KINGDOM OF CAMBODIA

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ROYAL GOVERNMENT OF CAMBODIA

CAMBODIA DIGITAL ECONOMY AND SOCIETY POLICY FRAMEWORK 2021 - 2035

"Building a vibrant digital economy and society by laying the foundations to promote digital adoption and transformation in all social actors including the state, citizens, and businesses, to accelerate new economic growth and promote social welfare in the new normal"

Prepared by the Supreme National Economic Council
May, 2021

PREAMBLE

From the late 1980s to the early 1990s, Cambodia embarked on fundamental economic reforms toward a market economy and openness to international trade. This economic policy has brought about a complete change in the lives of Cambodians of all walks of life and has made progress in all areas we have seen so far. Toward the end of the 1990s, Cambodia strived for full and lasting peace through the "**win-win politics**". Overall, over the past three decades, the Royal Government has achieved more complete peace, territorial integrity, national unity and political stability, and socio-economic development. This strong foundation has made a significant contribution to maintaining macroeconomic stability and developing the private sector more vibrantly by improving the business and investment environment, which is a source of job creation in all sectors and a driving force for the economy, enabling Cambodia to grow at an average annual rate of 7% and especially turning Cambodia into a lower-middle-income country in 2015. At the end of the 20th century, the achievement of high economic growth provided an opportunity for Cambodia to increase public investment, human resource development, and social protection, and gradually reduce poverty rates toward further narrowing social inequality, which has been remarkable.

Cambodia has begun the 21st century with remarkable achievements and a new image with hope. This basis has been encouraging the Royal Government to continue intensifying its efforts to ensure the prospect of a sustainable, strong, and crisis-resistant economic growth in the medium-term in line with past development paths, and to set out the "**Cambodia Vision 2050**" as a way to establish new economic growth drivers replacing the old ones, which have been gradually declined, to set up a new growth model, which is highly responsive and resilient to changes in the future economic architecture and the international trade.

Unfortunately, at the beginning of the third decade of the 21st century, Cambodia, like any other countries and the world, is being severely affected by the spread of Covid-

19, which has not only claimed lives but also has put pressure on sources of growth and create negative consequences for economic activities and structural problems in which we have already expected to face in the medium term, and these problems would also affect our long-term development path. Both adversities require Cambodia to consider and develop a new economic growth model, which is highly responsive and resilient to future changes in the economic architecture and international trade, especially in the post-Covid-19 economic recovery. In the face of this acute situation, the Royal Government is looking at the opportunities and scope of economic benefits in the digital sector, which has the potential to not only become a new source of economic growth but also to help boost productivity in other sectors. In fact, in the current situation more than ever before, digital technology is playing an increasingly important role in increasing productivity, promoting economic diversification, and creating jobs so as to further fostering social progress.

"**Cambodia Digital Economy and Society Policy Framework 2021-2035**" sets out a long-term vision to build a vibrant digital economy and society by laying the foundations for promoting digital adoption and transformation in all sectors of society - the state, citizens, and businesses, to promote new economic growth and improve social welfare in the "**new normal**". For Cambodia, the digital transformation is about adopting/capturing and maximizing the benefits of advances in information and communication technology (ICT) and digital technology to increase productivity and economic efficiency, boost the national economic growth, and build a civilized society where digital citizens can benefit from the use of digital services with high inclusiveness, reliability, and trustworthiness, while at the same time can maintain national identity and culture. I strongly believe Cambodia shall strive to achieve the "**digital transformation**" to turn Cambodia's economy and society to a higher level of development. In this regard, the ministries and institutions in charge of implementation shall work together as a uniting force, with the coordination and strengthening of inter-institutional cooperation in the most proactive and interactive spirit to ensure the achievement of key policy objectives.

On behalf of the Royal Government of Cambodia, I highly praise and appreciate the efforts of **His Excellency Dr. AUN Pornmoniroth, Deputy Prime Minister, Minister of Economy and Finance and Chairman of the Supreme National Economic Council**, who chaired the Inter-Ministerial Committee, and **His Excellency VONGSEY Vissoth**, **the Minister attached to the Prime Minister and the Permanent Secretary of State of the Ministry of Economy and Finance**, who directly led the drafting of this policy framework until its finalization as this policy framework. At the same time, I would also like to thank Excellencies, Lok Chumteavs, Ladies and Gentlemen, which are the vice-chairs, as well as members of the Inter-Ministerial Committee and the Technical Working Group preparing this policy framework for their active and highly responsible participation.

Phnom Penh, May 10, 2021

Prime Minister

(Signed and Stamped)

Samdech Akka Moha Sena Padei Techo HUN Sen

PREFACE

In the sixth legislature of the National Assembly, which began in 2018, the Royal Government of Cambodia launched the "**Rectangular Strategy - Phase IV**", which focused on Cambodia's economic development by accelerating the diversification of the economic base and strengthening the competitiveness. This strategy clearly points to the need to be prepared to embrace the digital economy and respond to the "**Fourth Industrial Revolution**" to take advantage of technological advances. The opportunities and advantages provided by digital technology are not limited to technology-dependent sectors or businesses, but also add value to all sectors of the entire economy. In fact, almost every sector of the economy and society has been affected by technology, especially digital technology, which is changing the way we do business, work, and pursue our lifestyles. In this context, digitalization has become an influential trend and driving force for regional and global economic growth in the 21st century. In the direction and trend above, **Samdech Akka Moha Sena Padei Techo Hun Sen**, **Prime Minister of the Kingdom of Cambodia**, has assigned the Supreme National Economic Council to lead, coordinate and develop the Cambodia Digital Economic and Social Policy Framework as a guide for the development of this sector through the economic and social transformation of Cambodia as a whole in line with regional and global trends.

The Cambodia Digital Economy and Society Policy Framework sets out the vision of "**building a vibrant digital economy and society to accelerate new economic growth and promote social well-being based on the path of new normal**". This vision is to be achieved in 15 years, from 2021 to 2035, and in line with three principles: "**Building Digital Foundation- Digital Adoption-Digital Transformation**", in which all policy measures need to be implemented simultaneously while prioritizing the measures that correspond to individual principles. This means the digital transformation is the ultimate goal of achieving a digital economy and society by relying on the widespread use of digital technology among economic agents, and in all economic activities, which are linked, interconnected, and complementary.

In addition, this policy framework focuses on five components, divided into two foundations which include: (1) infrastructure development to support the digital transformation and (2) building trust and confidence in the digital system; and three pillars including: (1) building digital citizens, (2) building digital government and (3) promoting digital businesses. Based on the concept of "**maximizing the benefits of the digital economy and society, as well as absorbing and minimizing negative impacts or negative consequences**," policy measures are prepared in response to each component combined with the consideration of economic and social aspects to ensure the reduction of negative consequences as well.

Notably, in the context of the Covid-19 crisis, the Cambodia Digital Economy and Society Policy Framework 2021-2035 will form a vital part of the post-Covid-19 economic recovery planning framework by building digital infrastructure, attracting domestic and foreign investment, promoting new business ventures, increasing productivity, and promoting economic competitiveness. Thus, the implementation of this policy framework requires the participation with the spirit of ownership, cooperation, and high responsibility of the relevant ministries, institutions, the private sector, and all citizens. In addition, Cambodia needs to participate in strategic partnership cooperation and international digital initiatives on the economy, society, business, finance, research, utilization, as well as the cybersecurity and technology development within the bilateral and multilateral frameworks. Only with such actions can Cambodia guarantee the desired success.

Finally, on behalf of the **Supreme National Economic Council** and myself, I would like to convey my profound gratitude to **Samdech Akka Moha Sena Padei Techo Hun Sen, Prime Minister of the Kingdom of Cambodia** - an outstanding statesman with the political will to reform and lead the development in Cambodia to be constantly improving with the long-term vision. I highly appreciate the active participation and cooperation from all the ministries and institutions with the **Supreme National Economic Council** until the completion of this policy framework. I would also like to

thank His Excellency **VONGSEY Vissoth**, Minister attached to the Prime Minister and Vice-Chairman of the Supreme National Economic Council, and His Excellency Dr. **KONG Marry**, Undersecretary of State, Ministry of Economy and Finance and Permanent Vice Chairman of the Working Group for leading the working group to prepare this policy framework; and thank chairs and members of all technical working groups who have worked tirelessly to prepare this document until its finalization.

Phnom Penh, May 18, 2021

Deputy Prime Minister, Minister of Economy and Finance, and Chairman of Supreme National Economic Council

(signed and stamped)

Dr. AUN Pornmoniroth

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ABBREVIATIONS

GDP	Gross Domestic Product
AI	Artificial Intelligence
APIs	Application Programming Interfaces)
CamDX	Cambodia Data Exchange
DAI	Digital Adoption Index
DSMA	Digital Sense Multiple Access
edX	(Online) Education Platform
EGDI	E-Government Development Index
ICT	Information and Communication Technology)
IDI	ICT Development Index
IoT	Internet of Things
IT	Information Technology
ITU	International Telecommunication Union
POS	Point of Sale
PPP	Public-Private Partnership
RegTech	Regulatory Technology
Root CA	Root Certificate Authority
SMEs	Small and Medium Enterprises
STEM	Science, Technology, Engineering and Mathematics

EXECUTIVE SUMMARY

As pointed out in the Rectangular Strategy - Phase 4 and the Cambodia Vision 2050, as well as the readiness to respond to the Fourth Industrial Revolution and tap the potential of the digital transformation, the "**Cambodia Digital Economy and Society Policy Framework 2021-2035**" has been considered and prepared based on the actual needs, potential, resources, and capabilities, both in the public and private sectors, for the development orientation and process of digital transformation in Cambodia. The digital transformation will bring about significant positive outcomes to the Cambodian economy and society, particularly the new growth driver that is highly resilient to future structural changes while being the driving force for the existing growth engines, which are now beginning to slow down and are severely affected by the Covid-19 crisis. Thus, the digital sector will bring about opportunities for new sources of growth, increase economic productivity, promote economic diversification, and create jobs, aimed at contribution to poverty alleviation and social inequality.

In recent years, the information and communication technology (ICT) system in Cambodia has grown rapidly, which is remarkable. However, Cambodia's readiness to embrace the digital sector remains challenging, including the limited infrastructure to support the digital sector, reliability, knowledge, skills and digital leadership. Nevertheless, the digital business ecosystem in Cambodia is still in its infancy and has little involvement in the regional and global value chains. At the same time, the digital government, which has a central and leading role in the digital transformation process, has not been seemed to be fully and deeply prepared. This underscores the need for defining and setting priorities that are interconnected and interdependent aiming at preparing to rapidly capture opportunities in the digital sector.

In this spirit, this policy framework sets out a clear vision: "**building a vibrant digital economy and society by laying the foundations for promoting digital adoption and transformation in all sectors of society --- the state, citizens, and businesses, to promote new economic growth and improve social welfare based on the new normal**.

This policy framework aims to build a digital economy to become both a new economic growth driver and an ecosystem that contributes to increasing productivity and economic efficiency and improving the well-being of the people of Cambodia's digital society. To achieve the above vision and objectives, this policy framework determines key parts that are the foundation and pillars of building a digital economy and society within a 15-year timeframe, from building fundamentals to digitally revolutionize the economic and social spheres. This policy framework sets out three principles: "**Building Digital Foundation-Digital Adoption-Digital Transformation**" by implementing policy measures simultaneously but prioritizing relevant measures corresponding to each principle following the set timeframe and actual needs.

More importantly, 44 specific policy measures have been set out to build two foundations: (1)- the digital infrastructure development focusing on digital connectivity, financial technology infrastructure and digital payment systems, and logistics and last-mile delivery; and (2)- building trust and confidence in digital systems focusing on responsive and effective legal frameworks and strengthening digital security management. 82 policy measures have been put in place to strengthen the three pillars, including (1)- the building of digital citizens focusing on digital leadership, pools of talents, and digital citizens, (2)- the building of digital government focusing on government and digital public services, tips for promoting digital implementation, and data-driven governance in the public sector, and (3)- the promotion of digital businesses focusing on enterprise transformation, entrepreneurial and startup ecosystems, and the digital value chains. The policy framework also considers 13 necessary measures to ensure inclusive participation in the digital sector, as well as to absorb, mitigate, and address the impacts of new trends stemmed from digital technology on the economy and society. These include changes in the structure of the workforce and labor, changes in tax revenue, increased state spending, impacts on culture, tradition, and communications, the loss of personal data, and cybercrime.

In addition to the fundamentals and pillars that are key to building a digital economy and society in Cambodia, the preparation of digital platforms and database registries is the core of the priority framework linking all aspects of the digital transformation processes and would require an inter-linked preparation to enable the interaction among actors to improve and to be able to take advantage of the database registries resulted from the interaction on those digital platforms. In this regard, the Royal Government will take the lead in setting up more digital platforms aiming at building basic digital infrastructure, accelerating digital adoption by businesses and citizens toward building a common digital platform, which enables the interaction between the public and private sectors, as well as with open access, and provision of diverse data sources for citizens following applicable digital laws and regulations and cybersecurity standards. The building of the digital government will be based on three principles: the once-only principle of data entry, the principle of interoperability as an ecosystem, and the principle of land and expland for efficiency.

At the same time, to promote the implementation of policy measures and monitor the achievement of the objectives of digital economic and social revolution, Cambodia has decided to establish the "National Council for Digital Economy and Society", which is a permanent and top-level institutional mechanism to monitor, to provide directions, to set new policies, and to coordinate relevant institutions to implement the Cambodia digital economy and society policy framework. The General Secretariat of the National Council for Digital Economy and Society will be established to be responsible for coordination and communication. This National Council has three committees: **the Digital Economy and Digital Business Committee, the Digital Government Committee, and the Digital Security Committee**, which are responsible for the technical works. The National Council also has a **"Digital Technology Advisory Council"** to provide technical inputs. However, the implementation of this policy framework requires the participation of the relevant ministries and institutions, the private sector, and all citizens with the spirit of ownership, cooperation, and high responsibility.

This policy framework is designed as a "living document" that may eventually be revised to ensure consistency and appropriateness with the advancement of technology, the actual situation of the digital transformation, and the changing socio-economic circumstances in the country, the region, and the world, as well as to respond to risks.

1. INTRODUCTION

1.1. Context and Concept of Policy Framework Development

Over the past two decades, Cambodia has maintained high economic growth at an average annual rate of around 7%, enabling Cambodia to become a low-middle-income country by 2015. The achievement of this historic milestone has encouraged the Royal Government to look forward through the implementation of key reform programs, and the subsequent launch of the National Strategic Development Plan and the Rectangular Strategy to transform Cambodia into an upper middle-income country, and eventually a high-income country in line with the draft Cambodia Vision 2050. With this in mind, to ensure Cambodia can embark on this path toward development smoothly and successfully, the Royal Government will redouble its efforts to maintain dynamic and promote strong economic growth with resilience by accelerating diversification and increasing economic competitiveness.

As noted, Cambodia's economic growth has shown signs of slowing down since the global economic crisis in 2009. In 2020, the Cambodian economy has been severely affected by the Covid-19 crisis. Key economic growth sectors, including garment, tourism, construction, and agriculture, have shown a sign of a steady decline after years of high growth. In addition, the serious impact of the Covid-19 epidemic is exerting pressure on these sources of growth and creating negative consequences for economic activities and structural problems we are already facing in the short and medium term. These adversities require Cambodia to consider and develop a new growth model that is highly responsive and resilient to future changes in economic architecture and international trade.

With this acute situation, the digital sector is seen as a new source of growth with huge potential to promote the Cambodian economy to progress and prosper in line with regional and global trends. Digital technology has the potential to increase productivity and economic efficiency, promote economic diversification, and create

jobs aimed at reducing poverty and social inequality. This digital technology is playing an active role in transforming and promoting international business activities, business operations, media, access to innovative financial services, and many other entertainment services. In the context of the Covid-19 pandemic, the adoption of digital technology is gaining momentum among enterprises and users alike to adapt to austerity measures and seize new opportunities. Based on these potentials, the digital sector can play two main roles: as a new growth driver and as a driving force to support and sustain other sectors in the medium and long term in the national economy. Through a wider and deeper digital transformation, digital technology can be more widely used in social systems, making communication between individuals, families, and communities easier, people's participation in social activities more active, and access to public services faster. At the same time, technology could also cause some negative problems, including changes in the way of doing business, loss of low-skilled jobs or jobs that do not meet the needs of the sector, changes in fiscal aspects, contrary to customs and traditions, lifestyle changes to be independent and personal of people, loss of privacy through the management and misuse of personal data, and issues related to security and public order in both the public and private sectors.

In the Cambodian context, the digital transformation is about adopting and maximizing the benefits of advances in information and communication technology (ICT) and digital technology to increase productivity and economic efficiency for economic growth, and to build a civilized society where digital citizens can access digital services with a high level of inclusiveness, trust, and security while preserving the national identity and culture. Digital transformation is an important part of promoting the interactions of the digital economy and society, as well as enhancing the response to social needs with high efficiency in the context of broader public service delivery and more rapid emergency interventions. In this regard, the Royal Government has an important role to play in creating a smart government system to connect users and facilitate interactions through (1)- supporting and promoting the ecosystems conducive to innovation and investment, (2)- enhancing trust in the digital system, and (3)-

promoting the infrastructure development for connectivity, technology, network/data, and physical connectivity.

Based on the above context, the "**Cambodia Digital Economy and Society Policy Framework of Cambodia 2021-2035**" has been developed as a long-term vision of the Royal Government of Cambodia in orienting for the development and process of a digital transformation with a step-by-step start depending on the needs of resources and capabilities in the public and private sectors. At a time when Cambodia is still in the early stages of developing the digital sector, the development of this sector shall start from a large enough base, not too ambitious, but prioritize the mitigation of risks involved in the process of adoption and the digital transformation. In addition, Cambodia will participate in strategic partnership cooperation as well as international digital initiatives on the economic, society, business, finance, research, utilization and technology development, and cybersecurity within bilateral and multilateral frameworks in line with open economic policies that support global trade, international free trade and the multilateral system.

This policy framework sets out the directions, principles, policy measures, and an institutional mechanism for developing Cambodia's digital economy and society strategically and comprehensively, which is the basis for specific policy measures and priority action plans. Overall, this policy framework is divided into six sections. Section 1 is an introduction that describes the context and concepts of the economic and social digital transformation. Section 2 shows the readiness for the digital transformation in Cambodia. Section 3 sets out the vision, objectives, and goals, principles of building a digital economy and society, and policy measures. Section 4 defines the institutional framework and mechanisms for coordination, monitoring, and evaluation of implementation. Section 5 highlights risk management as a threat to the implementation of this framework, and Section 6 is the conclusion.

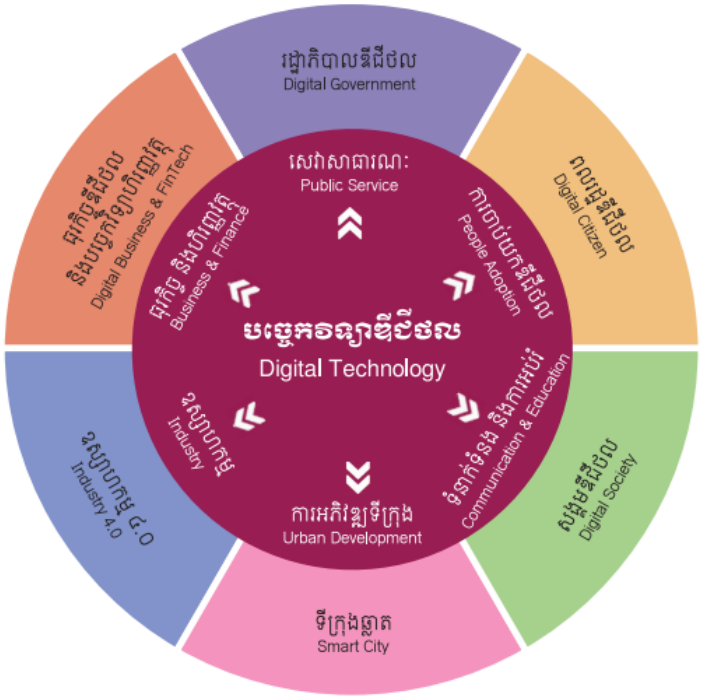
1.2. Definition of the Digital Economy and Society in Cambodia

In the context of the "**Industrial Revolution 4.0**", global scientific and technological advances have been emerging and evolving rapidly. In economic terms, advances in science and technology, which have been creating new business models, changing the production process, consumption, and distribution of goods and services, as well as gradually changing the way we work so as to expand digital product base and digital services, to modernize the production, and to increase productivity and economic efficiency in response to technological advances, is called the "**digital economy**". In particular, in terms of society, science, and technology, these forces have been changing the way of life almost completely and bring about a new concept known as the "**digital society**", which refers to a quality and equitable society, focusing on people through the use of digital technology.

Digital technology has been at the core and as the driving force in all aspects of the diverse economic and social activities, efficiency, and productivity of operations that have been commonly referred to as the digital transformation around our daily lives (Figure 1). In fact, strengthening public services more effectively through the use of digital technology is called "**digital government**". Similarly, when people embrace the use of digital systems in their work and daily life, they are called "**digital citizen**", while the new society with digital technology as a means of communication and education is called "**digital society**". In business and financial activities, the use of digital technology to enhance competitiveness, market expansion, and productivity combined with economic efficiency will help to create new businesses, also known as "digital business, including E-commerce systems and Financial Technology (FinTech)". In addition, the digitalization of production lines, products and services, and business patterns in the industrial sector are called "Industry 4.0". In particular, today the potential of digital technology has been infiltrating the development of urbanization, which is generally recognized as the construction of a "**smart city**". The rapid advancement of technology

will accelerate the digital transformation, accelerate the scope and depth of all aspects and agents in the near future.

Figure 1: Digital Technology Revolution in all Aspects of the Economy and Society



Source: Working Group of the Supreme National Economic Council

In particular, the definition and scope of coverage of the digital economy remain unclear and may vary from country to country. In a narrow sense, the digital economy is a market that relies on digital technology to facilitate the exchange of goods and services through E-commerce, or in other words, the use of digital technologies based on the Internet in the production process and the exchange of goods and services. In a broad sense, the digital economy refers to economic, social, and cultural communication systems that rely on the use of ICT and digital systems.

In this context, the development of the digital economy and society for Cambodia refers to " **the digital transformation into all sectors of the economy and society through the use and maximization of the benefits of advances in ICT and digital technology to promote growth and enhance productivity and economic efficiency with the building**

of a civilized society based on digital citizens who can access to digital services with a high level of inclusiveness, trust, and security while maintaining national identity and culture.". Achieving the use of technology to modernize various sectors of the economy and society will lead Cambodia to the Fourth Industrial Revolution.

The digital economy has four features that can differentiate it from the traditional economy, including: (1)- a lack of focus on geographical location, (2)- the vital role of the digital platform, (3)- the Network Effect, and (4)- Big Data. In addition to the above features, the digital economy is seen to have four main components:

- Highly Digital Goods and Services: including a wide range of products and services that are digitally supplied such as electronic information services (The Washington Posts, Nikkei Asian Review, Bloomberg, The Diplomat Magazine), software sales (Microsoft, Adobe, Zoom) and online education (Coursera, Udemy, edX), etc.
- Mixed Digital Goods and Services: including cars, hotel rooms, food, and beverages using the electronic channels involving the sales and advertising services (Amazon, Alibaba, Little Fashion, Khmer24, Booking.com, Food Panda, Grab),
- IT-Intensive Services or Goods Production: including services that are supplied with the use of information technology, such as accounting services (Deloitte, KPMG, PwC) and complex engineering design services, as well as the production of tangible products that rely heavily on the use of information technology in the production process, for example, the production that uses specialized machines or computers in production and factory management (Apple, Samsung, Honda, General Motors, Airbus), and
- Some segments of the information technology sector that support the three segments of the digital economy: including products and services in the ICT

sector that directly support the above four components of the digital economy such as computer networks (AT&T, EZECOM, Digi, Opennet), computer manufacturing (Dell, Apple, Samsung, Microsoft, Huawei) and information technology consulting enterprises (IBM Global Services).

1.3. Potential of Digital Transformation

In the regional and global movement toward the Fourth Industrial Revolution, especially the economic recovery after the Covid-19 crisis, the digital transformation is considered a catalyst for promoting sustainable and inclusive high economic growth, and for promoting social welfare.

1.3.1. Economic Potential

Cambodia is expected to boost the information and communication technology (ICT) sector at a new accelerating pace by making the digital sector the foundation to seize new opportunities and enhance productivity, efficiency, and economic competitiveness. Key potentials include:

Linkage to production chains, and regional and global value chains: Domestic productions will be in a wider scope with the borderless digital technology and adapt to globalization trends through the linkage to regional and global value chains. In particular, the linkage of small and medium enterprises (SMEs) into regional and global production chains is expected to be a solid foundation for sustaining economic growth.

Promotion of trade and business activities: Efficiency in the transaction of goods and services, especially E-commerce through easier and faster payment, combined with fast and affordable delivery will be enhanced. In addition, business and production management will be more efficient owing to the use of digital technology combined with a skilled workforce. At the same time, the organization of electronic exhibitions and the establishment of platforms for the sale and advertising of products to promote exports and link the market to end consumers can also be done through digital technology.

Job creation, skills, and investment: Jobs and skill levels are anticipated to increase to meet market demand through state-led mechanisms, such as vocational training programs and additional skills training by the private sector. At the same time, promoting entrepreneurship and innovation will contribute to creating new startups and attracting domestic and foreign investment in the ICT sector.

Efficiency Enhancement in the Public Service Delivery: The public service delivery is expected to be more efficient and more transparent through the adoption of a digital mindset and the enhancement of the ability to use new technologies. This trend has also increased opportunities for addressing the structural problems in traditional sectors, including economic, social, and security.

1.3.2. Social Potential

While supporting the development and promotion of economic growth, Cambodia's social progress can be achieved through the fostering of digital society with the participation of all social cells, particularly as every individual can utilize digital technology to communicate between individuals, families, and communities, contributing to social activities, and access to public services without discrimination.

Easier and wider access to social services through digital technology platforms: social cells have been using digital technology platforms to access public services, download information and data, study, learn and teach, write articles, share knowledge, find jobs and life partners, show personal talent, and build networks for communication both within and across countries.

Strengthening relationships and deepening the social sharing: individuals become more connected, more interconnected, and more interactive, regardless of social, geographical, gender, religious and ethnic differences. In this context, smart devices, especially mobile devices, combined with the scope of network connectivity and telecommunications services in each region, are the determining factors of digital social network connectivity, especially building a direct digital society to take advantage of

digital globalization through available resources. In Cambodia, the number of mobile internet connections, especially mobile phones, is up to 128% of the total population, most of whom are using platforms or social networks. This figure shows the participation of Cambodians is becoming more active and widespread in the digital society, turning it into an activity of daily life.

Access to entertainment and social information on demand: digital services such as the trend of digital TV connection, video games, and other basic needs through digital means have been observed to gradually penetrate society especially in the context of the Covid-19. Nowadays, young Cambodians tend to use mobile technology and internet services to facilitate daily life, but focus on the goal of meeting the entertainment needs.

1.4. Impacts of Digital Transformation

The impact of the digital transformation is driven by the pick-up of new habits that lead to the destruction of old habits (Creative Destruction) through the advent of digital technology, both economically and socially.

1.4.1. Economic Impacts

In the economic sector, the adoption of digital technology has some of the following impacts:

Workforce and Employment Restructuring: some traditional jobs may face a higher risk of loss, while the digital economy is expected to create new types of jobs requiring higher knowledge and skills, especially digital skills. At the same time, digital currents can bring about changes in the way work, the replacement by automation and machines, the narrowing of production lines, and the widening of the digital divide among stakeholders. In this regard, a workforce that is capable of adapting to digital currents will benefit, while those who are not able to adapt will face job losses that lead to unemployment in some sectors or structural unemployment. In fact, the digital economy seems to be forcing unskilled or low-skilled workers to embrace basic digital skills to maintain those jobs or occupations. For example, motor-taxi drivers or tuk-tuk drivers need to be able to use applications such as maps,

payments through the banking system, while traders or small businesses need to know how to use computers and smartphones to sell goods or services electronically and accept payments through the banking system. Moreover, the evolution and competitiveness of digital technologies will create a greater transfer of knowledge and skills, but will also widen the digital gap by those with less potential and fewer opportunities to compete in the job market.

Fundamental changes in tax revenue collection: the digital transformation in the economy is expected to increase the government's tax revenue opportunities through the promotion and creation of economic activity. However, this can also create some negative consequences for the collection of fiscal revenue in the form of (1)-loss of tax revenue and tax base due to the absence of physical individuals/local businesses because E-commerce is borderless, (2)-income characterization is not yet clear, while there are no good mechanisms to address emerging challenges, and (3)-the VAT collection mechanism is not yet fully integrated and highly effective in E-commerce.

Diversion of Priorities in the Public Investment Expenditures: in the process of digital economic and social development, the Royal Government has an important role to play in leading and promoting the building of digital infrastructure in response to this need, which requires mobilization of resources for investment. As a result, this will be a burden for revenue collection to meet investment needs, as well as a pressure on the allocation of limited resources for the development of the sector, which requires prioritization of public investment as a whole.

1.4.2. Social Impacts

In the social sector, building a digital society may cause some of the following impacts as follows:

Impact on culture and tradition, and communication: The penetration of other cultures and traditions through digital technology can affect the ancient culture and traditions of Cambodia potentially causing a social backlash if there are no specific measures. Digital devices are changing the patterns or modes of communication,

including advertising, entertainment, knowledge acquisition, and business. Meanwhile, spending more time with technology while spending less time communicating directly with each other at home, at work, school, and in public places can lead to a decline in social skills, especially leading to difficulties in communicating with others and the moral decline in communication. As a result, these effects can also pose a serious risk to national identity.

Loss of Personal Data Privacy, and Misinformation and Fake News: More and more personal data is being collected and exchanged, especially through the Internet of Things (IoT) while the data owners are unaware or are unable to control the flow of data by using software or digital devices such as the use of facial recognition technology, social interaction, search engine, and the use of other smart devices. Those systems and technology management companies can monitor all transactions and communications that occur on their systems and technologies, which is the privacy infringement of users. In addition, the distribution of false and misleading information through ICT is a serious problem that leaves users with inaccurate and confusing information, resulting in loss of time and money, affecting the mood of the general population, or causing divisions, chaos, or other social phenomena.

Cybercrime and Cyberbullying: Internet-connected devices can be targeted for cybercrime and cyberbullying by criminals through hacking. Criminals can access, steal or falsify sensitive information of individuals or entities in the form of privacy infringement, identity theft, identity fraud. All of these crimes can affect the security of digital users, both financially and personally, and can cause a loss of trust among users. In addition, attacks on private individuals through direct or indirect threatening/bullying messages that can affect the mind, and pose a risk to mental and physical health, are a consequence of ICT threats.

2. CAMBODIA'S READINESS TO BUILD A DIGITAL ECONOMY AND SOCIETY

Cambodia is a country that has achieved high growth in the region with a dynamic and demographic potential to continue to promote the development of the country, especially in the context of the Fourth Industrial Revolution and the digital transformation. In addition to achieving an average economic growth rate of 7% over two decades, Cambodia has a large population of young people who are open-minded, receptive to creativity and innovative to drive economic growth. In fact, as of 2019, Cambodia has young people (15-35 years old) about 5.69 million (2.88 million women), equivalent to 36.59% of the total population and 55.97% of the total working-age population (15-64 years). This demographic dividend is a key driver of the rapid advancement of the digital transformation in society through the adoption of technologies for both socio-economic development and self-development following global trends. Cambodia is also one of the ASEAN countries – the region of large economies and is an attractive location for the development of regional and global value chains.

In recent years, the ICT system in Cambodia has rapidly grown, signaling the potential of the digital sector to become a new source of growth. The use of services and mobile internet has been steadily increasing. However, much of the coverage and consumption is concentrated in cities and towns, and service quality is becoming a challenge due to the growing consumption, particularly in the context of the Covid-19 and fierce competition. The digital adoption, as well as digitalization and digital transformation of the economy and society in Cambodia, are still in its infancy. In this context, several barriers, both pushing and adopting factors among key players, have been hampering Cambodia's digital readiness.

Based on the international assessment, Cambodia's overall readiness to capture the digital sector is low. For the factors to drive the digital readiness, Cambodia is ranked 102nd out of 141 countries or 7th out of 9 ASEAN member countries (excluding Brunei),

which is considered to be one of the countries having a low level of digital readiness or limited digital readiness, especially in human resource development, technology adoption, technology infrastructure development, and business environment adjustment. As for technology adoption among key players, Cambodia is also ranked low compared to other countries in the region, indicating technology adoption among the government, citizens, and businesses is still low.

