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Developing Cambodia's Digital Economy: Youth's Perspective

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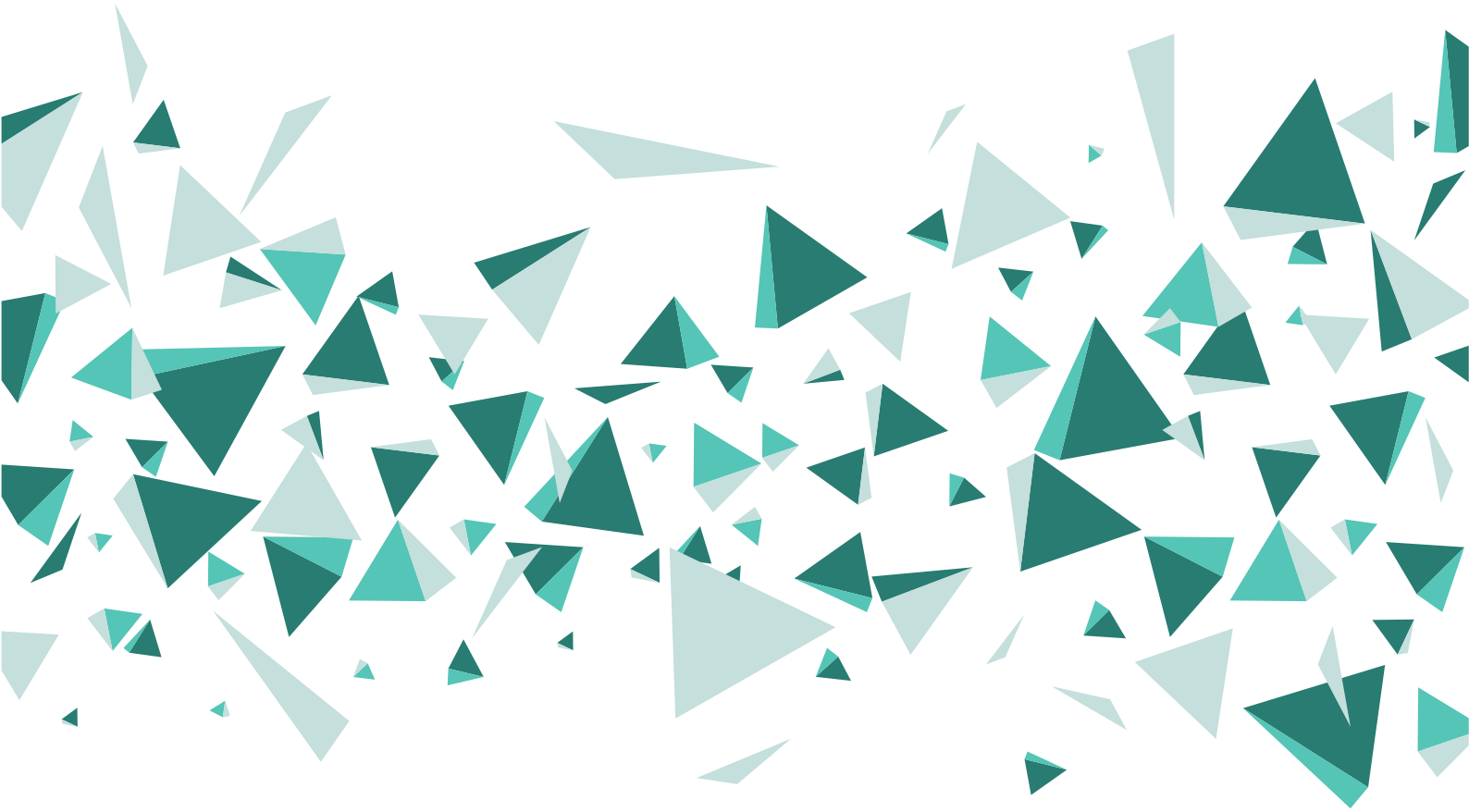

Abstract

Understanding the significance of transforming Cambodia into a digital economy in a time pressure posed by the COVID-19 pandemic and the urgent need to diversify its economy, this paper aims to build on the existing knowledge of developing a digital economy in Cambodia by studying the current landscape, challenges, and concerns of digital adoption and adaptation from the perspectives of youths as consumers. The 378 Phnom Penh youths who participated in the survey indicated that they are well-exposed to digital platforms, goods and services, but the frequency of usage or consumption varies significantly from one digital option to another. The collected data highlights that factors influencing their decision to use certain digital platforms, goods and services are mostly self-driven rather than being influenced by their peers, family members, or firms' marketing efforts. The slow speed and high price of the Internet were identified as the main challenges, followed by the unstable and high price of electricity. Moreover, major concerns among youths include hacking, scams, and data protection by firms. Less than half of the respondents claimed that they know what a digital economy is, and their provided definitions are mostly restricted to online businesses and transactions. On a positive side, almost all of the respondents agreed that it is beneficial for Cambodia to transform itself into a digital economy, and around 85 percent indicated that they will use more digital platforms, goods and services in the future, signaling a tremendous potential for developing Cambodia's digital economy.

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1. Introduction

The emergence of the "new economy" or "digital economy" has been seen as a part of the global movement towards Industrial Revolution 4.0 (IR4.0) after the world saw the emergence of the internet and modernization of information and communication technology (ICT). The digital economy was popularized since the late 1990s and early 2000s due to the acknowledgment of the role of the internet and technology in improving firms' competitiveness, and the booming dot.com companies (Pohjola, 2002). The rise in such technologies has also led to the practice of datatification, digitization, virtualization, and generativity (Heeks, 2016).

Nonetheless, this new concept was mostly lost in translation until recent years in which both developed and developing nations started to see the rise in digital adoption and adaptation at the individual, government, and firm levels. Likewise, Cambodia expressed its interests in developing its digital economy starting from 2018 with the introduction of the Rectangular Strategy Phase IV and the announcement of a goal to transform Cambodia into a digital economy by 2023 with the hope that it can provide opportunities for Cambodia to leapfrog to higher stages of development. Cambodia's motivations are justified by immense pressure to diversify its economy and to find new sources of growth while looking to achieve the goal of becoming an upper-middle-income country by 2030 and a high-income country by 2050. The recent partial withdrawal of the benefits under the Everything-But-Arms (EBA) initiative in 2020 is a stellar example of the potential risks Cambodia is facing as a country that heavily relies on few export markets and products.

To make matters worse, the risks were greatly exemplified by the outbreak of COVID-19. The impacts of this pandemic have been mainly seen in tourism sector, garment and footwear export, and construction which was estimated to contribute more than 70 percent to 2019's GDP growth. According to the Ministry of Tourism, foreign tourist arrivals contracted by 74.1 percent in the first nine months of 2020 when compared to the same period of 2019 (Ministry of Tourism, 2020). On the other hand, the supply shocks that disrupted the inflow of raw materials coupled with the demand shocks caused by order cancellation or reduction had caused 130 of garment and footwear factories to partially or fully suspend their operation, resulting in almost 100,000 workers to lose their job from mid-April to May 2020 (World Bank Group, 2020). The pandemic can also reverse Cambodia's efforts to alleviate poverty in the past two decades as well. In fact, the country's poverty rate may jump 8 percent from 9.6 percent in the pre-COVID period to 17.6 percent, translating to around 1.34 million people being pushed back into poverty due to COVID-19 (UNDP, 2020a).

Although economic prospects are dim, opportunities have also emerged as institutions, businesses, and people were forced to adapt to the new normal through digital adoption and adaptation. The digital transformation is evident in both the public sector (i.e. online business registration, online money transferring to unemployed factory workers, e-learning) and private sector (i.e. e-commerce, delivery services). The emergence of startups taking advantage of digitalization is even perceived as an opportunity to cushion Cambodia from severe damages

caused by the pandemic (UNCTAD, 2020). Some key examples of such opportunities include "use of digital payments; brick-and-mortar shops using online sales channel for the first time; new digital business models; use of responsive supply chain management systems to address supply disruptions and uncertainty in demand; and access to remote technical assistance and training as a response to travel and social distancing restrictions." (UNDP, 2020b).

Transforming into a digital economy has been a top priority for a significant number of developing countries that are looking to reap its potential benefits. Previous studies have indicated that a digital economy has a positive influence on job creation, growth and productivity, and innovation (Bukht & Heeks, 2017; UNCTAD, 2019). Moreover, the UNCTAD (2017a) also found that the transformation can contribute to effective responses to social or development issues through facilitating access to basic services, fostering government transparency, raising awareness on issues, and facilitating the delivery of assistance. For Cambodia, the digital transformation aligns with the country's vision of becoming an upper-middle-income country by 2030 and a high-income country by 2050 (Kong, 2019). This approach to development presents openings for Cambodia to achieve sectorial upgrading, which introduces higher value-added products in the existing industries, and diversification, which establishes new industries (UNDP, 2020b).

In spite of the substantial evidence that the previous studies have proposed to frame the impediment to Cambodia's digital progress, published researches have ignored the perceived challenges and prospects of procuring a digital economy from the consumers' perspectives, in particular youths who make up a large consumer segment for digital platforms, goods and services. For this reason, this paper seeks to fill in the loophole by emphasizing youths' perspectives to give a clearer picture of the landscape of the current level of digital adoption among Cambodian youths, including their access to infrastructure and device, their consumption or use of digital platforms, goods and services, and the aspects shaping their level of usage. Moreover, this paper will explore the challenges and concerns youths face when using digital platforms, goods and services in order to identify pain points for further improvement on policy level as well as for private sector to capture the opportunities. Last, this study will provide an overview of youths' perspectives on what they believe to be a digital economy and sector that they would like to see further digital transformation in the future. This exploration will be done by answering the following questions:

1. What is the current extent of usage of digital platforms, goods and services among Cambodian youths?
2. What are the factors influencing the usage of digital platforms, goods and services among Cambodian youths?
3. What are the challenges and concerns that Cambodian youths face when using those digital platforms, goods and services?
4. What is the current understanding of digital economy among Cambodian youths?
5. What do Cambodian youths look for in Cambodia's digital economy in the future?

2. Literature Review

2.1. Defining A Digital Economy

Contrary to the attention and importance that are given to the notion of the digital economy, there is yet a uniform definition. Having said to be the first to have coined the term "digital economy", Tapscott (1996) only highlighted the relationship between the new economy, new business, and new technology, and how they enable one another as parts of a digital economy. According to this definition, two generations of economic activity are present in a digital economy - informational and comprised of basic tasks (e.g. putting information on websites), and communication. Nonetheless, he set a foundation for the crafting of other definitions, such as those from Lane (1999), Mesenbourg (2001), and OECD (2013) who emphasized the role of the internet in a digital economy. Others related the term digital economy with the internet economy, which can be understood as an economy based on digital technologies but can impact other sectors of the economy and society (European Commission, 2014; Kling & Lamb, 2000).

