymakers is crucial.

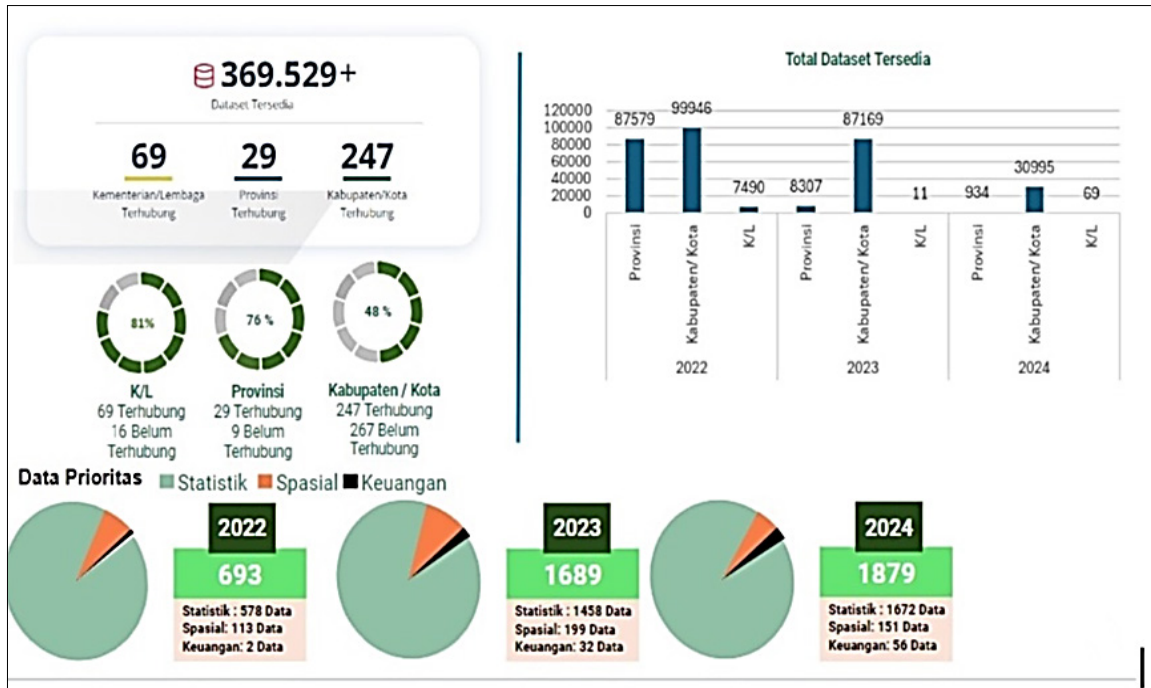
Digital technology is not neutral, then digital transformation efforts carried out by development actors must be politically informed (UNDP, 2024). The process of digital transformation is driven by politics and interests, not just technology. Therefore, support for digital transformation must be politically informed to ensure that development goals are achieved. Without sufficient political support, the implementation of digital governance may face obstacles in strategic decision-making, resource allocation, and inter-agency coordination (Nurdin and Purna, 2023).

▪ **Fragmented Data**

The problem currently faced in carrying out digital transformation is that data is still fragmented between ministries and institutions as well as local/regional governments. Since 2018 the government has established the One Data Indonesia (SDI) policy as an effort to integrate various data. However, until 2024, there will still be many government agencies that have not submitted data to SDI. There is resistance to integrating data due to concerns about the loss of authority from government agencies. One Indonesian Data is currently used as a basis for development planning and budgeting as well as various government and public service needs.

From the table above, it can be explained that for central government agencies, 81 percent of ministries and institutions are integrated in one Indonesian data. Meanwhile, the provincial government level is only 76 percent, while the district and city governments have only reached 48 percent. Stronger efforts are still needed to integrate Indonesian data as a basis for digital transformation in Indonesia.

Figure 4. Achievement of Integrated One Data Indonesia



Source: Satu Data Indonesia/SDI (2024)

▪ Uneven Internet Network

One of the main problems in accelerating digital transformation in Indonesia is the uneven distribution of internet networks between regions in Indonesia. There are still many remote areas in Indonesia, especially in eastern Indonesia, that do not have an internet network to interact digitally. Since 2020, the Indonesian government has established a policy to build more than 8,000 BTS (Base Transceiver Stations) throughout Indonesia. However, currently only 4200 BTS have been built. There are still many areas in Indonesia that are in blank spot areas, making it impossible to expand digitalization in remote areas.

2.3 Prospect for Digital Transformation Indonesia

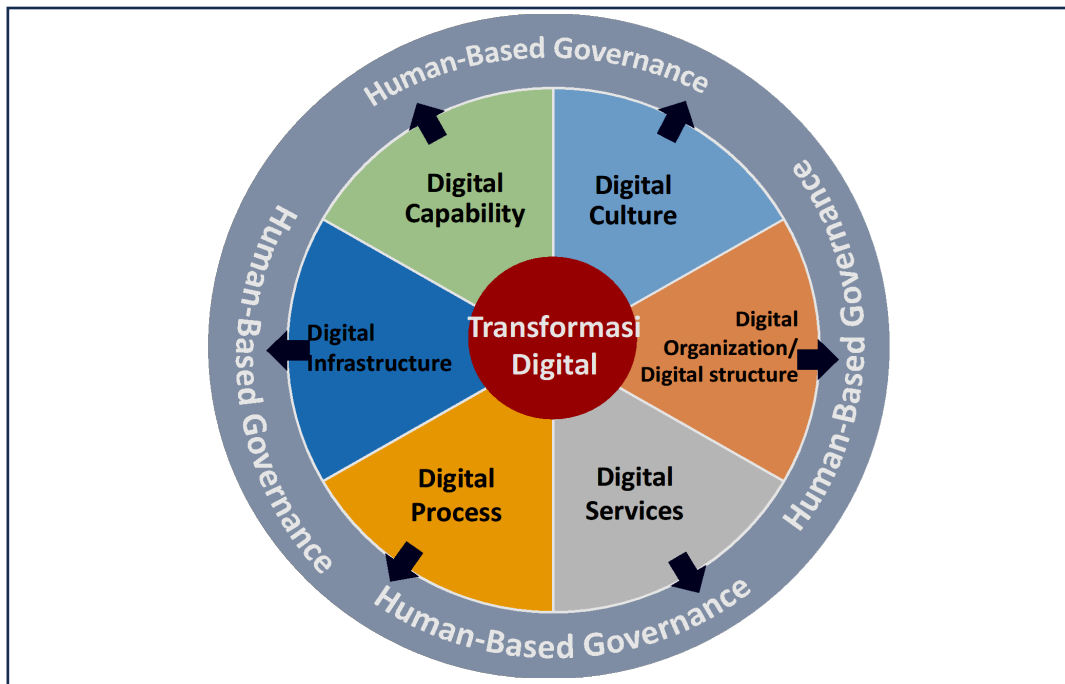
The Indonesian government has been making efforts to oversee digital transformation. However, there is still a lot of groundwork that needs to be done to produce meaningful impacts on society. Currently, Indonesia is in the process of drafting the Digital Government Law, which will serve as a comprehensive framework for implementing

digital transformation in the country. it will address various strategic issues that will be the focus of the government's efforts in the future. First, the bill ensures community involvement, including the fulfilment of community rights and obligations. In this scenario, technology will be focused on a citizen-centric approach to public service based on public value, considering the needs and expectations of the community.