In the process of digital transformation, readiness is a prerequisite that countries have been developing and launching strategic policy frameworks to maximize the benefits of the digital economy. Based on the implementation practice in various countries, the capture of the digital economy and society focuses on the following key components: (1)-**Digital Foundations** referring to the building of digital connectivity infrastructure, (2)-**Legal framework**s referring to the preparation of laws and regulations to enhance the trust in the use of digital goods and services, and in the digital businesses, as well as to ensure cybersecurity, (3)-**Human capital** referring to the development of human resources through multidisciplinary education and training, as well as the training of talents in the development of innovations and new technologies that meet current and future needs, (4)-**Digital transformation** of the public sector referring to the integration of government system in all ministries and institutions and ensure the improvement of the quality of public services to all citizens anytime and anywhere; and (5)-**Digital businesses** referring to establishment of a conducive environment for the ecosystem of the digital economy by modernizing the private sector, promoting startups and ensuring the participation of key stakeholders in the development of a sustainable and inclusive digital economy.

2.1. Enabling Infrastructure for Digital Transformation

The development of digital infrastructure in Cambodia has grown significantly in recent years in response to the strong growth of the demand of the people to use the Internet, especially mobile Internet. Cambodia has made moderate strides in telecommunication infrastructure at the regional and global levels. Although Cambodia's

internet infrastructure has better coverage and affordability, especially in large cities and towns, the overall quality is still limited, which requires further strengthening. At the same time, the existing infrastructure is inadequate to drive digital transformation and seize new opportunities. Therefore, to serve as the foundation for the digital transformation that will penetrate almost every cell of society and all aspects of people's lives, the Royal Government will focus on building digital infrastructure on three aspects: digital connectivity, FinTech infrastructure, and digital payment systems, and logistics and last-mile delivery.

- **Digital connectivity** is yet to fully respond to the growing need for connectivity in people's lives. This connectivity refers to the development and improvement of digital infrastructure and telecommunications networks, and the connectivity to all aspects of the economy and people's lives, which include the development of data infrastructure to serve data-based governance, and soft and hard infrastructure which supports smart living. However, the development of digital infrastructure is yet to sufficiently take into account the linkage of people's lives to digitalization to promote smart living. Overall, schools, hospitals, public transport systems, social security systems, and public administrations are not yet to be digitally connected due to the limited use of technology by citizens and the insufficient provision of digital services. In addition, the bases of most local industries have not been digitally connected in which such connectivity could also help drive industry 4.0. In addition, given the enabling infrastructure for digital transformation, electricity plays a core role as the current of digital connectivity and indispensable energy to ensure the sustainability of all digital activities. In this regard, the development of affordable, reliable electricity infrastructure which could cover every place is strategically important to attract investment in digital infrastructure.

- The development of infrastructure, technology, and digital payment systems in the financial sector is still limited. In the banking sector, the use of electronic payment systems has been increasing through the growth of the number of deposit accounts (8.9 million accounts), e-wallet accounts (6.91 million accounts), and payment cards (6.8

million) combined with the continued modernization of the main payment system infrastructure such as Online Banking and the Bakong system. However, the absence of a common payment platform for multiple agents connecting all banks and billing providers remains one of the main obstacles to expanding public and private electronic services. Meanwhile, in the non-banking financial sector, the adoption of financial technology (FinTech) remains limited. Overall, the development of digital payment infrastructure is still inadequate because some banking and financial institutions have not fully engaged in the development process of payment infrastructure and the process of digital transformation due to their actual circumstances and limited resources. This matter has hampered the scope of use and ability to access electronic payment services, coupled with the fact that the digital payment ecosystem and public awareness of the digital financial sector have remained limited.

- The development of physical infrastructure, all modes of transportation, and a vibrant logistics system are still limited. Cambodia's infrastructure, especially physical infrastructure, such as roads, railways, airways, waterways, and ICT, is yet to be conducive to the logistics sector. On the other hand, last-mile delivery is still fragmented and traditional, making transportation costs high and inefficient for businesses, especially for small enterprises. In addition, the lack of a database of accurate address systems is a major obstacle to the development of the sector to be better and modern, while the operation of local postal services is still limited due to the fragmentation of the ecosystem in the transportation sector. Overall, the logistics and last-mile delivery are not capable enough to meet current and future demand growth since the logistics operations are not fully integrated with digital technology, especially domestic transportation.

2.2. Reliability and Confidence in the Digital System

As an important part of supporting the development and building of the digital economy and society, the legal framework and cybersecurity will ensure consumer protection, fair competition, and trust-building to enhance stakeholder engagement more widely in the activities and operations in the digital sector. Both regionally and globally,

Cambodia remains vulnerable to cyber-attacks as Cambodia's legal and institutional framework for supporting and ensuring digital security and safety remains limited. These issues show the lack of trust and confidence in the digital system in the country. In the context of the rapid development of the digital sector, both in scope and magnitude, and with the emergence of new risks, the Royal Government shall increase its proactiveness to create a favorable environment, protect and ensure your safety for users, and enhance competitiveness in the sector. Thus, the Royal Government will focus on improving legal and cybersecurity frameworks responsively and effectively in two key aspects: the development of a legal framework and the strengthening of cybersecurity management.

- The legal framework related to digital development is still incomplete and inadequate. Cambodia is yet to have a law on data protection and privacy, a law on electronic transactions, a law on public information, and law on cybercrime. Those legal bases are required to respond to the rapid development of the digital and technology sector, both in scope and magnitude, with the emergence of new risks.

- The level of trust in the use of technology is also low because the sources of risks can be triggered by infrastructure vulnerabilities and cybersecurity services (network security, information security, operational security, application security, and the lack of awareness of users and the general public on cybersecurity).

2.3. Digital Citizens

To maximize the benefits of demographic dividends as a way to reap the benefits of the digital economy and society, it requires the active participation of stakeholders, especially human resources with basic knowledge and adequate digital skills, and a creative and highly flexible mindset with digital features. In Cambodia, human resources such as leaders, workers, and all citizens have made significant progress, especially concerning digital adoption, but such progress remains limited compared to other countries in the region. It is currently estimated Cambodia has approximately 50,000 digital talent human resources, while the workforce in the ICT sector mostly is identified

to have moderate skills, and is yet to be concentrated and specialized. Therefore, to maximize the benefits of the digital economic and social transformation and increase competition with countries in the region, the Royal Government will focus on developing digital knowledge and skills by prioritizing three specific areas: digital leadership, a pool of digital talent, and digital citizens in both the public and private sectors, particularly penetrating the local community level.

- **The development of human resources for digital leadership** is a new trend that requires leaders to increase their acceptance and adaptation to the evolution of technology systems to build new management approaches based on digital technologies for governance, communication, decision making, or problem-solving. Today, digital adoption among leaders in both the public and private sectors has made positive progress. The Royal Government has demonstrated its digital leadership by continuously considering the necessary mechanisms to support the development of the digital economy and society, including the integration of technology into the education system, launch of the master plan and policy for the development of the telecommunications, technology, communication and information sector. At the same time, the integration of digital awareness and skills to leaders in local communities has been steadily improving. In the private sector, digital adoption in business and the development of digital technology have also made significant progress in recent years. However, the shift to digital leadership in response to the rapid advances in technology requires long-term efforts to develop digital leaders and build digital leadership.

- **Attracting digital talent human resources**. This type of resource is key in the context of digital transformation that contributes to ensuring creativity and innovation, including startups, rapid solutions in the ICT sector, and system security protection as a whole. It is currently estimated Cambodia has about 50,000 digital talent. At the same time, the enrollment rate in science, technology, engineering, and mathematics (STEM) at the tertiary level was only 27.1%, while another 0.03% enrolled in technical and vocational education and training programs. On the other

hand, those technical skills are yet to be concentrated and specialized. This shows the human resources with digital skills in Cambodia are yet to meet the demand for practical skills in the market, especially the skills that are fundamental to the development and building of the digital economy and society. As noted, the Royal Government has been putting in efforts in sharpening those skills through education, training, and practice. In recent years, there have been new initiatives such as the establishment of the Skills Development Fund, the Entrepreneurship Development Fund, the "Techo" Startup Center, and the ICT Center. In addition, the private sector has also been involving in digital human resource development. In the past, telecommunications companies have collaborated with the Royal Government to establish research and development capacity-building funds in the telecommunications and ICT sectors. The fund has made significant contributions to building digital capacity and skills for young people through information technology scholarship programs, equipping schools with technology, and promotion and competition events on technology. However, the development of human resources is a long-term task that requires both training and practice.

- **Transforming Cambodians into digital citizens**. In embracing digital technology for effective and responsible daily life, every citizen shall have the necessary knowledge and soft skills to drive greater interaction in the ecosystem of the digital economy and society in an effective and digitally inclusive manner. Currently, the basic literacy rate of the Cambodian population over the age of 15 is about 80.5%, which measures the ability to read, write and calculate simple arithmetic, which is the basis for the development of digital citizens. However, digital literacy, which is the ability to use digital tools and technology systems to connect, manage, explore, communicate, evaluate or create information in the digital economy and society, is still limited. The advancement of technology has made the use of digital devices easier, especially the audio and visual information that can also be used by the illiterate. Only about 30% of Cambodians have basic digital skills, which refer to the ability to use digital systems for Internet search,

communicate and share information. However, only about 28% of Cambodian students use computers for higher education.

2.4. Digital Government

Digital government is a necessary player in the preparation of the digital economy and society or means the Royal Government shall take the lead in the use of digital technology to create direct needs and to enable businesses and citizens to adopt the digital sector. Since the public sector plays an important role in providing public services to the people, the digitalization of public services and the transformation of the public service system shall be based on the response to the actual needs of the people. For Cambodia, the Royal Government has implemented several programs and initiatives to digitalize the public administration system and public services. However, the digital transformation of public systems is at a slower pace than the average in the subregion, region, and global levels. In this context, the Royal Government needs to accelerate the implementation of relevant initiatives and reforms to adapt to the digital transformation and enhance consumer participation aiming at transforming into a digital government. Therefore, to promote the reform agenda of the Royal Government by using technology and creating an inclusive environment for the development and building of a digital economy and society that can support the Royal Government in achieving its mission on digital transformation and further expansion to support businesses and citizens, the Royal Government focuses on building a digital government on three aspects: government and digital public services through the continued ownership and accountability of information technology systems of important ministries and institutions, and the development of common technical standards for the implementation in ministry and institutional, the key to promoting digital implementation, and data-based governance.

- **Defining the standard of public services through digital technology while maintaining the ownership of the ministries and institutions**. Based on the

development of the ICT sector, the government and digital public services have been gradually emerging. Currently, several government ministries and institutions are launching administration and digital projects, such as digital registration for land ownership, vehicle registration, and taxation. At the same time, the revenue management of the state revenue collection units is steadily connected to the digital system, especially the introduction of the online tax declaration system and the introduction of the VAT refund application system, and the use of tax credit value-added online, the implementation of a National Single Window system, and the more recently the introduction of online business registration platform. The rise of the digital transformation in digital government is a good sign, but there are also some negative points to consider to achieve a fully digital government. Most state institutions are still required to provide duplicate documents or information due to the lack of sharing between the relevant institutions, while the required document submissions in paper form and electronic acceptance are still limited. In addition, the Royal Government is yet to have a common technical standard for the development of the ICT system, which ensures consistency in appearance, user interface design, interoperability mechanisms, as well as information security and data security standards.

- **Building basic technology platforms for the state**. The cloud technology of the Royal Government's common data center, data exchange for interoperability and integration, digital identity, and information security management systems are key to driving the government's digital implementation. For Cambodia, the technology platform which is the foundation for the digital government has little progress. In the past, the Ministry of Posts and Telecommunications has established a national data center that contains e-mail systems, content management systems, and websites of several ministries and institutions. Some state institutions also have their own separate data centers that are not linked and used as a single state institution to the fullest extent possible. Recently, the Royal Government has established the Cambodia CamDX Data Exchange for interoperability and integration of information systems of state institutions and the ability to technically connect with the private sector systems, but CamDX is yet

to have a sufficient legal basis for data exchange and is yet to prepare the content and catalog of data to be exchanged. Information security management infrastructure through the Root Certificate Authority or Root CA to enable national digital identification is yet to be established although the Royal Government has prepared a sub-decree on digital signatures in the past.

-Establishing a data-based governance system in the context of the digital government. The use of big data, which is the data collected regularly through the registration and operation of ICT systems, will assist in decision-making and policy intervention by the Royal Government. Data-based decisions can help the government better respond to the needs of citizens and businesses. Currently, through the existing ICT system, the government can collect some data for analysis, but with the sharing and use of data combined with data quality is still limited, the expected results are also expected to be limited. The collection of information from the participation of many people is done through social media such as Facebook, but the ability to collect, compile and analyze information is not yet good because there are no tools to download, clean, and analyze data because the data are available in Khmer and mixed between Khmer and foreign language requiring digitalization tools in Khmer to assist with the data analysis.

2.5. Digital Businesses

In the past, the adoption and use of digital technology, as well as ICT of enterprises in Cambodia are seen to be low in almost all sectors and almost all sizes of enterprises, especially in the manufacturing sector. As noted, the share of medium- and high-tech businesses are not yet high in Cambodia compared to countries in the region. However, the digital adoption for businesses in the service sector has gained momentum through the operation of E-commerce and the demand for e-products and services, particularly driven by the growing number of young people who can use technology in line with the growth of the use of social media, other digital platforms, and growing use of FinTech. Cambodian enterprises, such as startups, businesses, and digital business ecosystems, are, however, at an early stage in the adoption and use of digital technologies, and have little involvement in

the digital value chains, both regionally and globally. This is because there is limited investment in Internet access and data security enhancements while rates for companies with their websites are still few. Therefore, to promote the digital adoption of enterprises at all levels and in all sectors for expanding the market expansion, strengthening operational efficiency, ensuring business sustainability, increasing productivity and economic efficiency, and increasing competitiveness, fostering the participation of private companies in global digital chains, and promoting data-based startups, the Royal Government focuses on promoting digital business in three areas: promoting the digital transformation of enterprises, creating the entrepreneurial and startup ecosystems, and enhancing the digital value chain.

-The use of technology in enterprises in Cambodia has been growing rapidly but is still limited. The use of technology in enterprises in Cambodia is done by using technology to a lesser extent through the use of websites, social media, or map information to promote their products or services. In particular, there are some new digital technologies that most enterprises have not yet adopted and used, such as the use of digital systems for business management and automated data collection and analysis tools. To date, the Royal Government has introduced a series of inter-institutional policies and measures, including the Cambodian Industrial Development Policy 2015-2025, small and medium enterprise development policy, measures on SME incentives, the launch of online business registration platform, support mechanisms in the form of funds and institutions, such as the Skills Development Fund, Entrepreneurship Development Fund, the "Techo" Startup Center, and SME banks, aiming at providing skill, technical and financial support to continue to promote the participation of enterprises and startups in the adoption and use of new digital technologies.

-The development of the entrepreneurial and startup ecosystem is still in its infancy. The sector has been facing many obstacles, from infrastructure, skills, legal framework, and favorable environment to consultants and financial support. Although funds and supporting institutions, which have been recently set up, are expected to contribute to paving the way for ecosystems as well as supporting startups to take

advantage of the rapid advances in digital technology, these funds and institutions are still small and have been operating for a short time, while the impact on the overall entrepreneurial and startup ecosystem is yet to be fully assessed. At the same time, to foster an environment conducive to the establishment of startups to promote research and development and innovation on digital technology, the Royal Government needs to continue to make efforts and put in place measures to address the challenges that hinder the development of entrepreneurship and startups.

-**Promoting linkage to regional and global value chains in the digital sector**. The growth of digital adoption will drive the growing demand for digital products and services in almost every sector in which digital technology is expected to evolve into a key factor in creating added value for existing products and services. On the other hand, the rapid advancement of technology may cause the business model of enterprises in some sectors to lose value and demand. This trend will encourage enterprises in all sectors to take into account the benefits and value-added of technological innovations, as well as to maintain a business base in the context of digital transformation through the creation of digital value chains responsive to socio-economic development and consumer needs.

Based on the analysis of the progress, challenges, opportunities on the advances of digital transformation, and the negative impact of digital technology, this policy framework has determined strategic priorities based on the foundations and pillars of building Cambodia's digital economy and society as illustrated in Table 1.

Table 1. Summary of Strategic Priorities, Foundations and Pillars of Building a Digital Economy and Society

No.	Description	Strategic Priority
Foundation	Infrastructure	• Digital connectivity • FinTech Infrastructure and digital payment systems • Logistics and final destination/last-mile delivery

	Digital trust and confidence	• Legal framework • Cyber security management
Pillars	Digital Citizens	• Digital leadership • Pool of Digital Talent Human Resources • Digital Citizens
	Digital Government	• Government and digital public services • Keys to boosting digital performance • Data-based governance
	Digital Businesses	• Enterprise Digital Transformation • Entrepreneurship and Startup Ecosystems • Digital value chains
Impact of digital transformation on the economy and society		

Overall, the assessment of the situation and progress of Cambodia's five priorities reveals the presence of unequal progress in digitalization and digital transformation. To some extent, limited progress has been made while some have made no progress at all. This assessment underscores the need for policy frameworks and policy measures that reflect synergy for building comprehensive infrastructure, adopting digital technology, and advancing digital transformation while mitigating the negative consequences of digital technology on the economy and society

3. POLICY FRAMEWORK

The Cambodia's digital economy and society policy framework sets out a long-term framework aimed at promoting and orienting the digital transformation in Cambodia successfully through defining and implementing policy measures that reflect and respond to the current situation in Cambodia as well as in line with regional and global trends. At the same time, a comprehensive investment framework will be developed to support investment plans in the digital sector, especially under this policy framework and the master plan on digital sector development in Cambodia, which will be considered in a later step.

3.1. Vision, Objective, and Goals

Cambodia's Digital Economy and Society Policy Framework has the vision of **"Building a vibrant digital economy and society by laying the foundations to promote digital adoption and transformation in all social actors including the state, citizens, and businesses, to accelerate new economic growth and promote social welfare in the new normal**".

At the same time, **the objective of this policy is to "build a digital economy to become both a new growth driver, as well as an ecosystem to contribute to increasing economic productivity and efficiency, and improve the welfare of the people of Cambodia's digital society**".

In building a digital foundation based on the above vision and objective, this policy framework identifies five main goals, including:

1. **Developing infrastructure** focuses on expanding the high-speed internet network, setting up digital payment systems, and setting up logistics system and last-mile delivery to support the digital socio-economic development process.
2. **Building reliability in digital systems** focuses on building legal systems and raising awareness of digital security that will contribute to increasing reliability of

relevant stakeholders, and encourage a wider participation in the digital socio-economic development process.

3. **Building digital citizens** focuses on promoting digital leadership, developing and mobilizing digital talents and transforming the digital citizens into a driving force for the digital transformation,
4. **Building digital government** focuses on promoting digital public services, based on the principles of being simplier, faster, better and less spending and strengthening the data-based governance that will enhance and foster the role of the public sector in paving the way, bridging investment gaps, and streamlining public service delivery in the digital era, and
5. **Enabling digital business** focuses on encouraging enterprises as a whole and especially small and medium enterprises to adopt digital widely, the creation of an ecosystem for startups, and the participation in the regional and global digital chains aimed at encouraging businesses to use technology system so as to take advantage of digital technologies as well as promoting innovation.

These five goals will be implemented under a joint coordination mechanism to ensure proactive efforts, investment, and participation of relevant stakeholders, including the public, private, development partners and all citizens. This policy framework also defines clear roles and responsibilities, processes, coordination, and communication in implementing measures and action plans.

3.2. Priority Framework of Digital Transformation for the Cambodia's Economy and Society

To achieve the above goals, all stakeholders shall be prepared and involved in the development of basic infrastructure, usage and acceptance of digital undertakings, and self-development through the strengthening of knowledge and skills on various digital technologies. The digital transformation starts from the center of institutional reforms based on digital technology, which includes the design of digital platforms and the use

of data resulting from the interaction of key stakeholders in promoting and developing the digital economy and society.

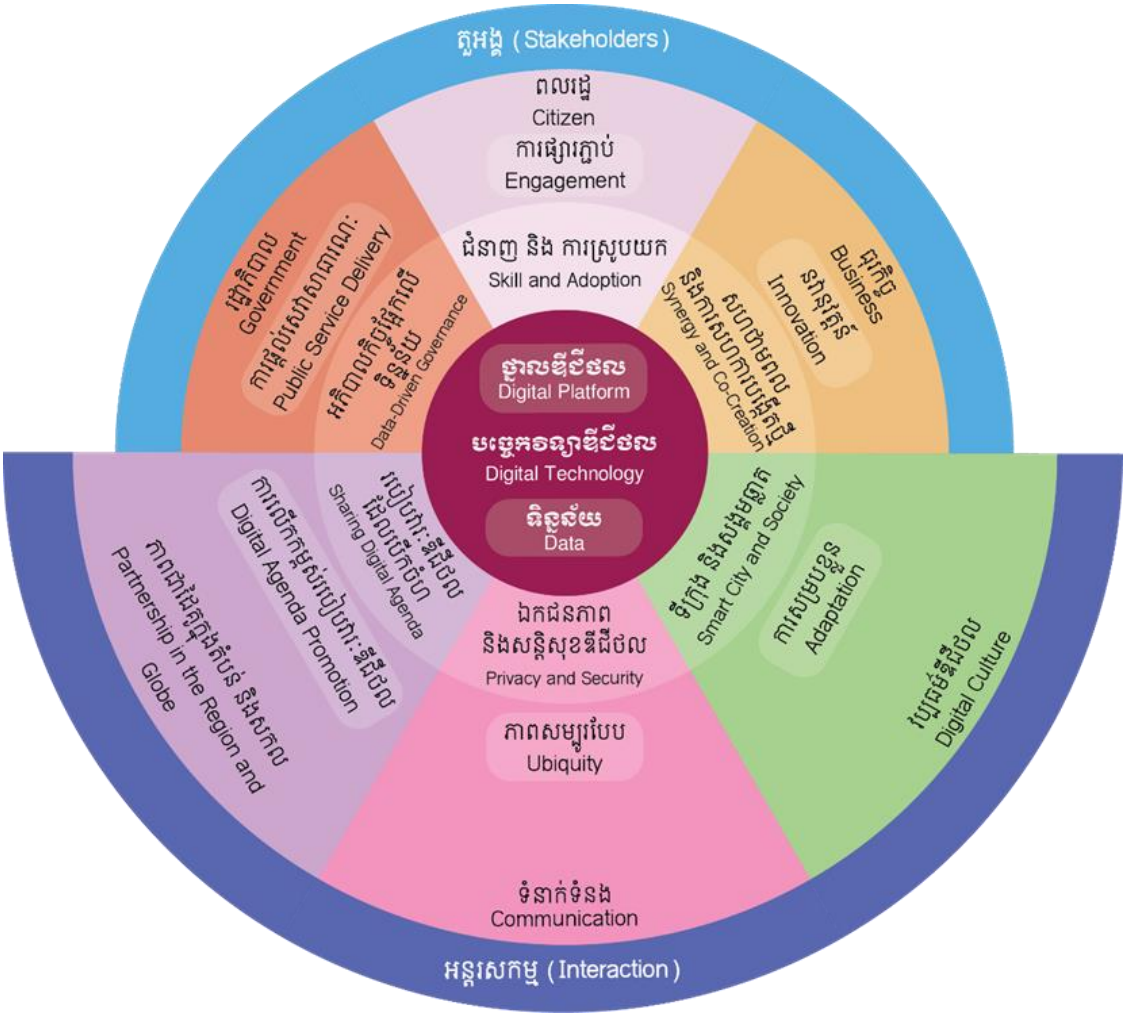
3.2.1. Digital Core and Implementation Arrangement

The digital platforms and data are key fundamentals, which is the starting point for digital adoption and digital transformation (Figure 2). The Royal Government and the business community shall work together to create digital platforms that allow for synergy and interoperability to serve the people. To date, the private sector has set up a number of digital platforms to support its operations and business. At the same time, the Royal Government will organize and modernize some basic data and digital platforms to serve as a basic digital infrastructure, as well as help accelerate digital acceptance by the businesses and citizens.

Basic digital platforms is an information technology system built with high automation to facilitate daily work performance**.** Therefore, the basic digital platform shall be interoperable with various information technology systems of both the public and private sectors to fulfill cross-functionality and provide a portal for interacting with the citizens in the provision and accessbility of services and the use of data.

Data is an important digital asset for recording, verifying, and analyzing system-level data. Therefore, the Royal Government will prepare a database containing important data related to people, business, property and governance, etc. This data can be of many types and forms, which is managed by the competent authority and is regularly/periodically updated. This data will be shared and used in digital platforms to facilitate duplicate data entry and increase data integrity. In addition to these basic data earlier, there is transactional data through transactions, IoT-derived data, and data from other sources, which will reflect the pace of digital transformation in Cambodia.

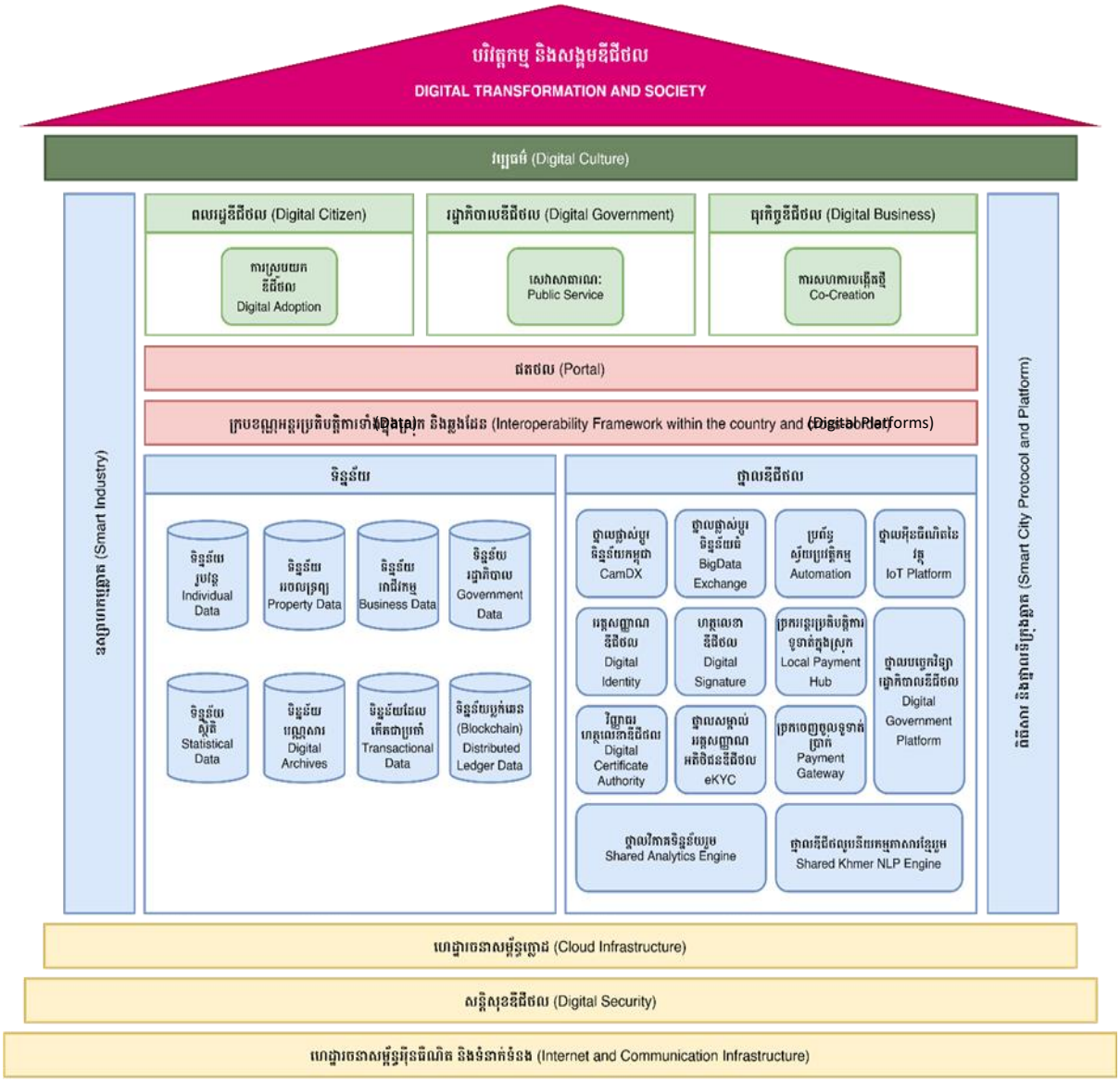
Figure 2: The Blueprint of the Starting Fundementals on the Digital Path to Digital Transformation for Cambodia's digital economy and society



Source: Working Group of the Supreme National Economic Council

Digital platforms and data require cloud infrastructure to be the computational resource, store data, and need a reliable internet system to manage the data and operate those digital platforms under applicable laws and regulations on digital and in compliance with the cybersecurity mechanism (Figure 3).

Figure 3: The Blueprint of Interactions among Key Stakeholders Based on the Foundation of Digital Technology



Records of Individual Data
-Population Data
-Immigration Data
-Education Data
-Health Data
-Insurance Data
-Revenue and Income Data
-Credit Risk Data
-Farmer Data
-Livestock Data

Records of Properties
-Property Data
-Vehicle Data
-Geography Data
-Resident Data

Records of Businesses
-Business Data
-Taxation and Customs Data
-Employment Data
-Intertional Trade Data

Records of Government
-Public Human Resources Data
-Public Financial Management Information System (FMIS) Data
-Public Procurement Data
-Natural Resources Data
-Administrative Document Data

Source: Working Group of the Supreme National Economic Council

3.2.2. Key Stakeholders and Interactions

A. Overall Context

For digital transformation to realize, there need interactions of key stakeholders in different ways through digital platforms and the use of data. In that, the Royal Government, businesses, and people are actors that are closely interacting based on a good communication system, and that shall cooperate in partnership with various institutions and development partners in the region as well as the world to promote the digital agenda to be widely used and accepted. At the same time, these three stakeholders will change some traditional practices and replace them with providing services, doing business, and living a new digital culture in Cambodia, which shall preserve the Khmerness identity.

To connect to the cores of digital technologies based on digital platforms and the use of data, the Royal Government shall provide digital public services and keep improving them regularly through data-driven governance and open data. Citizens shall participate in the usage of digital public services and play the role of users of business services through leveraging digital skills practiced routinely. Businesses shall innovate their information technology system regularly by taking part in the interactions with the government's information technology system which is open to synergy and co-creation.

Besides the cores and the three actors, digital transformation needs interaction with development partners, foreign firms, and other countries in the region and the world to promote digital agenda through cross-border data under the digital sovereign territory which is manageable. Every interaction shall be based on the strong foundation of infrastructure and ubiquitous communication system which is however able to maintain a secured data standard and digital ecosystem. When the interactions become ubiquitous, digital transformation will lead smart city and social trends to a level that requires changes in lifestyle, communication, public service, business, and education toward a new digital culture that all stakeholders need to adapt.

B. Principles of Digital Government Preparation

In the Cambodian context, the Royal Government is a key player that will lead to the adoption and digital transformation of society, which shall first digitalize the system of its governance through the implementation of the digital government policy framework in the direction of building a strong, smart and clean government through digital technology. Therefore, the building of a digital government will be defined in detail in a separate policy framework, but there are principles that are aligned with this policy framework to ensure consistency. Those principles include the "Only-Once Principle", the "Interoperability as an Ecosystem Principle", and the "Land and Expand for Efficiency Principle".

In accordance with the above three principles, the digital government ICT system is divided into three main parts, namely data, digital platforms, and digital services, which are the basis of the policy measures of the digital government. **Data** refer to a set of basic data such as demographic data, business data, tax data, vehicle data and real estate data, etc., which are regularly managed and updated by the competent authorities to ensure data integrity and consistency when sharing with various institutions through digital platforms and used as a basis for data-based governance. **Digital platforms** refer to ICT systems for promoting digital applications that serve the use, collection, execution, analysis, IoT management, and data exchange through digital services. **Digital services** are Digital Portal used by citizens, businesses and government officials to interact with the digital government system according to their respective functions.

The Digital Government Policy Framework shall define the decentralized implementation mechanism for digital government Project and shall adhere to centralized protocols and specifications so that the implementation of all projects can effectively meet the overall goals of the digital government. In this connection, each actor of the digital government shall participate in the design, management and implementation of digital government projects simultaneously and separately in accordance with the plan and direction of the digital government. In addition, each project shall be carried out in compliance with the Standard Template guidelines on

protocols, specifications, interoperability, cyber security, and portal design (UI / UX) to ensure consistency of data interoperability between systems and public service delivery efficiency.