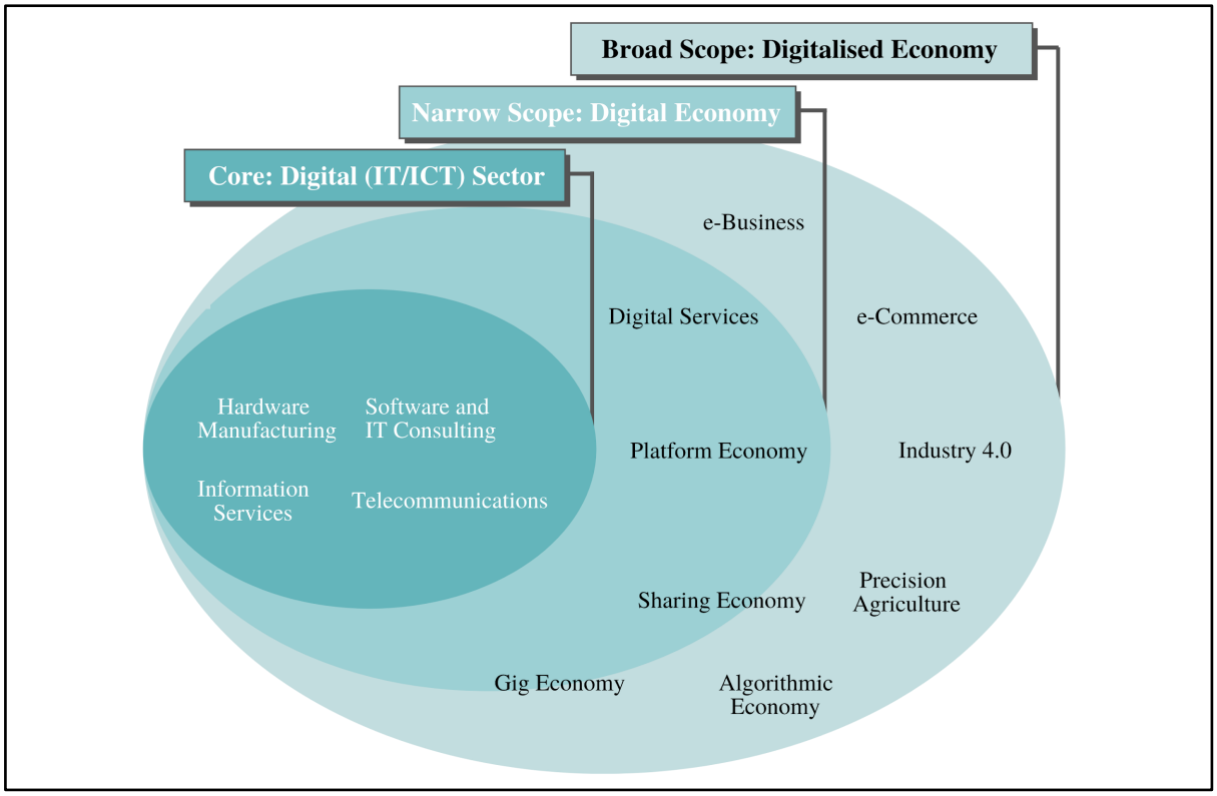
The scope of the definition was later expanded as coincided with the emergence of new technologies and related services. For instance, Margherio et al. (1999) broadened the discussion of the digital economy to include IT-enabled business activities, while Brynjolfsson & Kahin (2000) included e-commerce during the period of the dot.com bubble, reflecting one of the broadest definitions of a digital economy. Singapore's Infocomm Media Development Authority also put forward another broad definition of a digital economy as "a marketplace that is defined, organized, enabled, and facilitated by technology." (IMDA, 2018). The problem of the broadly defined digital economy comes with the issues of clarity and scope as it can be impossible to differentiate between an "economy" and a "digital economy" due to the increasing reliance on ICT in services and manufacturing (Bukht & Heeks, 2017).

This debate resulted in the three scopes of the digital economy provided by Bukht & Heeks (2017) and are illustrated in **Figure 1**. According to the framework, the core of a digital economy covers the IT/ICT sector, which includes hardware manufacturing, software and IT consulting, information services, and telecommunications. Using the idea of intensive and extensive use of ICT provided by Narasimhan (1983), Bukht & Heeks defined the scope of a digital economy as the extension of the core scope to include new economic activities, such as digital services, platform economy, gig economy, and sharing economy, that only emerged because of the application of digital technology. Lastly, the broadest scope extends the coverage to e-Business, e-Commerce, Industry 4.0, precision agriculture, and algorithmic economy.

This study shall be carried out using the broadest scope provided by Bukht & Heeks (2017) and the definition provided in a report from the World Bank (2019), that defines digital economy as the use of digital technologies by the private sector to drive economic growth, innovation, and the economy as a whole, allowing the digital economy to cover various sectors including digital entrepreneurship, e-commerce, FinTech, ICT sector, and the digital transformation of industries. Nevertheless, since this study focuses on the perspectives of

youths as consumers, the area of the study is scoped down to just consumer technologies and related digital goods and services.

Figure 1: The Three Scopes of The Digital Economy



Source: Figure adapted from Bukht & Heeks (2017)

2.2. Indicators for Studying Digital Economy

The lack of uniformity in the definition and scope of the digital economy also brought upon the use of different indicators to study the topic. The Digital Adoption Index (DAI), which was developed for the World Development Report 2016, identified three main dimensions of the digital economy - people, government, and business (World Bank Group, 2018). This framework is less focused on the usage of technology or perceptions of utility, and more on how digital tools and services are supplied to all stakeholders.

Since ICT has been one of the major components of a digital economy, ICT infrastructure, and its usage can also be one of the key pillars as well. The Economist Intelligence Unit (2010) provided in their Digital Economy Rankings in 2010 the foundations of a digital economy, which include connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, and consumer and business adoption. This framework allows a more comprehensive understanding from both the supply-side and the utility of what is provided; nonetheless, it is not sufficient as it overlooks the role of human capital.

Another framework for assessing the digital economy was developed by Cisco and Gartner Research in 2018. The Global Digital Readiness Index includes technology infrastructure and

adoption, ease of doing business, human capital development, business and government investment, basic human needs, and start-up environment (Yoo, Wysocki & Cumberland, 2018). Acknowledging the essence of the government's role in the adoption of digital technology, e-government has also been included in many frameworks for assessments as well (World Bank Group, 2018; Velde, 2019).

Indicators previously used to study the topic of the digital economy in Cambodia can be summarized in **Table 1**.

Table 1: Existing Indicators Being Used in Studying Digital Economy in Cambodia

Supply Side Indicators	Demand Side Indicators
Web presence	Mobile access
Secure internet server	Fixed broadband subscriptions
Digital financial services	Mobile cellular subscriptions
IT skills	Active mobile broadband subscription
Legal framework	% of households with computer
3G/4G coverage	% of households with internet access
Prices (mobile and/or fixed broadband, ..)	International internet bandwidth per internet user
Fixed-line internet services	% of total population that use digital payment
Government e-service	Internet users (% of total population)
Structured employer and employee survey data	% of total population has a bank account
Firms perspectives on digital adoption	% of total population has a bank card
Distribution of subjects and study hours per week in Cambodia's high school system	% of total population receive or make mobile payment via GSMA
Government's responsiveness to change	% of total population that make online purchase
Legal framework's adaptability to digital business models	Mean years of schooling
Electricity access	Skillsets of graduates

Electricity supply quality	Digital skills among active population
Extent of staff training	E-Participation
Ease of finding skilled employees	
World Bank's Digital Adoption Index	
Cisco and Gartner Research's Global Digital Readiness Index	
World Economic Forum's Networked Readiness Index	
World Economic Forum's Global Competitiveness Index	

Source: Compiled using data from various sources - World Bank Group (2019), Heng (2018), and Heng (2019).

A gap in the existing literature is the absence of demand-side or consumer-side perspectives as an indicator to drive the development of the digital economy in Cambodia. Although the supply-side role of technological adoption is essential for developing a digital economy in Cambodia, it is worth acknowledging that the demand side also plays a crucial role in the process. In fact, in all previous technological revolutions, consumer tastes were the engine of change that encouraged rapid transformation (Coyle & Quah, 2002). Thus, this paper shall look into the consumers' adoption/usage, challenges, concerns, and their overall perspectives on Cambodia's digital economy as an indicator to study the opportunities and challenges of developing a digital economy in Cambodia.

2.3. A Review of Status of the Supply Side of Digital Economy

2.3.1. Supporting Legal Framework

To prepare the country for a digital future, the Royal Government of Cambodia has worked with different stakeholders to put forward supporting policy and frameworks including the Rectangular Strategy Phase IV, ICT Master Plan 2020, Telecom/ICT (T-ICT) Development Policy 2020, Law on Telecommunication, and the ICT Strategic Framework among other initiatives and programs. Acting as a blueprint for development direction, the Rectangular Strategy Phase IV raised the importance of getting Cambodia ready for a digital economy and industrial revolution 4.0 as part of the efforts to diversify its economy.

Known as the ICTopia Cambodia or the ICT Master Plan 2020 adopted in 2014, Cambodia aims to build an "Intelligent and Comfortable Nation" through (1) empowering people, (2) ensuring connectivity, (3) enhancing capacity, and (4) enriching e-services (KOICA, 2014). In 2016, the government established the Policy on Telecom/ICT Development 2020 with three main objectives mentioned in **Box 1**. In 2019, the government passed the law on e-commerce to facilitate the growth of e-commerce and trade in Cambodia, while ensuring lawful practices within the sector (The Phnom Penh Post, 2019). This move was also a response to recommendations from both international and national institutions that raised the concern over

consumers' protection as a barrier to the development of the e-commerce sector in Cambodia. Moreover, in the same year, the National Assembly also approved the proposal to form a digital economy committee to compile and draft digital economy frameworks for the government to approve (Khmer Times, 2019). After ratifying the ASEAN e-commerce pact and signing the Regional Comprehensive Economic Partnership (RCEP), Cambodia launched the E-Commerce Strategy in support of developing the sector and provide more enablers for the transformation into a digital economy. These are all happening while the draft Competition Law and draft Cybercrime Law are under review.

Box 1: The Three Main Objectives of the Policy on Telecom/ICT Development 2020

1. To improve and expand Telecommunication infrastructure and usage
- 100% broadband coverage in urban area
- 80% broadband coverage in rural area
- 100% mobile penetration
- 80% internet penetration
- 50% broadband penetration
- 20% household internet penetration
- 26% household computer penetration
- 10% internet of things penetration

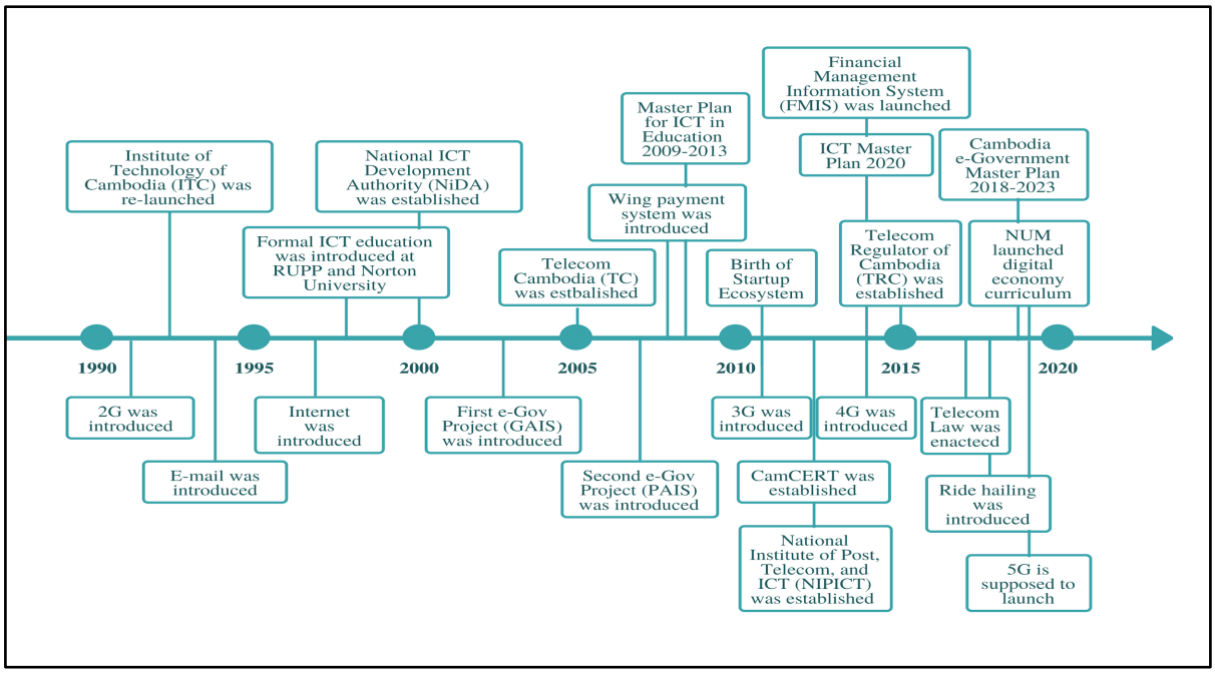
2. To develop ICT human capacity
- 95% ICT literacy rate for national government officer
- 75% ICT literacy rate for sub-national government officers
- 100% high school graduate with ICT basic skills
- 30 per million people of ICT R&D experts' rate
- 10 per million of ICT researchers

3. To diversify ICT industry and promote the applications of ICT
- 65% Telecom/ICT registered companies
- 100% rate of email usage in the government
- 100% of government bodies with websites

Source: Policy on Telecom/ICT Development 2020

Adding on to the supporting policies, a number of enabling measures were also initiated in order to drive more interests and actions towards the realization of a digital economy. The National Institute of Posts Telecommunications and Information Communication Technology (NIPTICT) was created in 2014 to further promote education, training, research, and development of posts, telecommunications, and ICT technology. Moreover, the government also established acceleration centers, such as the ICT Innovation Center (IIC), and the National R&D Funds, while continuing to cooperate with other partners in organizing programs such as the annual STEM Festival, STEM Academy Bus Program, SmartEdu Scholarship Program, and the SmartEdu University Student Development Program (Heng, 2018). For the timeline of the supporting policies and initiatives, please refer to **Figure 2**.

