Digital "Government-to-Business" Services in Cambodia: Overview and Challenges

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Introduction

According to the UN e-government knowledgebase, e-government is a channel to strengthen the efficiency of government operations at three levels: Government to Citizen (G2C), Government to Business (G2B), and Government to Government (G2G).[3] There are a number of research papers which show how, empirically, good e-government is positively associated with fostering a good business environment. This can be measured by different variables such as the ease of starting a business, electricity, taxes, construction permits, access to credit, cross-border trade and protection of minority investors.[4] Moreover, the Fourth Industrial Revolution and the digital economy, which are built on advanced new technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), automation and cloud computing, among many others, also act as driving forces of e-government, in particular at the G2B level.

Despite the rapid growth in its digital capabilities, Cambodia is still progressing slowly in terms of Ease of Doing Business, as underlined by the country's Doing Business Rank 2019 of 132 out of 190 countries.[5] Given the leapfrogging of the ICT sector in Cambodia, it would be of particular interest to study which low-hanging fruit the government could pick to further develop e-government capabilities. This study will focus on the Government-to-Business (G2B) level, measuring the country against the UN's E-Government Development Index (EGDI) and indicators from World Bank's Doing Business Ranking. It is highly relevant to understanding how the Fourth Industrial Revolution can affect the fields of e-government (and e-governance) all over the world.

Cambodia will need to aim high to maintain its competitive advantages. Its high level development policies, such as the Rectangular Strategy (RS) and the National Strategic Development Plan (NSDP), emphasize the need to digitize the government to enable a friendly environment for both business and investment. This research will also make policy recommendations on how to improve Cambodia's Doing Business Ranking by taking advantage of the ICT sector developments.

The first section will look at the Fourth Industrial Revolution from the perspective of a few different countries and the approach taken by some in the sphere of e-government. The second section outlines current developments within the ICT infrastructure in Cambodia, as well as the legal framework surrounding it. It is followed by an overview of the challenges of doing business in Cambodia and, finally, recommended solutions and concluding thoughts.

Industry 4.0 - Global and Regional Trends

As the world keeps progressing, the involvement of technology in day-to-day life becomes more significant. The modern era has seen three major economic developments, which are dubbed as the First, Second, and Third Industrial Revolutions. These breakthroughs gave the world new and improved ways to live and to connect. As technology advancement kicks in each and every year, the processes

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3   United Nations, About, (UN E-Government Knowledgebase Webpage, United Nations, 2019), Accessed July 2019. https://publicadministration.un.org/egovkb/en-us/About

4   Martins J. and Veiga L., Innovations in digital government as business facilitators: implications for Portugal, (GEE Paper. Number 97, 2018).

5   World Bank, Doing Business, (Doing Business Webpage, The World Bank, 2019), Accessed July 2019. https://www.doingbusiness.org/en/rankings?incomeGroup=lower-middle-income

are way faster and more convenient than before. As the First Industrial Revolution brought us the new steam-powered engine, it gave the world a sense that there was so much more to achieve. Soon, the second revolution started, and the world saw mass production to supply the high demand in the market. Later on, in the late 20th century, the Third Industrial Revolution began, in which the economy started being digitized with ICT technology. However, with all of these changes, human involvement in the production line and supply chains never ceased to exist. Today the situation is different. With the influx of data, high speed connectivity, and customer-centric technology, Industry 4.0 is a controversial new era requiring a reduced labor force, more artificial intelligence, automated manufacturing industries, and digitalization.[6]

The following section outlines examples of policy and implementation in Germany, the country which officially coined the term "Industry 4.0", China, one of Cambodia's main trade partners, and Thailand, an immediate neighbor with many similarities in terms of culture, society and geography.

German Industry 4.0

"Industry 4.0", a term made in Germany, has been used to support industrial growth in the country. Germany has been able to exploit new technological concepts to reduce production costs, logistical costs and quality management costs. While these aspects mostly benefit producers, consumers also enjoy a greater variety of products at a lower price.[7] Since the

beginning of Industry 4.0 in 2011, Germany has seen extensive development in its industrial sectors. In 2015, Rüßmann, et al stated in their paper that the impact it has brought will help Germany succeed in four major areas: productivity, revenue growth, employment, and investment. For example, productivity in automative companies may see a 10 to 20 percent growth in the coming years.[8] Moreover, it boosts the country's growth by 1%, which is a significant number as German GDP growth rate is roughly 0.4% annually.[9]

While this seems like a success in the German economy, Erik Brynjolfsson and Andrew McAfee, economists who have studied the impact of technology on economies, have a different view. In an interview conducted by Bernstein and Raman in 2015, the two economists argued that the technological breakthrough does more harm to the economy as it decreases the labor force needed for production. As a matter of fact, the technology stage in Industry 4.0 has allowed producers to rely more heavily on automation and smart factory, while reducing labor cost to the minimum.[10]

Made in China 2025

In China we see a similar trend. "Made in China 2025" is a strategy developed by the Chinese government to tackle the changes triggered by global trends in AI-driven and smart

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6   Schwab Klaus, The Fourth Industrial Revolution, (Britannica, 2019), Accessed June 01, 2019. https://www.britannica.com/topic/The-Fourth-Industrial-Revolution-2119734.