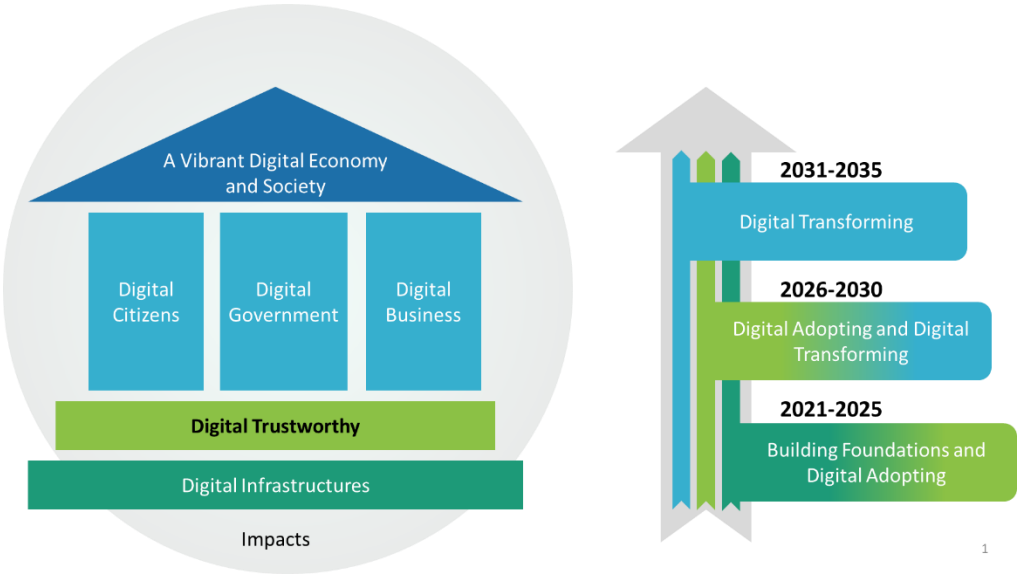
ICT systems need cloud infrastructure, data centers, or computation resources for the functions of digital platform and data storage. Therefore, the Royal Government shall consider building cloud infrastructure and manage such its infrastructure on its own within the framework of digital government, which shall consider the effectiveness of management, resource utilization, investment, cyber security, and human resources for management, as well as compliance of applicable laws and regulations. These conditions require the establishment of cloud infrastructure in the form of semi-decentralized (Hybrid), which mean that not all digital government implementing institutions shall have their own cloud infrastructure, and the government should not build a common infrastructure for the entire government. That is, institutions with high demand for digital platforms and resources may consider establishing the infrastructure separately, while institutions with low demand for use can participate in the preparation and management of common cloud infrastructure or allow any institution to manage on their behalf. This decentralized cloud infrastructure design will ensure the efficient use of budgets and improve the sharing of computational resources on the overall infrastructure, as well as reduce the risk of malfunctions of the entire digital government cloud stemming from technical issues and digital attacks (Single Point of Failure) compared to a form of building a centralized infrastructure.

3.3. Principles for Building Cambodia's Digital Economy and Society

To accelerate the adoption and take advantage of the advancement of digital technology aimed at promoting developing the digital economy and society, the Royal Government has identified three main principles, including **"Building Digital Foundation - Digital Adoption – Digital Transformation"**. Within the defined timeframe, policy measures will be implemented simultaneously, but these three principles will provide a coherent priority for the implementation and performance of

policy measures according to the appropriate timeframe, Cambodia's affordability and capabilities in the digital sector, especially in the areas of human resources and infrastructure in the public and private sectors.

Figure 4: Principles and Framework for building Cambodia's digital economy and society



Establishing clear principles, coupled with clear policy measures and action plans, will allow the process toward the development and building of the digital economy and society to be more effective during implementation, based on implementation progress which is coherent and correspondent.

1. **Building digital foundations and digital adoption** aims to develop both software and hardware infrastructure, as well as connectivity and the design and development of ecosystems from the institutional framework, legal framework, human resources to security and safety as a solid foundation to support and increase the credibility of the acceptance and adoption of digital technology in all aspects of people's daily activities, business activities of private sector, public service delivery and accessibility activities and interactive activities of all actors in the economic and social system.

2. **Digital adoption and transformation** aims to build and better develop the capacity of key players in the economy and society through past experience in the use of digital technology, continuous human resource development, strengthening research and development and innovation, continuing to modernize the state system and public services and strengthening and expanding cooperation both within the country, region and world to improve the readiness of key players in advancing the digital transformation in all aspects of the economy and society.
3. **Digital transformation** aims to accelerate economic and social transformation toward a vibrant digital economy and society owing to strong foundations, more capable human resources, and a more favorable ecosystem environment and a participatory digital society with high use of technology. This will provide a clear path and direction for Cambodia to accelerate new economic growth and promote social welfare in the new normal with digital technology. At the same time, considering the negative impacts of the digital economy and society, the Royal Government has included the necessary measures to address the impacts of the digital transformation on the economy and society.

This policy framework defines an implementation period of 15 years from 2021 to 2035 to ensure the building of a digital foundation and digital adoption leading to digital transformation. This timeframe is subject to revision based on the evolving relevant contexts, and regional and global trends. Based on the principles and timeframe, the direction of the policy measures and the key policy measures are determined and implemented simultaneously but in order according to the priorities and actual opportunities set out in the detailed action plan under the purview of the relevant ministries and institutions.

3.4. Policy Directions and Key Policy Measures

The measures set out in this section will detail the specific timeframe, including the short, medium and long term, as well as the define purview and responsibilities of

the relevant ministries and institutions as set out in the matrix, which is an annex to this policy framework. At the same time, the relevant ministries and institutions need to prepare a detailed action plans according to their respective responsibilities and purviews coherently and comprehensively and in accordance with the set timeframe. However, since this policy framework is a living document, relevant ministries and institutions may develop additional action plans that are relevant and responsive to the promotion and development of the digital economy and society depending on the necessity and practical needs.

Based on the two foundations and the three pillars that set the priority for building Cambodia's digital economy and society, coupled with the mitigation of some of the negative impacts of digital technology on the economy and society, the fundamental policy measures include:

3.4.1. Infrastructure Development to Enable Digital Transformation

To build the digital sector to become an economic driver for Cambodia, the development of basic digital infrastructure is a necessary task that shall be considered and implemented efficiently and comprehensively. In this context, the Royal Government will play an important role in initiating investment programs and / or projects and monitoring and evaluating the cost-effectiveness of infrastructure development to enable the digital transformation. The necessary digital infrastructure needs to be not limited to high-speed internet transmission, but also to financial technology (FinTech) infrastructure and digital payment, logistics systems and last-mile delivery.

A. Policy Measures on Digital Connectivity

The development and promotion of digital connectivity is a key factor in advancing the adoption of technologies, including the development of high-speed internet infrastructure, the development of capable data infrastructure to be ready to respond to never-ending evolving developments of technology and the development of hard and soft infrastructure that supports the smart living of the people. These directions

can be achieved through the introduction and implementation of the following key measures:

- Accelerate the development of high-speed broadband network and infrastructure that is affordable with high quality in response to the actual needs, by achieving 95% coverage of the total population in terms of internet backbone network, submarine cable network, and fixed and mobile broadband infrastructure;
- Amend or revise the law and regulatory framework related to the management of digital infrastructure and the enhancement of regulator's functions in improving competitiveness and providing openness;
- Develop the law and regulatory framework for the management of radio frequency spectrum resources;
- Promote the use of infrastructure sharing;
- Develop the national infrastructure database for the management, monitoring and evaluation.
- Develop national data and cloud technology infrastructures;
- Formulate the policy to provide tax incentives for the investment on data and cloud computing facilities to encourage more establishment of domestic data centers;
- Promote and encourage the use of licensed software platform operating system and other software;
- Initiate the investment programs/projects on the digital infrastructure development;
- Formulate the framework to monitor and evaluate the efficiency of the spending on the digital infrastructure development in support of digital transformation.
- Promote the Public-Private Partnership mechanism for the investment of digital infrastructures and supporting infrastructures to bridge the gap of investment needs from the private sector.

B. Policy Measures on Financial Technology (FinTech) Infrastructure and Digital Payment Systems

One of the main directions in developing the infrastructure for enabling the digital transformation is to build a digital payment system which supports the financial sector, especially the eco-system development for the financial technology (FinTech). The development of digital payment systems shall ensure the coverage of both the banking and non-banking sectors, full-fledged interoperability, reliability and confidence, and high efficiency and security by using and taking advantage of fast-growing financial technology. In this regard, this priority direction is achieved through the introduction and implementation of the following specific measures:

- Formulate and implement the framework for the development of digital payment system with participation from relevant stakeholders;
- Establish the masterplan for the development of the comprehensive and interoperable national payment gateway infrastructures, which have wide coverage on the digital payment in every sector and aspect;
- Develop the inclusive digital payment system by ensuring the availability, affordability, convenience and quality; as well as the functioning and efficiency; of the interoperability of products, services, platforms, and networks in the financial sector;
- Increase the adoption of digital payment for the transaction in the public sector to assist the general operation of public institutions and facilitate the public service provision;
- Create the relevant regulatory framework and guidelines to enhance the reliability and confidence, and encourage the adoption of secure and guaranteed digital payment service;
- Develop the framework to promote, encourage and attract the investment and participation from private sector in the development of infrastructure related to financial sector especially digital payment gateways, and the development of digital payment system and financial technology, aiming to promote and develop digital financial system;

- Amend or revise the laws and regulatory framework in the non-banking financial sector by reducing the uncertainties, gaps and shortage of the applicable laws and regulatory framework hindering the innovation of the Fintech in the market;
- Formulate the strategy as the roadmap for the development of the FinTech sector;
- Formulate the masterplan for the development of capacity and skills in the FinTech sector;
- Establish the institutional mechanisms conducive for the development of FinTech through: (1) Establishing FinTech center for the non-banking financial regulators, (2) Establishing the mechanism for the facilitation and cooperation on FinTech between regulators in banking sector and non-banking financial sector, and (3) Creating the regulatory sandboxes for FinTech sector, if the market requires;
- Inclusively elevate the understanding of the public and entrepreneurs on the use of payment instruments over the electronic system instead of cash to adjust behavior, reliability and confidence on the digital payment channel;
- Expand the coverage of simple and convenient cross-border electronic payment and transfer to prepare for the contribution to the regional integration of the digital economy.

C. Policy Measures on Logistics and Last-mile Delivery

To build a solid foundation for the digital economy, the improvement and the strengthening of the logistics system as well as efficient and nation-wide last-mile delivery is a priority task to fulfill the existing ecosystem gap of the new economy that will be achieved through the introduction and implementation of the following specific measures:

- Formulate the masterplan for the development of inter-modal transport infrastructure including the ICT infrastructure, which focuses on quality, efficiency, internal connectivity, sustainability, and inclusiveness;
- Establish the national logistics complex/center through the creation of single-channel business model (C2B) and the warehouses in the key areas and establish

the national postal logistics complex/center that transact in single system and the parcel warehouse in the key areas.

- Establish the national logistics information system center to increase the efficiency of the domestic logistics services connected to relevant platforms of the private sector and other international agencies.
- Develop the data-driven traffic management system and the transportation navigation system to ensure the efficiency, timeliness and safety of the transportation system;
- Formulate the human resource development strategy in logistics sector to support the development of this sector for the next development phases;
- Further encourage and enhance implementation of trade facilitation measures as prescribed in the Strategy and Work Program on Reform and Modernization (SWRM) of General Department of Customs and Excise as well as other relevant strategies.

At the same time, since the development of the last-mile delivery sector is in the early stage, the development and further strengthening of the sector shall focus on the introduction and implementation of the following specific measures:

- Formulate the strategic plan to promote and develop transportation and delivery sector to create the ecosystem and specific mechanisms in this sector by upholding the principles of efficiency, innovation, environmental sustainability, resiliency and interconnectedness;
- Develop the physical address standard and improve the postal code system, as well as implement and digitally share to all relevant stakeholders as identified in the national logistics masterplan;
- Formulate the strategic plan for the reform and modernization of postal system to ensure the postal services is affordable, fast and widely available;
- Amend or revise the laws and regulatory framework related to the delivery and domestic postal logistics to liberalize these services.

3.4.2. Building Reliability in the Digital Systems

Reliability is key to developing and building a digital economy and society through building a legal framework and raising awareness of cybersecurity. The design and implement the policy measures of the legal framework and cyber security are considered based on two principles: (1). preparation of legal framework and (2). strengthening cybersecurity management.

A. Policy Measures on Legal Framework

Laws and regulations for the digital economy and society shall be full-fledged and play a role in creating favorable conditions for building an ecosystem of a digital economy and society and cultivating the trust of stakeholders. However, the enforcement will be undertaken in a light touch approach to promote the participation in the system and encourage the digital economy and society to begin to function and grow gradually through the introduction and implementation of specific measures as follows:

- Establish relevant laws and regulations, such as Data Protetion and Privacy Law, Public Information Law, Cybercrime Law, Trade Secrets and Non-disclosure Information Law, E-commerce User Ethics Law;
- Amend or revise, continue to prepare and implement relevant laws and regulations related to the cybersecurity sector in response to the new context and actual circumstance;
- Develop the capacity building plan on digital knowledge for lawmakers and technical staffs;
- Raise public awareness on the culture of law-abiding, such as E-commerce Law and Consumer Protection Law.

B. Policy Measures on Cybersecurity

Effective cyber security management will help minimize the risks of using digital systems, provide an enabling environment for the rapid growth of the digital economy, and ensure a safe and secure digital society. In addition, the awareness of digital issues, especially cybersecurity issues, is an important determinant to encourage and promote

engagement from users, aimed at increasing digital use and acceptance. In this regard, building a safe and secure digital economy and society will be achieved through the introduction and implementation of the following specific measures:

- Continue to develop relevant laws and regulations and develop policies or strategies on cybersecurity;
- Develop and invest in infrastructures and national cybersecurity management systems under the national committee to regularly monitor risks on national, regional and global levels;
- Establish institutional mechanisms in line ministries at both national and sub-national levels, such as the Center for Computer and Internet Incident Response, to oversee and be the focal point for the exchange of information on threats and risks;
- Establish standards, technical frameworks, and response procedures as a basis for implementation in developing digital systems and infrastructures which are resilient against attacks;
- Develop strategies and guidelines to raise awareness of the levels of the cybersecurity threats;
- Promote cybersecurity skills development, such as providing accreditation for cybersecurity professionals, cybersecurity technical trainings;
- Establish bilateral and multilateral cooperation frameworks and establish cooperations with international organizations or associations and the private sector related to cybersecurity to share information, experiences and best practices.

3.4.3. Building Digital Citizens

Knowledge, skills and talents are an important part, especially in the stage of digital adoption and the promotion of digital transformation, both economically, socially and culturally. Therefore, this policy framework focuses on the development of digital skills in both the public and private sectors at all levels and at all layers, as well as the mobilization of digital talent pool and the promotion of digital citizens.

A. Policy Measures on Digital Leadership

In the trend of digitalization toward digital transformation, the development of Cambodia's human resources to become a digital leader requires great attention to capacity development in both the public and private sectors. In the Cambodian context, the Royal Government is playing a leading role in paving the way for the future digital transformation. The establishment of a digital government requires the development of the capacity of digital leaders in the public sector, primarily by the introduction and implementation of the following specific measures:

- Develop the common framework for the promotion of digital literacy among leaders and officials in government ministries and institutions, including skills training and digital leadership development;
- Develop the framework for monitoring and evaluating the human resources development in digital skill in ministries and institutions, as well as establish joint mechanisms to encourage leaders and officials with high digital qualifications and innovation;
- Develop the strategic plan for the gradually change in the administrative procedures and the agenda of task assignment and management in ministries and institutions by replacing or fulfilling through the use of digital technology;
- Develop short-term and medium-term plans for promoting the digital adoption and usage in management and administration, as well as encourage and promote digital skill trainings for leaders, officials in local communities and the public;
- Develop short-term and medium-term plans for promoting digital adoption and usage in the management and administration, as well as encouraging and promoting the trainings of digital skills and digital leadership in the private sector;
- Increase resource allocation and mobilize technical and financial supports, as well as cooperation from development partners and the private sector for the development of digital human resource at the sub-national level.

B. Policy Measures on Digital Talent Pool

Mobilizing and building a digital talent pool is another important aspect for digital human resource development. This can be achieved through the introduction and implementation of the following specific measures:

- Develop and update the national database on the demand and supply of digital skills by conducting regular studies to determine the exact amount and type of digital skills required in the current and future markets;
- Develop the comprehensive strategic plan to promote the education, training and development of digital skills in higher education and at all levels of technical and vocational trainings, as well as to promote curriculum improvements to match the training with skill demands;
- Develop and implement national programs and/or initiatives for the development and training of digital talents, including the establishment of national fund for digital technology scholarships, both domestically and internationally, through joint financing from the public sector, the private sector and educational institutions;
- Develop and regularly update the demand of new talents, skills and trainings based on New skills Requirement in the private sector;
- Develop and regularly update the demand of new talents, skills and trainings based on New skills Requirement in the public sector;
- Develop strategies to encourage and attract digital talents from abroad, along with the facilitation on the administrative procedure in the private sector;
- Develop strategies to encourage and attract digital talents from abroad, along with the facilitation on the administrative procedure in the public sector;
- Develop mechanisms to encourage, support and facilitate the private sector in providing digital skills trainings to workers or transferring current skills toward digital skills;
- Promote digital research and development and digital innovation activities at the universities, technical and vocational training institution, institutes, and research centers through binding together the research institutions;

- Develop a partnership framework with the private sector to promote and develop research, development and innovation, including the establishment of digital research and innovation center to promote the exchange of data, information and knowledge, along with the establishment of support funds through public-private partnership mechanism.

C. Policy Measure on Digital Citizens

To ensure a sustainable and inclusive digital society, the Royal Government shall ensure people have sufficient digital knowledge and skills and know-how to use digital systems in daily life effectively and responsibly. Improving the quality of education at the general level and continuing the integration of digital technology into the curriculum at all levels of the education system and technical and vocational training system can be achieved through the introduction and implementation of the following specific measures:

- Improve the curriculum by integrating digital technology as one of the core subjects from the primary level to the secondary level as well as in the technical and vocational training, along with further support and fund for people with specific needs and/or the vulnerable groups;
- Develop an investment plan for equipping digital technology equipment, building digital laboratories and providing electricity and internet access to public schools and technical and vocational training institutes to promote digital technology education and training;
- Develop programs to improve the qualifications and develop digital competency standard for teachers at all levels to improve the implementation of teaching methods using the digital technology in all educational and training institutions;
- Develop the strategic plan in providing guidance on digital skills and careers at all levels of education and training, as well as imparting digital awareness and skills in non-formal education to promote inclusive digital adoption;

- Develop outreach mechanisms, including organizing national events or national campaigns to raise awareness of the benefits of digital adoption in collaboration with development partners, civil society organizations and local communities.

3.4.4. Building the Digital Government

Based on the implementation principles, including the Only-Once Principle, the Inter-operability as an Ecosystem, and the Land and Expand for Efficiency, building a digital government will focus on modernizing the core functions of government institutions and the provision of public services, building key technology platforms as digital key enablers, and data-driven governance, in line with the milestones of government digital policy.

A. Policy Measures on Digital Government and Public Services

The establishment of any digital public services shall consider the needs of users and communication within the government agencies or institutions. In this regard, the Royal Government shall continue to modernize existing digital services, establish digital priority public services, and launch digital public services to the people through the introduction and implementation of the following specific measures:

- Develop and improve the Base Registry data system, as well as promote the sharing culture of these base data in accordance with applicable laws and regulations;
- Prepare sample standard documents for defining technical conditions, protocols, interoperability mechanisms, cybersecurity mechanisms and the design on digital public services websites to harmonize all IT systems of the government and ensure the required conditions of the IT systems of the private sector seeking for interoperability with public sector's systems;
- Organize Catalogue for Service Interoperability, provide convenience for other institutions to download data into their systems, and avoid exchanges without notice during the interoperations;

- Identify priority services for digitalizing development and trials based on users' needs;
- Review compliance and improve automated services delivery through the use of advanced technologies to reduce the complexity of digital public services;
- Expand the scope and quality of essential public e-services that can be used on a regularly at 24 hours x 365 days and minimize the physical interaction with service personnel;
- Establish and update digital media and social media sites of line ministries and institutions with simplification and collection of important information and data which are reliable and regularly updated;
- Develop joint measures on cybersecurity and data safety to strengthen protection, prevention and response mechanisms against cybersecurity threats;
- Promote the implementation of the measures on cybersecurity and data safety to strengthen cybersecurity and promote the trust of public service users;
- Strengthen time efficiency and quality of services to meet the needs of citizens and businesses on the use of digital public services;
- Establish mechanism on digital delivery with accountability and transparency, as well as a Monitoring and Evaluation mechanism on the provision of digital public services using data and digital technology.

B. Policy Measures on Key Digital Enablers

Developing the digital government starts with building a fundamental technology platform for enabling the digital implementation with a clear framework and plan, including resources and capabilities through the introduction and implementation of the following specific measures:

- Continue to develop and operate data exchange platforms in technical and regulatory frameworks, in which require the digital systems of line ministries and institutions to be interoperable with each other to strengthen digital public

services, as well as to promote synenergy and co-creation with private sector's systems on this platform;

- Classify data sensitivity and set up a Virtual Private Network (VPN) to conduct data exchange with medium and high sensitivities;
- Develop a joint data center to be Infrastructure as a Service and Platform as a Service for the operations of the government's ICT system;
- Set up data exchange platforms for Bulky Data Exchange to exchange data or files that are huge and not frequently changed;
- Establish the management platform for Internet of Things (IoT) to serve several functions including traffics, security cameras, disaster management;
- Develop protocols and digital platforms for smart cities in the medium- and long-terms;
- Set up Root Certificate Authority and Certificate Authority for establishing digital identity, e-Know Your Clients (eKYC) and digital signature which can be widely used both in the public and private systems;
- Promote the use of digital identity and digital signature in the identification and verification of digital identities, widespread among citizens, private and public institutions;
- Provide trainings and consultations to ICT technical staffs in line ministries and institutions in using common digital platforms;
- Promote the culture of information and data sharing and ensure data integration between line ministries;
- Ensure the privacy and security of data sharing and use;
- Ensure the data integration of consumers and enterprises in private sector;
- Expand the scope of using artificial intelligence (AI), data science, big data and other advanced technologies for data sharing and the creation of easy-to-use digital services;

- Formulate and implement the law on Digital Government, integration of communications and connection between government agencies to facilitate public service delivery under a consolidated management system without the need for official paper documents;

C. Policy Measures on Data-driven Governance

Promoting the data-driven governance focuses on the creation of digital platforms for the safe and efficient storage and sharing of government data, the establishment of services and the promotion of the use of digital services at the level of ministries, public and private sectors and people, and building a governance system based on data that enhances efficiency and transparency in public affairs through the introduction and implementation of the following specific measures:

- Promote digitalization within public and private sectors to collect data at multiple levels and from multiple sources, including base data, transactional data, and stored data on blockchain infrastructures as the basis of analysis;
- Establish a common mechanism to build a data-driven governance system and enhance the institutional capacity;
- Support digital infrastructures for data collection and develop data-driven technologies to provide warning signals for unexpected events, including natural disasters, floods, deforestation, and migration;
- Ensure the ability to collect and analyze data through the development of Shared Analytics Engines;
- Strengthen the functions and capacity of data collection and use by establishing key data storage facilities in line ministries and institutions, including the National Institute of Statistics and National Digital Archive;
- Invest in infrastructure and promote the use of artificial intelligence (AI) in data-driven governance systems, especially for data use and analysis, and mechanisms for the creation of digital services, which is highly automated and user-friendly;

- Ensure the quality of data and information by updating data at the intra-institutional and inter-institutional levels, based on joint mechanism for building data-driven governance systems;
- Promote research on digitalization of Khmer language to enable the identification of Khmer language in search and in data analysis with Khmer script and mixed foreign script;
- Promote the public dissemination and sharing of some data;
- Participate in implementing policies and laws which support the operations of digital government, especially the promotion of data-driven governance.

3.4.5. Enabling Digital Businesses

Policy measures for digital business focus on: (1). promoting enterprises, especially SMEs to adopt digital technologies, (2). entrepreneurships and startups ecosystem, and (3). digital value chain undertaken in the form of inter-institutional interventions aimed at creating ecosystems, entrepreneurship and startups as well as embracing of regional and global digital value chains and direct and indirect support interventions aimed at digitalizing enterprises in all sectors and sizes, including SMEs and startups.

A. Policy Measures on Digital Enterprise Transformation

The digital transformation of the enterprise is an important part of modernizing the enterprise structure and enhancing the readiness of local enterprises to embrace and integrate the production chain into the digital economy in the country, the region and the world. In this regard, the task and resources framework to support large, medium and small enterprises in the digital transformation will be designed and built through the introduction and implementation of the following specific measures:

- Prepare modernization strategy and/or industry 4.0 strategy for enterprises of all sizes and sectors as well as startups by including the supports to build up digital capacity and digitalize productions, aimed at boosting productivity and economic efficiency;

- Continue to promote and strengthen implementation of small and medium enterprise development measures stated in Small and Medium Enterprises (SMEs) development policy and other relevant strategies as well as to study in details on the adoption capacity, digital and industry 4.0 readiness, bottlenecks, and skill needs in adopting new digital technologies and digital transformation of the SMEs and the industry;
- Establish mechanisms for disseminating, consulting, and promoting better understanding on digital economy, with the ability to provide services free of charge or with acceptable fees, to enterprises with the intention to adopt digital technologies in the operations;
- Strengthen frameworks and/or continue to facilitate mechanisms for registration and licensing on digital platforms for enterprises and startups, coupled with tax- and non-tax incentive mechanisms, to fulfill their legal compliance and to access support programs and other important services from the government;
- Continue to promote and enhance the implementation of E-commerce development measures stated in E-commerce Strategy and other relevant strategies;
- Develop relevant infrastructures and digital platforms, to support enterprises in general, comprising of (1). the platforms to facilitate operating efficiency of businesses including accounting and financial management and customer relations and (2). the platforms to support market expansion both inside and outside the country;
- Promote collaboration between public and private sectors in technologies and innovations to provide enterprises with digital services and solutions on business operations, including staff management, accounting management, order management, inventory management, and customer management;
- Promote adoption and use of digital payments, aimed at easing the operation of enterprises;

- Continue to enhance supporting environment including in financial, technical and capacity aspects for the enterprise development through (1). identifying the priority sectors for digital adoption, (2). strengthening and expanding partnerships among state- and non-state stakeholders on researching the priority sectors and the supplies of goods or services, (3). establishing centers to support the enterprises at all stages of growth, (4). establishing education and training programs to respond to the needs of employees as well as employers in businesses, especially in digital sector, and (5). conducting in-depth studies on enterprises' capacity to adopt digital technologies.

B. Policy Measure on Creating Entrepreneurship and Startup Ecosystem

The Royal Government shall continue to improve the favorable conditions for the ecosystem of the digital economy and embracing of production chains and values from this new system through strengthening entrepreneurship and enabling startups in terms of capacity and financial resources. This can be achieved through the introduction and implementation of specific measures as follows:

- Strengthen implementation and revise support mechanisms and/or initiatives by relevant institutions in fostering entrepreneurship and innovation among enterprises, especially SMEs and startups;
- Promote to implement, continue to revise, and build regulatory framework and principles in supporting and building up confidence and trust among investors, and promote to establish a strong investment network;
- Create national strategy on promoting research and development and innovation aimed at providing directions and enhancing initiatives, programs, and/or projects for research and development and innovation;
- Promote the intellectual property registration and strengthen protection of intellectual property rights on invention and innovation by enterprises and startups;
- Improve conducive environment for research and development (R&D) and innovation by (1). strengthening the implementation of policies related to science,

technology, and innovation; (2). promoting and enhancing the quality of public research centers on digital research and development; and (3). establishing the digital innovation fund to incentivize the private sector in investing in digital research and development for trade;

- Foster culture on entrepreneurship, invention, understanding on digital markets, and opportunities on digital business for SMEs through experimentally establishing and developing SMEs cluster focused on priority sectors;
- Develop mechanisms for effective cooperation and facilitation among national and international stakeholders through establishing agencies and the digital entrepreneurship ecosystem fund as well as the use of regulatory technology (RegTech);
- Create the framework to promote and attract investments and participation from the private sector in high-tech investment projects, combined with trainings, use and transfer of technologies, as well as research and development and innovation;
- Enhance support services for startups, including: (1). incentivizing investment on accelerators in digital enterprise ecosystem, (2). establishing information centers for startups, (3). encouraging private companies that provide consultation and other services for startups, (4). organizing marketing campaigns for startups, (5). developing laws and regulations to lesser burden of compliance and to protect intellectual property rights by startups, (6). encouraging co-development of and matching intellectual property rights, (7). establishing financial technology framework and creating regulatory sandboxes for startups, (8). providing financial supports and guidance for entrepreneurial network development, and (9). developing the incentive strategy for digital businesses that can support other enterprises and accelerators in the digital enterprise ecosystem.

C. Policy Measures on Digital Value Chains

Promoting and supporting local enterprises to undertake digital transformation of their production is a key factor in ensuring the sustainability of the production chains and the value chains resulted from this new economic activity. Enhancing enterprise's

ability to hook up to digital platforms, as well as promoting innovation in digital platform design, increasing the efficiency of local production and value chains, and increasing the opportunities connected to production chains and regional and global value chains can be achieved through the introduction and implementation of the following specific measures:

- Develop training programs and promote businesses in digital era to local enterprises to enhance understanding on digital markets and commerce, technical skills on technologies, digital production and value chains, logistics, inventory management, customer management, customer rewarding, seeking of support partners, and the study of international business infrastructures in the digital sector;
- Promote interactions harnessing the information technology (ICT) systems among enterprises in production and value chains;
- Encourage the provision of information on each type of goods or services in the production and value chains to facilitate the interactions across the systems;
- Promote and implement bilateral and multilateral digital economy agreements frameworks (DEA) aimed at expanding markets for local enterprises and supporting cross-border investment, business and trade activities;
- Establish mechanisms as well as bilateral and multilateral digital economy agreements to boost export-import flow of goods and products as well as to assist enterprises in E-commerce and cross-border trade;
- Establish digital platforms to manage the exchange of information on flows of goods, especially in free economic zones;
- Establish mechanisms and measures supporting enterprises, especially SMEs in evaluating, developing and strengthening the capacity of the production and value chains;
- Enhance accuracy of standardized data, sharing and security of data, to facilitate the seamless integration of production and value chains as well as to support effective coordination in private sector.

3.4.6. Impact Mitigation

In line with the core measures of the two foundations and the three pillars, aimed at promoting and enhancing the development of the digital economy, the Royal Government has considered several necessary measures to avoid, reduce and address the economic and social impacts resulted from the new turning point of digital transformation. By maintaining sufficient fiscal space to be ready for the step-by-step development of the necessary infrastructure to support digital transformation, it is highly relevant to aspects of the national fiscal system, the fiscal system of the digital economy and society requires careful consideration and a separate arrangement.

A. Economic and Social Aspects

Considering the negative impact of the digital transformation on the structure of the labor force and workforce, as well as the way of life and modes of communication in the society, the Royal Government shall put in place the following measures:

- Improve and orient job and employment policies in line with changes in global context;
- Develop a master plan for skills development that encourages workers/ employees and communities to adapt, and harness digital technologies;
- Prepare the framework for transition supports and safety nets for workers/employees;
- Establish the program to support women's participation in the digital sector;
- Prepare and amend relevant laws and regulations to manage and monitor posts and other content creation to protect culture and traditions in a gentle way while leaving space for creativity at an appropriate level;
- Implement projects and/or programs on promoting understanding on culture, arts, and civilization via electronic channels;
- Promote and implement national social protection policies focusing on the provision of pensions, universal health insurance, and adequate social assistance;

- Establish the framework on public relations and communication to guide attitudes, explain decisions, and mainstream future development directions harnessing digital technologies in daily lives and in governance of the public sector;
- Establish the framework on public relations and communication to guide attitudes, explain decisions, and mainstream future development directions harnessing digital technologies in daily lives and in governance of the private sector;
- Develop and implement national extension program framework that promotes the development of digital knowledge and skills as well as provides the consultation on safe and secured use of digital technologies to children, adults, teachers, guardians, and the public.

B. The Fiscal System Aspects of the Digital Economy and Society

Within the framework of the digital economy, the domestic e-business is increasingly becoming attractive and has contributed to the entrepreneurial development in Cambodia. For the local E-commerce management, the Royal Government has already set forth the relevant law and regulations to help build trust. In fact, Article 28 of the E-commerce Law 2020 requires intermediaries and individuals to provide E-commerce services under the taxation regime law in force. At the same time, following Article 7 of the Sub-Decree on the Determination of the Types, Forms and Procedures for Issuance of Permits or Licenses to Intermediaries and Individuals Providing E-commerce Services and Exemption in 2020, the legal entities or branches of foreign companies which are intermediaries or individuals providing E-commerce services shall apply for the tax registration before applying for an E-commerce license. In addition, Article 101 of the The Law on Taxation stipulates individuals shall register with the tax administration within 15 days after that individual commences economic activities.

In particular, the challenge for the tax administration of Cambodia, which is also a global problem, is cross-border E-commerce in which the suppliers do not have a presence or a permanent establishment in the country. For the global context, the implementation of the fiscal policy on the cross-border E-commerce, especially on digital

goods and services has yet to have common standards and norms. In fact, countries with a strong digital economy are beginning to implement several tax policies, including the implementation of taxes on the use of digital products or services through value-added tax or goods and service tax, implementation of digital service tax, amendments on laws and regulations related to the permanent establishment for digital businesses. At the same time, tax incentives and favorable measures are being implemented to promote and enhance innovation and development in the sector.