Second, this bill will focus on developing the digital economy. This includes protecting businesses and consumers, promoting domestic products, and leveraging digital technologies for economic growth while also considering the impact on affected sectors. Third, the government guarantees digital literacy as a right for both civil servants and the wider community. The term digital literacy encompasses (1) literacy in information and media, (2) understanding of digital systems and technology, (3) communication, collaboration, and digital participation skills, and (4) the ability to create and utilize digital technology. Ensuring that civil servants and the community have access to digital literacy indicates that the government recognizes the importance of pairing technological advancement with a solid foundation in digital literacy to prevent the misuse of technological advancements.

Aside from the Digital Government Bill, the government's condition plays a crucial role in implementing digital transformation. The successful implementation of digital transformation requires sufficient government capacity, not only in terms of digital expertise and the number of digital professionals, but also in terms of institutional support. A hierarchical, inflexible, and bloated bureaucracy can impede the implementation of digital transformation. Hence, an agile, flat, network-based bureaucracy is required, promoting collaboration between units and organizations, and being adaptable to various developments and changes that may arise at any time.

Figure 5. The next 20 Years Plan (2025-2045) Digital Transformation in Indonesia



Source: Ministry of Administrative and Bureaucratic Reform,(2024)

In the framework of Indonesia's 20-year development towards a Golden Indonesia in 2045, the Indonesian government has also designated digital transformation as one of the priority programs in development. Currently, the digital transformation of the bureaucracy is being designed to adapt to a development orientation based on Human Centered. In the draft of Grand Design for Bureaucratic Reform for 2025-2045, it is stipulated that bureaucratic changes are placed on integrated digital transformation including digital culture, digital structure, digital capability, digital processes and digital infrastructure. The 20-year trajectory of change is placed in the first period to achieve digital government until 2030.

In the second period until 2035, digital transformation is aimed at achieving the whole government based on the latest technological developments, while in the third period until 2040, the direction of transformation is aimed at building a governance platform where all bureaucratic processes and structures share resources and performance. In its final goal, digital bureaucratic transformation is aimed at making the Indonesian bureaucracy a bureaucracy based on human development (human centered development)

3. Thailand: Digital Transformation of Public Service- Policy Implementation, Outcomes, and Challenges

3-1. Thai Public Administration Reform and Digital Government:

Thailand has embarked on a significant journey towards public administration reform, aiming to align with evolving economic and social needs and enhance service delivery. This transformation has been driven by a commitment to developing a digital government, which aims to enhance efficiency, reliability, and citizen-centricity in public administration and services.

The reform process began in 2002 with the enactment of the State Administration Act and the Royal Decree on Good Governance. These landmark documents established the Public Sector Development Commission (PDC) to advise the Cabinet on public administration development, setting the stage for a comprehensive reform agenda. The PDC's role has been instrumental in guiding the country's progress towards a more efficient and responsive public sector.

The reform yielded significant results, including a 50% reduction in procedures and processing times, the introduction of innovative service formats, and a 73% reduction in non-core functions of central government agencies. This demonstrates the positive impact of the reform on improving administrative efficiency and streamlining government operations.

The development of a digital government has been a key focus of the reform agenda. The government has prioritized developing e-Services and creating central digital platforms, such as the Biz Portal, to provide comprehensive electronic government services to businesses and citizens. This platform offers fully digital services, ensuring convenience and accessibility.

The Licensing Facilitation Act (2015) streamlines licensing processes, aiming for speed, cost reduction, and ease of access. The Digital Government Administration and Service Act (2019) promotes technology-driven public administration and services, facilitating integrated digital platforms for efficient government operations and citizen access. The Act on Carrying Out of Public Service via Electronic Means (2022) mandates electronic methods for

government operations and services, requiring government agencies to provide electronic channels for communication and document submission. This legislation aims to enhance efficiency, convenience, and accessibility for both government officials and citizens.

3-2 Initiatives Currently Being Driven by The OPDC to Develop the Public Administration System

The Office of the Public Sector Development Commission (OPDC), in collaboration with relevant agencies, is driving the implementation of digital government administration and services. This effort is divided into three main areas:

- **Development of Central Platforms for Government Services**

The OPDC, in collaboration with the Digital Government Development Agency (Public Organization) (DGA), the Electronic Transactions Development Agency (ETDA), and other relevant agencies, has developed the following:

Biz Portal: A comprehensive electronic government service system. This central digital platform facilitates end-to-end electronic approval and licensing processes with reliability and security. It integrates database systems and e-Services from government agencies, offering fully digital services where users can search for information, submit applications and supportive documents, make payments, and receive licenses electronically through bizportal.go.th without visiting government offices. Biz Portal connects services and data from other government agencies to enhance service delivery, such as integration with the digital identity verification system via the ThaiID application from the Department of Provincial Administration for user authentication, connection to the public licensing manual database from info.go.th for detailed approval and permission information, access to corporate data like company registration certificates, shareholder lists, and memoranda of association from the Department of Business Development, integration with the government's central e-Payment portal from the Comptroller General's Department, enabling bill payments, e-receipts, and various payment methods (ATM, bank counters, mobile/internet banking, bank account debits, credit/debit cards), with revenue transferred to the treasury via the GFMS system, and electronic document issuance (e-Document) and e-Document signing systems developed by DGA in collaboration with ETDA. Currently, Biz Portal offers 141 license services (91 fully digital) and 115 provincial services (55 fully digital), with a cumulative usage of 58,565 applications (data as of June 25, 2024).

Citizen Portal: This is a compilation of numerous government services to enable citizens to access services at a single point through a mobile application called "Thang Rath" (ทางรัฐ). It allows citizens to complete entire processes from start to finish, providing government services that are "easy, comprehensive, and completed in one place" throughout their lives, following the "know, submit, pay, receive" model. The Thang Rath application currently offers 153 services, with a cumulative usage of 26,782,646 times (data as of June 25, 2024).

▪ Driving the Provision of Public Services through Electronic Systems (e-Service)

This initiative focuses on facilitating services that involve multiple agencies or require inter-agency coordination. The OPDC, together with main agencies and related agencies, has been driving the service provision since 2022 until now. The results have been beneficial, facilitating service recipients and increasing operational efficiency and integration between related agencies. The implementation results, along with examples of significant outcomes, include:

The Thai Digital Identity (ThaID) application: Developed by the Department of Provincial Administration, ThaID is a digital identity verification system supporting nationwide use of digital IDs. Currently, the ThaID application has been downloaded 17,538,251 times, with 15,022,410 people registered (data as of June 12, 2024). There are 295 organizations (184 government agencies and 111 private sector organizations) requesting to use the identity verification system through the ThaID application (data as of May 2024).

The Land and Building Tax Payment System: The Department of Lands has piloted this system with local administrative organizations (LAOs), with 3,476 out of 7,772 LAOs having consented to publish land and building tax assessment data (accounting for 44.72%). There are 6,274 LAOs accepting land and building tax payments through the integrated property registration project system, accounting for 80.73%. The number of land and building tax verifications through the LandsMaps application is 9,720 times (data as of March 12, 2024).

The Notification System for Rights and Assistance in Receiving Public Welfare: Developed by the Office of the Permanent Secretary of the Ministry of Social Development and Human Security, this system is currently

creating a government data catalog for services. It has 98,928 users and 213,084 service usage (data from October 1, 2023, to May 15, 2024).

Public Service Center 1111: The central comprehensive complaint center, managed by the Office of the Permanent Secretary of the Prime Minister's Office, has completed data linkage with the Ministry of Transport and the Office of the National Land Policy Board. The center is now in the process of testing system linkage with the Bank of Thailand.

The Ease of Traveling System: Developed by the Office of the Permanent Secretary of the Ministry of Tourism and Sports, this system has expanded data linkages to four agencies: the Community Development Department, the Sports Authority of Thailand, the State Railway of Thailand, and the Department of National Parks, Wildlife, and Plant Conservation. It has also connected with travel service providers such as the SRT Electrified Train Company Limited and the Bangkok Mass Transit Authority. The system has 109,453 users (data from October 2023 to April 2024).