7   Rojko Andreja, Industry 4.0 Concept: Background and Overview, (International Journal of Interactive Mobile Technologies, 2017), 11 (5): 80-81.

8   Rüßmann Michael, Markus Lorenz, Philipp Gerbert, Manuela Waldner, Jan Justus, Pascal Engel, and Michael Harnisch, Industry 4.0: The Future of Productivity and Growth in Manufacturing Industries, (Inovasyon, 2015), Accessed May 20, 2019.

9   Trading Economics, Germany GDP Growth Rate, (Germany Country Profile, Trading Economics, 2019) Accessed June 01, 2019. https://tradingeconomics.com/germany/gdp-growth.

10   Brynjolfsson, Erik, and Andrew McAfee, interview by Amy Bernstein and Anand Raman, The Great Decoupling, (Harvard Business Review, 2015).

industries. In the key findings made by Wübbeke et al. in 2016, the Chinese strategic plan uses a top-down approach in order to grow smart manufacturing industries, and its high end goal is to achieve the same technological progress as other Western powers. The technology substitution will focus on new energy vehicles, high tech components, renewable sources of energy and more, which should contribute to diversifying supply chains by 2025.[11] However, in practice this also has side effects considering that the Chinese economy is still developing. Many small and medium enterprises (SMEs) are very likely to suffer, considering that the new developments would bring strong competition in the market and will cause them to lose their customers if their business models are not strong.[12] Moreover, China has a huge labor force which could mean high labor cuts could occur in the manufacturing industry. Chinese labor cost has recently increased to about 15 USD per hour in 2015, which is an unfavorable option to businesses.[13] The same article denotes the new changes in the company Levi's supply chain, as it embedded the new laser printing technology in its production lines allowing the company to significantly reduce both materials and labor needed.

Thailand 4.0

In a similar way, the government of Thailand has also proposed to embrace changes in technology which could contribute to increasing the standard of living for Thai people. It has put together a comparable policy known as "Thailand 4.0", which gears the Thai economy toward technological development and innovation. It focuses on four main objectives: economic prosperity, social well-being, raising human values and environmental protection.[14] Furthermore, to achieve this, the Royal Thai Embassy in the US listed five important agenda points: preparing Thailand to become a first world nation; developing its technology cluster and future industries; promoting entrepreneurship and networks on innovative enterprises; strengthening the internal economy; and, finally, integrating Thailand with the ASEAN and global community. By doing so, Thailand has established and is working towards building a digital community meant to become the base of Thailand's industrial revolution. The key focus will be to digitally transform the Thai, for example by growing Thai agribusinesses and improving the automation of production. As such, the Thai government has also invested in strengthening education and ICT development.[15] To achieve the next evolution, "the Thailand 4.0 development plan is focused on 10 targeted industries, which can be divided into two segments; developing existing industrial sectors by adding value through advanced technologies for five industries: Next-Generation Automotive; Smart Electronics; High-Income Tourism and Medical Tourism; Efficient Agriculture and Biotechnology; and Food Innovation. The government has targeted five additional growth engines to accelerate Thailand's future growth:

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11 Wübbeke, Jost, Mirjam Meissner, Max J. Zenglein, Jaqueline Ives, and Björn Conrad, Made in China 2025: The making of a high-tech superpower and consequences for industrial countries, (Merics: Paper on China, 2016), (02):14.

12 Müller, Julian M., and Kai-Ingo Voigt, Sustainable Industrial Value Creation in SMEs: A comparison between Industry 4.0 and Made in China 2025, (International Journal of Precision Engineering and Manufacturing-Green Technology, 2018), 5 (5): 659-670.

13 Chu, Kathy, and Bob Davis, As China's Workforce Dwindles, The World Scrambles for Alternatives, (The Wall Street Journal, 2015), Accessed May 15, 2019, https://www.wsj.com/articles/as-chinas-workforce-dwindles-the-world-scrambles-for-alternatives-1448293942?tesla=y.

14 Royal Thai Embassy, Thailand 4.0, (Royal Thai Embassy of The United States of America, 2018), Accessed June 01, 2019. https://thaiembdc.org/thailand-4-0-2/.