In this context, the Royal Government will weigh the economic benefits and tax revenues since the implementation of tax collection on the digital sector will contribute to strengthening public confidence and trust in the transparency of revenue collection and fair competition and, in particular, increase the equity of the Cambodian tax system, which is an important factor in promoting tax compliance and essentially contributing to the growth of tax revenue. At the same time, this requires careful balancing to determine whether the implementation of digital service tax collection will not affect growth in the sector, especially in the phase of building fundamental digital infrastructure. The digital fiscal policy shall be formulated and implemented based on five basic principles: simplicity, transparency, certainty, equity and especially economic efficiency, which are the fundamental principles of the fiscal policy mentioned in the Revenue Mobilization Strategy 2019-2023 of the Royal Government.

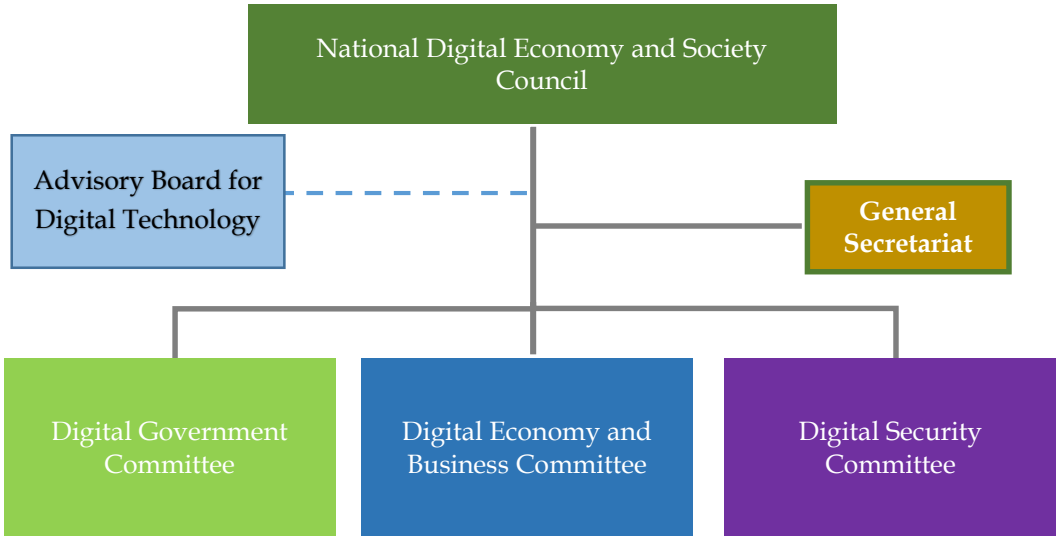
Therefore, the implementation of the fiscal policy on the digital sector will focus on three aspects, including: (1). revision of the legal framework related to the implementation of E-commerce tax collection, income characterization and the statute of permanent establishment, including domestic and foreign digital businesses to mobilize companies providing digital services to apply for the tax registration, (2). the implementation of value-added tax on the supply of goods or the use of digital services to strengthen revenue collection in a transparent and efficient manner, and (3). the implementation of a light touch approach to corporate income tax to strengthen the competitiveness of Cambodia's digital economy.

4. IMPLEMENTATION FRAMEWORK AND COORDINATION MECHANISM FOR MONITORING AND EVALUATION

The Digital Economy and Society Policy Framework is the long-term vision of the Royal Government to orient the development and process of digital transformation so as to utilize and take advantage of the development of the digital and ICT sectors in building the Cambodia's economy and society and minimize negative impacts. However, the effectiveness and success of the implementation and achievement of this policy framework requires the preparation and implementation of appropriate institutional framework and coordination mechanism for monitoring and evaluation (M & E).

4.1. Establishment of Institutional Framework and Coordination Mechanism

The digital transformation will bring about significant changes in the foundation and the socio-economic system, as well as in almost every aspect of people's daily lives. This primarily requires the role and governance of responsible leadership, ensuring the fundamental principles of digital economic and social development. Therefore, a coherent implementation mechanism and in-depth cooperation are indispensable factors to ensure the successful implementation of this policy framework, reflected by defining the institutional framework as follows:



National Digital Economy and Society Council

In the context of the promotion and development of the digital economy and society of Cambodia, the Royal Government has it necessary to establish the **"National Digital Economy and Society Council"** chaired by **Samdech Akka Moha Sena Padei Techo, Prime Minister** and a Deputy Prime Minister as the Permanent Vice-Chairman as well as leaders of the relevant ministries and institutions as members. In addition, the National Digital Economy and Society Council comprises of three committees acting as the "Etat-Major" (supporting functions) in charge of technical tasks, one general secretariat tasked with general coordination, which includes reporting and meeting arrangements of the Council, and the Advisory Board for Digital Technology. The establishment, organization and functioning of the National Digital Economic and Social Council, the General Secretariat, the Committees as well as their Secretariats, and the Advisory Board for Digital Technology shall be determined by separate legal documents.

The National Digital Economy and Society council serves as the "Etat-Major" of the Royal Government responsible for orienting and setting out digital economy and society policies. In this regard, this Council is the highest institution at the political level, and is mandated to lead and coordinate the inter-agency affairs under the common umbrella, which shall have the following roles and responsibilities:

- Define the vision and develop policies and strategies for digital economic and social development and effective implementation mechanisms;
- Review, coordinate and make recommendations to the Royal Government on the investment plan for projects related to digital economic and social development;
- Lead, coordinate and monitor the implementation of action plans for digital economic and social development by setting the key performance indicators for the monitoring of the implementation;
- Establish relevant committees or commissions or working groups; and
- Perform other duties as necessary.

General Secretariat

The General Secretariat fulfills its function as the "Etat-Major" to the **National Digital Economy and Society Council** for the coordination, reporting and meeting arrangement.

Committees

To facilitate the leadership, monitoring and evaluation of the implementation of this policy framework, three "**Committees**" will be established to serve as the "Etat-Major" mandated by key sectors and plans for the National Digital Economy and Society Council. These three Committees shall perform their respective roles, but have a common goal of ensuring the promotion and development of a digital economy and society, with the participation of key stakeholders, including public and private sectors, and citizens. In addition, each Committee has a secretariat in charge of coordinating the committee's operations.

In addition to their specific sectoral functions, the three Committees also have other responsibilities as directed and indicated by the National Digital Economy and Society Council. At the same time, based on the actual needs and resources, these three Committees have the right to establish the relevant commissions, working groups or units to promote efficiency.

A. Digital Economy and Business Committee

The Digital Economy and Business Committee fulfills its function as the "Etat-Major" to the National Digital Economy and Society Council on economic, business and social plans. The Committee is responsible for leading, preparing, coordinating, monitoring and evaluating the implementation of policies, strategies, measures and action plans, and investment in the development of the digital economy, business and society. In addition, this Committee is responsible for leading, organizing and coordinating public investment related to the development of the digital sector, as well

as responsible for supporting the council on monitoring and evaluating the implementation of this policy framework.

B. Digital Government Committee

The Digital Government Committee fulfills its function as the "Etat-Major" to the National Digital Economy and Society council on promoting the digital transformation of the Royal Government on both technical and policy aspects. This Committee is responsible for coordinating, leading, preparing, implementing, monitoring, and evaluating the implementation of policies, strategies, measures, technical standards, and action plans related to building the digital government. At the same time, this Committee also has the role of maintaining, protecting and ensuring information and data security, especially in the public sector.

C. Digital Security Committee

The Digital Security Committee fulfills its function as the "Etat-Major" to the National Digital Economy and Society Council and the central command in charge of security management in the digital space for the purpose of protecting the interests of users, resisting attacks and is competent to respond to all areas, including technical and strength, as well as the management of the entire national social security. The Committee is responsible for coordinating, directing, preparing, implementing, monitoring and evaluating the implementation of policies, strategies, measures, technical standards and action plans related to security in the digital space, including cybersecurity, cybercrime and national security. Due to the vast scope of digital security work, the Digital Security Committee will be chaired and led directly by **Samdech Akka Moha Sena Padei Techo Prime Minister**. At the same time, the digital security policy framework or strategy may be developed separately according to the considerations and decisions of the Digital Security Committee.

Advisory Board for Digital Technology

The Advisory Board is an ad hoc working group set up to provide policy-level advice to the National Digital Economy and Society Council toward achieving effective implementation of this policy framework. The members of the Advisory Board is composed of development partners, research institutions, educational institutions, the private sector and other key stakeholders. This working group has the following roles and responsibilities:

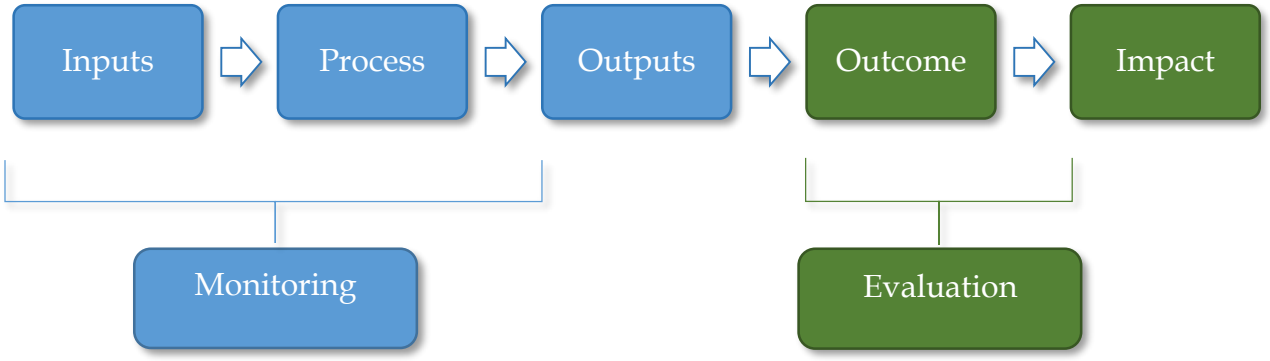
- Provide advice and recommendations on technological aspect to the inter-agency working group in charge,
- Provide inputs to develop specific action plans and measures,
- Attend meetings to monitor the progress of the policy framework, and
- Perform other duties as necessary.

4.2. Monitoring and Evaluation of Policy Framework Implementation

To ensure the progress, effectiveness, consistency and success of the implementation of this policy framework, the monitoring and evaluation are an essential mechanism required to be developed and implemented on a regular basis with the by having the General Secretariat of the National Digital Economy and Society Council to coordination and provide technical support.

The diagram below shows the stages of monitoring and evaluation, in which the monitoring refers to the monitoring system for activities and results for each period, while the evaluation refers to the collection of information to measure the effectiveness and efficiency of the outcome of the implementation of an action plan and policy measures so-called the "impact".

Diagram 1. Monitoring and Evaluation Stage



This monitoring and evaluation require the development of clear action plans and indicators as a basis for periodic monitoring and evaluation, including by semester, annual and medium terms, in accordance with the principles and implementation framework based on the matrix of policy measures mentioned in the annex.

4.2.1. Monitoring and Control

Monitoring is a systematic process for observing and documenting a regular action plan or project to ensure that those actions are carried out in accordance with planned goals and outcomes. The following diagram shows the stages of monitoring and control setup, focusing on the following key components:

Diagram 2. Monitoring and Evaluation Stage

A. Preparation of Monitoring and Control Plan

Since the National Digital Economy and Society Council will have three Committees in charge of technical tasks, the **three Committees shall prepare monitoring and control plans**, which include activities, annual indicators and outcome indicators based on important dates according to the matrix of policy measures, with the General Secretariat of the Council as the coordinating body. These plans are to be submitted to a

meeting of the National Digital Economy and Society Council for an official review, approval and implementation.

B. Monitoring and Control Meeting Regime

After the monitoring and control plans are approved, each Committee **shall hold quarterly internal monitoring meetings (3 months)** to monitor progress and achievements. The coordination mechanism needs to be set up in case the progress is not achieved as planned or is far from achieving the outcome indicators, and then shall prepare for the appropriate follow-up measures.

Nevertheless, **the National Digital Economy and Society Council will hold the meeting every semester (six-month) or at least twice a year** and other extraordinary meetings as needed to review key progress, strategic plans, achievements, and challenges and adjust policy measures, as necessary.

Meanwhile, **the National Digital Economy and Society Council will hold a meeting to review all policy measures every three years** to increase the effectiveness of implementation toward achievement as planned and to respond to the rapid development of technology, the actual evolution of the digital transformation situation and the changing economic and social situation in the country, the region, and the world.

C. Preparation of Progress Report and Performance Report

In practice, each Committee shall prepare two types of reports, including: (1). progress report and (2). performance report.

C.1. Progress Report

Based on the approved plans, the **three Committees shall prepare progress report** on work performance, challenges or solution proposals on **a quarterly basis** sent to the National Economic and Digital Society Council for review, and take that as the subject of the Council's semi-annual meetings, with having the General Secretariat of the Council as the coordinator.

C.2. Performance Report

At the same time, to ensure consistency of performance reports, the **three Committees shall prepare performance reports** describing the progress of implementation of the indicators based on the matrix of policy measures in the annex every two years and submit to the National Digital Economy and Society Council to review and advise and set the way forwards.

4.2.2. Evaluation

Evaluation is a mechanism for examining the impact or outcome of a policy framework. Evaluation is not a routine task but may take place within a planned period or may take place every three or five years as a basis for revision and orientation of a policy framework or based on any necessity.

Evaluation can be made by a joint team from the three Committees, relevant ministries, and institutions and/or with the participation of the private sector and relevant development partners based on the subject for evaluation. In this regard, the evaluation team can be categorized into three types:

1. The evaluation team of each committee assigned by the chairman of the committee to evaluate the results at the committee level,

2. The joint evaluation team is a team responsible for conducting evaluation on any subject, composed of the three committees, relevant ministries and institutions, and/ or with the participation of the private sector and development partners, and

3. The independent evaluation team is an evaluation team consists of persons independent from the Royal Government in charge of implementing evaluation on a contractual basis.

A. Preparation of Evaluation Plan

To carry out the evaluation effectively and efficiently, each Committee shall prepare its own evaluation plan as a separate document for conducting the evaluation, along with resource planning for conducting the evaluation.

Evaluation planning shall be done with a preliminary study of the policy framework and action plan according to each key plan and prioritization for evaluation, as well as a list of projects or evaluation topics according to the matrix of policy measures in the annex. The list of priorities for evaluation shall be specified: (1). name of project or policy, (2). prioritization of evaluation, (3). objectives and necessities for evaluation, and (4). expected results.

In this regard, each Committee shall prepare an evaluation plan according to their respective plans at the end of each year of the implementation of this policy framework. The General Secretariat of the National Digital Economy and Society Council will play an important role in coordinating and stock-taking the evaluation plan for this policy framework to be submitted to the annual meeting of the Council for review and approval.

B. Review of Results and Reports

After conducting the evaluation in a timely manner, the evaluation team shall submit a preliminary evaluation report and present it to the relevant Committee for review and clarification on relevant issues. The evaluation team will then revise its report to the point that it is necessary but does not mean that it shall be revised according to the Committee's request. The evaluation team then sends the final report to the Council for review and comment.

The final evaluation report obtained from the evaluation team will be used to optimize the implementation of the overall policy framework. In addition, the evaluation report may be disseminated to the public or presented at the annual meetings of the Council and the forum of the Royal Government as necessary.

5. RISK MANAGEMENT

Achieving the digital transformation of the Cambodian economy and society requires efforts and achievement the above-mentioned policy measures and policies set by the relevant line ministries and agencies in a responsible, efficient, and effective manner. Meanwhile, the never-ending development of the socio-economic situation in the country, the region and the world will become a risk that can directly and indirectly affect both positively and negatively on the goals of socio-economic development. These risks may impede participation, hinder and / or delay implementation and achievement of the vision of this policy framework.

5.1. Domestic Risks

Uncertainty of the Domestic Economy: the Covid-19 pandemic, which has not appeared to show any sign of slowing down but has instead generated profound impact on the Cambodian economy, could affect the digital transformation process since this situation requires huge investment in key infrastructures, which are complementary and supportive of various transactions in this new era. The uncertainty over the medium-term economic situation as well as the rationalization of public spending to balance the lives of people and businesses, and the prevention of Covid-19 pandemic has reduced the government's ability to invest in the necessary infrastructure. This requires careful consideration in investing and in building the foundations of the digital economy by implementing a number of mechanisms such as the public-private partnership mechanism that is highly effective and potential to drive the digital economy forward. Also, the Royal Government shall manage, allocate and promote the use of national resources more efficiently and effectively.

The flow of skilled labor from neighboring countries and competition in the labor market: In an environment where the digital economy is becoming a common direction of some countries in the region and the world, coupled with the trend of globalization, a shift in the labor force is seen from countries with a surplus of skilled

labor to developing countries. Similarly, Cambodia will face an influx of foreign experts, creating unfavorable conditions for local human resource development. Although the influx of human resources from abroad can help promote the transfer of knowledge and skills to Cambodia, the Royal Government needs to put in place relevant policies to balance the inflow of experts and the development of local human resources.

The collapse of small businesses that are unable to adopt and transform themselves in the short term: The digital economy will bring with it a stream of scientific and technological advances that could have profound effect on the redefining of factors of production, production relations, and consumption behavior. Local productions and businesses, mostly traditional production and the use of low-skilled labor may be less competent and reluctant to embrace digital technology and participate in the digital economy, especially in the short term. This requires the Royal Government to consider the preparation of relevant laws and regulations to increase the readiness of local producers and businesses to embrace technology and the digital economy, as well as to promote the use and retention of people's jobs.

Improper technology adoption leading to resources waste and loss of opportunities: Although this policy framework does not explicitly define specific types of technologies, practical implementation will inevitably lead to the adoption of key technologies in line with Cambodia's capabilities and abilities. This will create some risks in choosing technology that is easily outdated and less effective. In addition, Cambodia needs to develop local technology to be able to accelerate development and innovation, in line with the actual situation.

5.2. External Risks

Global Economic Uncertainty and Trade Tensions: In the context of Covid-19 pandemic and the geopolitical changes of recent years, the global and regional economies continue to be uncertain due to "trade war" caused by the implementation of protectionist policies of major powers, the normalization of monetary policy in developed countries, rapid credit growth in China, and issues related to geopolitics, terrorism, and global

security. In this context, coupled with Cambodian economy relies heavily on external factors to drive Cambodia's development, it is highly vulnerable to any negative changes in the global economy that could further impact Cambodia's efforts in the digitalization as well as the digital transformation of the socio-economic.

Increasing competition in the development of the digital economy in the region and around the world: Although many developed countries around the world have made great strides in developing their digital economy and society, some developing countries, including Cambodia, are just beginning to think and implement in the early phase. However, the outbreak of Covid-19 prompting the implementation of Social Distancing and New Normal measures has pushed many countries around the world to reconsider promoting and accelerating the development of digital economy. In this regard, the technological race, research, and innovation will increase even strongly as countries with high potential and capacity will be able to reap the benefits of the digital transformation far more than those with limited capabilities. In the meantime, the diversity of possibilities for this type of economic stimulus will widen the digital divide between developed and developing countries. This trend requires strong cooperation between countries in the region, such as ASEAN, to promote the development of an environmentally, equitable and non-discriminatory digital economy.

Technological advances are taking place at an unprecedented pace: the Covid-19 crisis has been promoting the emerging trend, which is the development of ICT and digital sectors, which are transforming the regional and global economic and trade structure. On this basis, many countries, such as the European Union have launched measures to restore the economy after the Covid-19 crisis focusing on the development of their digital systems. This is expected to change the advancement of the global digital system, and technological advances will take place at an unprecedented pace. The Royal Government shall continue to strengthen its economic base as well as its readiness for digital adoption as well as the socio-economic digital transformation which can be very flexible at the national, regional and global levels.

6. CONCLUSION

Based on the long-term vision of building a vibrant digital economy and society by laying the foundations, promoting digital adoption and transformation in all stakeholders of society, including state, citizens and businesses, to accelerate new economic growth and promote social welfare in a new normal, the Royal Government has set out the **Cambodia Digital Economy and Society Policy Framework** as a roadmap for digital transformation and maximizing the benefits of the forthcoming Fourth Industrial Revolution. En route to achieving social and economic digital adoption, this policy framework has been considered with high realism, taking into account several concepts including the rapid growth of the Internet and the new generation of technologies, which are appropriate and existing in the Cambodian economy and society in line with international best practices. This provides an opportunity for Cambodia to identify strengths, barriers, and gaps that need to be adjusted and supplemented.

This policy framework aims to "build a digital economy to be a new growth driver and an ecosystem that contributes to increasing productivity and economic efficiency and improving the well-being of the people of Cambodia's digital society." This goal can be achieved by building two foundations and three pillars, taking into account the possible negative effects of the presence and use of digital technology taking 15 years from building foundations to transformation. A total of **139** policy measures have been put in place to achieve the goals of building a digital economy and society, including:

1). Infrastructure development, including digital infrastructure and supporting infrastructure bears 33 measures such as on expanding internet broadband, setting up digital payment systems, and setting up logistics systems and last-mile delivery to support the process of economic and social development.

2). Building reliability and confidence in digital systems, consist of 11 measures by focusing on the establishment of laws and regulations and the increased awareness of digital security that will contribute to increase the confidence of stakeholders and encourage wider participation in the process of digital economic and social development.

3). Building digital citizens consists of 21 measures focusing on enhancing digital leadership, mobilizing digital talent pool and transforming to be digital citizens to be the driving force for the digital transformation,

4). Building digital government consists of 35 measures focusing on promoting digital public services and strengthening data-driven governance that will help promote and enhance the role of the public sector in paving the way, closing the investment gap, and streamlining the provision of public services in digital context, and

5). Promoting digital business consists of 26 measures focusing on encouraging enterprises as a whole and SMEs to adopt digital technology broadly, create ecosystems for new businesses, and participate in the digital chain in the region and global aiming to encourage businesses to use technology to benefit from digital technology as well as the promotion of innovation.

In addition, there are **13 additional measures** that have been considered and put in place to mitigate the negative impacts that may occur from the presence and use of digital technology. At the same time, the Royal Government has decided to establish a **" National Digital Economy and Society Council"** with three Committees serving as "Etat-Major" to lead the implementation and monitoring of measures taken under this policy framework as well as an Advisory Board for Digital Technology. These policy measures will be used as a basis for organizing the activities of each specialized committee, with regular monitoring and control, to ensure participatory, responsible, effective, and accountable implementation of relevant ministries and institutions, as well as the private sector and the people, aimed at achieving the national vision. This policy framework is considered a **"living document**" that may eventually be revised to ensure consistency and appropriateness in line with technological advances and the actual evolution of the digital transformation, as well as changes in the actual socio-economic situation in the country, the region and the world.

ANNEX 1. MATRIX OF POLICY MEASURES

Policy Directions and Key Policy Measures					
No.	**Policy Directions**	**Key Policy Measures**	**Responsible Agency**		**Timeframe**
			Committee	**Ministry-Institution**	
I. Developing Infrastructure in support of the Digital Transformation: Digital Connectivity, FinTech Infrastructure and Digital Payment Systems, and Logistics and Last-mile Delivery					
1	**A. Digital Connectivity** focuses on: the development of high-speed broadband network infrastructure, the development of data infrastructure capable to respond to technological development, and the development of hard and	Accelerate the development of high-speed broadband network and infrastructure that is affordable with high quality in response to the actual needs, by achieving 95% coverage of the total population in terms of internet backbone network, submarine cable network, and fixed and mobile broadband infrastructure	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance	Short- to Long-term (Regularly implemented)
2		Amend or revise the law and regulatory framework related to the management of digital infrastructure and the enhancement	Committee on Digital Government	Ministry of Post and Telecommunications	Short-term

	soft infrastructure to support the smart living of the citizens	of regulator's functions in improving competitiveness and providing openness			
3		Develop the law and regulatory framework for the management of radio frequency spectrum resources	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Information Relevant Ministries and Institutions	Short-term
4		Promote the use of infrastructure sharing	Committee on Digital Government	Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Medium-term
5		Develop the national infrastructure database for the management, monitoring and evaluation	Committee on Digital Government	Ministry of Post and Telecommunications	Short-term
6		Develop national data and cloud technology infrastructures	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance	Short- to Medium-term

7		Formulate the policy to provide tax incentives for the investment on data and cloud computing facilities to encourage more establishment of domestic data centers	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Post and Telecommunications	Short-term
8		Promote and encourage the use of licensed software platform operating system and other software	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Medium-term
9		Initiate the investment programs/projects on the digital infrastructure development	Committee on Digital Government Committee on Digital Economy and Business	Ministry of Post and Telecommunications Ministry of Economy and Finance	Short- to Long-term (Regularly implemented)

10		Formulate the framework to monitor and evaluate the efficiency of the spending on the digital infrastructure development in support of digital transformation	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Post and Telecommunications	Short-term
11		Promote the Public-Private Partnership mechanism for the investment of digital infrastructures and supporting infrastructures to bridge the gap of investment needs from the private sector	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
12	**B. Financial Technology (Fintech) Infrastructure and Digital Payment Systems** focus on: (1) the development of infrastructure to support the digital transformation in financial sector especially the nurturing of financial technology	Formulate and implement the framework for the development of digital payment system with participation from relevant stakeholders	Committee on Digital Economy and Business	Ministry of Economy and Finance National Bank of Cambodia Non-Banking Financial Services Authority Ministry of Post and Telecommunications	Short-term
13		Establish the masterplan for the development of the comprehensive and interoperable national payment gateway	Committee on Digital	Ministry of Economy and Finance National Bank of Cambodia	Short-term

	ecosystem, (2) the development of the digital payment system which ensure the wide coverage for both banking and non-banking sector, the comprehensive, reliable and trusted interoperability, as well as the high efficiency and security through the extraction of benefits from the rapidly advancing financial technology (FinTech).	infrastructures, which have wide coverage on the digital payment in every sector and aspect	Economy and Business	Non-Banking Financial Services Authority Ministry of Post and Telecommunications	
14		Develop the inclusive digital payment system by ensuring the availability, affordability, convenience and quality; as well as the functioning and efficiency; of the interoperability of products, services, platforms, and networks in the financial sector	Committee on Digital Economy and Business	Ministry of Economy and Finance National Bank of Cambodia Non-Banking Financial Services Authority Ministry of Post and Telecommunications	Short- to Long-term (Regularly implemented)
15		Increase the adoption of digital payment for the transaction in the public sector to assist the general operation of public institutions and facilitate the public service provision	Committee on Digital Government	Ministry of Economy and Finance Ministry of Post and Telecommunications	Short- to Long-term (Regularly implemented)
16		Create the relevant regulatory framework and guidelines to enhance the reliability and confidence, and encourage the	Committee on Digital Economy and Business	Ministry of Economy and Finance National Bank of Cambodia	Medium-term

		adoption of secure and guaranteed digital payment service		Non-Banking Financial Services Authority Ministry of Post and Telecommunications	
17		Develop the framework to promote, encourage and attract the investment and participation from private sector in the development of infrastructure related to financial sector especially digital payment gateways, and the development of digital payment system and financial technology, aiming to promote and develop digital financial system	Committee on Digital Economy and Business	National Bank of Cambodia Non-Banking Financial Services Authority Ministry of Post and Telecommunications	Short-term
18		Amend or revise the laws and regulatory framework in the non-banking financial sector by reducing the uncertainties, gaps and shortage of the applicable laws and regulatory framework hindering the innovation of the Fintech in the market	Committee on Digital Economy and Business	Ministry of Economy and Finance National Bank of Cambodia Non-Banking Financial Services Authority Ministry of Post and Telecommunications	Short-term

19		Formulate the strategy as the roadmap for the development of the FinTech sector	Committee on Digital Economy and Business	Ministry of Economy and Finance National Bank of Cambodia Non-Banking Financial Services Authority Ministry of Post and Telecommunications	Short-term
20		Formulate the masterplan for the development of capacity and skills in the FinTech sector	Committee on Digital Economy and Business	Ministry of Education, Youth and Sports Ministry of Economy and Finance National Bank of Cambodia Non-Banking Financial Services Authority Ministry of Planning Ministry of Post and Telecommunications	Short-term
21		Establish the institutional mechanisms conducive for the development of FinTech through: (1) Establishing FinTech center	Committee on Digital	Ministry of Economy and Finance National Bank of Cambodia	Short-term

		for the non-banking financial regulators, (2) Establishing the mechanism for the facilitation and cooperation on FinTech between regulators in banking sector and non-banking financial sector, and (3) Creating the regulatory sandboxes for FinTech sector, if the market requires	Economy and Business	Non-Banking Financial Services Authority Ministry of Post and Telecommunications	
22		Inclusively elevate the understanding of the public and entrepreneurs on the use of payment instruments over the electronic system instead of cash to adjust behavior, reliability and confidence on the digital payment channel	Committee on Digital Economy and Business	National Bank of Cambodia Non-banking Financial Service Authority Ministry of Economy and Finance Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
23		Expand the coverage of simple and convenient cross-border electronic payment and transfer to prepare for the	Committee on Digital Economy and Business	National Bank of Cambodia Non-banking Financial Service Authority	Short- to Long-term (Regularly implemented)

		contribution to the regional integration of the digital economy		Ministry of Economy and Finance Ministry of Post and Telecommunications	
24	**C. Logistics and Last-mile Delivery** focuses on: the improvement and the strengthening of logistics and last-mile delivery system to be more efficient and have a wider coverage	Formulate the masterplan for the development of inter-modal transport infrastructure including the ICT infrastructure, which focuses on quality, efficiency, internal connectivity, sustainability, and inclusiveness	Committee on Digital Economy and Business	Ministry of Public Works and Transportation Ministry of Post and Telecommunications Ministry of Economy and Finance	Medium-term
25		Establish the national logistics complex/center through the creation of single-channel business model (C2B) and the warehouses in the key areas and establish the national postal logistics complex/center that transact in single system and the parcel warehouse in the key areas	Committee on Digital Economy and Business	Ministry of Public Works and Transportation Ministry of Economy and Finance Ministry of Post and Telecommunications	Medium-term

26		Establish the national logistics information system center to increase the efficiency of the domestic logistics services connected to relevant platforms of the private sector and other international agencies	Committee on Digital Economy and Business	Ministry of Public Works and Transportation Ministry of Economy and Finance Ministry of Post and Telecommunications	Medium-term
27		Develop the data-driven traffic management system and the transportation navigation system to ensure the efficiency, timeliness and safety of the transportation system	Committee on Digital Economy and Business	Ministry of Public Works and Transportation Ministry of Economy and Finance Ministry of Post and Telecommunications	Medium- to Long-term
28		Formulate the human resource development strategy in logistics sector to support the development of this sector for the next development phases	Committee on Digital Economy and Business	Ministry of Public Works and Transportation Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry of Economy and Finance	Short-term

				Ministry of Post and Telecommunications	
29		Further encourage and enhance implementation of trade facilitation measures as prescribed in the Strategy and Work Program on Reform and Modernization (SWRM) of General Department of Customs and Excise as well as other relevant strategies	Committee on Digital Economy and Business	Ministry of Economy and Finance Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
30		Formulate the strategic plan to promote and develop transportation and delivery sector to create the ecosystem and specific mechanisms in this sector by upholding the principles of efficiency, innovation, environmental sustainability, resiliency and interconnectedness	Committee on Digital Economy and Business	Ministry of Public Works and Transportation Ministry of Post and Telecommunications Ministry of Planning Ministry of Economy and Finance	Short-term
31		Develop the physical address standard and improve the postal code system, as well as implement and digitally share to	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Interior	Short-term

		all relevant stakeholders as identified in the national logistics masterplan		Ministry of Land Management, Urban Planning and Construction Ministry of Planning Ministry of Economy and Finance	
32		Formulate the strategic plan for the reform and modernization of postal system to ensure the postal services is affordable, fast and widely available	Committee on Digital Government	Ministry of Posts and Telecommunications	Short-term
33		Amend or revise the laws and regulatory framework related to the delivery and domestic postal logistics to liberalize these services	Committee on Digital Economy and Business	Ministry of Public Works and Transportation Ministry of Post and Telecommunications Ministry of Economy and Finance	Short-term
II. Building Reliability and Confidence in Digital System: Establishing a Legal framework and Strengthening Cybersecurity Management					

34	**A. The Legal Framework** focuses on (1). preparation of laws and regulations for the digital economy and society shall be full-fledged and play a role in creating favorable conditions for building an ecosystem of a digital economy and society and cultivating the trust of stakeholders and (2). the enforcement will be undertaken in a light touch approach to promote the participation in the system and encourage the digital economy and society to	Establish relevant laws and regulations, such as Data Protetion and Privacy Law, Public Information Law, Cybercrime Law, Trade Secrets and Non-disclosure Information Law, E-commerce User Ethics Law	Committee on Digital Security	Ministry of Interior Ministry of National Defense Ministry of Post and Telecommunications Ministry of Justice Ministry of Commerce Ministry of Information Relevant Ministries and Institutions	Short- to Medium-term
35		Amend or revise, continue to prepare and implement relevant laws and regulations related to the cybersecurity sector in response to the new context and actual circumstance	Committee on Digital Security	Ministry of Commerce Ministry of Post and Telecommunications Ministry of Information Ministry of Interior Ministry of National Defense Relevant Ministries and Institutions	Short-term