Figure 2: Timeline of Supporting Policies and Initiatives for the Digital Economy

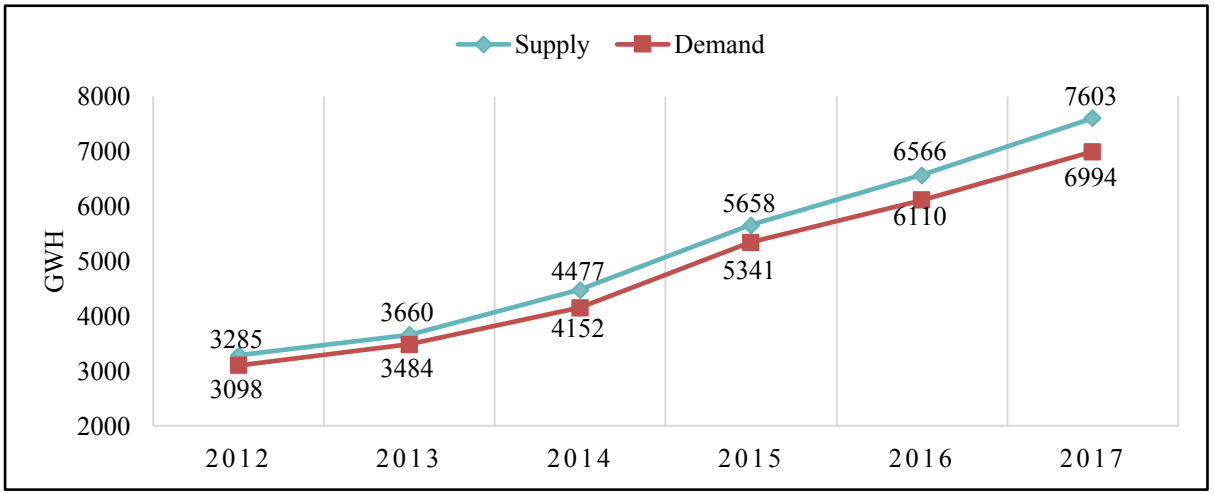


Source: Figure taken from CDRI & ODI (2020)

2.3.2. Basic and Digital Infrastructure

Cambodia has been able to see a climb in energy generation and importation as the demand surges to feed the growing economy. According to the Electricity Authority of Cambodia (EDC), energy generation from output and importation grew from 3,285GWh in 2012 to 7,603GWh or a 43 percent surge, while the energy demand grew 44 percent or from 3,098GWh to 6,994GWh (Electricity Authority of Cambodia, 2017). This growth in both areas should not overshadow the issue of power coverage within the country as only around 60.6 percent of the population had access to electricity in 2019 (World Economic Forum, 2019). More importantly, Cambodia is still subjected to frequent power outages, especially during the dry season when the power demand reaches its peak.

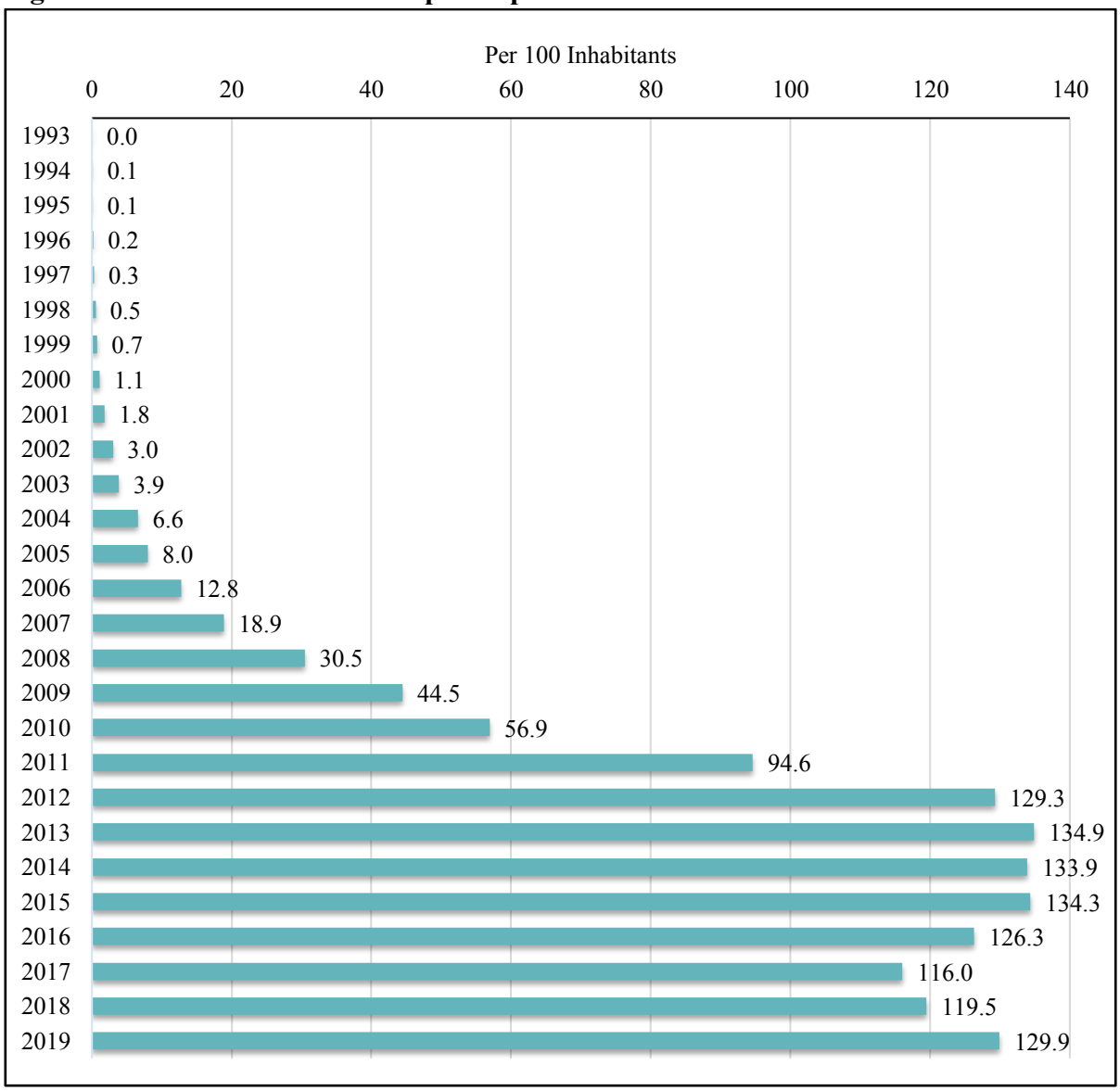
Figure 3: Cambodia's Energy Generation and Sales in GWh



Source: Electricity Authority of Cambodia (EDC) Annual Report 2016

The fierce competition between few mobile service providers, such as Smart Axiata, Cellcard, and Metfone, has driven down the price of mobile data and led to a higher rate in mobile subscribers and mobile-cellular users. According to the ITU (2019), mobile-cellular subscriptions in Cambodia reached 21,418,700 which accounted for almost 130 percent of the total population and is above the global and Asia-Pacific average. However, data from 2017 has highlighted that only 50 percent of the population has access to LTE (ITU, 2017).

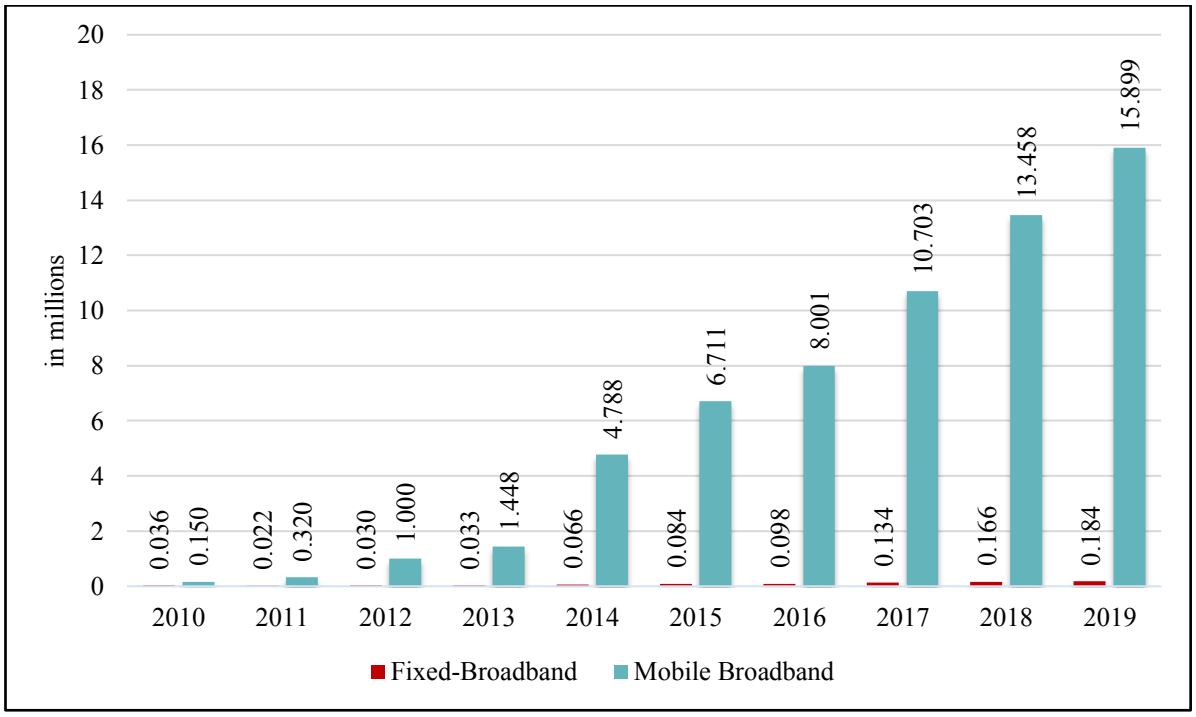
Figure 4: Mobile-cellular Subscriptions per 100 inhabitants 1993-2019



Source: ITU (2019)

Additionally, fixed and mobile broadband (internet subscriptions) in Cambodia have been substantially climbing and reached 184,379 and 15,899,000 respectively (ITU, 2019). As illustrated in **Figure 5**, mobile broadband subscriptions are disproportionately higher than fixed-broadband subscriptions, representing a major obstacle for the development of a digital economy that needs more reliable internet infrastructure. Speed also remains to be an issue. Cambodia ranked 9th among ASEAN countries in the average speed of mobile internet connection and 8th in the average speed of fixed-internet connection (DataReportal, 2019).

Figure 5: Broadband Subscriptions (Fixed and Mobile) 2010-2019 (in millions)



Source: ITU (2019)

According to the World Bank (2018) as illustrated in **Table 2**, Cambodia scored above average in mobile-cellular subscriptions and mobile-broadband prices, while scoring average in mobile broadband subscription, 3G coverage, and fixed broadband prices compared to regional and global averages. Yet, other enabling infrastructures for digital transformations remain limited, such as in the areas of fixed-broadband subscriptions, LTE/WiMAX coverage, mobile-cellular prices, households with computers, households with internet access, and international internet bandwidth per internet user.

Recognizing the importance of digital connectivity for Cambodia's readiness for the transformation, the government supported the development of backbone fiber optic cables that increased to 37,441 km in 2017 and two undersea optic cable networks as mentioned in the Rectangular Strategy Phase IV. In 2019, Huawei Technologies announced a plan for installing an undersea fiber optic cable that would connect Hong Kong and Sihanoukville although details regarding the project's timeline were not released (Khmer Times, 2019). More importantly, Cambodia stands to become one of the first ASEAN countries to launch the 5G network. The country became a battleground for the 5G race joined by Smart Axiata and Cellcard, the two largest telecommunication companies in Cambodia, backed by Chinese big tech companies, such as Huawei and ZTE (Turton & Onishi, 2019).