15 Jones, Charlie, and Paitoon Pimdee, Innovative ideas: Thailand 4.0 and the fourth industrial revolution, (Asian International Journal of Social Sciences, 2017), 17 (1): 4-35.

Automation and Robotics; Aerospace; Bio-Energy and Bio-chemicals; Digital; and Medical and Healthcare".[16]

Cambodia Today: Policies, Laws and Regulations on G2B E-government

Development of E-government in Cambodia

Also Cambodia wants to bring digitalization to its state institutions in order to provide better public services to its citizens.[17] Looking at the success stories abroad, the government aims to alleviate common problems through the help of ICT.

E-government refers not only to government services made available online, but also to the way in which it does so by exchanging information and using online platforms with citizens, business and public entities (UN e-government knowledgebase, 2019). The United Nations measures its E-Government Development Index (EGDI) by taking into account three main indicators: the provision of online services, telecommunication connectivity, and human capital index. The EGDI rank of Cambodia has remained very low over the past decade. The ranking has dropped from 138th in 2008 to 145th in 2018.[18] However, EGDI is not expressed in absolute terms. For this reason, the adverse ranking can be interpreted as a stagnated development of e-government in Cambodia or a faster pace of other countries.

It is therefore necessary to study the current developments in Cambodia's e-government by looking at the existing policies, laws and regulations, and infrastructure for supporting e-government.

Realizing the importance of Information & Communication Technology (ICT) in promoting competitiveness, social integration and quality of life, the Royal Government of Cambodia (RGC) has committed itself to develop the country's ICT capabilities and to deploy it in various sectors, especially government services since early 2000s.[19] The journey to developing its e-government commenced in 2000, when Cambodia first established the National Development Authority (NiDA), chaired by the Prime Minister, aiming to employ technologies in public administrative reforms. Since then, more ICT-related projects have been initiated, such as the Government Administrative Information System (GAIS), which is implemented along with other applications, including Electronic Approval System, Resident Registration, Real Estate Registration, Vehicle Registration, Public Administration Information System (PAIS), Financial Management Information System (FMIS) and Human Resource Management Information System (HRMIS). Such ICT initiatives have led to more links between key institutions.

At present, Cambodia has shown effort in developing its e-government capabilities to facilitate and promote a competitive business environment; the ICT development agenda is mainly embodied in the in Rectangular Strategy Phase IV (RS.IV) and National Strategic Development Plan 2014–2018 (NSDP), which seem to show a profound political will for this

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16 Thailand Board of Investment, Thailand 4.0 Means Opportunity Thailand, (Thailand Investment Review, 2017), 27 (1):3

17 Royal Government of Cambodia, National Program on Public Administration Reform, (Phnom Penh, Royal Government of Cambodia, 2015).

18 World Bank, Doing Business in Cambodia, (A World Bank Group Flagship Report, Doing Business, 2019).

19 Korea International Cooperation Agency (KOICA), Summary on Cambodia ICT Master Plan 2020, (KOICA, 2014).

sector. In the RS.IV, the government has set a plan to prepare for the digital economy and the Fourth Industrial Revolution (Rectangle II: Economic Diversification and Competition strengthening) through mechanisms such as sufficient and effective laws and regulations, ICT and internet infrastructure, ICT in education and skill development, tech entrepreneurship and ecosystem, and research and development. Given RS.IV, line ministries have to mainstream it in their sectorial development policies or/and plans. Ministries or government entities whose work is mostly relevant to developing e-government to accelerate trade, investment and business environment are the Ministry of Commerce (MoC), the Ministry of Economy and Finance (MEF) and the Ministry of Posts and Telecommunications (MPTC).

G2B E-government at the Ministry of Commerce (MoC)

With a mission to promote economic growth through development of trade, the Ministry of Commerce (MoC) provides public services related to business, investment, and trade. In the context of e-government, MoC has digitalized trade information, trade services and human resource management in order to promote efficiency in service delivery. MoC has made necessary trade information available online, including but not limited to Trade Agreements, Commodity Price, Annual Reports, Trade Information Books, Bulletins, Trade Statistics, Commercial Counselors, and links to WTO, ASEAN and Cambodia's Special Economic Zones.[20] Aside from online trade information, the MoC has also transformed the three core trade services into online trade

services, including the Certificate of Origin (CO), Company Registration, and Trade Mark Registration. As human resources are a key driver of efficient service delivery, the MoC has adopted the Human Resource (HR) Information System for internal HR management. Its functions include monitoring results, staff management, rewarding good performance, managing who goes in and out and storage security.[21] Laws and regulations in response to the growing online businesses in Cambodia have been drafted by the MoC and an e-commerce lawis currently under the review of the Council of Ministers; it is expected to be endorsed by the parliament by the end of this year (2019).[22] The e-commerce law draft consists of 12 chapters, covering legal framework topics specifically on E-commerce, intermediary providers, e-government, e-signature, online personal information protection, online consumer protection, e-payments, unsolicited messages and penalties.