36	begin to function and grow gradually	Develop the capacity building plan on digital knowledge for lawmakers and technical staffs.	Committee on Digital Security	Ministry of Education, Youth and Sportss Ministry of Labor and Vocational Training Ministry of Industry, Science, Technology and Innovation Ministry of Post and Telecommunications Ministry of Interior Ministry of National Defense Relevant Ministries and Institutions	Medium-term
37		Raise public awareness on the culture of law-abiding, such as E-commerce Law and Consumer Protection Law	Committee on Digital Security	Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)

38	**B. Strengthening the management of digital security** focuses on (1). strengthening the effectiveness of cybersecurity management and (2). raising awareness of digital related threats to especially cybersecurity threats.	Continue to develop relevant laws and regulations and develop policies or strategies on cybersecurity	Committee on Digital Security	Ministry of Interior Ministry of National Defense Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short-term
39		Develop and invest in infrastructures and national cybersecurity management systems under the national committee to regularly monitor risks on national, regional and global levels	Committee on Digital Security	Ministry of Interior Ministry of National Defense Ministry of Economy and Finance Ministry of Information Ministry of Post and Telecommunications	Medium-term
40		Establish institutional mechanisms in line ministries at both national and sub-national levels, such as the Center for Computer and Internet Incident Response,	Committee on Digital Security	Ministry of Interior Ministry of National Defense	Short-term

		to oversee and be the focal point for the exchange of information on threats and risks		Ministry of Post and Telecommunications Ministry of Information Ministry of Foreign Affairs and International Cooperation Relevant Ministries and Institutions	
41		Establish standards, technical frameworks, and response procedures as a basis for implementation in developing digital systems and infrastructures which are resilient against attacks	Committee on Digital Security	Ministry of Post and Telecommunications Ministry of Interior Ministry of National Defense Ministry of Foreign Affairs and International Cooperation Relevant Ministries and Institutions	Short-term

42		Develop strategies and guidelines to raise awareness of the levels of the cybersecurity threats	Committee on Digital Security	Ministry of Post and Telecommunications Ministry of Interior Ministry of National Defense Ministry of Information Ministry of Education, Youth and Sportss Ministry of Labor and Vocational Training Ministry of Foreign Affairs and International Cooperation Relevant Ministries and Institutions	Medium-term
43		Promote cybersecurity skills development, such as providing accreditation for cybersecurity professionals, cybersecurity technical trainings	Committee on Digital Security	Ministry of Post and Telecommunications Ministry of Interior Ministry of National Defense	Short- to Long-term (Regularly implemented)

				Ministry of Labor and Vocational Training Ministry of Education, Youth and Sportss	
44		Establish bilateral and multilateral cooperation frameworks and establish cooperations with international organizations or associations and the private sector related to cybersecurity to share information, experiences and best practices	Committee on Digital Security	Ministry of Post and Telecommunications Ministry of Interior Ministry of National Defense Ministry of Foreign Affairs and International Cooperation	Medium-term
III. Building Digital Citizen: Digital Leadership, Digital Talent Pool, and Digital Citizens in both the Public and Private Sectors as well as to the Local Community Level.					
45	**A. Digital Leaders**: focuses on developing Cambodia's human resources to become digital leaders, requiring attention to capacity	Develop the common framework for the promotion of digital literacy among leaders and officials in government ministries and institutions, including skills training and digital leadership development	Committee on Digital Economy and Business	Ministry of Posts and Telecommunications Ministry of Economy and Finance Ministry of Civil Service	Short-term

	development in both public and private sectors, which the development of digital leaders in the public sector is regarded as the top priority for the development of the digital government.		Committee on Digital Economy and Business	Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry Industry, Science, Technology, and Innovation Relevant Ministries and Institutions	
46		Develop the framework for monitoring and evaluating the human resources development in digital skill in ministries and institutions, as well as establish joint mechanisms to encourage leaders and officials with high digital qualifications and innovation	Committee on Digital Economy and Business	Ministry of Posts and Telecommunications Ministry of Economy and Finance Ministry of Civil Service Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training	Short- to Long-term (Regularly implemented)

				Ministry Industry, Science, Technology, and Innovation Relevant Ministries and Institutions	
47		Develop the strategic plan for the gradually change in the administrative procedures and the agenda of task assignment and management in ministries and institutions by replacing or fulfilling through the use of digital technology	Committee on Digital Economy and Business	Ministry of Posts and Telecommunications Relevant Ministries and Institutions	Short-term
48		Develop short-term and medium-term plans for promoting the digital adoption and usage in management and administration, as well as encourage and promote digital skill trainings for leaders, officials in local communities and the public	Committee on Digital Economy and Business Committee on Digital Economy and Business	Ministry of Posts and Telecommunications Ministry of Economy and Finance Ministry of Civil Service Ministry of Interior Relevant Ministries and Institutions	Short- to medium-term

49		Develop short-term and medium-term plans for promoting digital adoption and usage in the management and administration, as well as encouraging and promoting the trainings of digital skills and digital leadership in the private sector	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry of Posts and Telecommunications Relevant Ministries and Institutions	Short-term
50		Increase resource allocation and mobilize technical and financial supports, as well as cooperation from development partners and the private sector for the development of digital human resource at the sub-national level	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Interior Ministry of Posts and Telecommunications Ministry of Civil Service	Short- to Long-term (Regularly implemented)
51	**B. Digital Talent Pool:** focuses on mobilizing and building digital talented human resource.	Develop and update the national database on the demand and supply of digital skills by conducting regular studies to determine the exact amount and type of	Committee on Digital Economy and Business	Ministry of Labor and Vocational Training Ministry of Education, Youth and Sports	Short-term

	.	digital skills required in the current and future markets		Ministry Industry, Science, Technology, and Innovation Ministry of Economy and Finance Ministry of Posts and Telecommunications	
52		Develop the comprehensive strategic plan to promote the education, training and development of digital skills in higher education and at all levels of technical and vocational trainings, as well as to promote curriculum improvements to match the training with skill demands	Committee on Digital Economy and Business	Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry Industry, Science, Technology, and Innovation Ministry of Posts and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Medium-term

53		Develop and implement national programs and/or initiatives for the development and training of digital talents, including the establishment of national fund for digital technology scholarships, both domestically and internationally, through joint financing from the public sector, the private sector and educational institutions	Committee on Digital Economy and Business Committee on Digital Economy and Business	Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry Industry, Science, Technology, and Innovation Ministry of Posts and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Medium-term
54		Develop and regularly update the demand of new talents, skills and trainings based on New skills Requirement in the private sector	Committee on Digital Economy and Business	Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry Industry, Science, Technology, and Innovation	Short- to Long-term (Regularly implemented)

				Ministry of Economy and Finance Ministry of Posts and Telecommunications	
55		Develop and regularly update the demand of new talents, skills and trainings based on New skills Requirement in the public sector	Committee on Digital Economy and Business	Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry Industry, Science, Technology, and Innovation Ministry of Posts and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
56		Develop strategies to encourage and attract digital talents from abroad, along	Committee on Digital	Ministry of Education, Youth and Sports	Medium-term

		with the facilitation on the administrative procedure in the private sector	Economy and Business	Ministry of Labor and Vocational Training Ministry Industry, Science, Technology, and Innovation Ministry of Posts and Telecommunications Ministry of Economy and Finance	
57		Develop strategies to encourage and attract digital talents from abroad, along with the facilitation on the administrative procedure in the public sector	Committee on Digital Economy and Business	Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry Industry, Science, Technology, and Innovation Ministry of Posts and Telecommunications Ministry of Economy and Finance	Medium-term

58		Develop mechanisms to encourage, support and facilitate the private sector in providing digital skills trainings to workers or transferring current skills toward digital skills	Committee on Digital Economy and Business	Ministry of Labor and Vocational Training Ministry of Education, Youth and Sports Ministry of Economy and Finance Ministry of Posts and Telecommunications	Medium-term
59		Promote digital research and development and digital innovation activities at the universities, technical and vocational training institution, institutes, and research centers through binding together the research institutions	Committee on Digital Economy and Business Committee on Digital Economy and Business	Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry Industry, Science, Technology, and Innovation Ministry of Posts and Telecommunications Ministry of Economy and Finance	Short- to Long-term (Regularly implemented)

60		Develop a partnership framework with the private sector to promote and develop research, development and innovation, including the establishment of digital research and innovation center to promote the exchange of data, information and knowledge, along with the establishment of support funds through public-private partnership mechanism	Committee on Digital Economy and Business	Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry Industry, Science, Technology, and Innovation Ministry of Posts and Telecommunications Ministry of Economy and Finance	Medium-term
61	**C. Digital Citizens:** focuses on (1). improving the quality of general education and (2). continuing to integrate digital technology into the curriculum at all levels of the education and technical and vocational	Improve the curriculum by integrating digital technology as one of the core subjects from the primary level to the secondary level as well as in the technical and vocational training, along with further support and fund for people with specific needs and/or the vulnerable groups	Committee on Digital Economy and Business Committee on Digital Economy and Business	Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry Industry, Science, Technology, and Innovation Ministry of Posts and Telecommunications	Medium-term

	trainings to ensure that people have sufficient digital knowledge and skills as well as know how to use the digital systems in their daily life in an efficient and responsible manner.			Ministry of Economy and Finance	
62		Develop an investment plan for equipping digital technology equipment, building digital laboratories and providing electricity and internet access to public schools and technical and vocational training institutes to promote digital technology education and training	Committee on Digital Economy and Business Committee on Digital Economy and Business	Ministry of Education, Youth and Sports Ministry of Labor and Vocational Training Ministry Industry, Science, Technology, and Innovation Ministry of Posts and Telecommunications Ministry of Economy and Finance Ministry of Mine and Energy Electricity Authority of Cambodia Electricite du Cambodge	Medium- to Long-term
63		Develop programs to improve the qualifications and develop digital	Committee on Digital	Ministry of Education, Youth and Sports	Medium-term

		competency standard for teachers at all levels to improve the implementation of teaching methods using the digital technology in all educational and training institutions	Economy and Business	Ministry of Posts and Telecommunications Ministry of Labor and Vocational Training	
64		Develop the strategic plan in providing guidance on digital skills and careers at all levels of education and training, as well as imparting digital awareness and skills in non-formal education to promote inclusive digital adoption	Committee on Digital Economy and Business	Ministry of Labor and Vocational Training Ministry of Education, Youth and Sports Ministry Industry, Science, Technology, and Innovation Ministry of Economy and Finance Ministry of Posts and Telecommunications	Short- to Long-term (Regularly implemented)
65		Develop outreach mechanisms, including organizing national events or national campaigns to raise awareness of the benefits of digital adoption in	Committee on Digital Economy and Business	Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)

		collaboration with development partners, civil society organizations and local communities			
IV. Building the Digital Government: Digital government and Public Services through continued enabling ownership and accountability of IT systems by key line ministries and the development of common standards on technical specification for implementation at line ministries; Keys to promote digital operations; and Data-driven Governance.					
66	**A. Digital Government and Public Services** focuses on (1). further modernization of existing digital services, (2). creation of public service prioritized on digital, and (3). introduction of digital public service delivery to the people with fundamental consideration in creating public services that fit the	Develop and improve the Base Registry data system, as well as promote the sharing culture of these base data in accordance with applicable laws and regulations	Committee on Digital Government	Ministry of Interior Ministry of Economy and Finance Ministry of Post and Telecommunications Ministry of Land Management, Urban Planning and Construction Ministry of Agriculture, Forestry and Fisheries Ministry of Public Works and Transport	Medium-term

	needs of users and the communications within government agencies or institutions.			Ministry of Education, Youth and Sports Ministry of Health Ministry of Commerce Ministry of Labor and Vocational Training Council for the Development of Cambodia Ministry of Civil Service	
67		Prepare sample standard documents for defining technical conditions, protocols, interoperability mechanisms, cybersecurity mechanisms and the design on digital public services websites to harmonize all IT systems of the government and ensure the required conditions of the IT systems of the private	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Short-term

		sector seeking for interoperability with public sector's systems			
68		Organize Catalogue for Service Interoperability, provide convenience for other institutions to download data into their systems, and avoid exchanges without notice during the interoperations.	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Short-term
69		Identify priority services for digitalizing development and trials based on users' needs	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Short-term
70		Review compliance and improve automated services delivery through the use of advanced technologies to reduce the complexity of digital public services	Committee on Digital Government	Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Medium-term

71		Expand the scope and quality of essential public e-services that can be used on a regularly at 24 hours x 365 days and minimize the physical interaction with service personnel	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
72		Establish and update digital media and social media sites of line ministries and institutions with simplification and collection of important information and data which are reliable and regularly updated	Committee on Digital Government	Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
73		Develop joint measures on cybersecurity and data safety to strengthen protection, prevention and response mechanisms against cybersecurity threats	Committee on Digital Security	Ministry of Post and Telecommunications Ministry of Interior Ministry of Economy and Finance Relevant Ministries and Institutions	Short- to Medium-term (Regularly implemented)

74		Promote the implementation of the measures on cybersecurity and data safety to strengthen cybersecurity and promote the trust of public service users	Committee on Digital Government Committee on Digital Security	Ministry of Post and Telecommunications Ministry of Interior Ministry of Economy and Finance Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
75		Strengthen time efficiency and quality of services to meet the needs of citizens and businesses on the use of digital public services	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
76		Establish mechanism on digital delivery with accountability and transparency, as well as a Monitoring and Evaluation mechanism on the provision of digital public services using data and digital technology	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Interior Ministry of Civil Service Ministry of Economy and Finance	Short-term

				Relevant Ministries and Institutions	
77	**B. Keys to promote digital operations** focus on (1). establishing clear framework and plan including resources and capacity; and (2). developing fundamental technology platforms which will promote the use of IT systems in institutions with interoperable functions and harmonious to be the government's common system to ensure the	Continue to develop and operate data exchange platforms in technical and regulatory frameworks, in which require the digital systems of line ministries and institutions to be interoperable with each other to strengthen digital public services, as well as to promote synenergy and co-creation with private sector's systems on this platform	Committee on Digital Economy and Business Committee on Digital Government	Ministry of Economy and Finance Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
78		Classify data sensitivity and set up a Virtual Private Network (VPN) to conduct data exchange with medium and high sensitivities	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Short-term

79	effectiveness and security of digital government system as a whole.	Develop a joint data center to be Infrastructure as a Service and Platform as a Service for the operations of the government's ICT system	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance	Short- to Medium-term
80		Set up data exchange platforms for Bulky Data Exchange to exchange data or files that are huge and not frequently changed	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Planning Ministry of Economy and Finance National Bank of Cambodia	Medium-term
81		Establish the management platform for Internet of Things (IoT) to serve several functions including traffics, security cameras, disaster management	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance Ministry of Interior Ministry of Industry, Science, Technology and Innovation	Short- to Long-term

				National Committee for Disaster Management Relevant Ministries and Institutions	
82		Develop protocols and digital platforms for smart cities in the medium- and long-terms	Committee on Digital Economy and Business Committee on Digital Government	Ministry of Interior Ministry of Post and Telecommunications Ministry of Economy and Finance Ministry of Land Management, Urban Planning and Construction Relevant Ministries and Institutions	Short- to Long-term
83		Set up Root Certificate Authority and Certificate Authority for establishing digital identity, e-Know Your Clients (eKYC) and digital signature which can be	Committee on Digital Economy and Business	Ministry of Post and Telecommunications Ministry of Economy and Finance	Short- to Medium-term

		widely used both in the public and private systems	Committee on Digital Government	Ministry of Interior National Bank of Cambodia	
84		Promote the use of digital identity and digital signature in the identification and verification of digital identities, widespread among citizens, private and public institutions	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Post and Telecommunications	Short- to Medium-term
85		Provide trainings and consultations to ICT technical staffs in line ministries and institutions in using common digital platforms;	Committee on Digital Government	Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
86		Promote the culture of information and data sharing and ensure data integration between line ministries	Committee on Digital Government	Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
87		Ensure the privacy and security of data sharing and use	Committee on Digital Government	Relevant Ministries and Institutions	Short- to Long-term

					(Regularly implemented)
88		Ensure the data integration of consumers and enterprises in private sector	Committee on Digital Economy and Business	Ministry of Economy and finance	Short- to Long-term (Regularly implemented)
89		Expand the scope of using artificial intelligence (AI), data science, big data and other advanced technologies for data sharing and the creation of easy-to-use digital services	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Industry, Science, Technology and Innovation Ministry of Economy and Finance	Short- to Medium-term
90		Formulate and implement the law on Digital Government, integration of communications and connection between government agencies to facilitate public service delivery under a consolidated management system without the need for official paper documents	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Short- to Medium-term

91	**C. Data-driven Governance** focuses on (1). establishing digital platforms for safe and effective storage and sharing of government data, (2). creating services and promoting the use of digital services in line ministries, private sector and citizens, and (3). building a data-driven governance system that enhances effectiveness and transparency in public affairs.	Promote digitalization within public and private sectors to collect data at multiple levels and from multiple sources, including base data, transactional data, and stored data on blockchain infrastructures as the basis of analysis	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance	Short-trm
92		Establish a common mechanism to build a data-driven governance system and enhance the institutional capacity	Committee on Digital Government	Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Medium-term
93		Support digital infrastructures for data collection and develop data-driven technologies to provide warning signals for unexpected events, including natural disasters, floods, deforestation, and migration	Committee on Digital Government	Ministry of Interior National Committee for Disaster Management Ministry of Post and Telecommunications Ministry of Agriculture, Forestry and Fisheries Ministry of Environment	Medium- to Long-term (Regularly implemented)

				Ministry of Water Resources and Meteorology Relevant Ministries and Institutions	
94		Ensure the ability to collect and analyze data through the development of Shared Analytics Engines	Committee on Digital Government	Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
95		Strengthen the functions and capacity of data collection and use by establishing key data storage facilities in line ministries and institutions, including the National Institute of Statistics and National Digital Archive	Committee on Digital Government	Council of Ministers Ministry of Planning Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
96		Invest in infrastructure and promote the use of artificial intelligence (AI) in data-driven governance systems, especially for data use and analysis, and mechanisms for	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance	Short- to Long-term (Regularly implemented)

		the creation of digital services, which is highly automated and user-friendly	Committee on Digital Economy and Business	Relevant Ministries and Institutions	
97		Ensure the quality of data and information by updating data at the intra-institutional and inter-institutional levels, based on joint mechanism for building data-driven governance systems	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
98		Promote research on digitalization of Khmer language to enable the identification of Khmer language in search and in data analysis with Khmer script and mixed foreign script	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance Relevant Ministries and Institutions	Short- to Long-term Regularly implemented)
99		Promote the public dissemination and sharing of some data	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Economy and Finance	Short- to Long-term (Regularly implemented)

				Relevant Ministries and Institutions	
100		Participate in implementing policies and laws which support the operations of digital government, especially the promotion of data-driven governance	Committee on Digital Government	Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
V. Enabling Digital Businesses: Promoting Digital Transformation among Enterprises, Establishing Ecosystems for Entrepreneurship and Startups, and Enhancing Digital Value Chains					
101	**A. Digital Enterprise Transformation** focuses on (1). modernizing enterprises' structures and (2). enhancing readiness of domestic enterprises in adopting and integrating into the domestic, regional	Prepare modernization strategy and/or industry 4.0 strategy for enterprises of all sizes and sectors as well as startups by including the supports to build up digital capacity and digitalize productions, aimed at boosting productivity and economic efficiency	Committee on Digital Economy and Business	Ministry of Industry, Science, Technology, and Innovation Ministry of Economy and Finance Ministry of Post and Telecommunications	Medium-term

102	and global digital production chains.	Continue to promote and strengthen implementation of small and medium enterprise development measures stated in Small and Medium Enterprises (SMEs) development policy and other relevant strategies as well as to study in details on the adoption capacity, digital and industry 4.0 readiness, bottlenecks, and skill needs in adopting new digital technologies and digital transformation of the SMEs and the industry	Committee on Digital Economy and Business	Ministry of Industry, Science, Technology, and Innovation Ministry of Economy and Finance Ministry of Post and Telecommunications Ministry of Commerce Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
103		Establish mechanisms for disseminating, consulting, and promoting better understanding on digital economy, with the ability to provide services free of charge or with acceptable fees, to enterprises with the intention to adopt digital technologies in the operations	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Industry, Science, Technology, and Innovation Ministry of Post and Telecommunications Ministry of Commerce	Short- to Long-term (Regularly implemented)

104		Strengthen frameworks and/or continue to facilitate mechanisms for registration and licensing on digital platforms for enterprises and startups, coupled with tax- and non-tax incentive mechanisms, to fulfill their legal compliance and to access support programs and other important services from the government	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Commerce Ministry of Post and Telecommunications Ministry of Industry, Science, Technology, and Innovation Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
105		Continue to promote and enhance the implementation of E-commerce development measures stated in E-commerce Strategy and other relevant strategies	Committee on Digital Economy and Business	Ministry of Commerce Ministry of Economy and Finance Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)

106		Develop relevant infrastructures and digital platforms, to support enterprises in general, comprising of (1). the platforms to facilitate operating efficiency of businesses including accounting and financial management and customer relations and (2). the platforms to support market expansion both inside and outside the country	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Industry, Science, Technology, and Innovation Ministry of Post and Telecommunications Ministry of Commerce Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
107		Promote collaboration between public and private sectors in technologies and innovations to provide enterprises with digital services and solutions on business operations, including staff management, accounting management, order management, inventory management, and customer management	Committee on Digital Economy and Business	Ministry of Industry, Science, Technology, and Innovation Ministry of Economy and Finance Ministry of Post and Telecommunications Ministry of Commerce	Short- to Long-term (Regularly implemented)

				Relevant Ministries and Institutions	
108		Promote adoption and use of digital payments, aimed at easing the operation of enterprises	Committee on Digital Economy and Business	Ministry of Economy and Finance National Bank of Cambodia Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
109		Continue to enhance supporting environment including in financial, technical and capacity aspects for the enterprise development through (1). identifying the priority sectors for digital adoption, (2). strengthening and expanding partnerships among state- and non-state stakeholders on researching the priority sectors and the supplies of goods or services, (3). establishing centers to support the enterprises at all stages of	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Commerce Ministry of Post and Telecommunications National Bank of Cambodia Ministry of Industry, Science, Technology, and Innovation	Short- to Long-term (Regularly implemented)

		growth, (4). establishing education and training programs to respond to the needs of employees as well as employers in businesses, especially in digital sector, and (5). conducting in-depth studies on enterprises' capacity to adopt digital technologies		Ministry of Foreign Affairs and International Cooperation Relevant Ministries and Institutions	
110	**B. Ecosystem for Entrepreneurship and Startups** focuses on enhancing the conducive conditions to the ecosystem for digital economy and the adoption of production and supply chains from this new system through strengthening the entrepreneurship and	Strengthen implementation and revise support mechanisms and/or initiatives by relevant institutions in fostering entrepreneurship and innovation among enterprises, especially SMEs and startups	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Industry, Science, Technology, and Innovation Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Medium-term
111		Promote to implement, continue to revise, and build regulatory framework and	Committee on Digital	Ministry of Economy and Finance	Short- to Long-term

	nurturing startups on both capability and financial aspects.	principles in supporting and building up confidence and trust among investors, and promote to establish a strong investment network	Economy and Business	Council for the Development of Cambodia Relevant Ministries and Institutions	(Regularly implemented)
112		Create national strategy on promoting research and development and innovation aimed at providing directions and enhancing initiatives, programs, and/or projects for research and development and innovation	Committee on Digital Economy and Business	Ministry of Industry, Science, Technology, and Innovation Ministry of Education Youth and Sports Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short-term
113		Promote the intellectual property registration and strengthen protection of intellectual property rights on invention and innovation by enterprises and startups	Committee on Digital Economy and Business	Ministry of Commerce Ministry of Industry, Science, Technology, and Innovation	Short-term

114		Improve conducive environment for research and development (R&D) and innovation by (1). strengthening the implementation of policies related to science, technology, and innovation; (2). promoting and enhancing the quality of public research centers on digital research and development; and (3). establishing the digital innovation fund to incentivize the private sector in investing in digital research and development for trade	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Industry, Science, Technology, and Innovation Ministry of Post and Telecommunications Ministry of Education Youth and Sports	Short- to Long-term (Regularly implemented)
115		Foster culture on entrepreneurship, invention, understanding on digital markets, and opportunities on digital business for SMEs through experimentally establishing and developing SMEs cluster focused on priority sectors	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Industry, Science, Technology, and Innovation Ministry of Post and Telecommunications Ministry of Woman Affairs	Short- to Medium-term

				Relevant Ministries and Institutions	
116		Develop mechanisms for effective cooperation and facilitation among national and international stakeholders through establishing agencies and the digital entrepreneurship ecosystem fund as well as the use of regulatory technology (RegTech)	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Industry, Science, Technology, and Innovation Ministry of Post and Telecommunications National Bank of Cambodia Non-Banking Financial Services Authority Ministry of Foreign Affairs and International Cooperation	Short- to Medium-term
117		Create the framework to promote and attract investments and participation from the private sector in high-tech investment	Committee on Digital	Ministry of Economy and Finance	Medium-term

		projects, combined with trainings, use and transfer of technologies, as well as research and development and innovation	Economy and Business	Council for the Development of Cammbodia Ministry of Industry, Science, Technology, and Innovation Ministry of Post and Telecommunications National Bank of Cambodia	
118		Enhance support services for startups, including: (1). incentivizing investment on accelerators in digital enterprise ecosystem, (2). establishing information centers for startups, (3). encouraging private companies that provide consultation and other services for startups, (4). organizing marketing campaigns for startups, (5). developing laws and regulations to lesser burden of	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Commerce Ministry of Industry, Science, Technology, and Innovation National Bank of Cambodia Non-Banking Financial Services Authority	Short- to Medium-term

		compliance and to protect intellectual property rights by startups, (6). encouraging co-development of and matching intellectual property rights, (7). establishing financial technology framework and creating regulatory sandboxes for startups, (8). providing financial supports and guidance for entrepreneurial network development, and (9). developing the incentive strategy for digital businesses that can support other enterprises and accelerators in the digital enterprise ecosystem		Ministry of Post and Telecommunications Relevant Ministries and Institutions	
119	**C. Digital Value Chains** focuses on (1). continuing to promote and support the domestic businesses to digitally transform their productions, (2). enhancing the business's	Develop training programs and promote businesses in digital era to local enterprises to enhance understanding on digital markets and commerce, technical skills on technologies, digital production and value chains, logistics, inventory management, customer management,	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Commerce Ministry of Post and Telecommunications	Short- to Long-term (Regularly implemented)

	capacity in integrating into digital platforms and (3). promoting the innovation in establishing the digital platforms that enhance the efficiency of domestic productions and supply chains, and provide more opportunities connected to the regional and globally production and supply chains.	customer rewarding, seeking of support partners, and the study of international business infrastructures in the digital sector		Ministry of Industry, Science, Technology, and Innovation Relevant Ministries and Institutions	
120		Promote interactions harnessing the information technology (ICT) systems among enterprises in production and value chains	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Commerce Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
121		Encourage the provision of information on each type of goods or services in the production and value chains to facilitate the interactions across the systems	Committee on Digital Economy and Business	Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)

122		Promote and implement bilateral and multilateral digital economy agreements frameworks (DEA) aimed at expanding markets for local enterprises and supporting cross-border investment, business and trade activities	Committee on Digital Economy and Business	Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
123		Establish mechanisms as well as bilateral and multilateral digital economy agreements to boost export-import flow of goods and products as well as to assist enterprises in E-commerce and cross-border trade	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Commerce Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short- to Long-term (Regularly implemented)
124		Establish digital platforms to manage the exchange of information on flows of goods, especially in free economic zones	Committee on Digital Economy and Business	Ministry of Commerce Council for the Development of Cambodia Ministry of Economy and Finance	Medium-term

				Ministry of Post and Telecommunications	
125		Establish mechanisms and measures supporting enterprises, especially SMEs in evaluating, developing and strengthening the capacity of the production and value chains	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Industry, Science, Technology, and Innovation Ministry of Post and Telecommunications Relevant Ministries and Institutions	Short-term
126		Enhance accuracy of standardized data, sharing and security of data, to facilitate the seamless integration of production and value chains as well as to support effective coordination in private sector	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Industry, Science, Technology, and Innovation Ministry of Post and Telecommunications	Medium-term

				Relevant Ministries and Institutions	
VI. Mitigating the negative impacts: Avoid, Reduce and Address the Socio-Economic Impacts imposed by the New Turn of Digital Transformation.					
127	**A. Socio-Economic Aspects** considers the negative impact of the digital transformation on the structure of the labor force and workforce, as well as the way of life and modes of communication in the society.	Improve and orient job and employment policies in line with changes in global context	Committee on Digital Economy and Business	Ministry of Labor and Vocational Training	Short-term
128		Develop a master plan for skills development that encourages workers/ employees and communities to adapt, and harness digital technologies	Committee on Digital Economy and Business	Ministry of Labor and Vocational Training Ministry of Education Youth and Sports Ministry of Post and Telecommunications	Medium-term
129		Prepare the framework for transition supports and safety nets for workers/employees	Committee on Digital	Ministry of Economy and Finance	Medium-term

			Economy and Business	Ministry of Labor and Vocational Training	
130		Establish the program to support women's participation in the digital sector	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Labor and Vocational Training Ministry of Woman Affairs Ministry of Post and Telecommunications	Short- to Long-term (Regularly implemented)
131		Prepare and amend relevant laws and regulations to manage and monitor posts and other content creation to protect culture and traditions in a gentle way while leaving space for creativity at an appropriate level	Committee on Digital Government	Ministry of Post and Telecommunications Ministry of Interior Ministry of Information Ministry of Culture and Fine Art Relevant Ministries and Institutions	Medium-term

132		Implement projects and/or programs on promoting understanding on culture, arts, and civilization via electronic channels	Committee on Digital Government	Ministry of Culture and Fine Art Ministry of Education Youth and Sports Ministry of Information Ministry of Post and Telecommunications	Medium-term
133		Promote and implement national social protection policies focusing on the provision of pensions, universal health insurance, and adequate social assistance	Committee on Digital Economy and Business	Ministry of Economy and Finance Ministry of Social Affairs Veteran and Youth Rehabilitation Ministry of Labor and Vocational Training Ministry of Health	Short- to Long-term (Regularly implemented)
134		Establish the framework on public relations and communication to guide attitudes, explain decisions, and	Committee on Digital Government	Ministry of Post and Telecommunications	Medium- to Long-term

		mainstream future development directions harnessing digital technologies in daily lives and in governance of the public sector		Ministry of Economy and Finance Ministry of Information Relevant Ministries and Institutions	
135		Establish the framework on public relations and communication to guide attitudes, explain decisions, and mainstream future development directions harnessing digital technologies in daily lives and in governance of the private sector	Committee on Digital Economy and Business	Ministry of Post and Telecommunications Ministry of Economy and Finance Ministry of Social Affairs Veteran and Youth Rehabilitation Ministry of Information Relevant Ministries and Institutions	Medium- to Long-term
136		Develop and implement national extension program framework that promotes the development of digital knowledge and skills as well as provides	Committee on Digital Economy and Business	Ministry of Education Youth and Sports Ministry of Labor and Vocational Training	Short- to Medium-term

		the consultation on safe and secured use of digital technologies to children, adults, teachers, guardians, and the public	Committee on Digital Government	Ministry of Information Ministry of Post and Telecommunications Ministry of Economy and Finance	
137	**B. Fiscal System Aspects of the Digital Economy and Society** focuses on assessing the economic benefits and tax revenue.	Revise the legal framework related to the implementation of E-commerce tax collection, income characterization and the statute of permanent establishment, including domestic and foreign digital businesses to mobilize companies providing digital services to apply for the tax registration	Committee on Digital Economy and Business	Ministry of Economy and Finance and Relevant General Departments	Short-term
138		the implement the value-added tax (VAT) on the supply of goods or the use of digital services to strengthen revenue collection in a transparent and efficient manner	Committee on Digital Economy and Business	Ministry of Economy and Finance and Relevant General Departments	Short-term

139		Implement the light touch approach to corporate income tax to strengthen the competitiveness of Cambodia's digital economy	Committee on Digital Economy and Business	Ministry of Economy and Finance and Relevant General Departments	Short- to Medium-term

ANNEX 2. GLOSSARY

No.	Term	Definition
1.	Algorithm	The rules or the set of stages followed by computers to address a particular issue.
2.	Application Programming Interface (APIs)	The interface of interactions in data sharing between two or more ICT systems.
3.	Application Software	The computer program designed/developed to assist users in performing a specific function through computers, smart phones, and other technological devices.
4.	Artificial Intelligence (AI)	The technologies allowing the computers to learn, think, analyze, and understand a specific issue through the emulation of the human brain.
5.	Bakong	The name of ICT system initiated by the National Bank of Cambodia to provide interoperatability on payments and inter-bank money transfers among domestic member banks.
6.	Big data	A large volume of data – diverse in shapes but in general with unclear structure – that are used to analyze the patterns, trends, and associations from one point to another.
7.	Blockchain Technology	The distributed ledger technology infrastructure that records the digital asset unalterable; those data are copied and spread in a decentralized way across the network of mainframe computers.