Table 2: Cambodia's Performances on Key Measures of Digital Development in 2017

Performance		KHR	Asia & Pacific	World
Above average	Mobile-cellular subscriptions (per 100 inhabitants)	124.9	98.9	101.5
	Mobile-broadband prices 500MB (% of GNI per capita)	1.1	2.7	3.7
	Mobile-broadband prices 1 GB (% of GNI per capita)	2.2	5.4	6.8
Average	Active mobile-broadband subscriptions (per 100 inhab.)	50.2	47.4	52.2
	3G coverage (% of population)	80.0	87.6	85.0
	Fixed broadband prices (% of GNI per capita)	13.5	14.5	13.9
Below average	Fixed-broadband subscriptions (per 100 inhab.)	0.6	11.3	12.4
	LTE/WiMAX coverage (% of population)	50.5	73.6	66.5
	Mobile-cellular prices (% of GNI per capita)	7.7	3.2	5.2
	Households with computer (%)	10.5	37.8	46.6
	Households with internet access (%)	26.0	45.5	51.5
	International internet bandwidth per internet user (kbit/s)	23.6	48.0	74.5

Source: Table taken from World Bank Group (2018) using the data from ITU - ICT Development Index (2017)

2.3.3. Digital Adoption

According to the Network Readiness Index 2019, Cambodia ranked 109th out of 121 countries participated in the study. The Network Readiness Index (NRI) framework scores and ranks countries based on "the factors, policies, and institutions that enable a country to fully leverage information and communication technologies (ICTs) for inclusive, sustainable growth, competitiveness, and well-being" (Portulans Institute, 2019). The framework uses the revised model of assessment over four main pillars, such as technology (access, content, and future technologies), people (individuals, businesses, and governments), governance (trust, regulation, and inclusion), and impact (economy, quality of life, and SDG contribution). The assessment of ICT adoption and usage for Cambodia in 2019 is presented in **Table 3**.

Table 3: Cambodia's Performances in the Network Readiness Index 2019

Network Readiness Index 2019 (Cambodia)	Rank (out of 121)	Score
Network Readiness Index	107	32.29
A. Technology pillar	82	36.24
1st sub-pillar: Access	75	58.00
2nd sub-pillar: Content	101	21.37
3rd sub-pillar: Future Technologies	67	29.33
B. People pillar	110	21.28
1st sub-pillar: Individuals	98	34.07
2nd sub-pillar: Businesses	118	9.70
3rd sub-pillar: Governments	113	20.06
C. Governance pillar	116	32.92
1st sub-pillar: Trust	119	20.23
2nd sub-pillar: Regulation	113	35.59
3rd sub-pillar: Inclusion	103	43.93
D. Impact pillar	96	38.71
1st sub-pillar: Economy	119	2.16
2nd sub-pillar: Quality of Life	60	62.03
3rd sub-pillar: SDG Contribution	99	51.95

Source: Portulans Institute (2019): Network Readiness Index 2019

Cambodia showed most promises in the technology pillar, scoring relatively high in the future technologies sub-pillar as the availability of latest technologies, company investment in emerging technology, government procurement of advanced technology products, and computer software spending was assessed to be all ranked below 100. The index also highlighted that access to technologies is encouraging due to the country's increasing rate of households with internet access, 4G mobile network coverage, fixed-broadband subscriptions, and international internet bandwidth. On the other hand, Cambodia performed relatively worse in the people and governance pillars. Some of the sub-pillars that need significant improvements include the qualifications of professionals, technicians, and associate professionals, e-participation, rule of law, e-commerce legislation, cybersecurity, and ease of doing business. However, it should be noted that the government of Cambodia has already passed the law on e-commerce in 2019.

As of 2019, there are an estimated over 300 tech startups that are active in Cambodia ranging from Fintech to E-commerce companies as illustrated in **Table 4** (Kem et al., 2018). Despite this, a larger number of tech startups are concentrated in consumer tech rather than advanced techs, such as machine-learning or big data. Additionally, Cambodia has also continuously seen the entrance of global and regional tech companies, such as Grab, Uber, Food Panda, and

AliPay as well. Opportunities presented by these entrants include improving the attractiveness of Cambodia as an investment destination, accelerating the adoption of technologies and the growth of the digital economy, and bringing opportunities for local startups to create new products and services using the existing platforms and technologies of global and regional tech companies (Kem et al., 2018). With a growing economy and increasing Foreign Direct Investment (FDI) inflows, Cambodia is also presented with opportunities to adapt and adopt digital technologies through FDI-led technology transfers and international cooperation (UNDP, 2020b).

Table 4: Examples of Tech Startups in Cambodia as of 2019

FinTech

Digital payments, SaaS for financial institutions, digital banking and access to finance.

Example: Morakot, Banhji, Pi Pay, Bong Luy, Smart Luy

Digital Media & Advertisement

Digital content delivery/streaming, advertising and gaming, news media.

Example: Direxplay, Khmerload, Sabay, Soyo

E-Commerce & Logistics

E-commerce, social selling, inventory management system and delivery services.

Example: Joonak, Nham24, LaRue, Little Fashion

Digital Marketplaces

Digital classifieds and booking platforms.

Example: BookMeBus, BongPheak, Khme24, Realestate.com.kh, Camboticket

Development Services

Web development and applications outsourcing for domestic and international clients.

Example: Joonak, Nham24, LaRue, Little Fashion

Other Disruptor Models

Transportation: Local taxi, tuk tuk applications operating before Grab/Uber.
Example: PassApp, WeGo

IoT & hardware: Hardware manufacturing, IoT solutions, smart device software.
Example: Koompi, Demine Robotics, ArrowDot, Angkot E&C

EdTech: E-learning, university management systems, student information services
Example: Sala Enrollment

HealthTech: Healthcare information, management systems and services
Example: Healthlogo, Sokhakrom

AgriTech: Platforms for agricultural information and innovative farming practices.
Example: Agribuddy

Source: Table adapted from Kem et al. (2018)

Nevertheless, the overall digital adoption among established firms in Cambodia is still limited. According to the World Bank (2018), less than a quarter of businesses in Cambodia had a web presence in 2017, which can partly be explained by the lack of a workforce with sufficient IT skills and a supportive legal framework for data protection and privacy, and cybercrime prevention. Other barriers to firms' digital adoption include the lack of digital awareness and their benefits, the perception of the high costs of digital adoption, the lack of interest in using new technologies, and the difficulties in getting access to finance (UNDP, 2020b). Digital adoption at the business level is further explained in **Box 2**.

Box 2: Employer Survey on Digital Adoption and Preparation

A survey conducted by Heng (2018) found that 54% of 61 firms participated in the survey rated their digital infrastructure as good and 30% rated as basic. It should be noted that digital infrastructure in the aforementioned survey was referred to "the quality of internet, computer network, security system, data center, website, software, mobile and web applications, etc.". Social media, website, and Point of Sale (POS) systems are mentioned to be the top 3 most used digital technologies among the surveyed firms in which more than 95% of firms indicated that they are using such technologies in their operations. Although 83% of firms foresaw the role of digital technologies in transforming their respective industry in the next 10 years, only 42% saw the benefits that their company can gain from the transformation, while 44% were still unsure. The findings also indicated that preparing for the digital transformation may not be one of the firms' priorities, while only 17% indicated that they have a clear plan in preparing for the transformation.

Source: Heng (2018)

Digital adoption is also evident at the government level through the launching of e-government services, such as the Certificate of Origin, Company Registration, and Trade Mark Registration. According to the United Nations E-Government Knowledgebase for 2020, Cambodia has made progress in both e-government development and e-participation. Nonetheless, although the country graduated from the middle E-Government Development Index (EGDI) group to the high EGDI group in 2020 and moved up 42 positions in the E-Participation Index (EPI), both indexes are still below global and regional averages (United Nations, 2020). The Network Readiness Index 2019 also suggested that e-government services are still lackluster as the country ranked 116th out of 121 countries in the study (Portulans Institute, 2019).

2.3.4. ICT Skills Training and Education

Initially defined as encompassing "computer technology, computer networks, email and internet and also radio and television" in Policy and Strategies on Information and Communication Technology in Education in Cambodia, ICT skills were mentioned to be needed for employment in a knowledge-based society, and for Cambodia to compete and cooperate as the world is increasingly more interconnected (MoEYS, 2004).

The Ministry of Education, Youth and Sport (MoEYS) adopted the Master Plan for ICT in Education 2009-2013 with the aim to:

1. increase access to basic education, tertiary education, and life-long learning, both formal and non-formal, by using ICT as alternative education delivery media;
2. improve the relevance and effectiveness of basic education by harnessing the potential of ICT as a major tool to enhance the quality of teaching and learning;
3. develop the ICT-based professional skills needed by graduates for employment in a knowledge-based society and;

4. increase the effectiveness and efficiency of the Ministry and school management. (MoEYS, 2009)

According to the Education Strategic Plan 2019-2023, MoEYS had set a target of 8,220 youths receiving short-term vocational, digital, and technical skills training from the baseline of 1,644 in 2018 (MoEYS, 2019). Moreover, in preparation for 21st-century employment, the strategic plan aims to equip students with knowledge and skills on ICT as well. There are also initiatives to develop guidelines on teacher usage, ICT, and language subjects for grade 4 and 6 by 2020, and develop guidelines on improving teaching and learning ICT in 2021. As part of the 15 initiatives under the Cambodian National Education Strategic Plan (2014-2018), the New Generation Schools Reform (NGR) was initiated before receiving praises from both local and international observers. One of the goals of NGR is promoting ICT literacy for both students and teachers, and even provides two hours per week of coding class to students (Donaher & Wu, 2020).

In 2015, MoEYS started to integrate new ICT-related subjects in the curriculum from grade 4 to grade 12 to further enhance the efforts (Heng, 2018). However, it was assessed that the "Information and Communication Technology for Grade 11" or "Grade 12" textbooks were based on free and open-source software programs, such as Ubuntu Linux operating system and the OpenOffice applications, which are problematic in a market dominated by the Microsoft systems and programs (UNDP, 2020c). ICT curriculum at the university level is not standardized, leaving each university the freedom to develop their version and standard. Although English-based learning materials for ICT learning are abundantly available, Cambodian youths are still met with challenges due to their low level of English proficiency (UNDP, 2020c). The government has also introduced basic ICT skills in teacher training; however, teachers' digital literacy is mostly at the beginners' level as they do not have many opportunities to practice considering the limited infrastructure and equipment (Dionys, 2012).

Other training or capacity building initiatives are provided through Technical and Vocational Education and Training (TVET). According to TVETMIS, there are a total of 38 public, 44 private, and 21 NGO-operated TVET institutions (Ministry of Labour and Vocational Training, 2018). However, it was noted that the TVET system is still lacking due to challenges, such as outdated training methods and equipment, the lack of qualified trainers with direct industry experience, the lack of value attribute to TVET, the limited acceptance of TVET qualifications, and the lack of soft skills among TVET's graduates (ADB, 2018).

2.4. A Review of Status of the Demand Side of Digital Economy

2.4.1. ICT Usage

It is also important to note that even though mobile subscriptions and internet penetration is improving, it does not necessarily translate to the ability to take advantage of the Internet and digitalization as many users were reported to have used the Internet for Facebook (World Bank, 2018). A study conducted by UNDP (2020c) confirmed this assessment and found that the two main purposes of using smartphones among high school students, university students, and employed youths in a survey are social media and entertainment.

E-Commerce in Cambodia is also at its infant stage with only 5.7 percent reported to have a mobile money account and 3.8 percent reported to have made online purchases and/or pay bills online. One of the constraints is the weakness of logistics and trade facilitation measures. Despite being a member of the Universal Postal Union, Cambodia's postal service is underdeveloped and much dependent on last-mile delivery as the services are deemed inefficient and slow under the Cambodia Post's monopoly (UNCTAD, 2017b). In addition to this, an assessment from UNIDO & SASS (2018) also pointed to the issue of inefficient refund and return processes, English language barrier and ICT illiteracy, and the limited number of people having a bank account to engage in digital payments.

Table 5: % of Population (15+) Owning or Using Financial Products or Services in 2019

Financial Inclusion Factors	% of the population
Has an account with a financial institution	22%
Has a credit card	0.6%
Has a mobile money account	5.7%
Makes online purchases and/or pay bills online	3.8%

Source: DataReportal (2019)

2.4.2. Digital Literacy

According to the National Employment Agency's Employer Survey in 2017, 19.7 percent and 19.0 percent of employers stated that there are skill gaps in basic computer literacy (using IT) and advanced IT or software respectively (National Employment Agency, 2018). Moreover, at least one of the two mentioned skills are mentioned in the top five skill shortages of 6 out of 10 industries. The six industries facing difficulties due to the skill gap include education, finance and insurance, garment, footwear and apparel, ICT, logistics, warehousing and transportation, and rubber and plastics. 33.7 percent of employers in the ICT sector also indicated that they had faced skill shortages.