G2B E-government at the Ministry of Economy and Finance (MEF)

The Ministry of Economy and Finance (MEF), another key player in e-government (G2B), has also been able to consolidate its work through various initiatives, such as the Public Financial Management Reform Program (PF-MRP) and the Automated System for Custom Data (ASYCUDA), explained below:

Services cannot be delivered unless they are financed, and public budgeting is needed to ensure that public services are carried out to satisfy the needs of people. To do that, the

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20 Ministry of Commerce, Trade Information, (Ministry of Commerce, 2019), Accessed June 2019. https://www.moc.gov.kh/en-us/trade-information.

21 Ministry of Commerce, Declaration on Internal Regulations, (Phnom Penh, Ministry Prakas on Internal Regulations, Ministry of Commerce, 2019), 04, 11

22 Export Gov, Cambodia-ecommerce, (Export Gov, 2019), 04, 27. Accessed May 2019. https://www.export.gov/article?id=Cambodia-eCommerce.

MEF has started developing PFMRP since 2004 to promote good governance and transparency in the public budget management. It works through four key platforms: budget credibility, financial accountability, budget policy linkage and performance accountability.[23] The first platform (improving budget credibility) was successfully completed. In 2008, the second platform, improving financial accountability, was launched with an establishment of Financial Management Information System (FMIS) to improve financial information through electronic systems.

Another impressive initiative to improve trade facilitation is ASYCUDA, undertaken by the General Department of Customs and Excise of the MEF. ASYCUDA is an electronic system that replaces manual custom processes with online procedures, whose main purpose is to reduce logistics costs and time and promote transparency in trade.[24]

G2B E-government at the Ministry of Posts and Telecommunications (MPTC)

The Ministry of Posts and Telecommunications (MPTC) is in charge of the telecommunications infrastructure, which is also one of the UN's e-government development indicators. Cambodia's backbone infrastructure is supplied by one state-owned enterprise, Telecom Cambodia (TC), and two private companies, Viettel and CFOCN. By 2016 they have supplied 1,600 km, 17,200 km, and 7,611 km respectively.

Table 1. Telecom Infrastructure	
Phone and Internet Operators	Numbers of Operators
Cable phone operators	9
Mobile phone operators	9
Cable internet operators	33
Mobile internet operators	6
Phone and Internet Penetration	Numbers of Users
Mobile phone users	19,484,692 (98.79% of total phone users)
Cable phone users	238,118 (1.21% of total phone users)
Total	133% of total population
Mobile internet users	7,074,483 (98.84% of total internet users)
Cable internet users	82,926 (1.16% of total internet users)
Total	45.5% of total population
Broadband Coverage	
Urban areas	100%
Rural areas	70%

(Source: MPTC Primary Data, 2016)

23   Ministry of Economy and Finance, Public Financial Management Reform Program, (Ministry of Economy and Finance, 2019), Accessed July 2019. http://www.pfm.gov.kh/index.php/en/about-pfm/pfmbackground
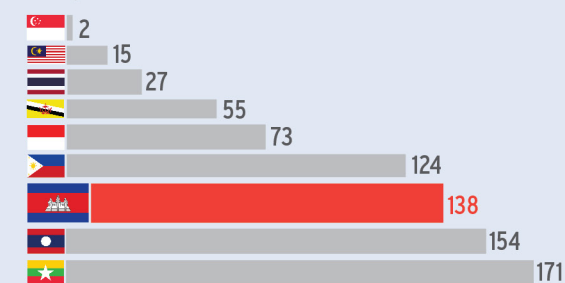
24   Ministry of Commerce, Newsletter: Cambodia Trade Sector Wide Approach, (Phnom Penh, Ministry of Commerce, 2015), 5 (5).

Cambodia: E-government to Business Se...

On the road to fixing Cambodia's (e-)infrastructure

Given robust economic growth strongly driven by the private sector, efficient public services for businesses are very important. A number of researches show a significantly positive relationship between e-government services and doing business. Despite public administration reforms and ICT infrastructure development, Cambodia's ranking in the World Bank Doing Business 2019 is still low and far behind its peers in the region.