The Electronic Health Card Issuance System: Developed by the Office of the Permanent Secretary of the Ministry of Public Health, 726 hospitals out of 903 hospitals under the Office of the Permanent Secretary of the Ministry of Public Health are capable of providing medical certificates, accounting for 80.4%.

The System to Assist Unemployed Individuals in Returning to the Labor Market: Managed by the Department of Employment, this system has 26,492 service users (data from November 2023 to February 29, 2024). The department is currently developing a system to link employment and training course data with the Office of the National Digital Economy and Society Commission (ONDE) and Adecco Consulting Co., Ltd. It is also verifying data from the Thai Mee Ngan Tam system and the Digital Independent Job Service Platform (Freelance Platform) to develop data linkage using API.

One Identification: ID One SME: Developed by the Office of Small and Medium Enterprises Promotion, this system has completed data linkage with one agency, the Thai Industrial Standards Institute, and will test system

linkage with five more agencies: the Department of International Trade Promotion, the Thai Industrial Standards Institute, the Department of Agricultural Extension, the Department of Intellectual Property, and the Government Housing Bank. The system has been used 372 times (data from October 2023 to April 2024).

The Comprehensive Hazardous Substance Single Submission System: Developed by the Department of Industrial Works, this system is currently testing the permit system for chemical waste, used electrical appliances, and electronic equipment, along with a data search system.

The Good Agricultural Product Standard Certification System (GAP): Managed by the National Bureau of Agricultural Commodity and Food Standards (ACFS), this system is in the process of improving and developing systems for three government departments (Department of Fisheries, Department of Livestock Development, and Department of Agriculture) and is testing and linking systems for two government departments (Department of Agricultural Extension and The Queen Sirikit Department of Sericulture).

The Farmer Registration System and Agricultural Assistance Request System: Developed by the Office of Agricultural Economics, this system has completed the development of a prototype system for integrating farmer registration and a One Stop Service system for requesting agricultural assistance.

The Cross-border Goods Connection System: This system for ACMECS countries through the National Single Window (NSW) system, managed by the Customs Department, is currently being prepared by the Office of the National Broadcasting and Telecommunication Commission (NBTC) for official launch in June. The Department of Medical Sciences officially launched the NSW system for requesting permits or notification certificates for import/export/transit of pathogens and animal toxins on May 3, 2024. There were 289,527 approval requests for customs clearance through the NSW system (data from October 1, 2023, to April 30, 2024).

- **Driving the Digitization of Data**

The National Statistical Office, in collaboration with the Digital Government Development Agency (Public Organization), is leading this initiative through the mechanism of evaluating government agencies according to measures to improve efficiency in government operations. This is part of the Potential Base assessment component for digital organization development, with the indicator "Development of Data Catalog System to Lead to Government Open Data."

The aim is to develop digital data systems (Digitize Data) for both internal use and external/public dissemination, leading to Government Open Data. Currently, the Government Data Catalog system (<https://gdcatalog.go.th>) of the National Statistical Office has collected 13,258 datasets from 291 agencies (as of July 22, 2024). The number of open data published on data.go.th by the Digital Government Development Agency (Public Organization) is 12,389 datasets, with 6,372,848 users and 25,110,187 usages (as of July 22, 2024).

Furthermore, in 2024, the OPDC, in collaboration with the National Statistical Office and the Digital Government Development Agency (Public Organization), is driving the indicator "Creation of Agency Master Data." This involves digitalizing 21 key datasets from 13 agencies, which are fundamental for operations, in a standardized digital format that can be linked and exchanged between agencies. This is in accordance with the announcement of the Digital Government Development Committee on the list of important agency datasets (Master Data) on July 24, 2023, which was published in the Royal Gazette on August 29, 2023.

▪ **Driving Open Government System**

This initiative follows the concept of the Open Government and Meaningful Participation Ecosystem (OG & MP Model), which consists of 8 components, including government data disclosure, policies and laws conducive to open governance, incentive creation, and support for knowledge and resources. The OG & MP Model has been applied to drive important policies, such as addressing the PM2.5 air pollution problem in Lampang, Singburi, and Chiang Mai provinces, and developing the "Tell Us About the Government" platform (www.idea4gov.com) to promote the participation of citizens, youth, and the new generation in proposing ideas to solve important national issues and co-designing "Creative Projects" for government agencies. Pilot projects have been implemented in three areas: Saensuk Municipality in Chonburi Province, Hua Wiang Subdistrict Municipality in Ayutthaya

Province, and Ratchathewi District in Bangkok. Representatives from various sectors in these areas have participated in exchanging ideas and voting for beneficial concepts, leading to problem analysis and resolution.

3-3 Prospects and Recommendations

The Office of the Public Sector Development Commission (OPDC) is currently drafting two important pieces of legislation:

- **(Draft) Act on Licensing Facilitation and Public Service Provision B.E.**

This act aims to be the primary law for improving the licensing and service systems, which will provide greater convenience to the public and businesses. Key features include:

- Transitioning from licensing to notification or registration.
- Eliminating committee-based approvals.
- Extending the scope of all licenses to allow fee payment instead of license renewal.
- Allowing temporary business operations pending license approval.
- Centralizing the authority for licensing under multiple laws into a super license system.

- **(Draft) Public Administration Modernization Act B.E., which has four key principles:**

- Integrated management to drive the country's strategic agendas.
- Special administrative forms for public administration or management.
- Networked administration with private businesses or civil society organizations.
- Crisis management.

3-4 Results from the Development of Biz Portal and Citizen Portal Platforms

The implementation of these digital platforms and e-services has yielded several positive results:

- **Increased Transparency and Citizen Engagement**

The move towards digital platforms has increased transparency in government operations, reduced discretion of officials, and decreased face-to-face interactions between officials and citizens. This has enabled status checks and tracking through digital systems. For example, the traffic ticket payment service saw citizens checking their traffic fines through the "Thaung Rath" application over 835,892 times in 2023, representing a 242.3% increase from 2022.

- **Improved Efficiency and Cost Savings**

Digital platforms have improved the efficiency of government operations, reduced workload for document verification by officials, and lowered overall service costs, allowing personnel more time to develop and enhance services. For instance, in 2024, the Biz Portal system linked corporate data from the DBD ID system for identity verification and corporate document linkage, eliminating the need for 8.8 million corporate document transactions and saving approximately 6,965,000,000 baht in document costs. Furthermore, notifications through the Citizen Portal's "Thaung Rath" application reduced costs for result notifications/correction requests compared to postal mail or phone calls. In 2023, agencies saved approximately 24,774,495 baht.

- **Reduced Costs for Citizens**

Digital platforms have significantly reduced costs for citizens, including savings on travel expenses, opportunity costs from taking time off work to interact with government offices, and expenses for document copying. For example, from January to June 2024, there were 32,822 service requests through Biz Portal, saving entrepreneurs and citizens an estimated 16,771,057.34 baht in hidden service costs. Additionally, citizens accessed government information on the Citizen Portal through the "Thaung Rath" application 18,207,568 times from January to June 2024, saving an estimated 54,622,704 baht in inquiry costs.

3-5 Challenges and Solutions in Thailand's Digital Government Transformation

Thailand's ambitious digital government agenda faces several challenges hindering the seamless transition from traditional to electronic service delivery. These challenges require careful consideration and strategic solutions:

- **Limitations in Process Redesign**

Agencies often prioritize developing e-services without fundamentally rethinking existing processes, resulting in inefficient systems. To address this, the Office of the Public Sector Development Commission (OPDC) should collaborate with service-owning agencies to implement "Digital by Design" and "User Driven" principles, streamlining processes and focusing on user experience.