The issue can also be worsened by the lack of training programs and capacity building initiatives offered to employees by firms. According to the aforementioned survey, the reasons for the difficulties in organizing a training program for employees are the lack of courses or trainers available (35.6 percent), low quality of course offer (27.4 percent), no or poor information on the course trainer (20.4 percent), and the unwillingness of the participants to participate (19.5 percent) among others (National Employment Agency, 2018). Another study has found out that one of the main factors hindering effective and comprehensive capacity building programs within companies is the concern that staff will leave after receiving the training (Heng, 2019).

A recent assessment of youths' digital literacy for employment and entrepreneurship by UNDP (2020c) also provided invaluable insights using UNESCO-proposed digital literacy definition as provided in **Table 6**. The findings suggested promising prospects in youths' competency in fundamentals of hardware and software and content creation, but other competence areas are

more discouraging, especially in the ability to filter and evaluate information, and their low level of safety literacy (UNDP, 2020c). The findings are summarized in **Table 7**.

Table 6: Competency Areas Defined by UNESCO-Proposed Digital Literacy Definition

Competence Area	Competence description
1. Fundamentals of hardware and software	Basic knowledge of hardware and software operations such as turning on/off and charging, locking devices and doing privacy settings, etc.
2. Information and data literacy	Ability to browse, search, filter, and evaluate digital content
3. Communication and collaboration	Ability to interact, share, engage in citizenship, and collaborating through digital technologies and managing one's digital identity with sufficient netiquette
4. Digital content creation	Ability to develop, integrate and re-elaborate digital content with an understanding of copyright and licenses
5. Safety	Ability to protect devices, personal data, privacy, health, environment and well-being
6. Problem-solving	Ability to solve technical problem, identify needs and technological responses through the creative use of digital technologies and computational thinking
7. Career-related competences	Ability to operate specialized hardware/software for a particular field.

Source: UNESCO (2018)

Table 7: Summary Statistics of ICT Scores for Different Competence Areas

Competence areas	Mean		
	High School	University	Employed
Hardware/Software	52.3	49.9	45.4
Information literacy	45.3	52.9	53.1
Content creation	50.0	48.0	62.8
Safety	36.8	38.1	43.2
Overall	47.3	17.9	50.6

Source: UNDP (2020c)

3. Research Methodology

3.1. Research Design

To assess the landscape of digital adoption, understand the challenges and concerns, as well as understand perspectives on the digital economy among the youth population in Cambodia, the study follows a mixed-method approach that includes an online questionnaire, online focus group discussion, and case study. The online questionnaire comes in a form of an online perspective survey and is the main tool to collect both quantitative and qualitative data in answering the mentioned research questions. Moreover, in order to dig deeper into understanding perspectives, online focus group discussion is conducted to gather complementary insights and, potentially, anecdotal evidence to support the findings. Lastly, a case study is used as a frame to scope the study. This will help in sample selection and provide more focused findings for policy discussion.

3.2. Data Collection

The paper relies on both primary and secondary data. The primary data was collected through the online perspective survey, which was made available both in English and Khmer. The target audience for the survey were youths from the age of 15-35 years old who have been living in Phnom Penh for at least two years and, potentially, have used digital platforms, goods and services before. The survey was rolled out for one month through different social media platforms, mainly Facebook. The survey was also emailed to several organizations to share among their members and networks. Moreover, the survey was rolled out through a snowball sampling method.

To aid our understanding and interpretation of the data collected through the survey, two online focus group discussions were conducted to collect additional insights. Participants of the focus group discussion were those who had completed the survey and were interested to discuss the topic further.

Lastly, to aid our analysis and policy recommendations, this paper also relied on secondary data retrieved from desk reviews of books, online articles, newspapers, academic journals, publications, etc.

3.3. Scope and Limitation

More importantly, the study needs a definition of the digital economy to aid the survey design. As mentioned in the literature review, this study shall be carried out using mainly the definition provided by a World Bank's report, which defines a digital economy as the use of digital technologies by the private sector to drive economic growth, innovation, and the economy as a whole. Taking into consideration the broad scope of the digital economy and the limitation of high-tech industries in Cambodia, this study will narrow down the focus by limiting our area of study to consumer digital platforms, goods and services available in Cambodia, such as digital payment/money transferring services, food delivery services, ride-sharing services, retails platforms, buying goods on social media, e-learning, online booking services, using

entertainment services, buying digital goods, using digital services, and online gig work or freelance jobs.

At the same time, the rationale behind targeting youths from the age of 15-35 years old who live in Phnom Penh include, firstly, Phnom Penh is seeing the highest level of digital adoption and transformation compared to other provinces, showing the most potential for developing digital economy. Secondly, youths in this age group make up a large consumer segment for digital platforms, goods and services in Cambodia, especially in Phnom Penh. Moreover, they tend to be the early adopters or the early majority who will accept innovations. Youths in Phnom Penh have been seen to integrate their lifestyle with digital transformation faster compared to other provinces as well.

Furthermore, these rationales were built based on several assumptions that the paper has. Based on literature review, observation, and anecdotal evidence, the paper assumes that Phnom Penh will be the first city/capital in Cambodia to see digital economy development; and from that, the selected youths' group is the best starting point for collecting insights on motivating factors and pain points for this digital transformation up until now. Therefore, their perspectives are the needed insights for developing the digital economy in Phnom Penh further. At the same time, the paper assumes the digital characteristics – including the use of technology and digital literacy - of youths in Phnom Penh as the consumer persona in which youths in other provinces will also have in the future. These similar characteristics will come as the provincial economy progresses and digital transformation starts to take place in the provinces respectively. Therefore, the collected perspectives from our selected youths' group will also be the needed insights for scaling the digital economy across Cambodia.

4. Sample Characteristics

The analysis is based on 378 responses. In total, 435 responses were collected in a period of one month through the online survey. Nonetheless, after adjusting for the target group and eliminating respondents who made mistakes, the sample population for this study comes down to 378 responses.

The sample has a slightly higher representation of female and younger youths. Female accounts for 61.6 percent of our sample. Moreover, 55.8 percent of the sample are from an age group of 18-22 years old. Nonetheless, 38.9 percent of the sample also come from the age group between 23-29 years old. Therefore, for this report, "youths" or "young people" will mainly refer to the age group between 18-29 years old.

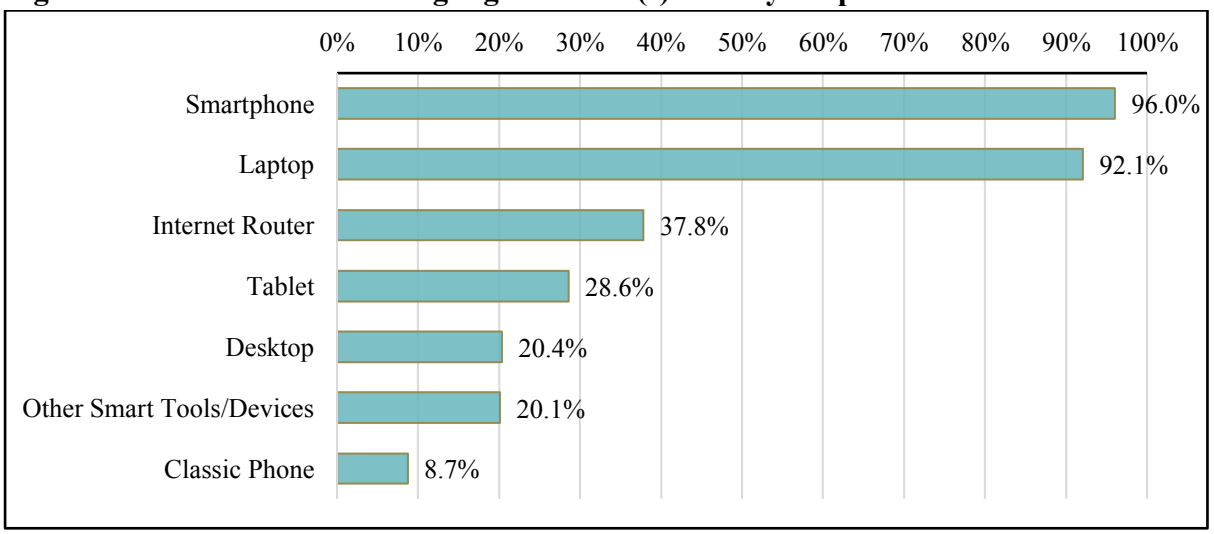
The sample also represents educated youths. Fairly, the sample consists of both working youths and students. 56.1 percent of the sample are working in the public sector, private sector, or civil society, while 43.9 percent of the sample are still studying and/or not employed at the moment. 84.4 percent of our sample are either pursuing a bachelor's degree or hold a bachelor's degree. Moreover, 57.9 percent claim to have an upper-intermediate level of English proficiency.

Table 8: Sample Characteristics

Category		No.	%
Gender	Female	233	61.6
	Male	145	38.4
Age Group	15-17	16	4.2
	18-22	211	55.8
	23-29	147	38.9
	30-35	4	1.1
Level of Education	High School	21	5.6
	Bachelor's Degree	319	84.4
	Master's Degree	34	9.0
	Doctoral Degree	3	0.8
	Vocational Training	1	0.3
Sector of Employment	Public Sector	60	15.9
	Private Sector	129	34.1
	Civil Society	23	6.1
	Still Studying and/or not Employed at the Moment	166	43.9
Income Range (or Allowance)	Below 400$ Per Month	231	61.1
	400$ - 799$ Per Month	100	26.5
	800$ - 1199$ Per Month	37	9.8
	1200$ or More Per Month	10	2.6
English Proficiency	Elementary Level	7	1.9
	Lower Intermediate Level	50	13.2
	Upper Intermediate Level	219	57.9
	Proficient in English	102	27.0
	Total	378	100.0

To some extent, the survey sample also represents youths from middle-income families. Relevant to the younger sample population, 61.1 percent claim to receive income or allowance below 400 USD per month. Nonetheless, majority of our sample own at least a smartphone (96.0 percent) and a laptop (92.1 percent). This finding is not surprising considering the target group for the study is in Phnom Penh.

Figure 6: Which of the following digital device(s) are in your possession?



At the same time, the sample represents a strong connection to the Internet. Majority of our sample (98.7 percent) can access the Internet daily. The main source of the Internet connection comes from either wireless network at home (48.9 percent) or Cellular Data (37.8 percent). Fairly, our sample spends between 5$ to 20$ per month on the Internet. 32.3 percent spend between 5$ to 10$ and 37.3 percent spend between 10$ to 20$ per month.

Table 9: Sample Access to the Internet

Category		No.	%
Access to the Internet on a Daily Basis	Yes.	366	96.8
	Yes, but I do not use the internet daily.	7	1.9
	No.	0	0.0
	No, but I can access the internet when I need to.	5	1.3
Main Source for the Internet Connection	Cellular Data	143	37.8
	Wireless Network at Home	185	48.9
	Private Wireless Network	50	13.2
	Public Wireless Network	0	0.0
Spending Per Month on the Internet	Less than 5$ per Month	62	16.4
	Between 5$ to 10$ per Month	122	32.3
	Between 10$ to 20$ per Month	141	37.3
	More than 20$ per Month	53	14.0
	Total	378	100.0

The sample also has a good basic digital literacy with more than 90 percent claiming to know how to use a search engine, send a message, buy and install applications, and search for help online. Moreover, 77.2 percent claim to know how to create something new from existing online images, music, or video. Although these findings are self-proclaimed, this level of digital literacy is convincing, considering the socio-economic characteristics of our sample from the above mentions. Furthermore, a report by UNDP (2020c) illustrated that youths who own both smartphone and PC perform better in ICT tests.

However, this is not to say that Cambodian youths are digitally literate. This study conducts a quick assessment of the sample's basic digital literacy only for the purpose of understanding the digital characteristics of youths who would potentially drive the development of the digital economy in the future better. After a comprehensive assessment, a report by UNDP (2020c) illustrated that Cambodian youth only has a low to below-average digital literacy level with an average between 47 to 51 percentage points.