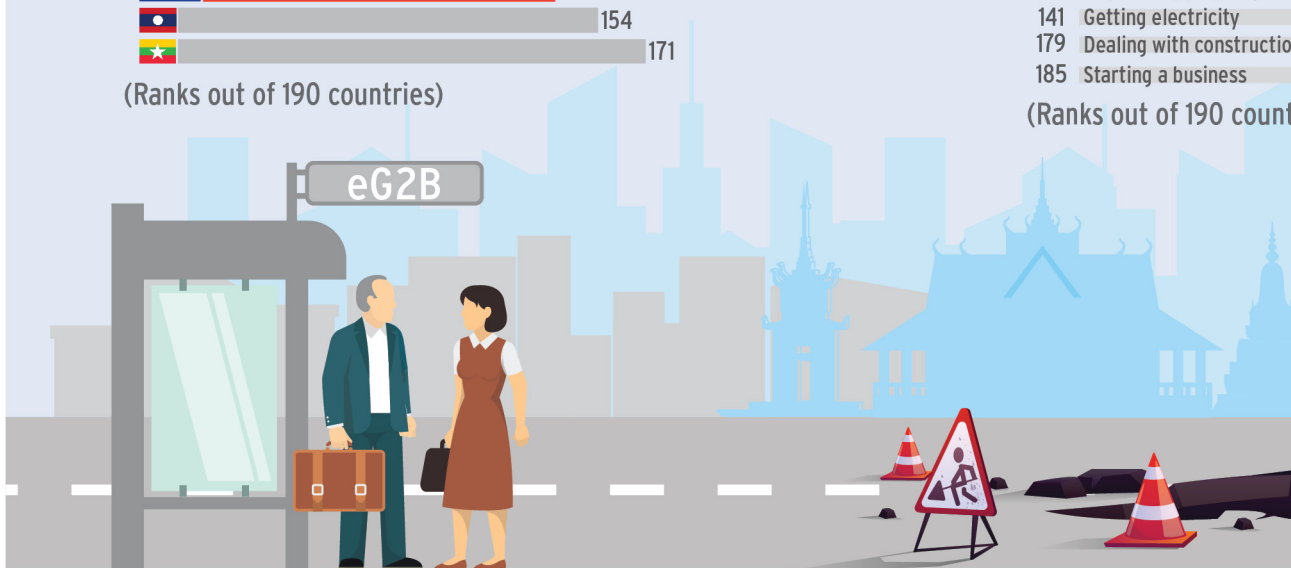### Doing Business Rank 2019 - ASEAN Countries

- 2
- 15
- 27
- 55
- 73
- 124
- **138**
- 154
- 171

(Ranks out of 190 countries)

Ease of Doing Business

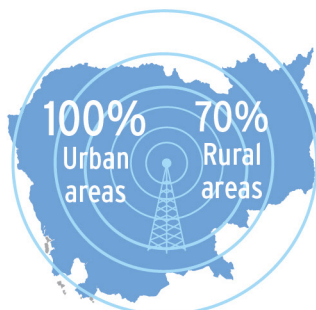|	
79	Resolving insolvency
182	Enforcing contracts
115	Trading across border
137	Paying taxes
110	Protecting minority inve...
22	Getting credit
124	Registering property
141	Getting electricity
179	Dealing with constructio...
185	Starting a business

(Ranks out of 190 count...

eG2B

Connectivity in Cambodia

E-government to Business...

85%
Internet subscription

100% Urban areas   70% Rural areas

Broadband Coverage

No centralized information system for business registration

Insufficie... and regu...

How to coordinate among government agencies?

How to build... friendly envi...

...ervices

Government Initiatives

The Royal Government of Cambodia has been striving to develop e-government, specifically digital government-to-business, services through various initiatives, policies, laws and regulations.

Business Registration

Property Registration

Taxes

Electricity

...s Rank 2019 – Cambodia

...stors

...n permits

...ries)

Building human resources in ICT related skills

- ✓ Make use of vast distribution of phones.
- ✓ Community workshop- Raise awareness.
- ✓ Government apps through social media with instruction videos for self-learning.
- ✓ Integrate ICT skills in education.

...s Services Challenges

Recommendations

...nt laws ...lations

Lack of human resources with digital or ICT related skills

Developing a Centralized Information System for Business Registration

E-Commerce and Business-Related Law Endorsement and Updates

Building Human Resources in ICT Related Skills

...a business ...ironment?

How to build digital skills for HR?