- **Uneven Technical Readiness**

Agencies' varying technical capabilities prevent the synchronized development of end-to-end services on the central Thaug Rath platform. The OPDC and the Digital Government Development Agency (DGA) need to assess agency readiness and jointly plan service development, ensuring continuous monitoring and evaluation.

- **Integration Challenges**

Connecting agency services to central platforms (API/Single Sign-On) requires simultaneous readiness from both agencies and the platform. To navigate this, the DGA should take the lead by coordinating with other agencies and providing necessary support for integration.

- **Technological Incompatibility**

Agencies employing diverse technologies necessitate system modifications for central platform integration, potentially requiring additional funding. The DGA should work with agencies to find cost-effective solutions for system harmonization.

- **Data Standardization**

Inconsistent and incomplete digitization of data across agencies, non-adherence to DGA standards, hinders inter-agency exchange. The National Statistical Office, in collaboration with the DGA, needs to develop and implement data digitization and standardization protocols.

- **Low User Adoption**

Limited public awareness and concerns about system security contribute to low usage of central platforms. Concerted communication efforts by the DGA, OPDC, and service providers are crucial to build user understanding and confidence.

- **Provincial Service Expansion**

Expanding digital services to provincial areas presents challenges due to the involvement of multiple agencies, high staff turnover, and varying jurisdictions. The OPDC can address this by fostering cooperation with local administrative organizations and provincial authorities.

- **Budgetary Constraints**

Developing services and connecting them to the central platform requires significant investments. The DGA should work with relevant ministries to secure sufficient funding for seamless implementation.

- **Central Platform Capacity**

The central platform needs upgrading to handle the influx of services and connections. Joint efforts by the DGA and the Ministry of Digital Economy and Society are necessary to ensure adequate platform capacity.

- **Limited Local Readiness**

Smaller local administrations might lack the digital infrastructure and systems for electronic service delivery. OPDC, in collaboration with the DGA, needs to create cooperative networks and provide support for local government readiness.

3-6 Critical Considerations for Thailand's Digital Government Transformation

To effectively achieve its digital government goals, Thailand should prioritize the following areas:

- **Budgetary Allocation**

Adequate budgetary support is crucial for driving the development and integration of services on the central digital platform to meet the ambitious 2027 target.

- **Central Platform Upgradation**

A comprehensive study should be conducted to evaluate the necessary upgrades for the central digital platform to ensure its long-term sustainability and capacity to support future digital initiatives.

- **End-to-End Digital Service Development**

Promoting the development of end-to-end digital services requires a focus on redesigning steps and processes prior to technology implementation, ensuring efficiency and user-centricity.

- **Multi-Stakeholder Participation**

Encouraging participation from government, business, and the public sector in the management and provision of digital services fosters collaboration, innovation, and accountability.

- **User-Centric Service Development**

Gathering feedback and opinions from service users and stakeholders is essential for developing services that truly meet their needs and expectations.

- **Regulatory Reform**

A review of existing laws, rules, and regulations is necessary to identify and address any obstacles hindering digital administration and service provision.

- **Digital Government Ecosystem**

Creating an ecosystem that promotes the use cases and utilization of digital government services can foster innovation, knowledge sharing, and adoption among various stakeholders.

4. Cambodia: A Policy Analysis - Government Digital Transformation Policy for 2022-2035 and Its Impacts on Public Sector Development

The strategic goals, strategies, and priority actions as set in the policy agenda are well understood by all government ministries and institutions. However, the decision-makers, coordinators, and implementors of the policy also have impediments and challenges in capacity, finance, and support.

The commitment of the government with strong political will and the strong leadership of the National Digital Economy and Society Council with the three committees of Digital Government, Digital Economy and Society, and Digital Security will be excellent catalysts to fix the gaps in technology, skills, and capacity of government institutions and improve the confidence among people to use digital public services.

The adoption of digital government policy for 2022-2035 is a good move to bring about internal country socio-economic development and a smooth transition for Cambodia's integration into ASEAN's regional community. The long-term impacts of the Digital Government Policy will uplift the government's performance in service delivery and bring prosperity to the Cambodian people.

4-1 Digital Government in Cambodia: A Maturing Process

While the concept of digital government may be less familiar to the average Cambodian citizen, its benefits for individuals, businesses, and government agencies are undeniable. The Cambodian government's digital policy outlines a shift from traditional to modern service delivery, leveraging technology to enhance efficiency and accessibility.

Despite policy-level recognition of the importance of a whole-of-government approach, implementation challenges persist due to resource constraints, coordination issues, and limited interoperability between agencies.

The OECD has identified a progression from analog to e-government, and ultimately, digital government. A 2020 study by the Ministry of Posts and Telecommunication (MPTC) categorized Cambodia's digital government maturity using Gartner's five-level framework:

1. **E-government:** Basic online services but limited integration.
2. **Open government:** Citizen feedback and transparency.
3. **Data-centric government:** Prioritizing data collection and analysis.
4. **Fully transformed government:** Complete digitization and integration.
5. **Smart government:** Automated decision-making and innovative service delivery.

Cambodia is currently progressing through these stages, with efforts focused on harmonizing digital systems and infrastructure across government agencies. The government's "Government as a Platform" initiative aims to facilitate data sharing and collaboration. While significant strides have been made, challenges remain in achieving a fully integrated and digitally transformed government. (MPTC, 2022).

4-2 Digital Government Development in Cambodia

As digital technology has started to grow rapidly in Cambodia during the COVID-19 pandemic, the government realized the importance of using digital technology for development. It immediately committed and adopted the ambitious Cambodia Government Digital Policy 2022-2035. Before the adoption of the policy, digital government started its development stages in the 1990s. The concept of digital government was introduced in the late 1990s after the electronic government was set in motion following the arrival of the internet in the early 1990s (Kong, 2019 as cited in Soeng and Kao, 2023). As the concept continues to evolve, the definition of digital government is "the introduction, application, and use of digital technologies and data in government and its external relationships, including citizens, businesses, civil society and other non-governmental organizations, and other international organizations" (Lips, 2020: 3 as cited in Soeng and Kao, 2023).

As mentioned in Curtis, 2019 as cited in Soeng and Kao, 2023, “digital transformation has exerted impacts on both the public and private sectors. It could significantly reduce bureaucracy, lengthy processes, and red tape, providing tremendous opportunities to increase the efficiency and effectiveness of public service delivery, cost reduction, and the improvement of internal business processes. Further, digital transformation should empower services to be available online round the clock, allowing the public to access them from anywhere; and enable employees to explore new and more efficient ways of working and provide them with necessary tools and support (Curtis, 2019 as cited in Soeng and Kao, 2023).

In Cambodia, the National Authority for Information and Communication Technology Department (NiDA) launched digital public service in the year 2000. The NiDA was under the Office of the Council of Ministers. It established a national information infrastructure network with three data centers and three digital information systems that connected ministries and institutions and expanded its coverage to nine priority provinces. This work showed government’s efforts to make its public sector more accessible and easier for government-to-government agencies connection, government-to-people, and government-to-business communities (Government of Cambodia, 2022).

Further efforts were made by the Royal Government of Cambodia in 2013 including the development of telecommunications and information and communication technology sectors and the adoption of policies, laws, and regulations; and highlighted partnerships between public and private sectors (Government of Cambodia, 2022). Moreover, in 2014, the government adopted the Communication Technology Master Plan of Cambodia 2020 or “ICTopia Cambodia”.

The Master Plan aimed at building Cambodia as an intelligent and comfortable nation with intelligent people, an intelligent society, and an intelligent government by information and communication technology (ICT). Four strategies were introduced to achieve the Master Plan: empowering people, ensuring connectivity, enhancing capabilities, and enriching e-services (TRC, 2020). This Master Plan showed a clear roadmap and mechanism for the successful development of the ICT sector in Cambodia.