8.	Broadband	Refers to the data transfer at a high speed by relying on the telecommunication infrastructure.
9.	Cambodia Data Exchange (CamDX)	The information sharing platforms initiated by the government for data exchange by using APIs across the ICT systems of relevant ministries and institutions and the private sector in a standardized and secure way over the internet or other digital networks.
10.	Cloud (computing) Technology	The technology infrastructure which can provide services of storing data and computing resources for the operations of ICT system over the internet.
11.	Cloud-Based Service	The service of using software program operating on cloud technology.
12.	Cybercrime	The crime that are carried out on the information and communication technology systems including stealing, faking or editing documents; spreading malware; blackmailing; kidnapping, or affecting the socio-economic security.
13.	Cybersecurity	The practice of avoiding, responding, and protecting the information technology systems including infrastructure networks, operation systems, and programs from all forms of invasions and attacks, especially over the internet.
14.	Data	Electronic numbers, letters, symbols, messages, images, audios, videos, information, or programs that are designed applicable in database or over the electronic system.

15.	Data Center	The infrastructures that provide services and store data and computing resources for the operations of information technology systems.
16.	Data Infrastructure	The digital infrastructures to store, process, and analyze data so that to promote the sharing and the use of data.
17.	Data Privacy (Information Privacy)	The procedures ensuring that the data of organizations or individuals agreed to be recorded by any other organization in the information technology systems cannot be shared, stolen, or used without any permission from data owners.
18.	Database	The collection of interconnected data created to ease the management and the access.
19.	Data-Driven Governance	Data-driven governance to drive policy decisions, set goals, exchange policy measures, and monitor the implementation of the policy to enhance transparency.
20.	Digital Technology	The technology using electronic tools, smart devices, telecommunication systems, information technology systems, and computing resources, to generate, store, process and analyze data.
21.	Digital Adaptation	The ability of individuals to understand and adopt to the never-ending evolvement of digital technology deeply rooted in business, economy, and society.
22.	Digital Adoption	The context that the individuals are equipped with skills to use the electronic devices, information technology systems, and digital platforms on purpose and to the fullest efficiency.

23.	Digital business	The business that operates mainly by using digital technology, providing digital services, or producing digital technology.
24.	Digital Citizen	The citizens who can use digital technology in daily activities and livelihood.
25.	Digital Content	The content of information in digital form, which can be seen, read, listened, or downloaded in the forms of text, audio, video file, and so on.
26.	Digital Government	The process of modernizing government system and public services using digital technology, including computers, smart devices, and internet systems, aimed at easing the management of public administration; the decision-making processes; and the provision of public services to the citizens, private sector and other stakeholders efficiently, transparently, accountably and inclusively
27.	Digital Identity	The information indicating the identification of the individuals and organizations in digital world, which is interconnected with the identification in real world.
28.	Digital Literacy	The skills to enhance digital capacity and to use information and communication technologies for learning, leisure, work, and communication.
29.	Digital Platform	The information technology program builds up the digital world used for a specific purpose and for facilitating the interactions among users and the interoperability with other stakeholders.

30.	Digital Signature	The signature created by electronic process be used to determine the identification of the signer, including the electronic signature, biometric signature, and other signatures.
31.	Digital Transformation	The integration of digital technology into all areas of business, economy and society, aimed at changing the traditional way of working or with less innovations to automation system, not only to enhance work productivity, but also to provide opportunities for new innovations in easing doing the business and livelihoods of the people in the modern generation.
32.	Digital World	The artificial world created by digital platforms with a specific purpose in providing interactions among stakeholders using digital identity.
33.	Digitalization	The process of transforming governance, business, or any process in an effective way by using digital technology.
34.	Digitization	The process of converting the data and information from analog to digital forms.
35.	Digital Divide	The gap in adopting or opportunities of adopting digital technology.
36.	Digital Financial Service	A broad range of financial services accessed and delivered through digital technology, including payments, credit, savings, remittances, and insurance.
37.	Digital Inclusion	The stage that every individual has equal opportunity in joining all socio-economic activities by using digital technology.

38.	E-commerce	The activities of buying, selling, renting, and exchanging goods or services, including the civil and trading activities, along with all activities and operations of the government over the electronic systems.
39.	Ecosystem	The communication system consisting of competitive interactions among stakeholders including people, institutions, programs, procedures, interventions, markets, dissemination system, and so on, establishing a network that can be managed and self-developed inclusively.
40.	E-government	The use of information and communication technology, especially the internet systems by the government so that to realize an improved government.
41.	Electronic Know Your Customer (eKYC)	The use of digital technology to create and determine the identification of customers in digital world over the electronic systems according to the identification document acknowledged by the government.
42.	FinTech (Financial Technology)	The technology and innovation in the financial sector – banking and non-banking – established to improve the use, delivery and access to financial services broadly and inclusively.
43.	FinTech Regulatory Sandbox	The environment for financial institutions to experiment the innovative financial products or services with the customers in real-time basis within a well-defined space and duration before

		launching and promoting the board use of the products or services.
44.	Industry 4.0	The context of industrial revolution that technology allows the integration of data from machines, devices, and sensors from the production chains and from the use by people as well as provides real-time and accurate data to producers and stakeholders aimed at enhancing the whole production chains.
45.	Internet	The global system of computer networks that are interconnected through common communication protocols to share and provide information.
46.	Internet of Things (IoT)	The equipping of internet devices to animals, people, homes, buildings, vehicles, and other items… to interact over the internet centers across places to exchange information at all time.
47.	Interoperability	The ability of information technology systems that can interface to exchange and make use of information, which can automatically happen in general under clear conditions.
48.	Kanban	The workflow management method in the form of production chains in order not to constrain the supply of raw materials or reserved equipment.
49.	Last-mile delivery	The delivery services of goods from the supply sources to the final delivery destination of the customers rapidly.
50.	National Payment Gateway	The digital platform serving the digital payment for public services, tax- and non-tax revenue collection, and other digital businesses.

51.	Network	The set of common communication devices enabling mutual data sharing.
52.	Network Infrastructure	The infrastructure that provides services and stores data and computing resources for the operations over the information technology systems.
53.	Operating System	The software system created to manage the software programs and computers to provide common services enabling the functions of computers and smart devices.
54.	Payment Service Institution (Provider)	The institution (provider) provides payment services with granted legal license.
55.	Payment System	The information technology system that enables payments and settlements of financial and business transactions.
56.	Physical World	The real world that every person interacts and experiences through touching.
57.	Portal	A website, which collects and synthesizes the data from different sources, is created with a specific purpose and provides the point of entry to other Worldwide Webs.
58.	Satellite Technology	The technology utilizing the artificial satellites to send data, images, audios, videos, and information, to facilitate the communication systems.
59.	Smart City	An urban area where is equipped and uses digital technology to enhance production capacity in the whole area by sharing the data with the public as

		well as improve the quality of public services and social well-being.
60.	Spectrum	The radio frequencies that the wireless information travels over time and be used in a wide range of sectors/industries, including satellite, mobile phones, broadcasting, internet, and other wireless sectors.
61.	Startups	The institution or the process of establishing and managing business which harnesses the innovations in establishing business models under unclear conditions with higher risks, but with great potentials to rapidly grow.

ANNEX 3. RELEVANT STUDIES

1. The Potentials as Economic Value of Digital Transformation

In recent years, the digital economy has been a source contributing to GDP for countries in the regions and the globe. The digital economy is projected to contribute to about USD 23 trillion, accounting for 24.3% of global GDP by 2025. Amongst which, the key sources of such contribution include the United States (35%), the European Union (EU) (25%), China (13%) and Japan (8%). In 2017, the digital economy was approximately USD 11.5 trillion, accounting for 15.5% of global GDP in 2016. In the last 15 years (as of 2016), the digital economy has grown more than 2.5 times faster than the growth of global GDP. This rapid growth has nearly doubled compared to the level in 2000. Meanwhile, according to the 2019 ASEAN Integration Report by the Association of Southeast Asian Nations (ASEAN), it states in 2017, the digital economy in ASEAN would be up to nearly USD 187 billion or 7% of regional GDP, and it is expected to jump to an approximation of USD 1 trillion or 20% of regional GDP by 2025. In addition, the internet economy in Southeast Asia in 2020 is estimated to have a gross merchandise value of USD 105 billion, up from USD 32 billion in 2015, and it is projected to reach about USD 300 billion by 2025.

2. The Framework for the Preparation, Development and Adoption of Digital Transformation

The digital economy has been driving global changes with ever-increasing complexity, along with a number of new opportunities and challenges, while many international institutions have been trying to make it clear through complementary assessment methods. To develop and maximize the benefits of digital economy, the readiness is a prerequisite, indicated by the fact that countries have developed and launched the digital economy development policy frameworks, to set strategic complementary conditions. In general, those frameworks vary depending on the situation and conditions of each country. However, international best practices provide basic conditions to be considered in formulating Cambodia's digital economy policy framework.

According to a 2020 study by CISCO company, there have been seven factors used as key components of the Cisco Digital Readiness Index for 2019. Those components include: (1). basic needs, (2). business and government investment, (3). ease of doing business, (4). human capital, (5). startup environment, (6). technology adoption, and (7). technology infrastructure. The CISCO company emphasizes per capita income is strongly linked to the readiness for digital economy and that human capital is the backbone of the leap from one stage to the next of digital readiness.

Apart from this, the World Bank has initiated Digital Economy Country Assessment Methodology, looking at five priorities, including: (1). non-digital foundations, (2). digital foundations, (3). digital sector, (4). use of digital technologies by the public sector-private sector-citizens, and (5). impact on economic growth, employment, and services. Non-digital foundations refer to combination of public policies, leadership and institutions, human capital, business environment, research and development and innovation, trust, and security, all of which create favorable conditions for the development of digital economy. Digital foundations refer to telecommunication infrastructures, data processing centers, digital platforms and so on, which contribute to creation of a technological environment for digital transformation. Digital sector refers to ICT sector and related sectors as the driving force in advancing digital economy.

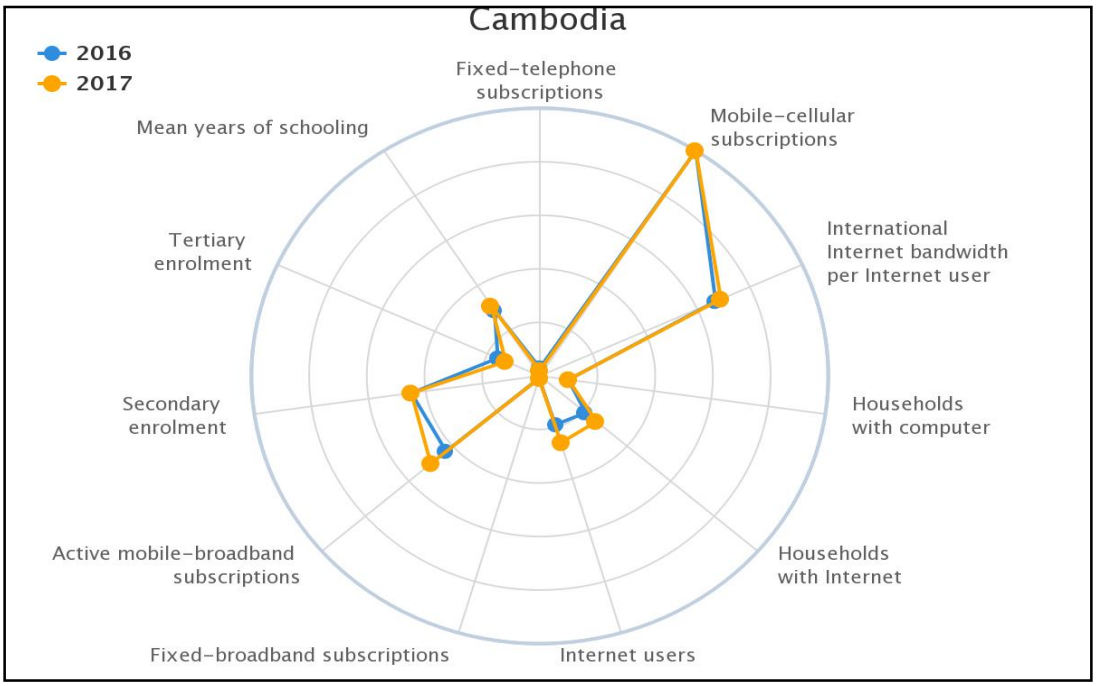
Besides, the EU uses five groups of indicators to measure levels of development and competitiveness of digital economy, which include: (1). connectivity, (2). human capital, (3). use of internet services, (4). integration of digital technology for businesses - E-commerce, and (5). digital public services. Meanwhile, the study on E-economy for the Southeast Asia's internet economy identifies key six momentum drivers for the development of internet economy. These drivers include: (1). Internet access, (2). consumer trust, (3). payments, (4). financing, (5). talent and (6). logistics.

3. Cambodia's Readiness to Embrace the Digital Transformation

In recent years, rapid development of ICT is seen in Cambodia, demonstrating the potential of digital sector to become a new source of growth. The ICT Development Index (IDI) in 2017 by the International Telecommunication Union (ITU) shows there

is positive development of ICT sector in Cambodia, due to the improvement of some key indicators during the year 2016-2017 (Figure 5).

Figure 5. Cambodia ICT Development Index (2017)



Source: International Telecommunication Union (ITU) 2017.

(Scoring scale 0-1, in which 0 = lowest and 1 = highest)

In the IDI Access Sub-index, the volume of mobile cellular subscription in the public network was marked a high score and the capacity of International Internet bandwidth per internet user has been improved beyond the average. In addition, in the IDI Use Sub-index, the volume of active mobile-broadband subscriptions and the percentage of individuals using the Internet were increased from 0.43 to 0.52 and 0.19 to 0.26 respectively and are also expected to continue to increase in the subsequent years. On the other hand, indicators in the IDI Skills Sub-index, particularly the mean years of schooling and the tertiary gross enrollment ratio have shown less progress, which requires further reinforcement.

However, two special notable facts here which are – (1). there is a good progress in the indicators of IDI Access Sub-index and IDI Use Sub-index, especially a strong momentum in the percentage of household with internet access which is at 40%, increasing from 19% in 2016 and 26% in 2017; but (2). the number of fixed-telephone

subscription and fixed-broadband subscription is still low. Overall, for ICT development in 2017, Cambodia was ranked 128th out of 176 countries, noting the growth of ICT is still limited compared to other countries in the world, especially some countries in the region, such as Vietnam, Thailand and Indonesia (Table 2).

Table 2. ICT Development Index (IDI) in the Region, 2016 and 2017

Country	ICT Development Index (IDI		Index Change	World Rank
	2016	2017	2017/2016	2017
Cambodia	3.04	3.28	0.24	128
Vietnam	4.18	4.43	0.25	108
Thailand	5.31	5.67	0.36	78
Malaysia	6.22	6.38	0.16	63
Singapore	7.85	8.05	0.20	18
Laos	2.43	2.91	0.48	139
Myanmar	2.59	3.00	0.41	135
Indonesia	3.85	4.33	0.48	111
Philippines	4.52	4.67	0.15	101
Brunei	6.56	6.75	0.19	53

Source: International Telecommunication Union (ITU) 2017.

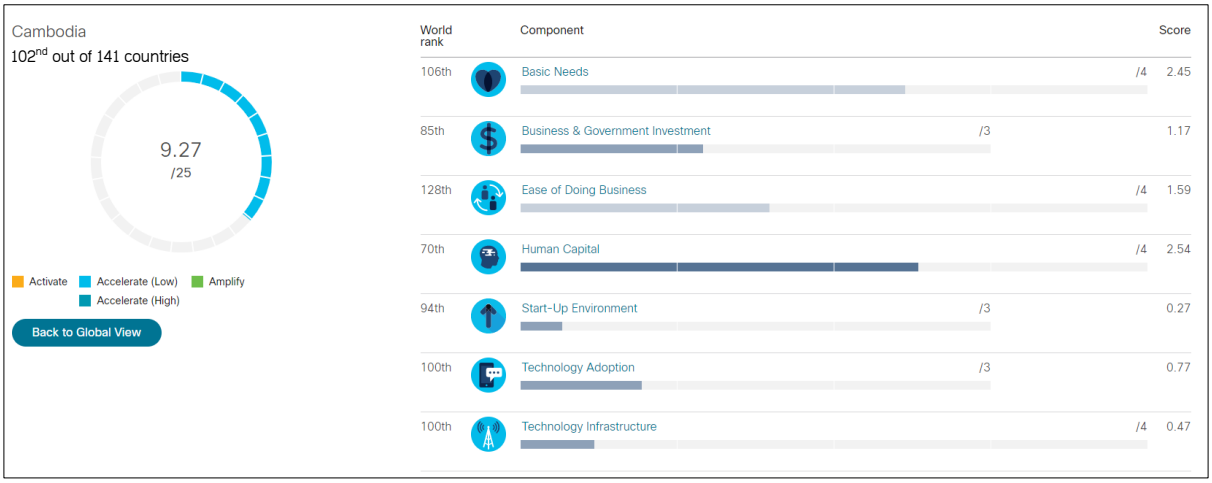
(Scoring scale 0-10, in which 0 = lowest and 10 = highest)

At the same time, Cambodia's readiness to digital adoption is also low. Based on CISCO Global Digital Readiness Index 2019, there are three stages of digital readiness - Early Stage or Activate, Middle Stage or Accelerate, and Advanced Stage or Amplify. Cambodia is in a low level of readiness (Low Accelerate) with a score of 9.27 out of 25 and is below the average of other countries in Accelerate Stage which is 11.82. In this regard, Cambodia was ranked 102nd out of 141 countries, with the majority of the indicators (six out of seven) were considered low (Figure 6).

Compared to other ASEAN countries, Cambodia is still not ready in the digital development, ranked 7th out of nine ASEAN countries in the Digital Readiness Index

by CISCO (the study did not include Brunei). Similarly, based on the average of the three sub-indices – Business, People and Government, the World Bank's Digital Adoption Index (DAI) shows that Cambodia was also ranked low compared to other countries in the region, with the DAI score of 0.4 on a scale of 1.00 in 2016. Overall, the DAI indicates that Cambodia is better than Laos and Myanmar and close to Indonesia, Philippines and Vietnam (Figure 7).

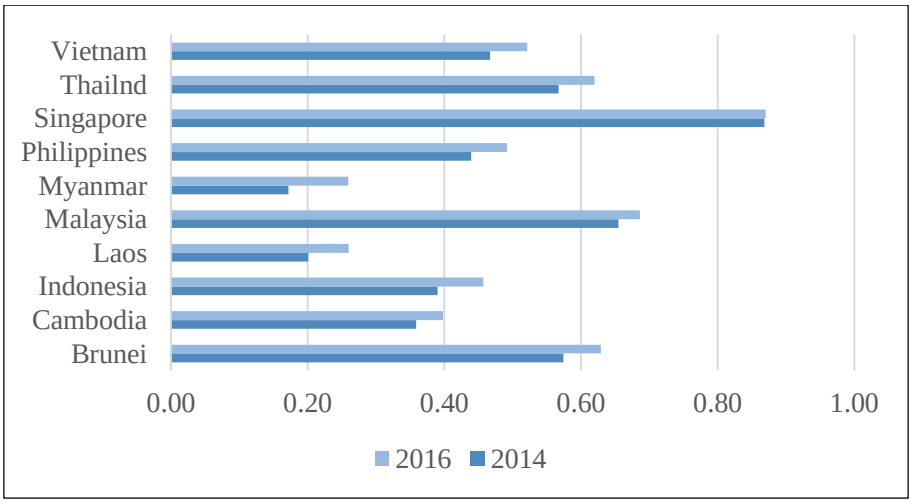
Figure 6. Cambodia's Digital Economy Readiness Index (2019)



Source: CISCO, Digital Readiness Index 2019.

(Scoring scale 0-25, where 0 = lowest and 25 = highest; 25 is the sum of each of the seven indicators)

Figure 7. Digital adoption Index in ASEASN, 2014 - 2016



Source: World Bank 2016, World Development Report 2016.

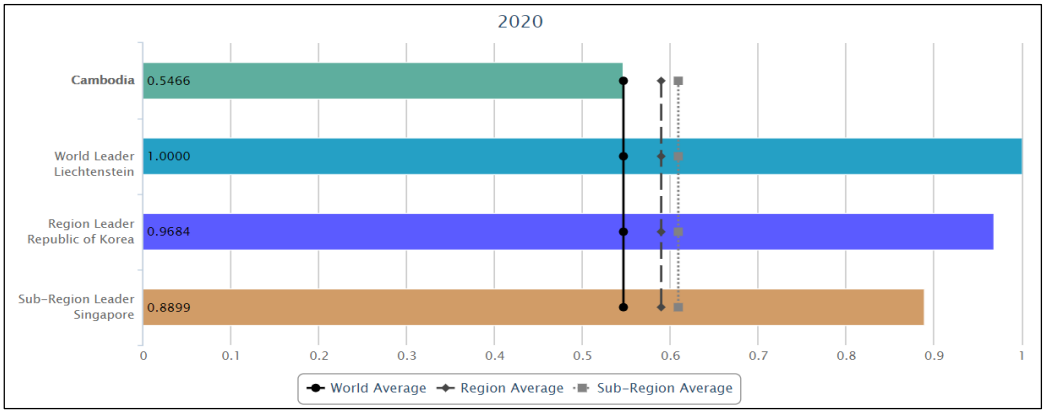
(Scoring scale 0-1, where 0 = lowest and 1 = highest)

In conclusion, the digital development and adoption as well as the overall digital transformation in Cambodia is still in infancy stage, which requires careful consideration, identification, and preparation to set the priorities in building a strong foundation which has to be interconnected and interdependent to maximize the economic and social benefits of the technological advancement. This policy framework focuses on five priorities for the promotion and development of Cambodia's digital economy and society, including (1). infrastructures, (2). digital reliability, (3). digital citizen, (4). digital government and (5). digital business.

3.1. Supporting Infrastructures for the Digital Transformation

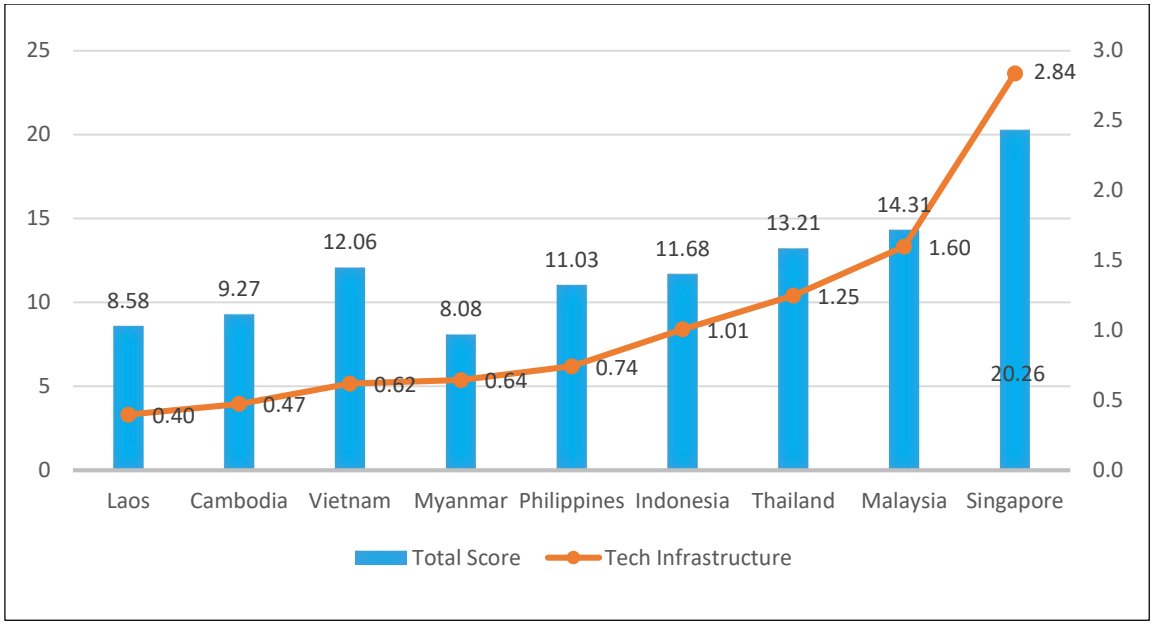
The infrastructure development, both digital and supporting infrastructures especially electricity, has gained huge momentum over the last several years, in response to the dramatic growth of demand from the people. The infrastructure is the key contributor to national socio-economic development including the technological development and the promotion of digital transformation. The digital infrastructure development is in line with growing demand of the internet connection especially mobile broadband. Based on the Telecommunication Infrastructure Index assessed by United Nation in 2020 (Figure 8), Cambodia received 0.54 score out of 1.00, which is in the moderate level compared to the global scale. Nevertheless, this development is still limited, relative to the countries in the region, in which CISCO assessed that the technology infrastructure in Cambodia attained the score of only 0.47 out of 4.00, leading only Laos and Myanmar in this region (Figure 9).

Figure 8. Telecommunication Infrastructure Index of Cambodia, 2020



Source: United Nations E-Government Survey, E-Government Development Index (EGDI) 2020. (Scoring scale 0-1, where 0 = lowest and 1 = Highest)

Figure 9. Digital Readiness Index Score of countries in ASEAN



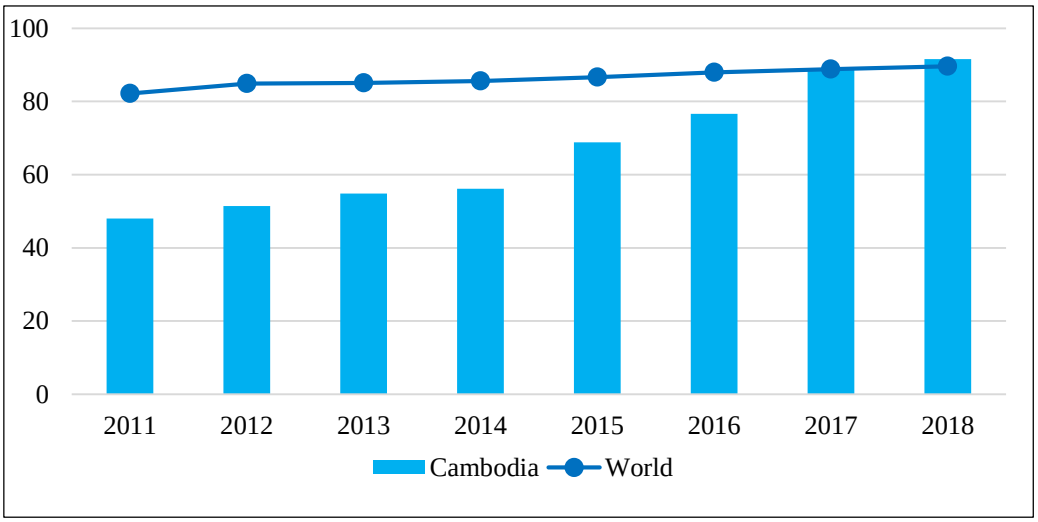
Note:

- Total Score: Scoring scale 0 – 25, where 0 = lowest and 25 = highest
- Technology Infrastructure: Scoring scale 0 – 4, where 0 = lowest and 4 = highest

Source: CISCO, Digital Readiness Index 2019.

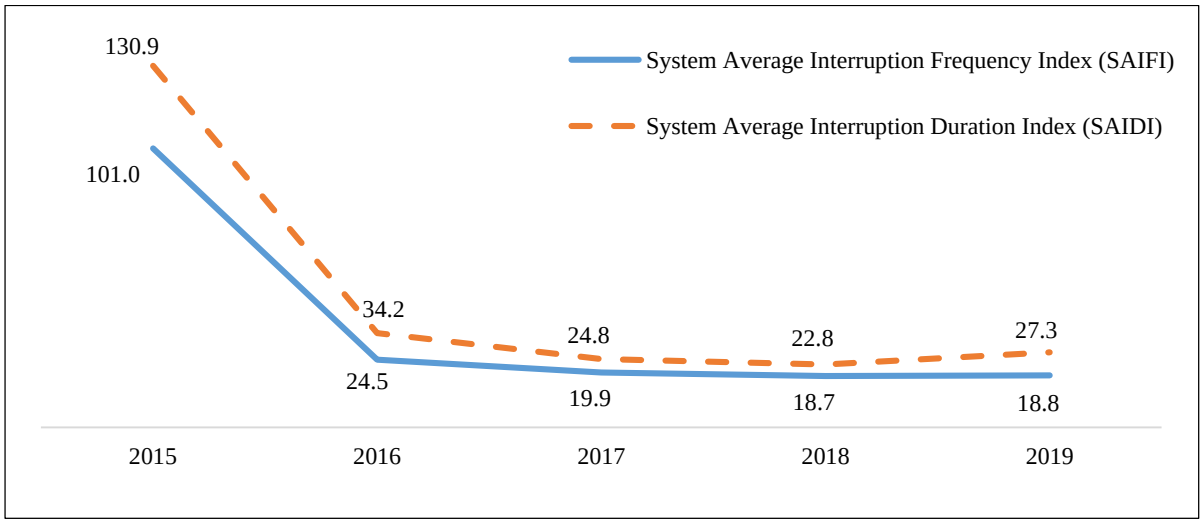
Along with the digital infrastructures, the development of electricity infrastructure is also one of key factors contributing to the national socio-economic development as well as the technological development and digital transformation. Over the last few years, the development of electricity grid has undergone positive progress in which the electrification rate has increased dramatically both in the aspect of accessibility and reliability. In particular, the electrification rate of total population grew from 48% in 2011 to over 90% in 2018, which is a relatively high rate in the global level (Figure 10). Meanwhile the reliability has shown some advancement, reflected by the decline of the System Average Interruption Frequency Index (SAIFI) and the System Average Interruption Duration Index (SAIDI) from 101 times and 130 minutes in 2015 to 19 times and 27 minutes respectively in 2019 (Figure 11). However, due to the increase of socio-economic activities, the demand of power in the country has inflated larger, which puts additional pressure on further development of this sector.

Figure 10. Electrification Rate of Total Population in Cambodia (relative to World level) from 2011-2018 (in %)



Source: World Bank 2021, Data from World Development Index.

Figure 11. System Average Interruption Frequency Index (SAIFI) Measured in Number of Times and the System Average Interruption Duration Index (SAIDI) measured in minutes, 2015-2019



Source: World Bank 2020, Doing Business Project.

Although the digital infrastructures, including broadband network, have achieved remarkable coverage with affordable price especially at the cities and key municipalities, there are still constraints on the quality, which is required to be improved. The existing infrastructures are not sufficient to drive the digital transformation and to grasp the upcoming opportunities. On this stance, Cambodia

necessarily shall strategically consider with the forward-looking vision to develop both physical and digital infrastructures, which are not only comprehensive, inclusive and efficient, but also are able to ensure the sustainable and resilient development. This strategic development of infrastructures requires a smart mobilization of resources to ensure the sustainability and efficiency of the infrastructures supporting long-term digital transformation.

As the foundation for digital transformation which will reach to every cell of the society and all aspects of the livelihoods of the people, the digital infrastructure development is an important factor which requires a comprehensive consideration, with a focus on the efficiency. In this sense, the digital infrastructure development in this strategic framework concentrates on three aspects - the digital connectivity, financial technology infrastructure and digital payment system, as well as the logistics and last-mile delivery.

A. Digital Connectivity

In terms of digital connectivity, this policy framework defines the common direction for digital infrastructure development. In this context, the digital connectivity focuses not only on the development and improvement of infrastructures and telecommunication networks, but also covers on digital connectivity to almost every aspect of the economy and livelihoods of the people, including the development of data infrastructures be served to data-driven governance, and the development of hard and soft infrastructure be the support to smart living of the people. The report from International Telecommunication Union (ITU) on Digital Infrastructure Policy and Regulations in Asia-Pacific Region identifies the digital infrastructures as follows: (1). Internet backbone including the trans-oceanic fiber cables, (2). Fixed and mobile broadband infrastructure, (3). Data and cloud facilities, (4). Electronic devices connected to the digital infrastructures such as computers and smart devices, (5). Operating systems such as Microsoft Windows, iOS, Android, and Application Programming Interfaces (API), and (6). Network Edge Devices including the Internet-of-Things devices as well.

Cambodia already accomplished several key achievements through the enhancement of broadband network coverage, as reflected by the growth of domestic subscriptions of mobile internet connection. Mobile network has been covering almost nationwide, in which the 4G services are still being expanded in coverage, in line with the growth of subscribers (Table 3 and 4).

Table 3. Coverage of the Mobile Network as of July 2020

Description	Coverage Rate to Total Population (%)	Coverage Rate to Total Surface
2G Mobile Service Coverage	92.3%	79.5%
3G Mobile Service Coverage	85.2%	66.2%
4G Mobile Service Coverage	82.5%	60.4%

Source: USO Secretariat of General Department of Telecommunications (MPTC) 2020.