Content and Storyline: Maria Yang & Darapich Sovann
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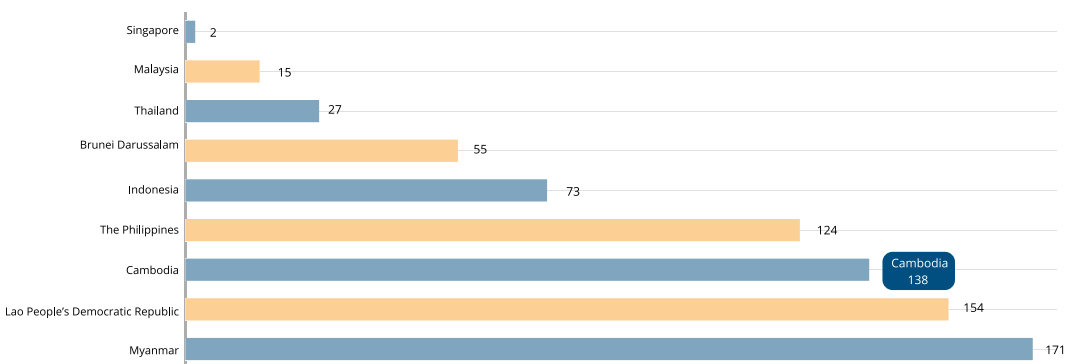*Editors: Robert Hör & Ann-Cathrin Klöckner*

Apart from infrastructure development, the MPTC has launched a number of ICT-related policies, laws and regulations, such as the Law on Telecoms, Cambodia Telecoms and ICT Development Policy 2020, as well as the Digital Signature Sub-decree. The Law on Telecoms plays a crucial role in improving investor trust and consumer protection, collecting national revenue and ensuring fair price and competition in the telecoms market.[25] To tackle challenges in telecoms and ICT, the MPTC broadened the Telecoms and ICT Development Policy 2020 to include three main objectives, namely (1) Developing and expanding infrastructure connectivity, (2) Developing human resources, and (3). Promoting industrial development.[26] Additionally, a sub-decree on digital signature was written in early 2019 to regulate and promote the use of digital signature in a secure and efficient way.[27] According to that sub-decree, digital signature refers to data of electronic messages showing the identity of digital signatories to help verify original electronic messages. It aims to identify principles of digital signature and authorities, a digital signature license, and the obligations of license providers and recipients.

Challenges of Doing Business in Cambodia

Overview of Doing Business Ranking in Cambodia

Despite all these initiatives in developing its G2B e-government services, Cambodia's Doing Business Rank is still relatively low compared to other developing countries in the region, not to mention the developed nations. According to World Bank's DB 2019 Ease of Doing Business Score, Cambodia scored 54.8 (ranking at 138th), using 10 indicators for calculation.

Doing Business Rank 2019 - ASEAN Countries

Country	Rank
Singapore	2
Malaysia	15
Thailand	27
Brunei Darussalam	55
Indonesia	73
The Philippines	124
Cambodia	138
Lao People's Democratic Republic	154
Myanmar	171

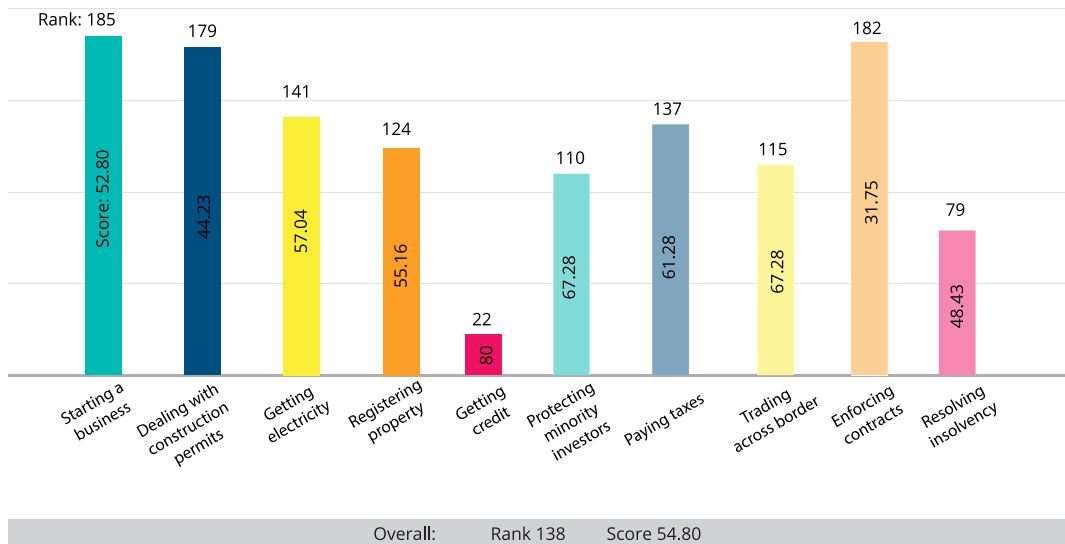*Source: World Bank's DB 2019 Ease of Doing Business Score*

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25 Royal Government of Cambodia, Law on Telecoms, (Law on Telecoms, Phnom Penh, Royal Government of Cambodia, 2015).