In 2014, The National Institute of Posts and Telecommunication, Information and Communication Technology (NIPTICT) was established to train civil servants in skills and digital literacy and promote digital research and

innovation (Government of Cambodia, 2022). In 2021, the NIPTICT has turned to the Cambodia Academy of Digital Technology (CADT). Now, CADT has played important roles in digital capacity development supporting the implementation of government digital policy and digital research and innovation. According to CADT, more than 12,000 civil servants, both at the national and sub-national levels, have received digital skills training (CADT, 2024).

4-3 Telecommunication Infrastructure

The building of telecommunication infrastructure is still lacking and it has not yet been covered country-wide. The MPTC claimed in its policy paper that two submarine fiber-optic cable networks with 46,000 km were built connecting Cambodia to Thailand and Malaysia (Malaysia Cambodia Thailand MCT) and Cambodia to 18 countries in Asia, Africa, and Europe (Asia Africa Europe 1 AAE-1). The 4th generation mobile network (4G) is providing services to approximately 80% of the population (Government of Cambodia, 2022).

As of March 2021, the Ministry of Posts and Telecommunication showed that broadband service coverage in urban and rural areas was 92.20%, while the mobile penetration, internet penetration, and broadband internet penetration rates were 125.51%, 106.23%, and 87.76%, respectively (Government of Cambodia, n.d. in Soeng and Kao 2024). As mentioned above, the telecommunication infrastructure development with strong partnerships between the government, private sectors, and other stakeholders will bring more opportunities for digital government development.

4-4 Public Service and Digital Service Delivery

According to the MPTC's study report, about 77% of 3,508 public services launched people applied directly from One Window Service Office (OWSO), 11% applied directly but downloaded online applications, and 12% applied through online application services. Among 28 ministries and institutions, 182 information systems were developed and served in the administrative works and service delivery (as shown in Table 1). Among the systems

developed about 31% are public services from Government-for-Citizens (G4C), 9% from Government-to-Business (G2B), and 60% from Government-to-Government (G2G) (Government of Cambodia, 2022).

Table 1. Status of Systems in Ministries and Institutions

Status	No. of system	Percentage
Currently in use	167	91.75
Ceased using	2	1.09
Currently developing	7	3.84
Currently testing	6	3.29
Total	182	100

Source: Government of Cambodia, (2022)

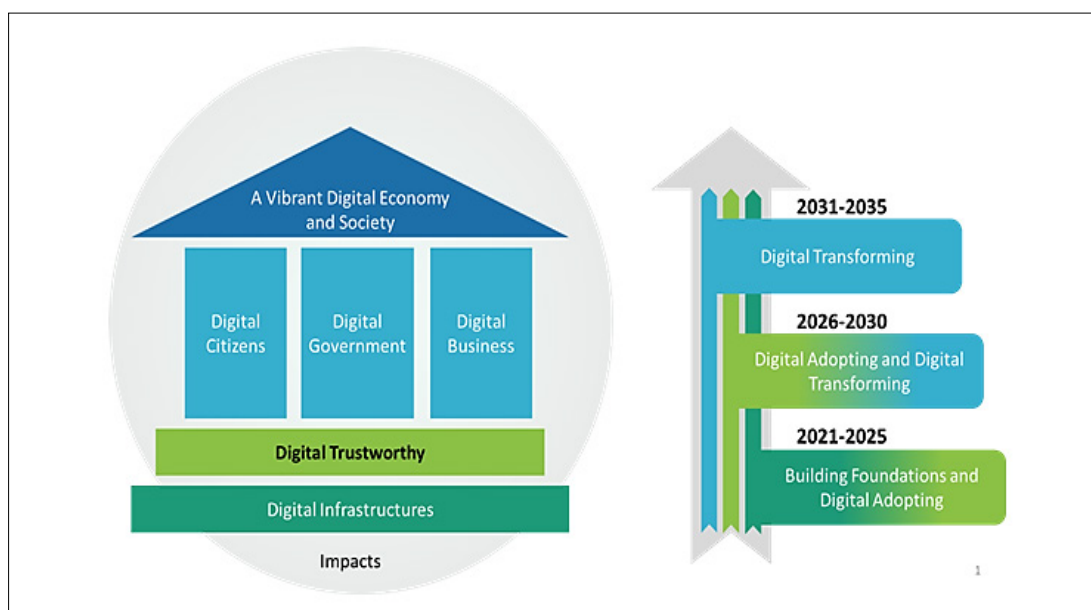
The situation of Cambodia's public service delivery varies according to the abilities and readiness of government ministries and institutions. According to the MPTC, among all ministries and institutions, only 18 provide more than 20 public services while others have only one or two services. In total, there are 3,196 public services. As the government commits to digitalizing ministries and institutions to provide public services in line with its administrative reform program for 2004-2008 and 2015-2018 (swift and effective public services to people), some ministries and institutions moved separately their public services online such as the Ministry of Commerce, the Ministry of Public Works and Transport, the Ministry of Labor and Vocational Training, the Ministry of Economy and Finance (General Department of Taxation), and the Council for the Development of Cambodia, etc. (Government of Cambodia, 2022).

However, the majority of services given by ministries and institutions to service recipients still require physical presence, paper-based, and document processing follows pre-existing procedures. The One Window Service Office (OWSO) at subnational administration (in cities, districts, and Khans) provides administrative and authentication services. The OWSO gathers administrative services in commerce, culture, tourism, land management, industry, mines and energy, public work, education, and health. The service users receive forms, and information and pay service fees for having final services (Government of Cambodia, 2022).

4-5 Cambodia Government Digital Policy 2022-2035

One year after the adoption of the Cambodia Digital Economy and Society Policy Framework 2021-2035, the government adopted the Government Digital Policy for 2022-2025. In the 15-year policy framework, the government identified three main principles: Building a digital foundation (2021-2025), digital adoption (2026-2030), and digital transformation (2031-2035) (Government of Cambodia, 2021). With the principles, the government also sets five goals to be achieved: 1- Development of infrastructure, 2- Building trust and confidence in the digital system, 3- Building digital citizens, 4- Building digital government, and 5- Promoting digital businesses (as shown in Figure 6).

Figure 6. Principles and Framework for Building Cambodia's Digital economy and society



Source: Government of Cambodia, (2021)

The Government Digital Policy for 2022-2035 aims to transform the country into a digital economy and society, with better governance and service delivery to people through using digital strategy. The key components of the policy are:

▪ **Vision and Goals of Digital Policy**

Vision: To establish a digital government to improve the citizens' quality of life and build their trust through better public service provision. Goals: To build a smart government based on the use of digital infrastructure and technology as an ecosystem for governance system modernization and reform in a transparent and credible manner to develop an inclusive digital economy and society.

▪ **Strategic Goals and Strategies**

To achieve the vision and goals of the policy, the government sets four strategic goals and ten strategies as the following:

Strategic Goal 1: to promote the development of digital government infrastructure with the following four strategies: Strategy 1: Building and improving digital connectivity infrastructure, Strategy 2: Building and improving infrastructure for digital payment systems for public services, Strategy 3: Building and strengthening digital security infrastructure, and Strategy 4: Developing postal service infrastructure.

Strategic Goal 2: to build digital governance and create digital public services with the following two strategies: Strategy 5: Organizing digital government governance, such as through the formulation and improvement of policies, the creation and improvement of the legislative frameworks and relevant regulations, and the preparation of digital government standards and architecture, and Strategy 6: Digitally transforming the government and public services, such as through the improvement of Government-to-Government (G2G), Government-for Citizens (G4C), and Government-to-Business (G2B) public services.