Meanwhile, the internet subscription has large difference between mobile and fixed broadband in both number of subscribers and the market shares (Table 4). The adoption of fixed broadband is still low with an approximation of 250,000 subscribers comparing to more than 15 million mobile network subscribers. The fixed internet subscribers mostly are the government institutions and private companies based in the capital and other major cities, while the home connection remains stagnant comparing to that in the region. On the other hand, Cambodia has two submarine fiber cables (MCT and AAE-1) and the internet backbone network boasting 41,643 kilometers in length, as of 2019. In overall, the broadband network already has a wide coverage with large subscriptions especially in the municipality and cities, but the service quality is still a major issue due to the dramatic spike of use, especially in the context of Covid-19 pandemic and the fierce pricing competition.

Table 4. Supply and the Usage of Internet Service as of July 2020

Operators	No. of Subscribers	Rate per 100	Market Share
Mobile Broadband (5 companies)	15,127,031	91.65	98.36%
Fixed Broadband (38 companies)	252,216	1.53	1.64%
Total	15,379,247	93.18	100%

Source: Telecommunications Regulator of Cambodia (TRC) 2020.

In addition, the focuses and efforts have been directed to the development of data infrastructures - an essential foundation for the digital economy, catering to the development of digital products and services. To strengthen the quality of internet service as well as to encourage the development and invention of new digital products, numerous data infrastructure, which include data center, cloud computing facilities, etc., are required to be developed subsequently. At the same time, the management and allocation of investments on digital infrastructures, especially the radio frequency spectrum, is not fully efficient yet. Moreover, the continuing use of unlicensed operating systems and other basic software pose a major challenge for the overall management and cybersecurity issue.

On the other hand, the current practice of digital infrastructure development has not concerned to bridge between digital technology and the livelihoods of the people to promote the smart living. In overall, schools, hospitals, public transit systems, public security and administration systems are yet to be linked to the digital system, given limited adoption of technologies from people and provision of digital services. In addition, the majority of domestic industrial base is not yet digitally connected, aimed at supporting the transition into the Industry 4.0. In this regard, the digital infrastructure development focuses on digital connectivity to support smart living through smart city development projects as well as the expansion of digital infrastructure coverage to reach the industrial clusters including technology parks, special economic zones (SEZs), and small and medium enterprise (SME) cluster zones etc.

For the future direction of digital connectivity development, the government emphasizes on three key priorities including: (1) The development of infrastructure to support the high-speed broadband network with nationwide coverage, (2) The establishment of data infrastructures with capacity to respond to relentless development of technology especially digital products and services that run on the big data, and (3) The development of hard and soft infrastructures in support of the smart living of the people.

B. Financial Technology Infrastructure and Digital Payment System

The remarkable advancement of financial sector in Cambodia in the last several years along with rapid evolution of digital technologies have encouraged the trend in adopting the new technologies to enhance the financial services in a more inclusive, sustainable way, along with ensured high operational efficiency. Among that, the digital payment, which is an essential means for technology adoption in financial sector in the global scale or financial technology (FinTech), has been transforming financial services to be more efficient and faster, while playing a significant role in managing and facilitating the financial transactions and creating opportunities of other new startups in the digital space.

The key indicator on digital payment depicts the proper pre-conditions in supporting the digital economy in the future; these include the 8.9 million saving accounts, 6.91 million electronic wallet accounts, and 6.8 million payment cards. Additionally, the magnitude of payment conducted through internet banking reaches 1.1 million transactions with the volume of USD 5.1 billion, while the payment made via mobile banking amounts of 55.2 million transaction with the volume of USD 22.1 billion. At the same time, the domestic payment made by the payment card was 36.3 million transactions in the amount of around USD 7.8 billion, while the retail payment over the electronic system was around 3.8 million transactions in the volume of USD 0.15 billion. It is crucial to notice that, currently the adoption of QR code payment on goods and service has seen some increases, in which the number of transactions reach 2.3 million, in the amount of USD 30.1 million. Also, the payment system is being modernized through the development of key infrastructures, including the National Clearing System, FAST Payment System, Cambodia Shared Switch (CSS) System, Online Banking System, Retail Pay System, and Bakong System, etc.

Nevertheless, the development of digital payment infrastructures still encounters several challenges that are yet to be addressed. The participation of banks and financial institutions in the stage of payment infrastructure development and digital transformation process is still limited due to the capacity and resources of the institutions, which has hindered the scope of adoption and access to e-payment

services. The continued modernization of the payment system will encourage the interbank network connection to facilitate the interoperability, strengthen the adoption of common standards, and reduce the operational costs. The absence of common multiparty payment platforms that connect to all banks and invoice issuers is also a major bottleneck to the expansion of mobile payment services of both public and private institutions. Moreover, the digital payment ecosystem and the public awareness on digital financial sector remain finite. These are the constraints that obstruct the behavioral adjustment and aversion of possible risks stem from the adoption of digital financial services.

In the banking sector, only several banks and financial institutions has sufficient resources, both financial and human resource, to utilize the financial technologies in modernizing the systems as well as in enlarging the scope and the efficiency of the products and services through the launch of mobile applications. Meanwhile, 24 payment services providers are offering the electronic payment in the format of online payments to support the E-commerce and providing the payment gateway for both domestic and international transactions. Nevertheless, most of the banks and financial institutions has not widely adopted the Application Programming Interfaces (APIs), that allow businesses and merchants to conduct the transactions in real time with business partners through banking systems. This is probably due to the shortage of conditions and resources, both financial and human resources, of the institutions, combined with the lacking of domestic support systems.

On the other hand, the adoption of financial technologies in the non-banking financial sector is still minimal, in which only one insurance company adopted the InsurTech. Meanwhile, the shortage and uncertainty of the regulatory framework and the lack of human resources in this field still pose as the obstacles to the growth and the adoption of financial technologies, which have to be addressed in this framework. This indicates the necessity to further promote the digitalization in this sector. Along the way, the recently-established Non-Banking Financial Services Authority is expected to cement the certainty of the efforts and relevant activities in this sector.

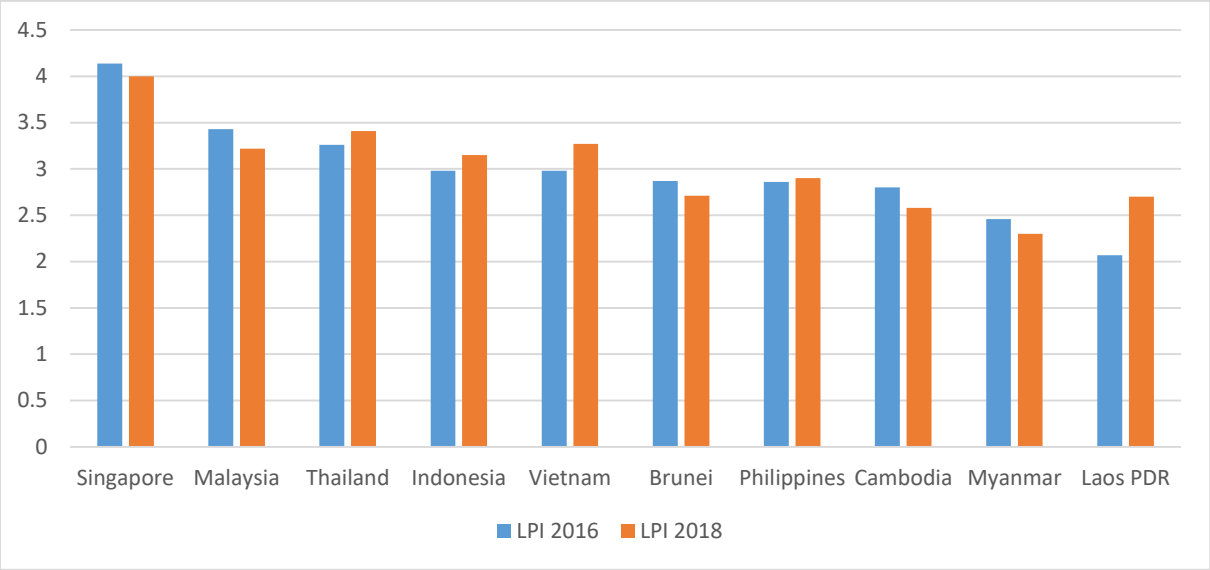
In order to continue developing a more inclusive payment system that is expected to support the development of more diverse, affordable and qualified products and services for the users, along with digitalization and digital transformation of financial sector, especially the digital payment, Cambodia has to concentrate on (1). The development of the full-fledged and comprehensive digital payment ecosystem for both banking and non-banking financial sectors, (2). The support to the development as well as the adoption of financial technologies to provide the flexible, efficient and secure financial products and services, (3). Further encouraging the adoption and access to e-payment services in both public and private sectors, and (4). Improving the awareness and trust in the adoption of digital payment.

C. Logistics and Last-mile Delivery

Cambodia is strengthening the connectivity with the region and the key economic corridors through the development of all modals of physical transport infrastructures and the formulation of a vibrant logistics system, aiming to help improving the competitiveness and promote the economic diversification. Moreover, the government continues to put effort in facilitating the import-export procedures and adjusting the standby authorities at the international checkpoints, as well as encouraging the adoption of technology systems to increase the efficiency in businesses and strengthen trade facilitation.

Along with this relentless effort, the competitiveness of Cambodia's logistics sector is still low, relative to the countries in the region, according to the World Bank's Logistics Performance Index (LPI) in 2018. Based on the index, Cambodia was ranked 98 out of 167 countries, increasing from the rank of 73 in 2016. Based on the score, Cambodia was considered as a Partial Performer. Comparing to the ASEAN countries, Cambodia is ranked at 9th, standing on top of only Myanmar, falling from 8th rank in 2016, while Laos achieved a better result in the period of 2016-2018 (Figure 12).

Figure 12. Changing Trend of the Logistics Performance Index (LPI) of the ASEAN Countries, 2016 and 2018

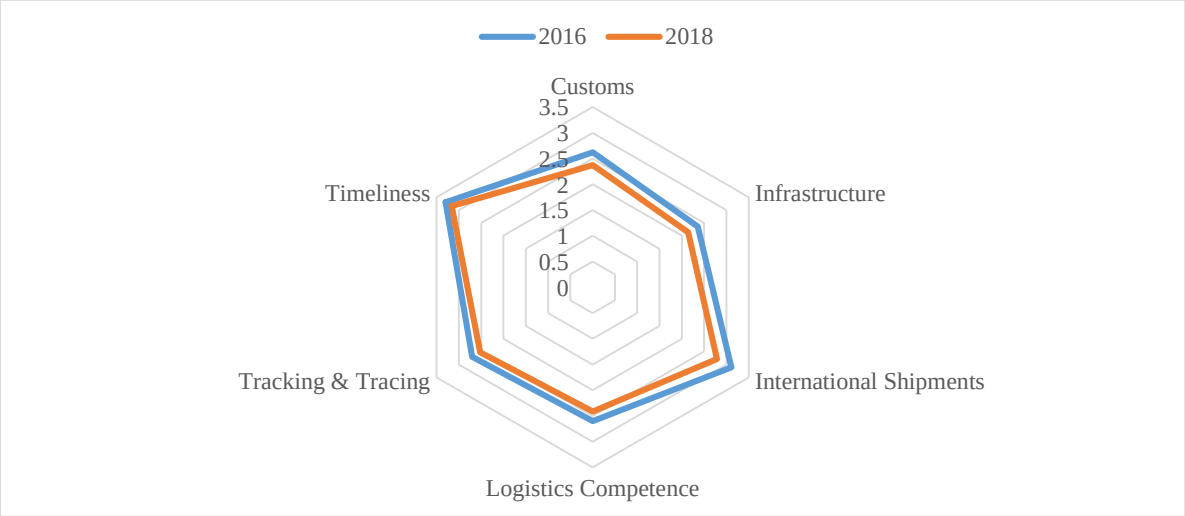


Source: World Bank's Logistics Performance Index 2016 & 2018.

(Scoring scale 0-5, where 0 = lowest and 5 = Highest)

In this index, six indicators were used to measure the situation of logistics sector in each country; the indicators include (1). Customs, (2). Infrastructure, (3). International Shipments, (4). Logistics quality and competence, (5). Tracking and tracing, and (6). Timeliness. Among all indicators, Cambodia achieved moderately in 5 indicators while the indicator related to infrastructure fell short of expectation, ranking at 99th with the score of 2.36 in 2016 and slipped further to 2.14 at the rank of 130 in 2018 (Figure 13).

Figure 13. Ranking based on indicators in the Logistics Performance Indicators, 2016 and 2018 (Score)



Source: World Bank's Logistics Performance Index 2016 & 2018.

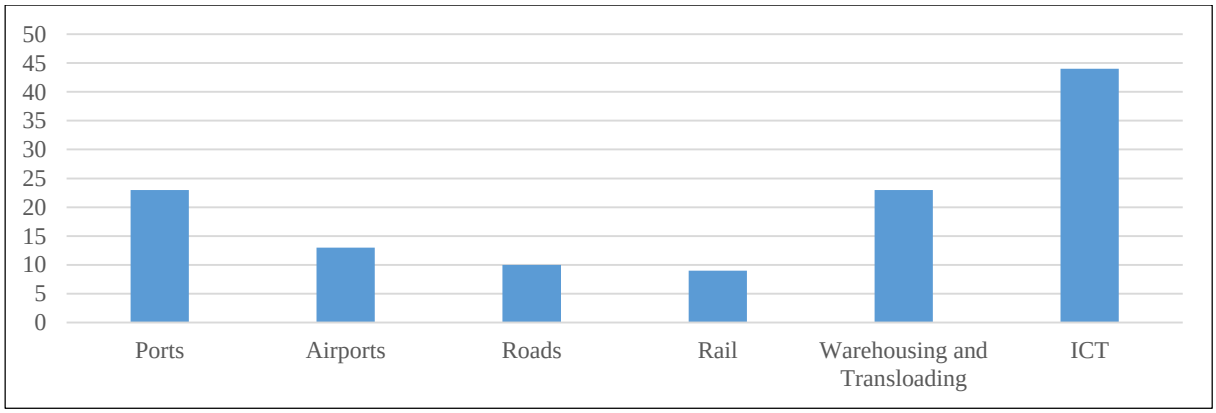
(Scoring scale 0-5, where 0 = lowest and 5 = Highest)

The measurement on the infrastructure indicator focuses mainly on the physical infrastructures such as road, rail, air, and port as well as the ICT infrastructures. The result of this measurement indicates the rapid development of ICT infrastructures in almost every country - high, medium and low-income countries (Figure 14). However, relative to the countries that are advanced in the logistics sector and the least-developed countries, the gap of the ICT infrastructure development is minimal, while the gap of physical infrastructures supporting the logistics are significant. This depicts the subdued quality and coverage of the multimodal transportation infrastructures. This trend reflects the necessity to improve the physical infrastructures of every transport mode, including roads, rail, water, and air, as well as the ICT infrastructures supporting the logistics sector.

On the other hand, the last-mile delivery recently seems to gain lots of attention, especially during the period that businesses and economic activities are suffering from the impacts of Covid-19 pandemic. Nevertheless, globally, the last-mile delivery is known to be high in cost, inefficient and unfriendly to the environment, among all parts of the supply chain. In the Cambodia's context, the last-mile delivery is fragmented and

traditional, keeping the transportation cost high and not efficient for businesses, especially for small-sized enterprises. Moreover, the lack of database of specific physical address is the key constraint hindering the sector from developing into a more advanced and modern sector, while the operations of the domestic postal services are still deficient, given the fragmented structure in the ecosystem of transportation sector.

Figure 14. The Survey of the Logistics Companies in the Infrastructure Assessment based on the type of Infrastructure in 2018 LPI



Source: World Bank, Logistics Performance Index 2018.

In overall, the logistics and last-mile delivery sectors are not capable enough to respond to the current and future demand since the transports operation, especially domestic transportation, has not fully utilized the digital technologies yet. The lack of hard and soft infrastructure, supporting the transportation and last-mile delivery, is the key challenge - remain to be addressed - for the sector. Moreover, the dramatic increase of logistics sector also poses as a bigger threat to the environmental sustainability as well as global warming.

In this context, the infrastructure development for the logistics and last-mile delivery focuses mainly on (1). The development of key infrastructures in the logistics sector, especially the infrastructures supporting the adoption of ICT to facilitate a more efficient, sustainable, and inclusive logistics, (2). The development of soft infrastructures serving the logistics and last-mile delivery sectors including the physical address system

and postal code system, etc., and (3). The establishment of a comprehensive, efficient and sustainable ecosystem for the last-mile delivery, concerning the legal, technical and implement-ability aspects.

3.2. Reliability and Confidence in Digital System

Regulatory framework and cybersecurity, which are integral parts to support the development of digital economy and society, will enable consumers' protection, ensuring fair competition and building confidence to broadly promote more participations of stakeholders in activities and transactions in digital age. In this regard, the direction of designing and developing an effective and responsive regulatory framework and cybersecurity management will focus on two main aspects - development the regulatory framework and strengthening cybersecurity management.

A. Legal Framework

Sequentially, several relevant laws have been introduced, including Telecommunications Law (2016), Intellectual Property Law (2003), Copyrights and Related Rights Law (2003), Trademark and Unfair Competition Law (2002), the Sub-decree on Digital Signatures (2018), E-commerce Law (2019), Consumer Protection Law (2019), as well as other laws and regulations, related to digital development. However, the current regulatory framework has not comprehensively addressed the progress of operations and activities, combined with the use of technologies. Furthermore, Cambodia still lacks additional laws and regulations adequate to support the current framework of digital transformation in the country. In fact, Cambodia will need a Data Protection and Privacy Law, Electronic Transaction Law, and Public Information Law, and Cybercrime Law as well.

Therefore, in the context of rapid development in the digital sector, in terms of scope, magnitude, and complexity with the emergence of new risks, the government needs to enhance its proactiveness and relevancy within the regulatory framework to create conducive environment, protect and ensure safety for consumers, and promote competitiveness in the sector, through: (1). Continued formulating laws and regulations

in the digital sector, (2). Accelerating the implementation of several key tasks including strengthening enforcement of relevant laws and regulations, and (3). Updating/amending and enacting additional laws and regulations to ensure consistency, coherence, and harmonization in line with the development context domestically, regionally, and globally.

B. Strengthening Management of Cybersecurity

Digital space, which is becoming increasingly important for today's economic and social activities, is posing new security threat. Sources of these risks may be due to vulnerabilities in cybersecurity infrastructures and services (network security, information security, operational security, application security, and a lack of awareness amongst users and the public about cybersecurity). To raise awareness on cybersecurity, Cambodia needs to gradually build on the levels of consumer engagement in utilization system over digital space.

According to the ITU assessment of the Global Cybersecurity Index (GCI) based on the analysis of five pillars, Cambodia ranks 27th in the Asia-Pacific region (38 countries) and 131st in the world (175 countries), which indicates that Cambodia is still highly vulnerable to cyber attacks (Table 5). In ASEAN sub-region, Cambodia ranks 9th with a score of 0.16, better than just Myanmar. Notably, Europe ranks among the highest in the world in terms of regulatory framework and institutional organization (Figure 15).

Table 5. Global Cybersecurity Index 2018

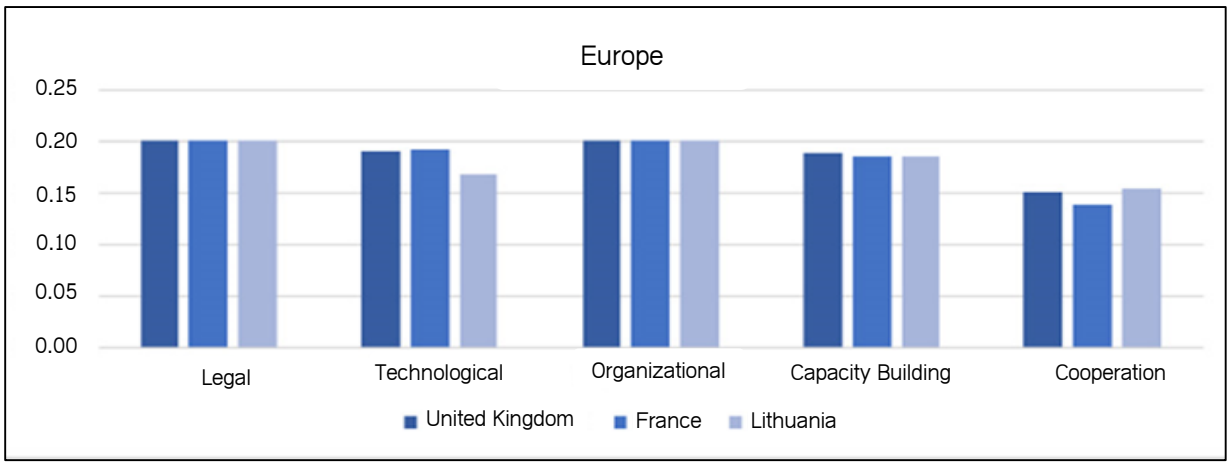
Country	Score	Regional Ranking (38 Countries)	Global Ranking (175 Countries)	5 Dimensions
UK	0.931	-	1	
Singapore	0.898	1	6	
Cambodia	0.161	27	131	
Maldives	0.004	38	175	

Source: ITU 2019, Global Cybersecurity Index 2018.

(Scoring Scale 0-1, where 0 = lowest and 1 = highest)

On the other hand, a broader awareness of cybersecurity issues is essential to more conveniently and effectively ensure prevention, containment and protection on regular basis for all stakeholders. In this regard, developing specific mechanisms can share cybersecurity information and provide technical assistances to users and businesses in addressing this concern.

Figure 15. Top 3 Leading Countries in Europe in Global Cybersecurity Index 2018



Source: ITU 2019, Global Cybersecurity Index 2018.

(Scoring scale 0-1, where 0 = lowest and 1 = Highest)

Therefore, the consideration of raising awareness on cybersecurity within this strategic framework will focus on: (1). Strengthening technical capacity in terms of human resources and institutional capacity, (2). Preparation relevant laws and regulations, (3). Establishing and protecting essential infrastructures (including electricity, water infrastructures, transport infrastructures, telecommunication infrastructures, and financial infrastructures, etc.) to be resilient and responsive to cyber-attacks, (4). Protecting from cybercrime and social safety, (5). National defense in digital space, (6). Disseminating and promoting public awareness, and (7). Cooperating with partners at national, regional, and global levels.

3.3. Digital Citizen

To maximize the demographics dividend, it requires adequate and targeted investments as well as active participation in socio-economic development. There has been a remarkable progress toward digital transformation in terms of human resource development, including leaders, workforce, and general people, but it is still limited, compared to other countries in the region (Figure 6 and 7). The United Nations E-Government Survey in 2020 has shown this tendency, providing that Cambodia scores 0.53 on a Human Capital Index out of 1.00, which is higher than that of Myanmar, but even lower than that of Laos (Table 6).

Table 6. Human Capital Index (HCI) of countries with similar economies in ASEAN

Country	2018	2020
Cambodia	0.56	0.53
Laos	0.53	0.55
Myanmar	0.51	0.51
Vietnam	0.65	0.68

Source: United Nations E-Government Survey, E-Government Development Index (EGDI), 2018 and 2020. (Scoring scale 0-1, where 0 = lowest and 1 = Highest)

Human resource needs sufficient digital knowledge and skills, as well as innovative mindset and high flexibility to be able to take full advantages of the digital development and the increasing competition with countries in the region. In this context, for Cambodia, the development of digital knowledge and skills focuses on three specific areas - Digital Leadership, Digital Talent Pool, and Digital Citizen.

A. Digital Leadership

The development of digital leadership is seen as a new trend that requires leaders to accept and adapt to the evolution of technology in order to build a new digital-based management for governance, communications, decision making or problem solving. In this regard, the government focuses on both public and private sectors and extends to the

local community level to ensure the promotion of digital leaders at all levels of society, equipping with digital mindset, skills, and leadership.

Remarkably, this change can be challenging because the adoption of new technologies among leaders may still be limited, requiring a high degree of patience for digital-based management and decision making. However, leaders in the government, businesses and local communities are increasingly recognizing the importance of digital aspect in their information management as well as the benefits. This has encouraged leaders to start embracing and adapting to digital technologies and understand the potentials and limitations of digital systems. In fact, the government has demonstrated its digital leadership by continuously considering the necessary mechanisms to support the digital development, including the integration of digital technologies into education system, and the introduction of master plans as well as other policies for the development of telecommunications and ICT.

On the other hand, there has also been a significant progress in digital adoption among leaders in private sector, reflected by the rapid growth of digital adoption in businesses and other digital development in recent years. At the same time, the digital awareness and skills in local community leaders has been steadily improving, which has significantly contributed to the building of digital mindset and leadership among leaders in all sections of the society.

Therefore, based on the current progress, for the future direction, the development of digital leadership will take into account two major aspects, including – (1). Developing digital leadership among leaders in public sector by ensuring appropriate level of digital knowledge and skills and promoting digital mindset and leadership; and (2). Encouraging and promoting collaboration with private sector, as well as promoting digital awareness and digital leadership trainings in local communities and in the society.

B. Digital Talent Pool

Digital talents are the key players in the context of digital transformation, be the persons who can contribute to new inventions and innovations, including the creation of new businesses, rapid IT solutions, and protect the security of entire system. Currently, Cambodia has an estimated 50,000 digital talents, while the rest of ICT workforce is mostly in intermediate level. At the same time, the enrollment rate of students in science, technology, engineering, and mathematics (STEM) at the tertiary level was only 27.1%, while another 0.03% enrolled in technical and vocational education and training programs. In addition, those technological skills have not yet been concentrated and in-depth.

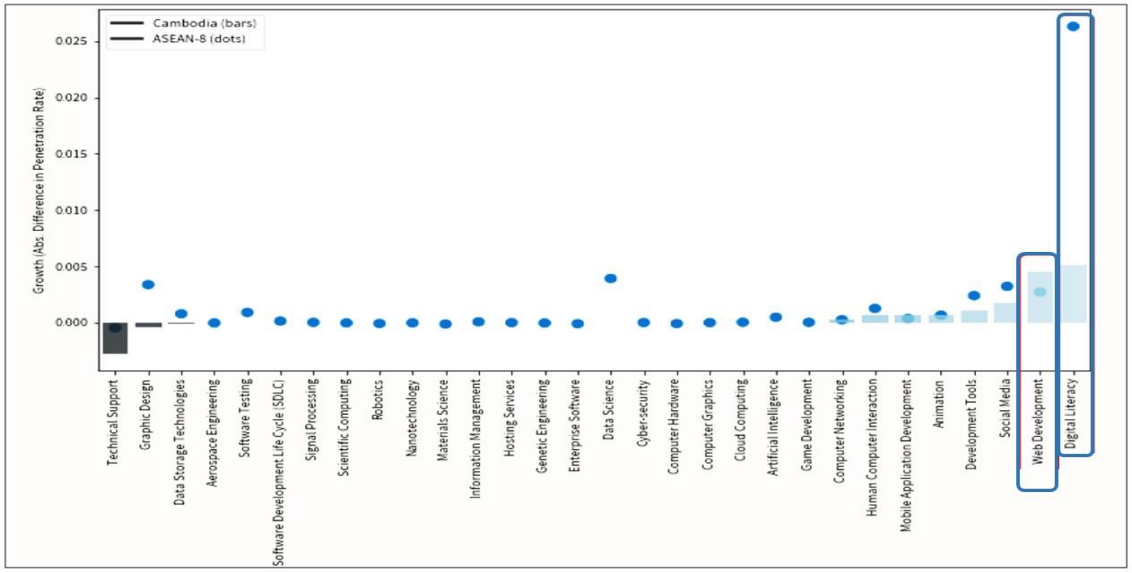
At the same time, most of the advanced digital skills built in the past are concentrated in web development rather than other digital skills which are fundamental to the development of digital economy, such as cyber security, data science, network development and software development (Table 7 and Figure 16). This has proven the fact that the advanced digital skills among Cambodians have not matched with the market demand yet, especially the skills that are fundamental to the development and building of the digital economy and society.

Table 7. ICT skills of the total population (2016-2017) (in %)

ICT skill level	Type of skill	Thailand	Indonesia	Cambodia
Low level	Copy or change file storage location.	-	49.5	27.8
	Copy data or relocate data in a file.	5.1	49.5	26.8
	Calculate simple mathematical formulas in computer programs.	-	7.9	9.0
Intermediate	Connect or install a new device.	-	21.8	1.5
	Transfer files from computer to other devices.	25.8	56.6	20.6
	Organize electronic presentations.	27.6	7.9	2.5
Advanced	Find, download, install and configure software in the software.	7.4	12.5	0.6
	Computer programming using coding language.	-	-	0.1

Source: ITU, Global Cybersecurity Index 2017

Figure 16. Growth of Digital skills in Cambodia and ASEAN-8 in 2015-2018



Note: ASEAN-8 includes Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

Source: Opportunity for digital economy in Cambodia (LinkedIn, 2019)

In this regard, several efforts have been made to sharpen those skills through education, trainings and practices. For this regard, in recent years, there have been new initiatives such as the establishment of Skills Development Fund, Entrepreneurship Development Fund, Techo Startup Center and other ICT Centers. However, building human resource is a long-term task requiring both training and intensive practices. Furthermore, building or concentrating talents does not only necessarily mean being Cambodians, but also attracting skilled talents from both regional and global ecosystems through the provision of both fiscal and non-fiscal incentives. This will further enable rapid expansion of skills or talents. To achieve this requires the development of strategic framework to attract the talents, including mechanisms in issuing visas and providing employment for the professionals.

To build human resources with digital talents, the private sector needs to be involved in promoting skills development or transforming the skills of the workforce into those associated to digital sector, as well as contributing to more effective implementation

of the mechanisms initiated by the government. In fact, telecommunications companies have recently collaborated with the government to establish research and development funds for capacity building in the field of telecommunications and ICT. The fund has made significant contributions to building digital capacity and skills for young people by providing scholarships in information technology, equipping schools with technology system, as well as outreaching technology competitions. Nonetheless, this level of development is still small to some extent.

In this context, for the future direction, building digital talent pool will consider the followings – (1). Continuing to improve the education and vocational training systems to enhance the quality of digital skills, (2). Building favorable conditions for digital talents to carry out research and development activities and (3). Providing more opportunities for digital talents to work in the government institutions.

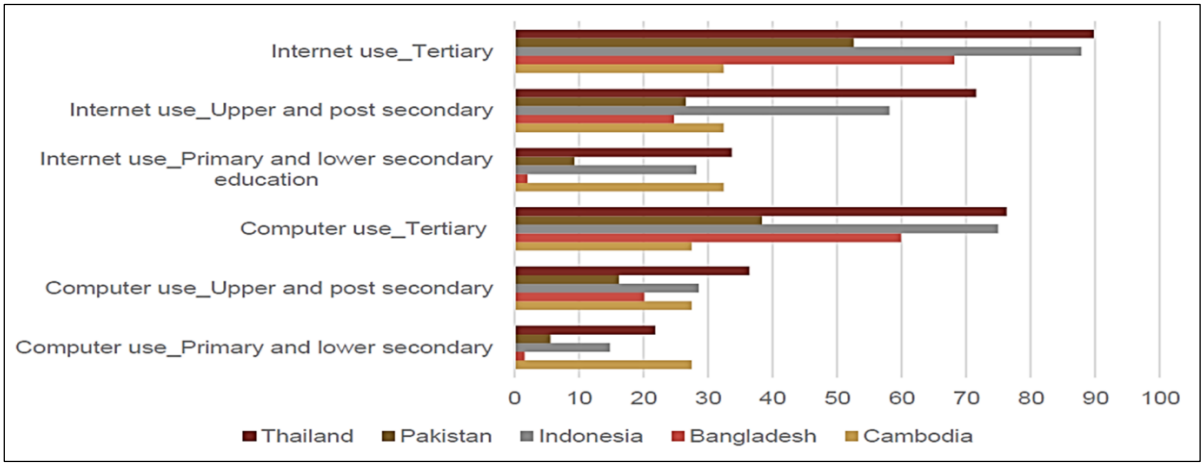
C. Digital Citizen

To turn Cambodians into digital citizen with the ability to embrace digital technologies for their daily lives in an effective and responsible manner, Cambodia needs to focus on building digital literacy for all citizens as well as trainings on essential soft skills, including digital leadership, to promote more effective interactions in digital ecosystem. According to the UNESCO definition, digital literacy is the ability to use digital tools and technology systems to connect, manage, explore, communicate, evaluate, or create information to engage in the economy and society.

The basic literacy rate of the population at the age above 15 is about 80.5%, measured by the ability to read, write, and calculate simple arithmetic, which is considered as a foundation for digital citizen development. Meanwhile, about 30% of Cambodians have basic digital skills, based on which they can use digital devices for online search, communication, and information sharing. The greater the number of people with the skills and knowledge in the field, the greater the digital interactions. The technological advancement has made better digital devices – more compatible in audio and video - which can be used by illiterate people. As a matter of facts, only 28% of

Cambodian students use computers for higher education, while the proportions are more than 70% in Thailand and Indonesia (Figure 17).