26 Ministry of Posts and Telecommunications, Telecom and ICT Development Policy 2020, (Phnom Penh, Ministry of Posts and Telecommunications, 2016), Accessed May 2019. https://www.mptc.gov.kh/article/2918.

27 Royal Government of Cambodia, Digital Signature Sub-Decree (Phnom Penh, Digital Signature Sub-Decree, Royal Government of Cambodia, 2017).

As depicted in the table below, Cambodia has been performing well in two indicators only, which are "Getting credit" and "Resolving insolvency". Cambodia has yet to improve on other key performing indicators like starting a business, dealing with construction permits, getting electricity, registering property, protecting minority investors, paying taxes, trading across borders and enforcing contracts.

Doing Business Rank 2019 – Cambodia

Rank: 185	179	141	124	22	110	137	115	182	79
Score: 52.80	44.23	57.04	55.16	80	67.28	61.28	67.28	31.75	48.43
Starting a business	Dealing with construction permits	Getting electricity	Registering property	Getting credit	Protecting minority investors	Paying taxes	Trading across border	Enforcing contracts	Resolving insolvency

Overall: Rank 138 Score 54.80

Source: World Bank's DB 2019 Ease of Doing Business Score

Challenges of Digital Government-to-Business

Lack of a Centralized Information System for Business Registration

Although Cambodia is a rapidly growing economy with a steady GDP growth rate, many find it hard to do business in Cambodia, especially due to the ineffectiveness of business registration, which leaves a bad impression on both local and foreign investors. According to data obtained from World Bank, Cambodia ranks 138th worldwide when it comes to the ease of doing business. Out of 190 countries, Cambodia stands at 185th in regards with

starting a business.[28]

Starting a business in Cambodia is a very complicated process. Document submission and legal procedures are more expensive and time-consuming compared to other developing countries. Data from World Bank report (2019) shows that each individual has to go through nine procedures which are handled by different ministries and departments.[29] It could take up to 99 days to fully complete the whole process. Out of the nine procedures, only the ones that are run by Ministry of Commerce and the General Department

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28 World Bank, Doing Business, 4

29 Ibid., 8-10

of Taxation allow individuals to submit their documents through an online platform. Moreover, documents at some departments and agencies are redundant, meaning that there is no central information hub. Information from the business registry has been stored in many different places throughout the whole procedure. An individual has to go through the Business Registration Department of the Ministry of Commerce, the Department of Taxation, Sealmaker, Bank, and the Ministry of Labor in order to run the whole procedure. This shows the inconvenience and lack of efficiency in government institutions which are poorly digitalized. Although the process is theoretically practiced throughout the country, it could have been enhanced through the involvement of ICT, particularly through the better development of E-government.

Insufficient Laws and Lack of Enforcement

Despite the fact that the Royal Government of Cambodia has developed a number of laws and policies to promote e-government (G2B), there is still a lot of work to be done, such as amending existing laws and establishing new

ones that are relevant to the current social and economic context. The recent boom in online businesses creates both opportunities and threats for the market. Since the e-commerce Law has not yet been endorsed, Cambodia's e-commerce market cannot gain much confidence from investors, especially foreign investors, who have large investment capital. Without the e-commerce law, consumers and their data are not protected, which can increase the risk for fraud without proper solutions or compensation. Besides, Cambodia's investment law, which was established in 1993 and amended once in 2003, might be less relevant to investment in the current context due to the rapid rise of new business types and issues.

Lack of Human Resources with ICT-Related Skills

The Job Outlook 2018 study, conducted by the National Employment Agency of Cambodia, shows that the area of computer, information technology and multimedia is projected to have good job opportunities due to increased labor demand driven by digitalization

Table 4: Occupations at upper secondary level, whose recruitment situations are very difficult or with least competition for work (the greatest job outlook index) in 2018	
Radiographers	ICT operations technicians
Translators and interpreters	Clearing and forwarding agents
ICT user support technicians	Graphic and multimedia designers
Industrial and production engineers	Mechanical engineers
Telecommunications engineers	Process control technicians
Chemical engineers	Database and network professionals
System analysts and IT architects	Electronics zengineering technicians
Software and system developers	Product and garment designers
Construction supervisors	Information technology trainers
Chefs	Computer network and systems technicians

Source: NEA, 2018

in the market.[30] However, as shown on Table 4, recruiting for many ICT-related roles is very difficult due to a shortage of supply of skilled labor in such occupations.

Therefore, the lack of human resources with ICT-related skills imposes a challenge for both users (businesses) and providers (the government) of digital government services. Businesses may need skilled workers who can understand and use available digital services while digital government may require skilled government officials to effectively and efficiently operate the online platforms or systems. Without sufficient digital knowledge and skills, users and providers of digital public services are more likely to prefer manual processes.