Table 10: Sample Basic Digital Literacy Characteristics

Questions		No.	%
Do you know how to use search engines to look for information online?	Yes	374	98.9
	No	4	1.1
Do you know how to send a message to someone using email and/or online messaging service?	Yes	375	99.2
	No	3	0.8
Do you know how to buy and install apps on a device such as a phone, laptop, or tablet?	Yes	372	98.4
	No	6	1.6
If you were experiencing problems with a device or an online service, do you know how to search for help online?	Yes	349	92.3
	No	29	7.7
Do you know how to create something new from existing online images, music, or video?	Yes	292	77.2
	No	86	22.8
	Total	378	100.0

5. Findings and Discussions

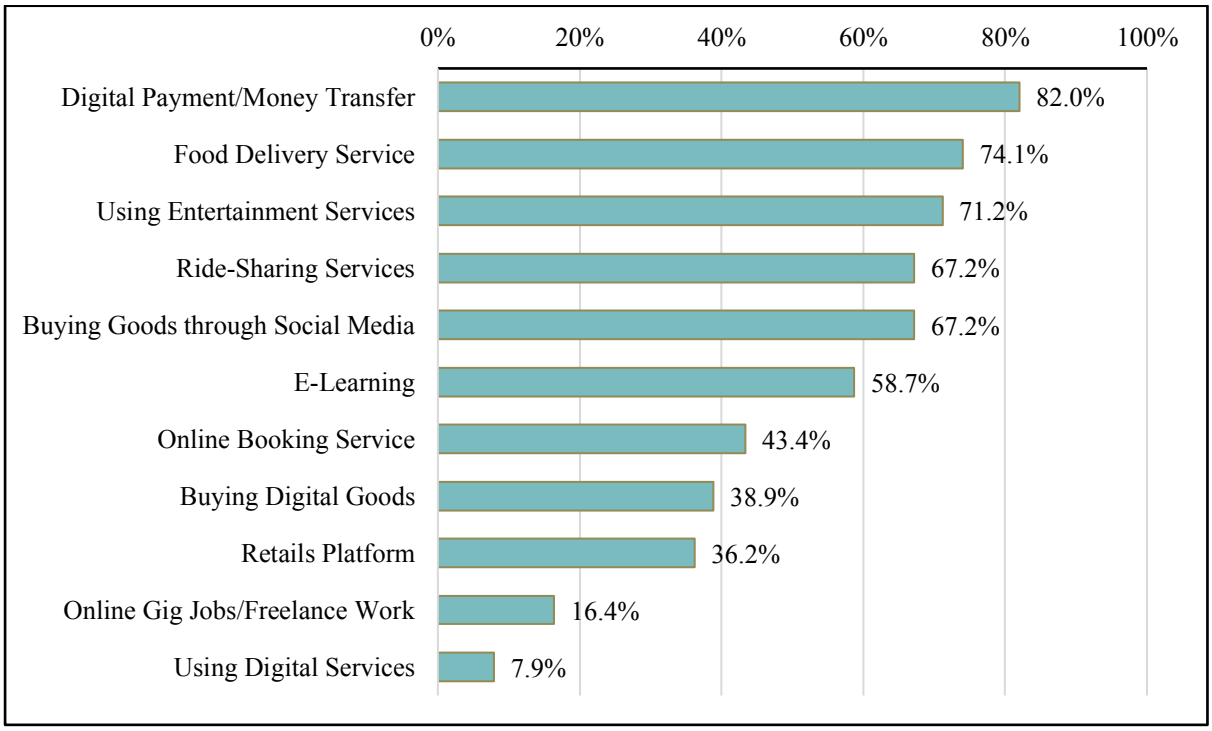
5.1. Digital Economy Adoption Among Youths

To various degrees, our young people have used different digital platforms, goods and services before. Digital payment/money transfer takes the lead at 82.0 percent, followed by food delivery service and entertainment services at 74.1 percent and 71.2 percent respectively. Digital adaptation and/or forced digital adoption during the pandemic may facilitate these findings. Moreover, confirming our observation, more young people buy their goods through social media than through online retails platforms.

Surprisingly, 58.7 percent of young people have used E-learning before. As COVID-19 has pushed young people, especially students, to adapt to distance learning, our sample might take up more E-learning courses. Similarly, youths who are already working may also take E-learning courses for professional development as multiple reputable institutions had started to offer their courses for free. The online survey provided examples of E-learning for respondents to differentiate E-learning from distance learning.

Online gig job/freelance work is less popular compared to other digital platforms, goods and services, but see the potential for growth. 16.4 percent mention having done online gig job/freelance work before. Despite a small start, COVID-19 may ignite interests among youths to try online gig job/freelance work in the future. Similar to E-learning, this can be facilitated by the new normal of working from home. Moreover, the increasing number of digital platforms and services such as food delivery, ride-sharing, and e-commerce will translate into an increasing number of available online gig job/freelance work.

Figure 7: Of the following digital platforms, goods, and services, please select the one(s) that you have used before.



Similar to the various degrees of exposure, the frequency of usage of these different digital platforms, goods and services varies from one another greatly. Starting with the most popular one, 65.3 percent of young people would use digital payment/money transfer at least once per week. From that, 15.3 percent would use digital payment/money transfer at least once per day, and 32.0 percent would use digital payment/money transfer at least 2-3 times per week.

Unsurprisingly, entertainment services see a high frequency of usage. Entertainment is a big part of youths' activity, and finding entertainment online may become even more frequent during the staying home period. 34.1 percent mention using entertainment services at least once per day. Moreover, 12.4 percent claim to have used the service 2-3 times per week, and 9.5 percent claim to have used the service at least once per week. Our focus group discussions illustrated music streaming and video streaming as the two most used entertainment services.

Despite the majority having used food delivery service and ride-sharing service before, our data tells us that it would not be very frequent. 41.8 percent mention that they have used the food delivery service at least once per week; however, 28.8 percent state that they have rarely used the food delivery service. Similarly, 40.5 percent mention that they have used ride-sharing delivery service at least once per week; however, 38.4 percent state that they have rarely used ride-sharing service. Unlike digital payment and online entertainment, youths may own their mode of transportation.

Furthermore, despite the majority having used social media to buy goods before, our data tells us that young people rarely buy goods through social media (40.2 percent). This finding may reflect our sample characteristics who earn income or allowance below 400 USD per month. 23.0 percent would buy goods through social media at least once per week, and

23.3 percent would buy goods through social media at least once per month. Moreover, online retails platform is not popular among youths with 30.2 percent claiming to rarely use the platform and 44.4 percent claiming to never use the platform.

It is advised that the interpretation of the data should be done with the potential impact of COVID-19 on digital adoption in mind; and to aid this process, the study utilizes insights from our two focus group discussions. To begin, E-learning would be the first target for further scrutiny. 41.3 percent claim to have use E-learning at least once per week. Considering the increasing number of free online courses as well as increasing interests among young professionals and students as mentioned earlier, our focus group discussions confirmed that youths have been indeed looking into E-learning. Nonetheless, completing E-learning courses still prove to be a challenge due to personal commitments and learning habits.

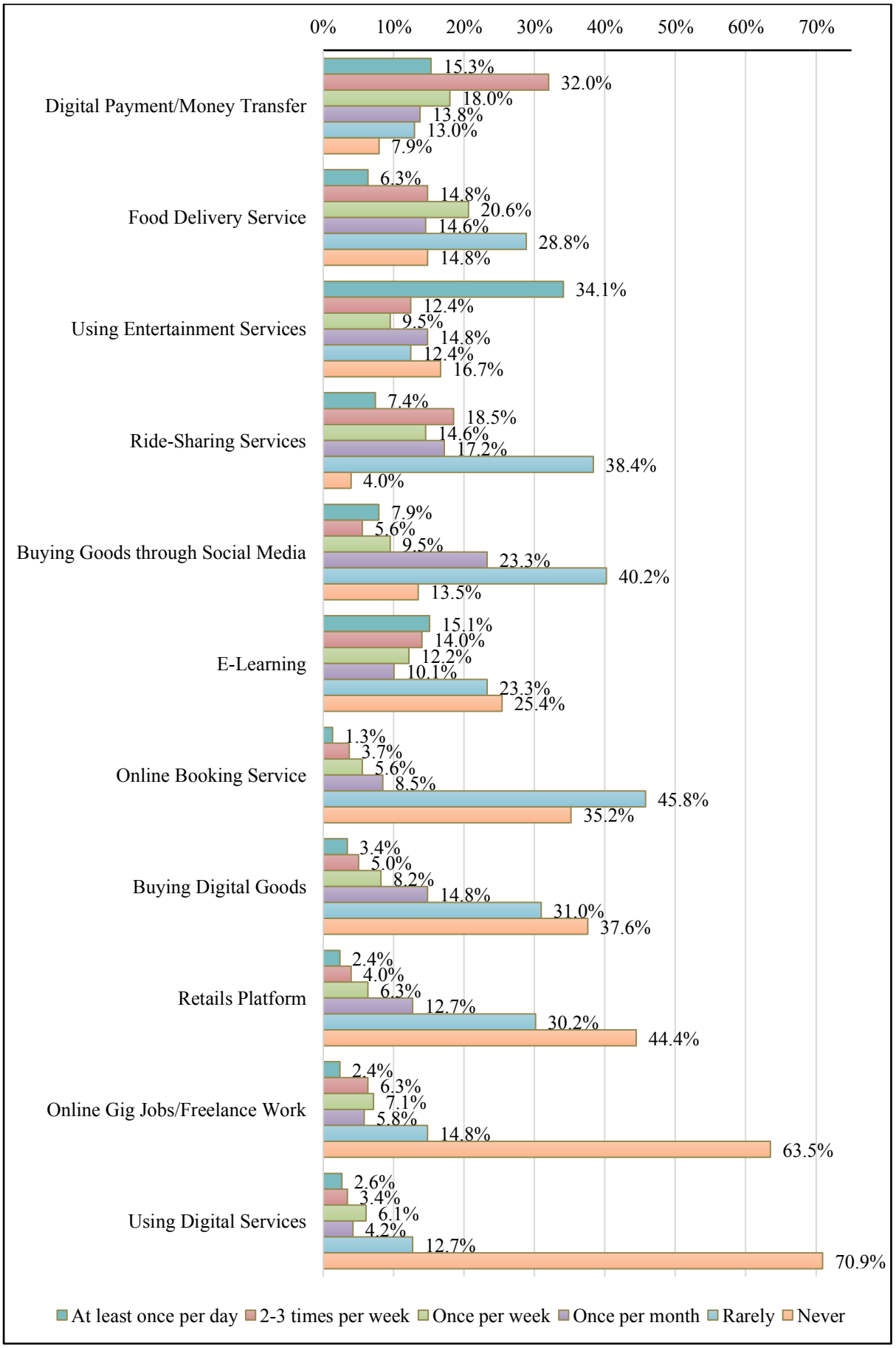
Our focus group discussions confirmed that youths have been using more digital payment/money transfer to minimize the need to hold cash during the pandemic. Similarly, youths have used more entertainment services during this pandemic as they spend more time at home or indoor. Moreover, youths have begun to use more food delivery service and have used less ride-sharing service during this pandemic.

On the other hand, the study finds that most of the digital platforms, goods services are either rarely used or have never been used before. These mainly include online booking services, buying digital goods, retails platforms, online gig jobs/freelance work, and using digital services. 70.9 percent claim to have never used digital services before, and 63.5 percent claim to have never done online gig jobs/freelance work before. Nonetheless, the fact that there is a small portion of youths who have already started using these platforms and services allows the private sector to look further into this market in the future, especially after more Cambodian youths have experienced the new normal of working and studying from home.

The study also tries to look at the differences in usage based on gender and income/allowance range. No significant differences were found when comparing the usage based on gender. Nonetheless, it was noticed that young female consumers tend to use ride-sharing service and buy goods through social media a little more often compared to the male counterpart. In contrast, young male consumers were seen buying digital goods a little more frequently compared to young female consumers.

More significant differences were found when comparing the usage based on income/allowance range. Unsurprisingly, youths who receive income or allowance of more than 400 USD per month were seen to have used most of the digital platforms, goods and services more frequently than youths who receive income or allowance less than 400 USD per month. More surprising was the finding that youths who receive income or allowance of more than 400 USD per month claim to be using retails platforms much more frequently.