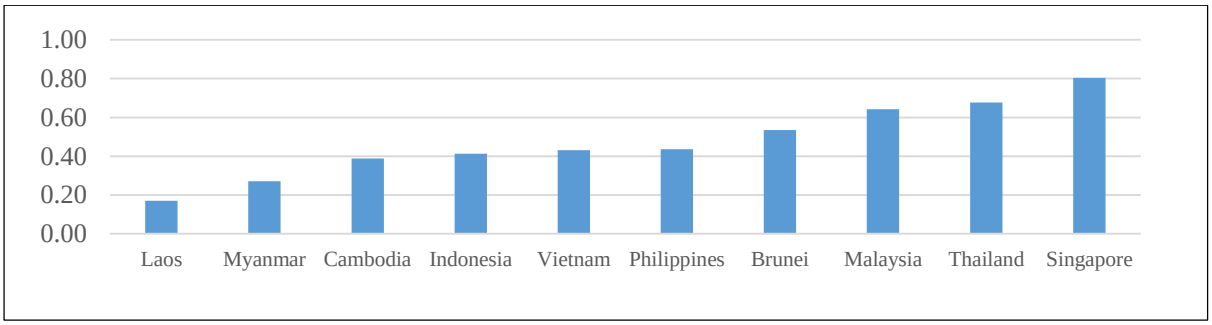
Figure 17. Students who use computers and the Internet at the academic level (in %)



Source: ITU, Global Cybersecurity Index 2017

Nonetheless, Cambodia still has a low level of digital literacy, resulted in limited digital adoption and use. According to the People sub-index in the World Bank's Digital Adoption Index, Cambodia is ranked 8th in ASEAN, close to Indonesia, with a score of 0.39 on a scale of 1.00 (Figure 18). To continue to promote the digital adoption and use, the development of digital literacy shall be continued and achieved by identifying and providing trainings on essential digital skills along with making digital devices easier to use or promoting the use of digital services started with public services.

Figure 18. People Sub-index in Digital adoption Index for ASEAN, 2016



Source: World Bank 2016, World Development Report 2016.

(Scoring scale 0-1, where 0 = lowest and 1 = highest)

Therefore, the necessary tasks for the promotion and development of digital citizen, especially among the youth, focus on (1). Promoting awareness on the importance and opportunities of digital economy development, and (2). Promoting the acquisition of digital skills in both public and private sectors.

3.4. Digital Government

Digital government is a prerequisite player in forming digital economy and society, in other words, digital government shall be at the forefront of digital utilization, on one hand to create direct demand and the other hand to enable businesses and citizens toward digital adoption. Otherwise, the lack of efforts taken by the government will create an atmosphere of skepticism in participation and, as a result, slowing down the progress. As the public sector plays an important role in providing public services to all citizens, the digitalization of public services as well as the transformation of public service system in response to the real needs of the people is a shall.

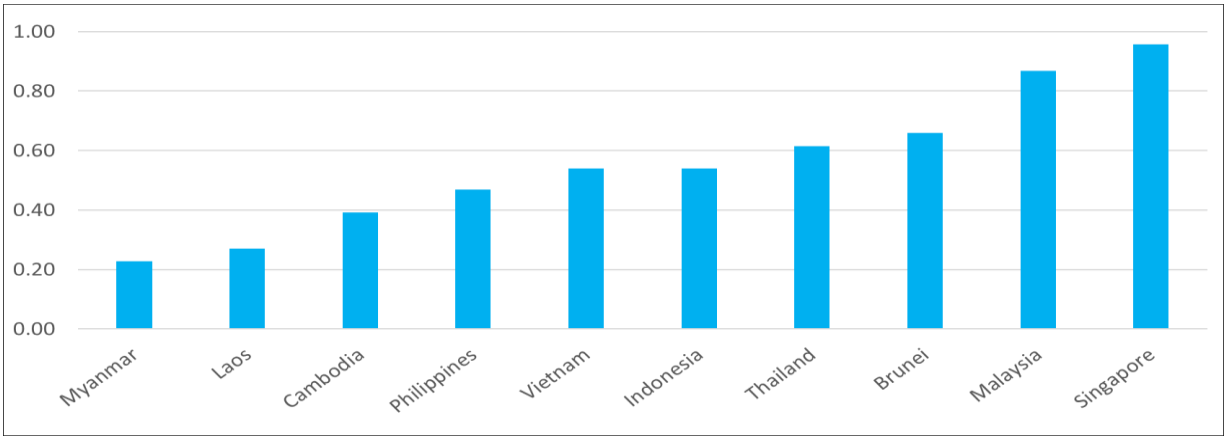
Linking to the Cambodian context, the development of ICT sector due to the reform effects by the government has achieved remarkable progress in the last two decades. As a matter of fact, the government has been considering the digital transformation under the e-Government initiative through the implementation of two projects, namely the Government Administration Information System (GAIS) and the Provincial Administration Information System (PAIS) between 2002 and 2013, with the National Information Communications Technology Development Authority (NiDA) as the implementing agency. In order to promote the rapid and effective use of IT systems, the line ministries have been involved in the development of digital public services with the ownership of their respective systems, including the creation of e-Visa System for Online Visa Application, Automated System for Customs Data Cambodia (ASYCUDA) by the General Department of Customs and Excise, Tax Registration System, Business Registration System, Public Financial Management Information System (FMIS), Land Management and Administration Project (LMAP), registration systems for social security (National Social Security Fund, National Social Security Fund for Civil Servants, and

National Veterans Fund), automated systems by the Ministry of Public Works and Transport (Vehicle Registration, Licensing, Driving License Request and Vehicle Technical Inspection), systems by Ministry of Interior (Identification Data Management System, Passport Management System and Single-Window Service Management System, etc.), and the tourism business permit application system by the Ministry of Tourism. The ownership of the systems by line ministries has helped to promote the rapid development of digital government with high effectiveness and accountability. However, the lack of mechanisms for connecting and exchanging data within the systems as well as the lack of common standards on technical specification for line ministries to implement will hinder the progress in the overall framework of building digital government.

Although with these developments, the digital transformation public systems in the country remains at a slower pace compared to the average level in the sub-region, the region and the world, according to the World Bank's Government Sub-index in Digital Adoption Index in 2016 and UN's E-Government Development Index (EGDI) in 2020. According to the World Bank, Cambodia scored 0.39 in 2016 for Government Sub-index, which illustrates that Cambodia has not made significant progress in the development of digital government compared to other countries in the region (Figure 19).

With this, according to the EGDI Index (Figure 20), although Cambodia has made remarkable positive progress, especially in the last four years, which has increased the global ranking from 140th in 2010 to 124th in 2020, Cambodia achieved a slow pace compared to the global average and very slow compared to regional and sub-regional averages. In 2020, Cambodia has an EGDI score of 0.51 on a scale of 1.00, while Singapore has an EGDI score of 0.92 (ranked 11th), Thailand 0.76 (ranked 57th) and Vietnam 0.67 (ranked 86th). In this context, the government needs to accelerate the implementation of pertinent initiatives and reforms to adapt to digital transformation and promote consumers' participation to become a digital government.

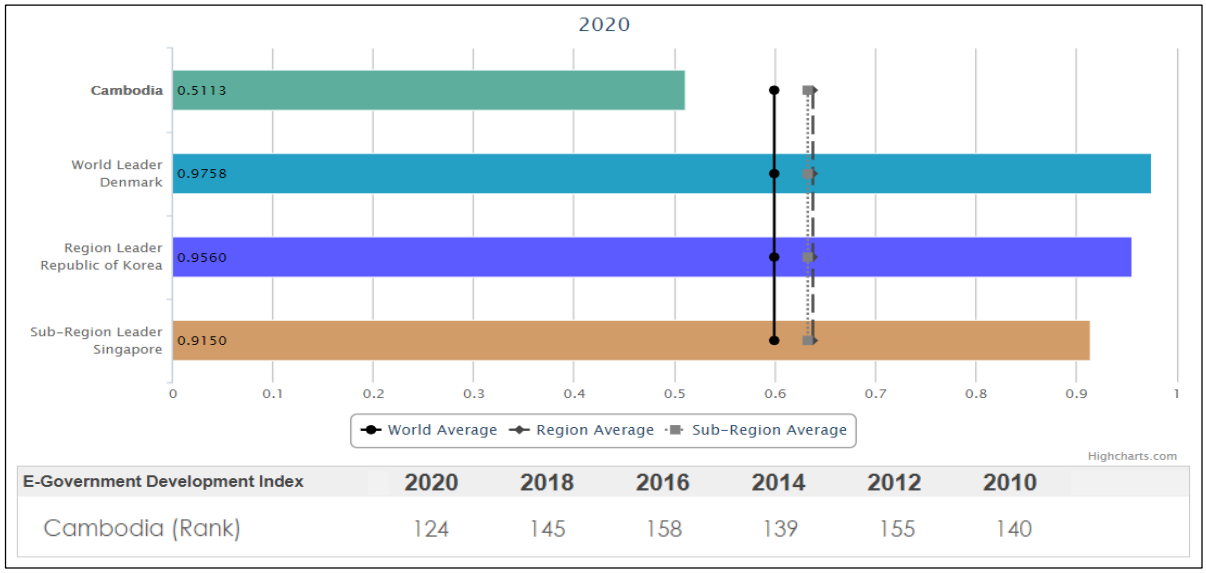
Figure 19. Government Sub-index in Digital Adoption Index for ASEAN, 2016



Source: World Bank 2016, World Development Report 2016.

(Scoring scale 0-1, where 0 = lowest and 1 = highest)

Figure 20. E-Government Development Index of Cambodia Compared to Sub-Region, Region, and Word Leading Country, 2020



E-Government Development Index	2020	2018	2016	2014	2012	2010
Cambodia (Rank)	124	145	158	139	155	140

Source: United Nations E-Government Survey, E-Government Development Index (EGDI) 2020. (Scoring scale 0-1, where 0 = lowest and 1 = highest)

The transition to digital government is to build a strong, smart, and clean government through digital technologies and the key lever to digital economy and society in terms of modernizing the governance system through the use of technologies

as an accelerator in administration, finance and human resource to provide comprehensive public services and effectively respond to the needs of the people. This demonstrates the quintessence to put in motion a clear plan to advance the reform agenda of the government using technologies and creating an environment of inclusivity to promote digital economy and society, supporting the government in achieving its mission on digital transformation and the expansion to support businesses and citizens in all aspects of the economy and society. Therefore, the tasks need to be focused on three main aspects - digital government and public services through continued enabling ownership and accountability of IT systems of key line ministries and the development of common standards on technical specification for line ministries to implement; keys to promote digital operations; and data-driven governance.

A. Digital Government and Public Service

Some line ministries have been implementing ICT administration and digital projects including digital registration for land titles, vehicle ownership, and taxation. Concurrently, the management of revenue by the revenue collecting agencies is also connected to digital system step by step, especially through the introduction of E-Filing, the Online Value Added Tax (VAT) Refund and Online VAT Credit, the implementation of the National Single Window, and the recent launch of Online Business Registration platform. According to the UN E-Government Survey in 2020, the government has made good progress in its efforts to provide online public services (Online Service Index) with a score of 0.45 with an overall score of 1.00, which is higher than Myanmar and Laos (Table 8).

Table 8. Sub-index on providing e-services by comparable economies in ASEAN

Country	2018	2020
Cambodia	0.25	0.45
Laos	0.17	0.19
Myanmar	0.23	0.26
Vietnam	0.74	0.65

Source: United Nations E-Government Survey, E-Government Development Index (EGDI) 2018 and 2020. (Scoring scale 0-1, where 0 = lowest and 1 = highest)

The rise of digital transformation in digital government is a positive indication, but there are also some negative points to consider to completely achieve digital government. Despite the advent of IT systems, most public institutions are required to provide duplicate documents or information as there is no common sharing between relevant institutions, while filing is still required in the form of physical paperwork while the reception through electronic systems is still minimal. In addition, the government has not yet had technical specification for a common standard on the development of IT systems, which ensure the consistency of user interface design, interoperability mechanisms, and standards on information security and data safety. In addition to the consideration on interoperability across the systems of public institutions, the government shall also provide spaces for the interface between the systems from both public and private sectors, resulted in synergy and co-creation or co-innovation in businesses, which contribute to digital adoption and transformation.

Public relations between line ministries and citizens have been strengthened through digital systems, including online websites and social media, such as Facebook and YouTube, coupled with sharing the information and documents via Telegram and WhatsApp of respective ministries. The use of these systems is not only for the exchange and dissemination of information, but also for the management of information to circumvent false information, incitement and information that is not updated. Recently, due to the consequences of COVDI-19, meetings, and dialogues between Government-to-Government and between the government and private sector are conducted electronically, via Zoom, Microsoft Teams and Google Meet. These are initial signs of the adoption of a digital mindset in the administration works of government and civil servants, nonetheless, several issues are still challenging including different levels of awareness and concerns over information security and data safety.

In this regard, considering the future directions, the development of digital government and public services will focus on: (1). Completely utilizing IT systems including procedures for providing e-services and disseminating information, (2).

Developing supporting infrastructures, and (3). Raising digital awareness and digital skills for civil servants at all levels, including local administration.

B. Keys to Promote Digital Operations

The development of IT systems for the core functions of public institutions and public services is not sufficient for a fully digital government, as these systems require fundamental technology platforms while some supporting regulations are lacking. These fundamental technology platforms include cloud technology on the government's common data center, data exchange platforms for interoperability and integration, digital identity, and information security management systems.

Cloud technology is an infrastructure as a service that allows institutions' IT systems to operate in a shared space and is a technology that effectively conducts network resource pool and mainframe, which reduce public spending on the development, management, and maintenance. In the past, the Ministry of Posts and Telecommunications established a national data center that stores e-mail systems, content management systems, and websites of several line ministries and institutions. Nonetheless, some public institutions have built their own data centers that are not utilized under a common consolidated system to the fullest extent. This requires a clear policy and regulatory framework for governance.

Recently, the government has established Cambodia Data Exchange (CamDX) platform for the interoperability and integration within public institutions' IT systems and enable the access to technically connect with private sector's systems, but CamDX is not yet based on sufficient legal statute on data exchange, while the content and catalogue of data to be exchanged have not yet been prepared. The continued development and utilization of functions and operations of CamDX essentially requires collaborations with other public institutions.

Digital identity is the basis for identification and verification of both natural and juridical persons when interact over the IT systems of public institutions. Cambodia

Digital Key (CamDigiKey) is a mobile application recently developed under the CamDX framework aimed at verifying digital identity for systems operating within the CamDX. Nonetheless, CamDigiKey shall be abided under regulations to govern, coupled with a complete mechanism to manage information security. Additionally, in order to have a national digital identity, the government needs to have infrastructures to manage information security via National Root Certificate Authority, which has not yet been established and recognized by the government; however, previously the government has adopted a sub-decree on digital signatures, which is an important provision serving the goal of digital identity development.

In this regard, the key factors for promoting digital operations will focus on: (1). Establishing clear framework and plan including resources and capacity; and (2). Developing fundamental technology platforms which will promote the use of IT systems in institutions with interoperable functions and harmonious to be the government's common consolidated system to ensure the effectiveness and security of digital government system as a whole.

C. Data-driven Governance

Policy making generally requires supporting data, which can be collected from multiple sources and/or collected from surveys. Data-driven governance in the context of digital government is the use of big data, which is the data collected on a regular basis from registrations and operations of IT systems, to formulate decisions and develop policy interventions. Decisions driven by data can help the government to better respond to the needs of citizens and businesses. Through existing IT systems, the government can collect some data for analysis, but with limited data sharing and use, which inhibit data quality, the result is expected to remain constrained. Currently, the collection of information on the participation of citizens is mostly conducted through social media such as Facebook; however, the capability to collect and analyze the information is still poor as there are no tools to extract, process and analyze data; those data are in either Khmer scripts and/or mixed Khmer and foreign scripts, so that the digitalization tools

for Khmer language is required. In general, the development of data-driven governance is still inhibited, and the consideration of technical training frameworks on the use and analysis of data is sequentially a starting point.

In order to be able to take advantage of big data, the government will choose the method of Land and Expand, taking into consideration of: (1). Establishing national data storage and exchange platforms, (2). Establishing public digital service and raising digital awareness, and (3). Building a data-driven governance system combined with building computing resources in the form of data centers, human resource to process data, and algorithms using artificial intelligence (AI) that will provide real-time results. The development of data-driven governance requires a lot of time and resources to be considered within the medium- and long-term timeframe.

3.5. Digital Business

As of now, adopting and harnessing digital technologies as well as information and communication technology by domestic enterprises of all sizes and sectors is relatively low, especially those in manufacturing sector, of which the adoption and the use of technology is remarkably slow. By 2018, although the share of manufacturing value added (MVA) in GDP has increased significantly, the overall industrial capacity is still limited, due to the fact that the majority of enterprises in manufacturing sector involve low technologies in the productions. As a matter of fact, enterprises involving high- and medium-technologies in the productions has a small presence as Cambodia is ranked the lowest among ASEAN Member States for the share of medium and high-tech activities in total manufacturing value added index (Table 9). This indicates that enterprises in Cambodia are at early stage in adopting and harnessing digital technologies as well as having little participation in production and value chains of the regional and global digital sectors.

Table 9. Regional Trend in Technology Adoption (by Ranking)

No.	Indicators	Cambodia	Myanmar	Laos	Vietnam	Thailand	Malaysia	Singapore
1	Global Competitiveness Index (141 countries)	106	-	113	67	40	27	1
	ICT Adoption	71	-	102	41	62	33	5
2	Competitive Industrial Performance Index (152 countries)	85	84	109	38	24	23	9
	Manufacturing Value Added Per capita Index	117	104	125	100	49	40	3
	Share of Manufacturing Value Added in GDP Index	34	9	114	37	6	8	21
	Share of Medium and High-Tech Activities in Total Manufacturing Value Added Index	151	121	138	31	30	24	1

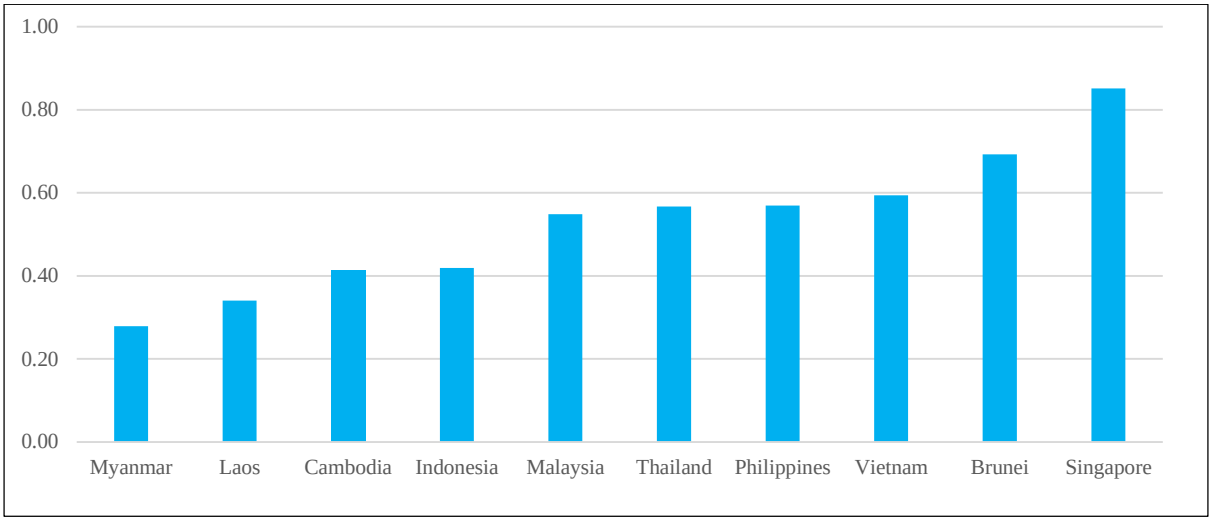
Source: (1). World Economic Forum, The Global Competitiveness Report 2019.

(2). United Nations Industrial Development Organization, Competitive Industrial Performance Report 2020 (for 2018 ranking).

On another one hand, the digital business in services sector has been progressed remarkably in digital adoption, manifested through E-commerce operations and demands for goods and services online, especially due to the growing number of tech-savvy young people who can leverage the technologies, in line with the growing use of social media and other digital platforms as well as the growing trend toward the use of financial technologies. According to the World Bank, the digital adoption by businesses in Cambodia is booming, with a score of 0.41 on a scale of 1.00, higher than that of Laos and Myanmar and close to that of Indonesia (Figure 21). However, the dynamic of digitalization in businesses in Cambodia does not seem to be at the appropriate pace as the investment in secure internet services and in sustained data and internet security as

well as the number of firms with website or homepage is still lagging behind global medians (Figure 22).

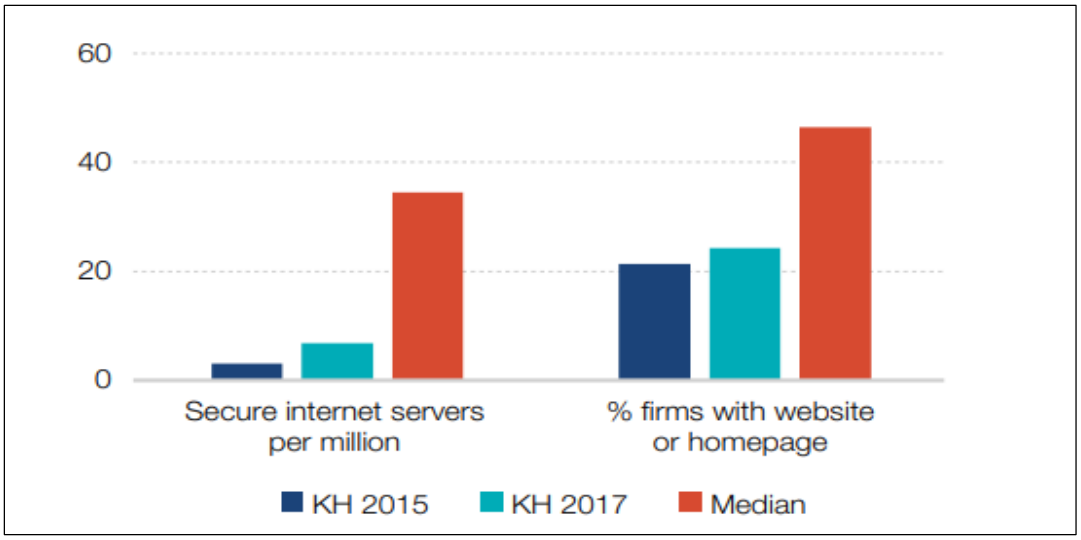
Figure 21. Business Sub-index in Digital Adopt Index in the Region, 2016



Source: World Bank 2016, World Development Report 2016.

(Scoring scale 0-1, where 0 = lowest and 1 = highest)

Figure 22. Digital Adoption Index by Firm Subcomponents in Cambodia, 2015 - 2017



Note: The global median refers to both 2015 and 2017.

Source: World Bank, 2018, Benefiting from the Digital Economy – Cambodia Policy Note.

In this context, Cambodia can harness digital technological innovation through promoting digital adoption by enterprises of all sizes and sectors to expand the markets, reinforcing operation efficiency, ensuring sustainability of businesses, promoting data-driven establishment of startups, private sector's participating in global value chains, and particularly, launching comprehensive measures aimed at enhancing industrial capacity in adopting and harnessing new and modern technologies in the context of forth industrial revolution, along with creating value to the country's economy. Therefore, the critical efforts in promoting digital business in Cambodia focus on the promotion of digital transformation among enterprises, the establishment of ecosystem for entrepreneurship and startups, and the enhancement of digital value chains.

A. The Promotion of Digital Transformation among Enterprises

In Cambodia, the use of technologies in enterprises has been growing remarkably fast, but still limited. The growth has been mainly seen in simple forms, including the use of websites, social media, or information sharing on the maps to promote thee products or services. For example, in tourism sector, some hotels and guesthouses are digitally present through advertising their services on large business platforms, such as, Agoda and Booking.com. Apart from this, there are still a great number of new digital technologies that most enterprises have not yet adopted and harnessed, such as digital systems for operation management as well as automated data collection and analysis devices. Encouraging enterprises to embrace these digital technologies not only elevate the demand on using digital systems and promoting the efficiency of management and sales, but also help meet financial needs of enterprises.

Notably, before now, the financial needs of small and medium enterprises, including payments, loans and treasury management solutions, have often been overlooked by the banks, while other financial institutions have ranked small and medium enterprises on the high-risk list due to a number of factors, including lack of credit history, short financial history and absence of collateral and guarantors. Despite of this, recently, harnessing innovative digital solutions can improve the financial

institutions' trust in identifying the issues along with the provisions of loans and other financial services necessary to small and medium enterprises. The partnerships between financial technology companies and banks can also further bolster innovation in credit value chain and improve access to credits for small and medium enterprises. In addition, the participation of small and medium enterprises in digital adoption can also facilitate technology sharing, sourcing, and targeting the sales of the goods or services.

As a policy direction to promote modernization of production, to enhance productivity and economic efficiency, and to improve competitiveness of all enterprises, the government has been continuously preparing and putting in place inter-ministerial policies and relevant measures, including Cambodia Industrial Development Policy 2015-2025, Small and Medium Enterprise Development Policy, and other measures to incentivize small and medium enterprises. Simultaneously, the launch of Online Business Registration System is an important positive step in promoting the digitalization of enterprises in general and in promoting the formalization of enterprises' information. Furthermore, to continue to promote enterprises' participation and creation of startups aimed at adopting and harnessing new digital technologies, the government has been developing and implementing a number of support mechanisms in the form of funds and institutions, including Skills Development Fund, Entrepreneurship Development Fund, "Techo" Startup Center, as well as Small and Medium Enterprise Bank, to provide skills, technical and financial supports.

To continue these efforts, the priority directions include: (1). Building basic infrastructures for digital enterprises and E-commerce; and (2). Supporting entrepreneurship of enterprises of all sizes and sectors.

B. The Ecosystem for Entrepreneurship and Startups

For Cambodia, the development of ecosystem for entrepreneurship and startups is still in its infancy and is facing many obstacles, ranging from infrastructures, skills, regulatory framework, and favorable environment to consultants and financial supports. Thus, the supporting funds and institutions that have been putting in place so far are

expected to also contribute to paving the way for the ecosystem as well as to supporting startups in the context of reaping the benefits from rapid development of digital technologies. However, these funds and institutions are relatively small and have only been operating for a short period of less than two years, whilst the impact of these mechanisms on the ecosystem for entrepreneurship and startups has yet to be fully and clearly assessed.

In the meantime, although as of now Cambodia is currently in the status of a consumer of technologies, in order to create an environment that supports the creation of startups to promote research and development and innovation in digital technologies, the government has to continue taking efforts and putting in place measures to address challenges that constrain entrepreneurial development and startup creation. In point of fact, during late 2019 and early 2020, "Techo" Startup Center has conducted a study on financial technologies in Cambodia and identified three major challenges for financial technology ecosystem: lack of coordination mechanisms between institutions, lack of regulatory framework and sandboxes for experimenting innovative goods and services, and lack of human resource.

Therefore, continuing and accelerating the development of ecosystem for entrepreneurship and startups focuses on (1). Promoting the use of technologies to solve problems and create startups with the quality of creative destruction aimed at boosting productivity of existing businesses and (2). Strengthening and expanding the scope of initiatives that the government has launched and put in place.

C. The Digital Value Chains

The rapid growth of digital adoption will drive growing demand for digital goods and services in almost every sector, with digital technologies evolving into a key factor in creating value to existing goods and services. On the other hand, the rapid advancement of technologies would result in business models of enterprises of some sectors to fall short in value and demand. This trend will encourage enterprises of all sectors to consider in reaping the benefits and creating value from technological

innovations as well as sustaining business base in the context of digital transformation, by establishing digital value chains responsive to the socio-economic development and consumer demand.

In general, the establishment of digital value chains can generate value to existing goods and services, as well as enterprises' business models, in the form of providing supports to digital users using digital services and finding out more about users based on the data. In short, the creation of interactive business models in existing sectors, combined with the advancement of technologies, leads to digitally transform the industry and service value chains, in order to improve the production and value chains aimed at enhancing operation efficiency and boosting capacity to catch up to regional and global production and value chains. In fact, harnessing digital platforms to connect stakeholders in production and supply chains by sharing real-time data with each other will streamline the entire production and value chains to make them smooth, generate higher value, and create more innovative opportunities for businesses. On the other hand, data-driven digital transformation in production and value chains will enable all operators along the chains to work together as "digital threads", which speed up operations, reduce production duration, mitigate unexpected risks, improve trust, reduce production cost, and so on. Meanwhile, the use of digital platforms in production and value chains of agriculture, export-import, transportation, logistics, and E-commerce, and so on, allows actors in the chains to operate, including to supply, to buy-sell, and to make payment, with each other efficiently and quickly over the digital systems.

Furthermore, in the production and supply chains of goods or equipment, the digital technology has transformed the traditional Kanban method into a digital Kanban system, which harnesses technologies and the internet to transfer real-time information to managers and suppliers to ensure that raw materials are delivered to the handicrafts or factories in the production chain on time. Also, the use of Radio Frequency Identification Device, Global Positioning System, Big data, Internet of Things-IoT, Cloud Computing, Artificial Intelligence (AI), sensors, robots, and so on allows the integration

and interconnection as a single big integrated system, leading to further integration and interconnection of this system to digital platforms of blockchain technology, including smart inventory and traceability of goods and equipment. These have contributed to streamline the entire production and value chains, ranging from production and inventory management to transportation, distribution, and sales, benefiting different actors in the chains. Moreover, consumers, who are an important part of the production chain, generally are required involving in technologies in order to manage, receive feedback, provide incentives and so on.

As a future trend, enterprises of all sectors in the economy need to upgrade their business models according to the needs and dynamics of digital transformation through the establishment of digital value chains harnessing digital technologies to simplify operations, improve efficiency, and enhance user satisfaction. In line with this trend, as well as to encourage enterprises to maximize the benefits of digital technologies, the policy directions focus on: (1). Promoting harnessing digital technologies by enterprises to connect to digital platforms in the production and value chains, and (2). Promoting innovation in the design of digital platforms and new technologies, which can boost the efficiency of local production and value chains as well as the opportunities to integrate into regional and global production and value chains.

4. Lessons and Experiences from COVID-19 Crisis and the Inevitability of Digital Transformation

In 2020, the whole world went through an unprecedented global health crisis. Beginning in East Asia, the rapid widespread of the lethal COVID-19 has been having devastating impacts on the economy and society within countries, regions and the globe. Up till now, although the vaccines have been administered in many countries at consecutive stages, uncertainty remains high due to limited production capacity while the efficacy remains being challenged, with some countries taking a stance recognizing vaccines made by specific countries or blocs without recognizing vaccines produced by other countries or blocs, coupled with the fact that the number of global positive cases

continues to increase daily. Remarkably, the COVID-19 has accelerated the adoption of digital technologies as people in society have been seeking solutions to address the impacts of travel restrictions, commercial disruptions, the movement of work-from-home, as well as maintaining social distancing. According to a 2020 study on e-Conomy in Southeast Asia by Google, Temasek, and Bain & Company, the technology has played an important role for people in the region during the crisis, and this trend is expected to continue during the post-crisis period.

In Southeast Asia, the number of new Internet users increased to 40 million people by 2020, highlighting the potentials and importance of digital technologies. Digital technologies are used to purchase essential goods and services; provide and obtain education; entertain; monitor health and safety; implement work-from-home initiatives; and conduct businesses. As a result, during the COVID-19 crisis, there was an increase in E-commerce, food delivery services, online media, insurance, investment, payments and remittances (Table 9). Meanwhile, the use of e-payment services is also noticeably on the rise as consumers have shifted their payment behaviors from cash to e-payment; businesses began to shift their business model to using electronic systems; and service providers have promoted customer relations through the development and launch of services through smartphone applications. However, travel restrictions have significantly reduced transportation, travel, and lending services in the short term.

In terms of technology, during the crisis, were the rapid advancement of HealthTech and EdTech. COVID-19 crisis has accelerated the provision of solutions to support patients over digital systems which help facilitating access to healthcare services using Telemedicine platforms. At the same time, the use of technology in education has also increased significantly, with education providers shifting to e-learning platforms. This has made both HealthTech and EdTech be the investment destinations from investors.

Table 10. Activities affected by Technologies in Southeast Asia During COVID-19 Crisis

	Impacts of Technology during COVID-19 crisis				
Activities	**Temporary Setback**	**Continued Growth**		**Acceleration**	
				E-commerce	
	Transport (car hailing)	Food Delivery			
	Online Travel				
		Online Media			
	Lending	Insurance	Investment	Payment	Remittance

Source: Google, Temasek, and Bain & Company, E-conomy SEA 2020.

During the crisis, technology has increased in its importance as well as its economic and social potentials for many countries. This has been urging many countries to accelerate their readiness and digital adoption to reap the economic and social benefits. In this regard, the promotion of digital transformation has become among priorities in identifying and launching measures for the economic recovery plan in aftermath of COVID-19 crisis, along with measures to develop favorable and/or enabling factors, including digital talent capital, digital knowledge and skills, infrastructures, supporting regulatory framework, as well as dialogues at national, regional and global levels.