Therefore, the lack of human resources with ICT-related skills imposes a challenge for both users (businesses) and providers (the government) of digital government services. Businesses may need skilled workers who can understand and use available digital services while digital government may require skilled government officials to effectively and efficiently operate the online platforms or systems. Without sufficient digital knowledge and skills, users and providers of digital public services are more likely to prefer manual processes.

Recommendations

Developing a Centralized Information System for Business Registration

Because of the lack of a centralized system for business registration, incorporating digi-

tal technology into business models can help reduce the inefficiencies that may arise from miscommunication and poor data. Similarly, also governments can use it to reduce the time and steps involved in its services. Taking New Zealand as an example, according to the World Bank it ranks 1st among the 190 countries for ease of starting a business. Almost no effort is required to submit a registration online and all the documentation can be processed in a single entry without the need to do anything in person.[31] This is a successful case thanks to a centralized registration agency. According to the World Bank report cited above, every application form will proceed to the New Zealand Companies Office, which is the sole agency in business registration. As mentioned before, registering a business in Cambodia can require an individual to visit multiple different agencies, when it can be solved through a central information system instead. This will also improve the communication between different government institutions and reduce redundant data in the systems.

On top of that, government institutions should also provide more user-friendly online platforms, for example through simple webpage design, mobile applications or one-click information access. From another international example, the South Korean bureaucratic system O.P.E.N. (Online Procedures Enhancement for Civil Applications) was a really successful initial step to draw Koreans to opt for a new E-platform. The system includes the procedures and the tracking of each submitted application on various sectors including business registration, so minimal time is spent and incidental corruption is minimized.

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30 National Employment Agency, Cambodia Job Outlook, (Phnom Penh, Ministry of Labor and Vocational Training, 2018)

31 World Bank, Doing Business in New Zealand, (The World Bank Group Flagship Report, 2019), 8.

Hence, the successful story of South Korean municipality taught us that communication between government agencies and business can be very effective if the technology is used for that sole purpose rather than for the sake of technology itself.[32]

E-commerce and Business-Related Law Endorsement and Updates

From a legal point of view, the Royal Government of Cambodia should aim to speed up the process of drafting the E-commerce Law. Cambodia is the only country in ASEAN that does not have this yet. Additionally, the government should amend the existing investment law that is mostly addressed at big investments. Thus, to aim for higher growth, it should be amended to favor Small and Meduim Enterprises (SMEs) and Micro, Small and Medium Enterprises (MSMES) as well, especially those in the tech sector.

Building Human Resource in ICT-Related Skills

According to the data from MPTC (shown in Table. 1), virtually everyone in the country owns a mobile phone. Thus, they should be able to maximize the efficiency of their mobile phones through various different verified government apps which are user-friendly and intuitive. With availability of resources at their disposal, people will be able to catch up with the IoT world, regardless of their age and gender. On top of this, Cambodia is a country with very young population; therefore, exponential teaching from the younger generations to the older generations will be a more effective way to reach out. In the short run, this can be done

through various community workshops that will raise awareness among citizens. Each government app should be publicized through social media along with instructional videos for self-guided learning.

Another possibility is to increase the ICT content in the education system, which will help future generations become more familiar with the benefits and risks of technology. Like the Thai government has planned, as cited above, the Cambodian government should aim to invest more into promoting students to develop knowledge and skills in S.T.E.M. (Science, Technology, Engineering, Mathematics). Additionally, the college curriculum should be embedded with ICT related subjects so that students will be more familiar with such skills once they need to embrace them in the working environment. And finally, building human capital can promote the effectiveness and efficiency of the system itself, tackling the issues of inefficacy at public sector workplace.

Conclusion

To sum up, catching up with and maintaining competitiveness amid the global trends of digital and the Fourth Industrial Revolution, the Royal Government of Cambodia has been striving to develop e-government, specifically digital government-to-business services, through various initiatives, policies, laws and regulations. Despite the government's efforts to do so, the country's E-Government Development Index (EGDI) and Doing Business rankings remain low, implying that there are challenges such as the lack of a centralized information system, lack of laws and regulations, and lack of human resources in digital skills. First, to tackle the issue of high costs

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32   Bhatnagar Subhash, E-government and access to information, (Global Corruption Report, 2003), 25-26.

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and complexity of doing business through multiple redundant steps, the government should aim to build a centralized information system connected to all the relevant government agencies. Secondly, Cambodia is facing major challenges because the labor force is not entirely ready to tackle the new era of digitalization; hence, in the long run, the government should try to mainstream the necessary digital skills in the curriculum of high school and higher education institutions, and in the short run it should support the delivery of vocational training and workshops, among other things, to improve the digital skills of young people and the current labor force.