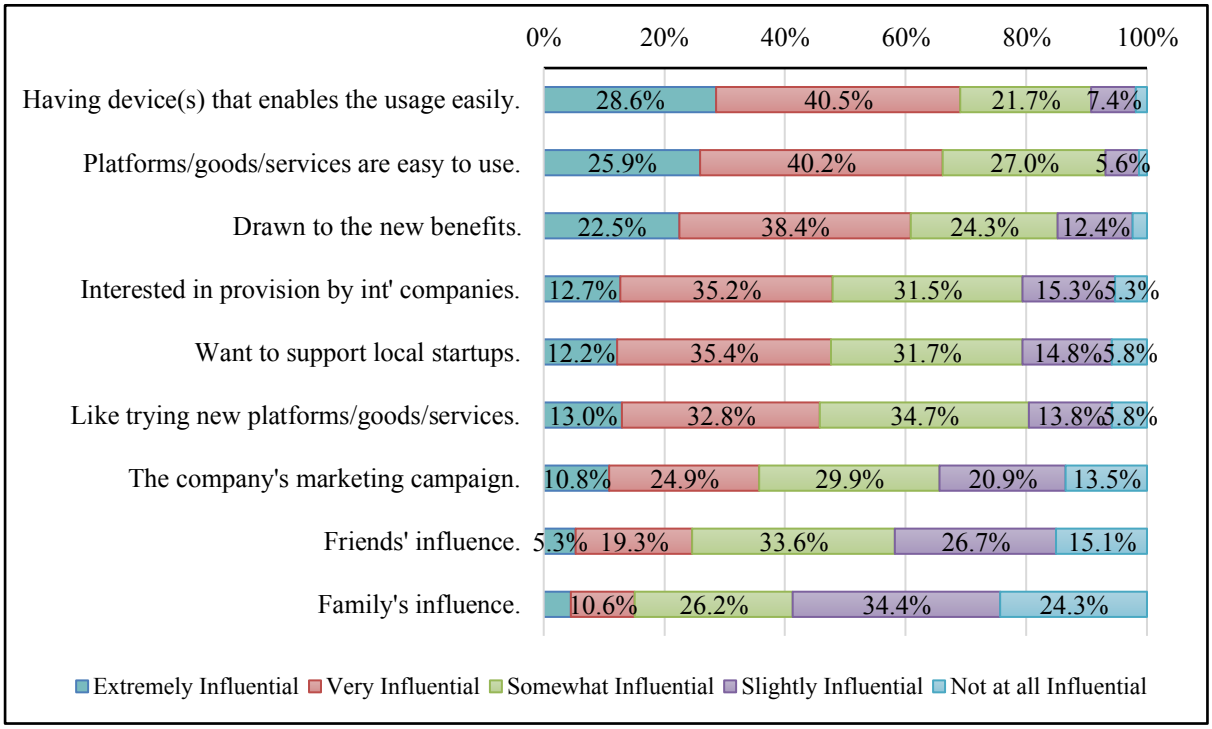
Figure 8: How often do you use the following digital platforms, goods, and services?



From the perspective survey, some of the most influential factors that motivate young people to use digital platforms, goods and services are factors derived from individual and the product rather than from the firm or friends and family. First and foremost, having the ICT device(s) is a very important factor that influences young people to use digital platforms, goods and services. 28.6 percent find having the device(s) that enable usage to be extremely influential, and 40.5 percent find this factor very influential in motivating them to use digital platforms, goods and services. Perhaps, this is not a very surprising finding. Nonetheless, it shall serve as a reminder that for the digital economy to thrive, addressing the digital divide should take priority in Cambodia.

Complementary to having the ICT device(s), youths would use the digital platform, goods and services that are easy to use and are bringing new benefits to them. 25.9 percent find the ease of usage is an extremely influential motivating factor, and 40.2 percent find this factor a very influential motivating factor in motivating them to use digital platforms, goods and services. Similarly, 22.5 percent find the new benefits obtained from digital platforms, goods and services an extremely influential motivating factor, and 38.4 percent find the new benefits obtained from digital platforms, goods and services a very influential motivating factor in motivating them to use digital platforms, goods and services.

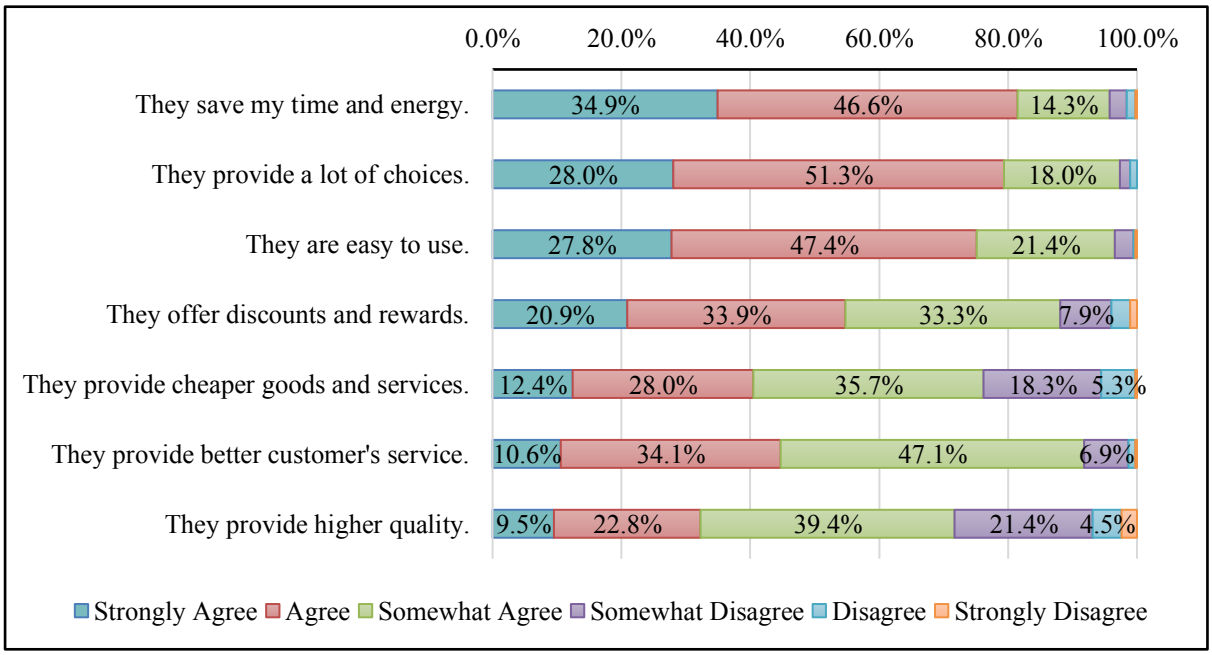
Figure 9: To what extent do the following motivating factors influence you to use digital platforms, goods, and services?



Digging a little deeper regarding the new benefits obtained from using digital platforms, goods and services, the study finds saving time and energy as well as providing a lot of choices are the two main benefits that attract youths. 34.9 percent strongly agree that they can save time and energy from using digital platforms, goods and services. This is followed by 46.6 percent who agree on the same benefits obtained. Almost similar, 28.0 percent strongly

agree, and 51.3 percent agree that digital platforms, goods and services provide them with the benefits of having choices.

Figure 10: To what extent do you agree with the following benefits that you can obtain from using digital platforms, goods, and services?

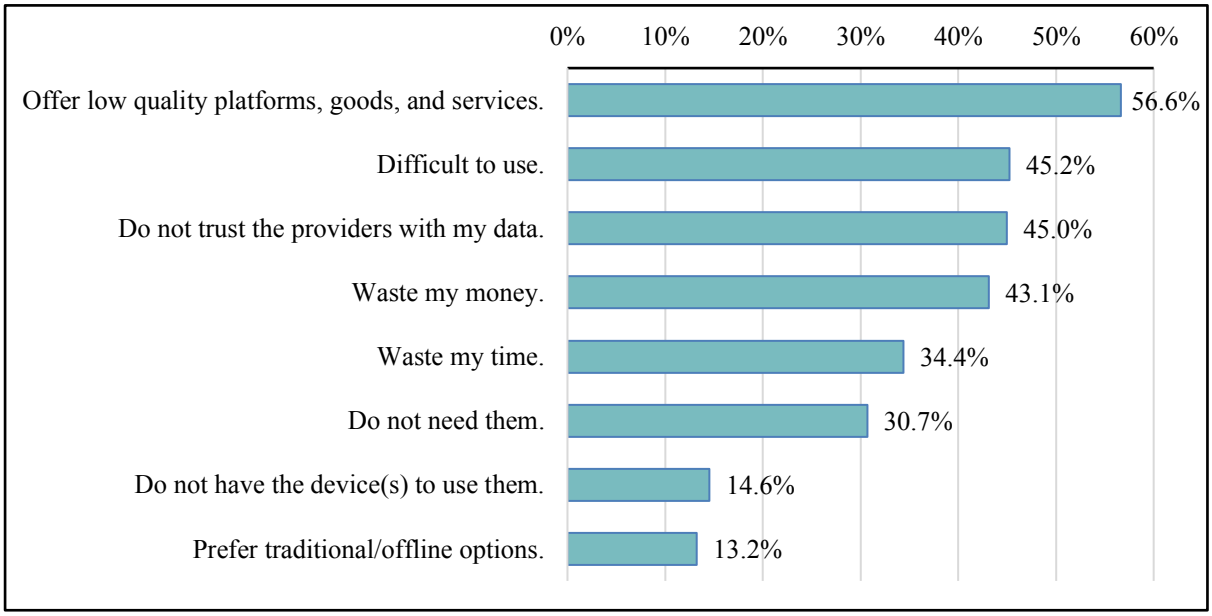


On the contrary, youths who participated in the survey identified the issue of quality, complexity, and lack of trust over how their data is being managed and protected as the top three factors that influence them not to use a particular digital platform, goods and services. From our survey, 56.6 percent find low quality as the key factor that turns them away from using digital platforms, goods and services. Following that, 45.2 percent would not be motivated to use certain digital platforms, goods or services if they are difficult to use, and 45.0 percent would not be motivated to use certain digital platforms, goods and services if they do not trust the providers with their data.

On a more promising note, young people are considerably open to using available digital options. Only 13.2 percent of youths raise that they prefer traditional/offline alternatives. Moreover, from our focus group discussions, even conservative users are open to using digital alternatives when certain goods or services that they need cannot be found offline. This represents a huge opportunity for efforts to promote digital adoption, especially among the youth population.

Fairly, digital platforms, goods and services provided by local startups can be as influential as those provided by international companies. Nonetheless, if we take into consideration factors such as easy to use, quality of the digital platforms, goods and services, and data protection, international companies might be having the advantage due to their pool of expertise and capital to invest and innovate their platforms, goods and services.

Figure 11: Which of the following factors influenced you NOT to use certain digital platforms, goods, and services?



With these different influencing factors mentioned, our youth population sees their lifestyles integrating further with different digital platforms, goods and services in the future. 85.4 percent mention that they see themselves using more digital platforms, goods and services in the future. Moreover, 13.8 percent may be using more digital platforms, goods and services in the future. From our focus group discussions, youths see digital transformation as a global trend that cannot be avoided. Therefore, they hope their challenges and concerns, which are discussed next, will be addressed in the future.

Table 11: Do you see yourself using more digital platforms, goods, and services in the future?