Strategic Goal 3: To build digital capacity and innovation, with the following two strategies: Strategy 7: Building digital human capital, and Strategy 8: Promoting digital research and innovation.

Strategic Goal 4: To promote cooperation and partnerships between public and private sectors with the following two strategies: Strategy 9: Organizing collaborations with digital technology companies, and Strategy 10: Promoting digital startups.

▪ **Priority Actions and Responsibilities**

The policy paper mentioned clearly that the Ministry of Posts and Telecommunication is under the National Digital Economy and Society Council and is in charge of accelerating digital government transformation, focusing on technical and policy areas. To achieve the outcomes of building an effective digital government, the RGC identifies the necessity of three institutions to work complementary and interdependent to foster digital government policy implementation efficiently and effectively. The three institutions are: 1. Digital Government Committee (leading, facilitation, implementation, monitoring, and evaluation), 2. Roles of technical ministry (in charge of managing the centralized digital infrastructure of the whole government), and 3. Establish digital transformation units under ministries and institutions at national and subnational levels (for accelerating digital transformation).

▪ **The Digital Government Committee**

The Digital Government Committee¹ is chaired by the MPTC and includes representatives of relevant ministries and institutions as members. It is to lead, facilitate, foster, monitor, and evaluate the implementation of the policy, strategies, measures, technical standards, and other relevant plans relating to the development of the digital government. Its main roles are facilitating and ensuring the connection of infrastructure and digital systems and encouraging the use of the government's shared systems (Government of Cambodia, 2022). Also, the Digital Government Committee and National Committee for Sub-National Democratic Development (N.C.D.D) work collaboratively to harmonize the digital transformation both at national and sub-national levels, enhancing and expanding digital service provision in a coherent, seamless, and effective manner (Government of Cambodia, 2022).

▪ **Roles of Technical Ministry**

The policy paper points out that the Ministry of Post and Telecommunications is the technical ministry responsible for the development and management of telecommunication and ICT infrastructure such as mobile and fixed phones, internet, digital government networks, data centers, and cloud systems. Other responsibilities of the MPTC include the adoption of digital norms, protocols, standards, and the operational management of digital identity infrastructure and government digital security center. It will provide a common email system, web portal, collaboration platform, messaging system, and electronic document and approval system. Moreover, the MPTC is responsible for setting standards, ensuring sustainability, advising and supporting ministries and institutions, and providing digital skill training for senior and focal technical officials.

▪ Digital Transformation Units

The policy requires each government ministry and institution to set up a unit in charge of digital transformation with a role and structure to promote digital transformation. At sub-national administration, the unit must be at the municipality and provinces and the provincial department of Post and Telecommunication serves as the secretariat for municipal and provincial governors in the implementation of digital government policy.

4-6 Policy's Implementation Challenges

Based on an analysis of the Ministry of Post and Telecommunications, Cambodia's digital government development is still at level one or E-government. Government, people, and business communities are well aware of the importance of E-government as it offers numerous advantages for people such as reducing time and money for receiving public services from the government and promoting accountability and transparency.

However, as mentioned in Alsufayri, 2014 cited in Sar, 2023, E-government also encounters several challenges such as 1. Poor Management can hinder the effectiveness of E-government initiatives if not implemented and managed efficiently, 2. Legal Barriers, including regulatory constraints, may pose obstacles to its adoption and expansion, and the lack of awareness among citizens about available E-government services and how to use them effectively is a challenge. Moreover, Alsufayri, 2014 mentioned challenges of the demand side of public services such as senior citizens, individuals with limited education, ethnic minorities, low-income individuals, and disabled citizens, may face demographic barriers. Moreover, insufficient digital Skills among citizens can impede their ability to effectively navigate and utilize E-government services (Sar, 2023). In the case of Cambodia's supply

side, according to Oum, 2021 cited in Sar, 2023 defined four challenges: “lack of ICT infrastructure and policy; lack of digital literacy; shortage of financial support; and willingness” (Sar, 2023).

The Royal Government of Cambodia has tried to address all the challenges related to the implementation of the digital government policy 2022-2035. Every ministry and institution at the national and sub-national levels tries to develop and use digital tools to support their administrative works, communicate with stakeholders, and provide digital public services. The Ministry of Civil Service, for example, developed its human resource management information system (HRMIS) database for the management of all civil servants in the countries (total civil servants: 218,000; about 42,000 at national administration and 176,000 at sub-national administration). This database is used for the management of information on civil servants and contracting staff including their ranks, salaries, and retirement (MCS, 2024). The Ministry of Civil Service also developed its electronic gateway for information on public services in Cambodia. People can download to their mobile devices and search for public services of different sectors. Available public services are from 13 government institutions including One Window Service Office (OWSO) for subnational administration, labor, and vocational training, public works and transports, education, water supply, and electricity (MCS, 2024).

Another important digital service in the government is the Public Financial Management (PFMIS). The main goals are: Increasing Budget Credibility and improving financial accountability for all government ministries and institutions by strengthening the collection and management of revenues, strengthening financial management, and improving the implementation of the budget through the use of digital tools (PFM, 2024).

Other ministries and institutions have a similar case such as the Ministry of Social Affairs, Veteran and Youth Rehabilitation developed their database for the management of retiree's funds for civil servants and people with disability fund (PWD fund). Generally, digital development in government ministries and institutions is still fragmented and has no standards of hardware, software, and operation processes. The way toward digital transformation is facing challenges in system integration, capacity of service providers and recipients, financial support, and active participation from all stakeholders.

5. Laos: Digital Transformation - Policy Implementation, Outcomes, and Challenges

Laos' journey towards digital transformation presents both challenges and opportunities. The country has made significant strides in e-government development, digital infrastructure expansion, and the promotion of a digital economy. However, the persistence of challenges such as rural connectivity gaps, human capital shortages, and regulatory barriers has slowed progress. The government's ambitious policy goals and ongoing initiatives, including international partnerships, lay a solid foundation for future development.

Looking forward, addressing these key challenges will be crucial for achieving Laos' digital transformation objectives. Priorities include bridging the digital divide between urban and rural areas, developing a skilled workforce to support the digital economy, and implementing robust regulatory frameworks to protect data and encourage investment. With continued investment in digital infrastructure and collaboration with international partners, Laos has the potential to become a digitally empowered economy capable of thriving in the global digital landscape.

5-1 Historical Development of Digital Transformation in Laos

Laos' digital transformation journey began in the early 2000s with the launch of several key e-government initiatives, laying the groundwork for modern digital governance. A significant milestone in this development was the establishment of the Digital Government Center in 2006 under the Ministry of Technology and Communications (MTC). This institution aimed to digitize government services and enhance administrative efficiency through Information and Communication Technology (ICT) (Smith, 2018). The creation of this center was crucial in marking the country's e-government journey and provided the foundation for future digital reforms.

In 2021, the MTC itself was established after the merger of the Ministry of Science and Technology and the Ministry of Posts and Telecommunications, highlighting the growing recognition of the importance of digital governance (Lao Government Gazette, 2021). Another key player in this journey is the Lao National Internet Center (LANIC), created in 2010 as the country's Internet Exchange Point (IXP). Over the years, LANIC has taken on the management of critical digital infrastructure, including data centers, the government cloud, and the country's ".la" domain (Johnson & Nguyen, 2019).

Additionally, the integration of ICT into education has been a key focus, facilitated by the Ministry of Education and Sports (MoES) and the Ministry of Labor and Social Welfare (MLSW). Supported by the National Socio-Economic Development Plan (NSED) for 2021-2025, these initiatives have emphasized the importance of developing digital skills, ensuring that future generations are equipped to participate in the digital economy (Lao Ministry of Planning and Investment, 2021).

5-2 Current State of Digital Transformation Development in Laos

▪ E-Government Development

Laos has made significant strides in its e-government development, with the introduction of digital platforms aimed at enhancing administrative efficiency. Notable achievements include the Lao Trade Portal, which has simplified import and export processes, and the e-visa system, which has streamlined the management of tourist inflows (Asian Development Bank, 2022). Additionally, the electronic tax system has made tax compliance more efficient and accessible to businesses.

Despite these advancements, Laos still ranks low on the United Nations E-Government Development Index (EGDI), occupying the 167th position out of 193 countries in 2020 (United Nations, 2020). However, the Lao government has introduced new initiatives, such as Gov-X, a mobile application designed to provide a centralized platform for public e-services, underscoring its commitment to improving digital governance (Lee & Pham, 2023).

▪ Digital Infrastructure and Connectivity

The expansion of digital infrastructure has been a major priority for the Lao government, and internet penetration has grown steadily, rising from 25.5% in 2017 to 43.3% in 2020 (International Telecommunication Union, 2021). However, despite this progress, Laos continues to lag behind regional averages, where internet penetration in Southeast Asia exceeds 66% (ASEAN Secretariat, 2022).

The rural-urban divide presents a significant challenge to equitable access to digital services across the country. In some rural provinces, internet penetration rates are as low as 20%, and the high cost of internet, averaging

\$53.41 per month for fixed broadband, limits adoption in low-income households (Lao Statistics Bureau, 2022). The government is working towards expanding 5G networks in major urban centers, which will support advanced applications such as smart city projects. However, the expansion of digital services in rural areas has been hindered by Laos' mountainous geography and financial constraints (World Bank, 2023).

▪ **Digital Economy and Financial Inclusion**

The development of Laos' digital economy has been modest but promising. The government has introduced several policies to encourage the growth of digital technology-based startups, with a focus on sectors such as logistics, e-commerce, and financial services (OECD, 2023). The Bank of Lao PDR reported a 72% increase in mobile banking users between 2019 and 2020, signaling growing acceptance of digital financial services (Bank of Lao PDR, 2021).

However, the digital economy remains in its early stages of development. Laos still lacks a comprehensive regulatory framework for e-commerce, cybersecurity, and data protection, hindering the growth of digital enterprises (Asian Development Bank, 2023). Additionally, fixed broadband subscriptions reach only 17% of the population, significantly below regional standards (International Telecommunication Union, 2022).

5-3 Challenges and Opportunities for Digital Transformation in Laos

▪ **Infrastructure Deficiencies**

One of the most significant challenges facing Laos' digital transformation is the lack of sufficient ICT infrastructure. Although urban areas have seen progress, rural regions remain underserved, primarily due to the country's difficult geography and limited financial resources. This disparity contributes to the digital divide, limiting access to essential digital services in rural areas (World Bank, 2023). The high cost of internet access, especially in low-income households, further exacerbates this issue (Lao Statistics Bureau, 2022).

Laos' efforts to expand internet access are also hampered by reliance on foreign companies for digital infrastructure. For instance, China's involvement in the construction of Laos' digital backbone, including fiber-optic

cables and the LaoSat 1 satellite, raises concerns over data security and control (CSIS, 2023). This reliance on external actors for critical digital infrastructure creates both opportunities for cooperation and vulnerabilities that the government must address.

▪ Human Capital Shortages

The lack of skilled human capital is another critical challenge. Only 2% of university students in Laos were enrolled in ICT-related programs as of 2019, revealing a significant gap in the technical skills required to support digital transformation (Lao Ministry of Education and Sports, 2020). Developing a digitally skilled workforce is essential for enabling the country to compete in an increasingly digital global economy. Educational reforms and international partnerships are crucial to addressing this gap (UNICEF, 2022).

Addressing human capital shortages requires an overhaul of the education system, including a focus on STEM (science, technology, engineering, and mathematics) education and digital literacy programs at all levels of schooling. Partnerships with countries like South Korea and China could play a significant role in developing training programs and providing technical assistance to enhance Laos' workforce (ASEAN Secretariat, 2023).

Regulatory and Institutional Barriers: Laos' regulatory framework remains underdeveloped, especially in the areas of cybersecurity, data protection, and digital payments. The lack of clear regulations poses significant risks for businesses, which are hesitant to invest in digital technologies without strong legal protections for online transactions and consumer data. Furthermore, the fragmented governance structures and limited coordination between ministries and provincial governments hinder effective implementation of digital policies (OECD, 2023).

Building a robust regulatory framework is essential for attracting investment and fostering confidence in the digital economy. Laos can look to regional neighbors like Vietnam and Thailand, both of which have implemented comprehensive data protection and cybersecurity laws, as models for strengthening its own regulatory systems. Additionally, international organizations like the World Bank and the International Telecommunication Union (ITU) can provide support in drafting these frameworks (World Bank, 2023).

Financial Constraints: Financial limitations continue to hinder large-scale investments in digital infrastructure and services. Many of Laos' digital projects rely on external funding from international development agencies or foreign governments, making them vulnerable to fluctuations in external economic conditions. Securing sustainable financial resources will be critical for the continued development of the country's digital infrastructure (Asian Development Bank, 2023).

Moreover, the cost of implementing advanced digital technologies, such as 5G, presents another financial challenge. Public-private partnerships could offer a viable solution for bridging the funding gap, allowing Laos to attract investment from international tech firms while sharing the risks and rewards associated with digital infrastructure projects (World Bank, 2023).

5-4 Future Government Goals and Policies

- **Strengthening Digital Governance**

The Lao government has outlined its digital ambitions through several key policy documents, including the National Digital Economy Development Vision 2040, the 10-Year Digital Economy Strategy (2021-2030), and the 5-Year National Digital Economy Development Plan (2021-2025). These documents set ambitious targets, such as increasing the contribution of the digital economy to 10% of GDP by 2030 (Lao Ministry of Technology and Communications, 2021).

To achieve these goals, the government is focusing on strengthening digital governance structures. The Ministry of Technology and Communications will play a central role in coordinating digital transformation efforts across sectors and ensuring collaboration between ministries, local governments, and private sector stakeholders. A national steering committee has also been established to oversee the implementation of digital strategies (Lao Government Gazette, 2022).

- **Expanding Digital Infrastructure**

The government's primary goal over the next decade is the expansion of digital infrastructure. The rollout of 5G technology in urban areas is expected to drive further connectivity and innovation, while broadband services will

be extended to underserved rural communities. Achieving these goals will require substantial investment, and the government is exploring public-private partnerships to help finance these initiatives (World Bank, 2023).

In addition, the government is prioritizing the development of smart city projects in Vientiane and other major cities. These initiatives aim to integrate digital solutions into urban planning, traffic management, and public services, enhancing the overall quality of life for citizens while driving economic growth (CSIS, 2023).

▪ **Promoting Digital Skills and Education**

The development of a digitally skilled workforce is critical to Laos' long-term digital transformation strategy. The government plans to integrate ICT education into school curricula and vocational training programs, with a focus on building technical skills in areas such as cybersecurity and data science. International partnerships, particularly with South Korea and China, will be essential for providing the expertise and resources needed to develop Laos' human capital (ASEAN Secretariat, 2023).

Additionally, Laos is exploring the establishment of digital training centers that can offer specialized courses in emerging technologies such as artificial intelligence (AI), big data, and blockchain. These centers will play a crucial role in preparing the workforce for the demands of the global digital economy (World Bank, 2023).

▪ **Enhancing Cybersecurity and Regulatory Frameworks**

Cybersecurity remains a key area of focus for the Lao government. The country is working on developing a national cybersecurity strategy in collaboration with LaoCERT to protect its digital infrastructure from cyber threats. The strategy will also emphasize building public awareness of cyber risks and strengthening the country's cyber skills (Lao Ministry of Technology and Communications, 2023).

Strengthening the cybersecurity framework will also involve updating legislation on data protection and privacy to safeguard citizens' information. Laos can draw inspiration from international best practices, such as the European Union's General Data Protection Regulation (GDPR), to ensure that its regulatory frameworks are aligned with global standards (UNDP, 2023).

III. SHARING KNOWLEDGE IN THE AREA OF DIGITAL TRANSFORMATION FOR NATIONAL DEVELOPMENT BETWEEN ASEAN AND KOREA

The ASEAN region's digital transformation offers immense potential for enhancing governance, economic growth, and societal progress. South Korea, with its advanced digital infrastructure, technological expertise, and experience in digital governance, presents a key opportunity for collaboration with ASEAN countries. This cooperation could help bridge the digital divide in the region, foster innovation, and create a more resilient digital economy. Below are several strategic areas where ASEAN and South Korea can deepen their partnership in digital transformation.

- **Area 1. Knowledge Transfer for Capacity Building through ICT Training**

One of the critical areas where ASEAN can benefit from South Korea is in capacity building and ICT training. South Korea, renowned for its digital expertise, has developed advanced systems in e-government, cybersecurity, and digital skills development. Through targeted capacity-building programs, South Korean experts can provide technical assistance and training to ASEAN officials and professionals. This knowledge transfer can foster growth in digital skills across ASEAN, helping the region keep pace with global advancements in technology.

A study by the United Nations Development Programme (UNDP) emphasized that capacity building is essential for developing nations to enhance their digital infrastructure and governance capabilities (UNDP, 2022). South Korea's successful model can be particularly useful for ASEAN nations such as Laos, Cambodia, and Myanmar, where the digital skills gap remains a significant barrier to transformation.

- **Area 2. Digital Infrastructure Development**

Digital infrastructure is a foundational element for any successful digital transformation. South Korea's expertise in building robust digital infrastructure, including broadband networks and 5G technology, can be instrumental in helping ASEAN improve its digital connectivity. Currently, only 17% of ASEAN's population has access to fixed broadband, and high costs limit wider access to digital services (International Telecommunication Union, 2021). Collaborative efforts with South Korean firms like KT and SK Telecom could facilitate the expansion of affordable broadband and mobile networks, particularly in underserved rural areas.

ASEAN's digital economy is expected to grow substantially in the coming years, reaching an estimated US\$330 billion by 2025 (ASEAN Secretariat, 2023). South Korean investment in infrastructure development can accelerate this growth, particularly in Indonesia and Vietnam, which are rapidly expanding their digital services but still face connectivity challenges in remote areas.

▪ **Area 3. Promoting Digital Entrepreneurship and Innovation**

South Korea's vibrant startup ecosystem offers a valuable model for ASEAN in promoting digital entrepreneurship and innovation. South Korean mentorship programs, investment opportunities, and knowledge-sharing platforms can empower digital entrepreneurs in ASEAN, driving economic growth and technological advancement. South Korea has cultivated a strong culture of digital innovation through initiatives such as the K-Startup Grand Challenge, which has nurtured many successful startups.

This model can be replicated in ASEAN countries to foster a similar environment, supporting the development of fintech, e-commerce, and other digital sectors. According to a 2023 report by the Organization for Economic Co-operation and Development (OECD), digital entrepreneurship in ASEAN has the potential to contribute significantly to job creation and economic diversification (OECD, 2023).

▪ **Area 4. Strengthening Cybersecurity Capabilities**

As ASEAN increases its reliance on digital platforms, strengthening cybersecurity has become paramount. South Korea, known for its advanced cybersecurity measures, can assist ASEAN in developing comprehensive national cybersecurity frameworks. This collaboration would include the provision of cybersecurity training, enhancing the capacities of institutions like LaoCERT, and conducting joint cybersecurity exercises.

A robust cybersecurity framework is critical to ensuring the safety and resilience of ASEAN's growing digital economy. According to the ASEAN Cybersecurity Cooperation Strategy (ASEAN Secretariat, 2022), coordinated efforts between ASEAN and South Korea could significantly bolster the region's ability to manage and mitigate cyber threats.

▪ **Area 5. E-Government Solutions**

South Korea is a global leader in e-government services, ranking first in the United Nations E-Government Development Index in 2020 (UN, 2020). ASEAN, where digital governance still lags in many countries, could greatly benefit from South Korea's experience in implementing efficient e-government platforms. These platforms could include digital identification, e-tax services, and public service platforms, which can streamline government operations and improve public service delivery.

For instance, ASEAN's efforts to digitize government services can be accelerated by adopting South Korea's proven systems, which have been shown to increase efficiency, reduce administrative costs, and improve transparency.

▪ **Area 6. Digital Economy Growth**

ASEAN stands to gain from South Korea's experience in fostering a robust digital economy. South Korea has successfully developed a strong ecosystem for startups, digital commerce, and mobile payments, which ASEAN could replicate to further integrate digital services into its economy. South Korea's expertise in mobile banking and financial technology could support ASEAN's goal of increasing financial inclusion, particularly in countries like Laos and Cambodia, where access to traditional banking services is limited.

The World Bank (2021) noted that digital financial services in ASEAN could potentially unlock millions of new users in rural areas, contributing to economic development. South Korean financial technology firms could play a crucial role in this transformation by investing in ASEAN startups and helping local fintech firms scale.

▪ **Area 7. Regulatory and Legal Support**

A key challenge for ASEAN's digital transformation is the lack of a coherent regulatory framework for digital services, data privacy, and cybersecurity. South Korea's experience in drafting and implementing regulations in these areas offers valuable insights for ASEAN countries. South Korean experts can assist in formulating comprehensive regulations that protect consumer data, enhance cybersecurity, and foster trust in digital transactions.

Joint legal workshops, expert exchanges, and technical assistance can help ASEAN establish clear and enforceable digital economy regulations, ensuring a conducive environment for business growth and innovation.

IV. CONCLUSION: A STRATEGIC PARTNERSHIP FOR MUTUAL GROWTH

ASEAN's digital transformation holds tremendous potential for advancing economic growth, social progress, and governance. The region is home to some of the fastest-growing digital economies in the world, with increasing internet penetration and a booming e-commerce sector. However, despite this potential, ASEAN faces several significant challenges that hinder the full realization of its digital ambitions. These include underdeveloped digital infrastructure, especially in rural areas, a shortage of skilled human capital to drive technological innovation, and a fragmented regulatory framework that complicates the implementation of digital policies across the region.

South Korea, a global leader in digital technology and innovation, is well-positioned to support ASEAN in addressing these challenges. The country has successfully implemented advanced e-government systems, built robust digital infrastructure, and developed one of the world's most secure and efficient cybersecurity frameworks. By leveraging South Korea's experience, ASEAN can accelerate its digital transformation and bridge the gap between its current digital state and its aspirations for the future.

The partnership between ASEAN and South Korea presents a unique opportunity to fast-track digital transformation in the region. By collaborating on key areas such as ICT capacity building, infrastructure development, digital entrepreneurship, cybersecurity, e-government, and regulatory frameworks, ASEAN can overcome its current challenges and unlock the full potential of its digital economy. This cooperation not only benefits ASEAN by enabling faster and more inclusive growth but also strengthens South Korea's position as a regional leader in digital innovation.

As ASEAN continues its digital journey, sustained collaboration with South Korea will be critical to achieving the region's ambitious digital goals. Together, they can create a more resilient, inclusive, and dynamic digital economy that drives economic prosperity and social progress across Southeast Asia.

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