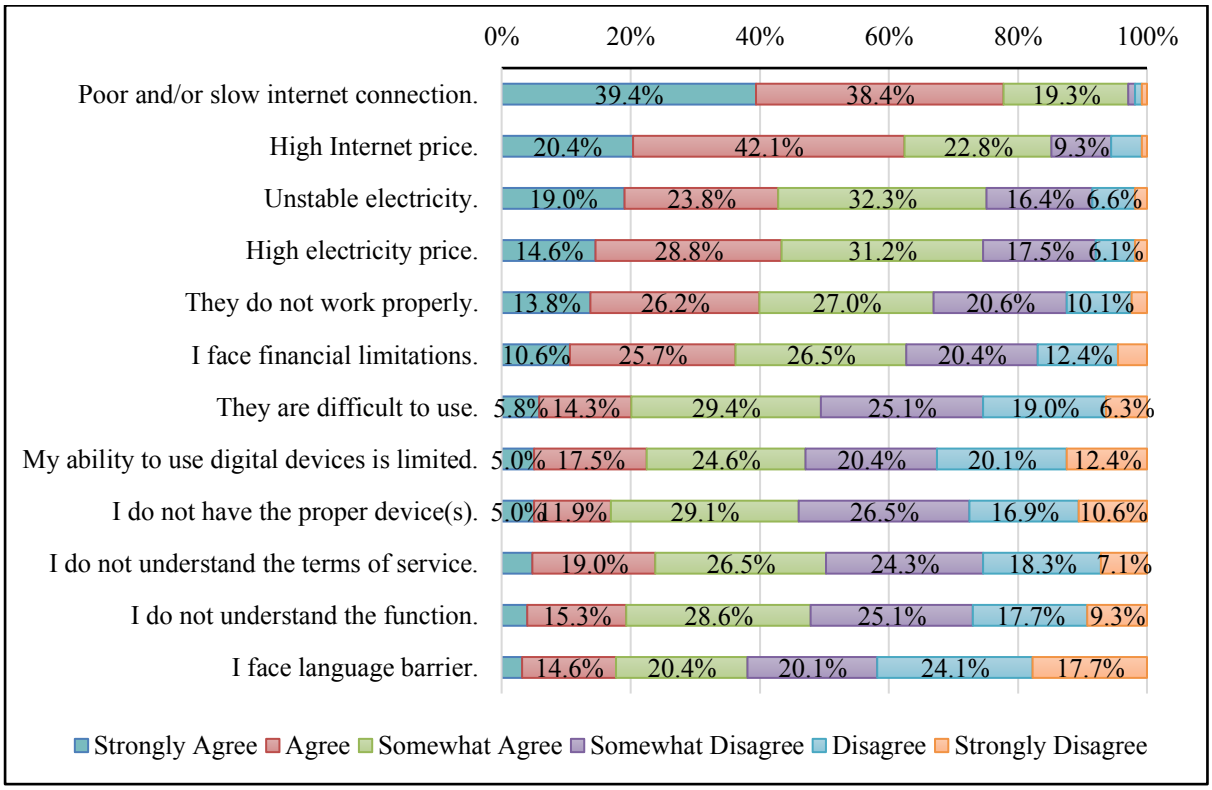
	No.	%
Yes	323	85.4
No	3	0.8
Maybe	52	13.8
Total	378	100.0

5.2. Challenges and Concerns among Youths

After knowing the motivating factors, the study turns to challenges and concerns that young people have when using digital platforms, goods and services. The study finds that the majority of our young people agree that poor and/or slow internet connection is a key challenge that they have faced. 39.4 percent strongly agree, 38.4 percent agree, and 19.3 percent somewhat agree that poor and/or slow internet connection is a challenge they face when using digital platforms, goods and services. The perceived challenge coincides with the assessment from DataReportal (2019), which ranked Cambodia's fixed and mobile internet speed as one of the slowest in Southeast Asia. This main challenge is followed by the perceived challenge of high internet prices as well as the unstable electricity supply in Cambodia.

Unsurprisingly, understanding the function of digital platforms, goods and services as well as the language barrier are not the main challenges for our young people. This finding can complement other studies that mention having at least a basic level of ICT literacy and/or having reached a certain level of English proficiency would facilitate the usage of digital platforms, goods and services; in turn, this would facilitate the development of the digital economy.

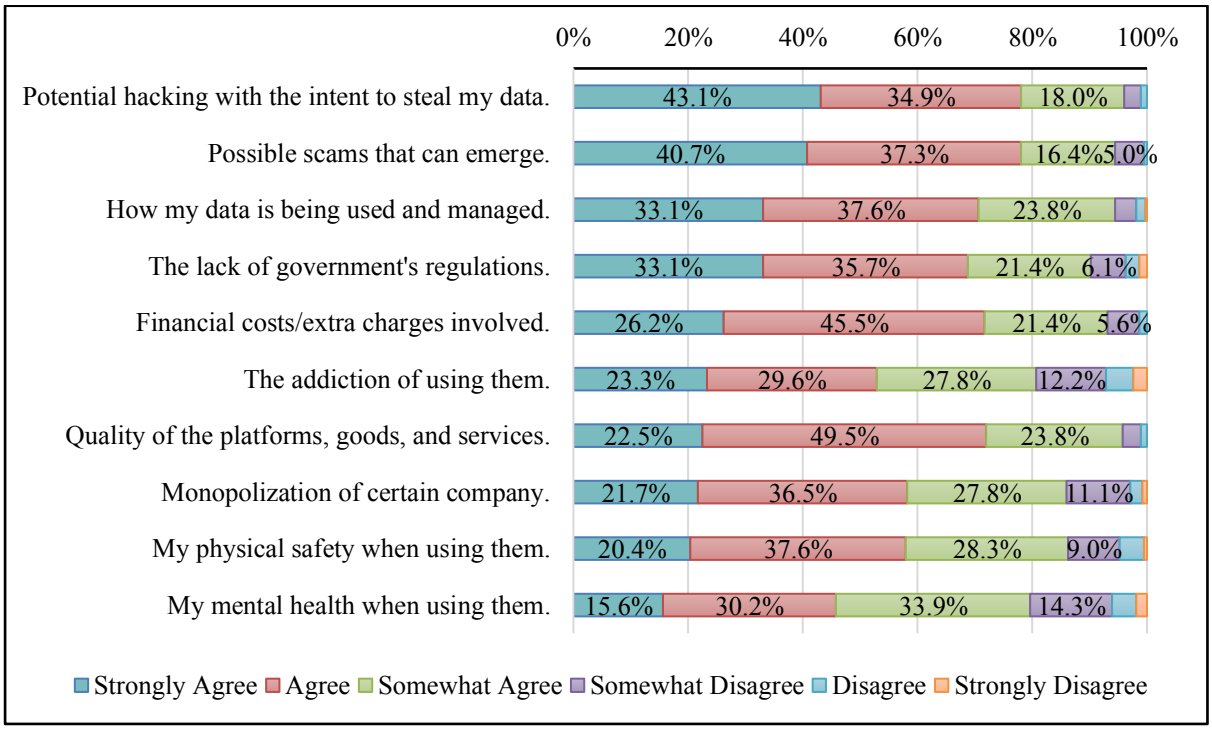
Figure 12: To what extent do you agree with the following challenges that you face when using digital platforms, goods, and services?



The cyberspace in Cambodia is not very safe based on the perspectives of our young people. 43.1 percent strongly agree, 34.9 percent agree, and 18.0 percent somewhat agree to have a concern regarding potential hacking with the intent to steal personal data while using digital platforms, goods and services. Similarly, 40.7 percent strongly agree, 37.3 agree, and 16.4 percent somewhat agree to have a concern regarding possible scams that can emerge from using digital platforms, goods and services. Furthermore, concerns over cybersecurity and data privacy were also raised during the focus group discussions, indicating that more investments must be done to improve consumers' confidence in using digital platforms, goods and services.

The lack of government regulations is also portrayed as one of the key concerns of our young people. And, regulations should focus on cybersecurity and data privacy. Similarly, 33.1 percent strongly agree to have concerns regarding (1) how personal data is being used and managed, and (2) the lack of government's regulations. The perspective survey does not link the two concerns directly; nonetheless, the discussions from our two focus groups illustrated the needs for the government to establish effective mechanisms to monitor and protect our young consumers from cyber risks and threats.

Figure 13: To what extent do you agree to the following concerns while using digital platforms, goods, and services?



5.3. Youths' Perspectives on the Digital Economy in Cambodia

Despite having been integrating into the digital economy, our young sample does not know what a digital economy is very well yet. While 45.5 percent claim to know what a digital economy is, the self-claimed perspective invited the study to dive deeper into the definition that young people have. Understandably, there is no one fixed definition for the digital economy yet; nonetheless, from an open question for our respondents to define the digital economy, the study finds a few keywords that illustrate the definition of the digital economy from our sample perspective.

For our young sample, their understanding of the digital economy focuses more on the ways of doing business and/or conducting transactions through the use of technology, digital platforms, and the Internet. For example, some of the definitions shared by our sample in the survey include "The act of economic by using internet or technology to connect people on various business activities."; "Digital Economy is the market selling/buying either intangible software and services or the selling of goods through the internet."; "Unlike the conventional economy, it's a new emerging economy operates on the internet kind of things, the platform where it is an intersection of buyers and sellers meet and run a business online, including financial transactions and trading goods and services worldwide." From these definitions, it can be understood that their personal experience with digital transformation would shape their understanding of the digital economy. Moreover, it can be observed that these definitions are similar to the one offered by the World Bank's report that is adopted by this study as well.

Our young sample is, to a certain extent, aware of the digital economy in Cambodia and believes that transforming Cambodia into a digital economy would be beneficial for the country. 31.7 percent claim to be moderately aware, and 37.3 percent claim to be somewhat aware of the digital economy in Cambodia. Moreover, 45.0 percent strongly believe it is beneficial for Cambodia to transform its economy into a digital economy, and 50.5 percent somewhat believe it is beneficial for Cambodia to transform its economy into a digital economy.

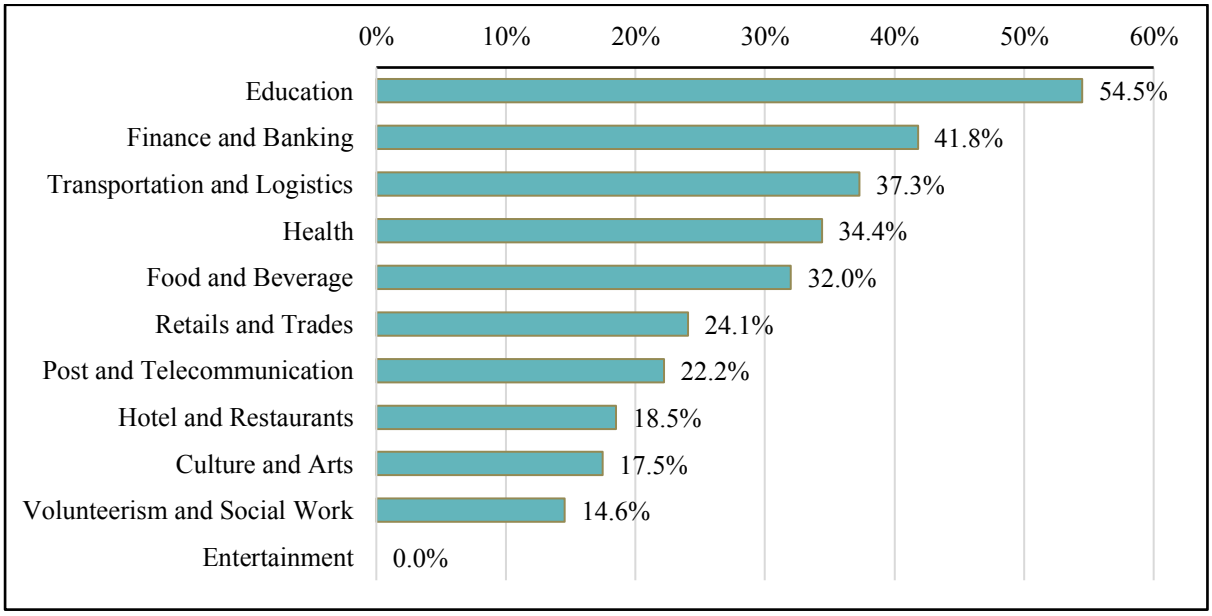
Nonetheless, while our young sample personally believes they are ready for the digital transformation, they show skepticism toward the readiness of Cambodia for the digital transformation. 48.4 percent strongly believe they are ready for the digital transformation and 45.0 percent somewhat believe they are ready for the digital transformation. Nonetheless, while 51.1 percent somewhat believe Cambodia is ready for the digital transformation, 31.2 percent believe Cambodia is not ready for the digital transformation. This high percentage of young sample believing in their readiness can be mainly influenced by their personal experience, including living in Phnom Penh, owning the ICT device(s), and have been connecting to technology and the Internet for quite some time. However, their skepticism regarding Cambodia's readiness is warranted. Other studies listed in the literature review clearly illustrate the issues that need to be further addressed, including especially the digital divide and digital literacy among young Cambodians.

Table 12: Youth and Digital Economy in Cambodia

Question		No.	%
Do you know what Digital Economy is?	Yes	172	45.5
	No	70	18.5
	Maybe	136	36.0
How much do you know about digital economy in Cambodia?	Extremely Aware	9	2.4
	Moderately Aware	120	31.7
	Somewhat Aware	141	37.3
	Slightly Aware	75	19.8
	Not at all Aware	33	8.7
Do you think it is beneficial for Cambodia to transform its economy into a digital economy?	Definitely Yes	170	45.0
	Somewhat Yes	191	50.5
	Somewhat No	15	4.0
	Definitely No	2	0.5
Do you think Cambodia is ready for the digital transformation?	Definitely Yes	53	14.0
	Somewhat Yes	193	51.1
	Somewhat No	118	31.2
	Definitely No	14	3.7
Do you think you are ready for the digital transformation?	Definitely Yes	183	48.4
	Somewhat Yes	170	45.0
	Somewhat No	20	5.3
	Definitely No	5	1.3
	Total	378	100.0

Unsurprisingly, young people want to see further digital transformation in the education sector in the future, followed by the finance and banking sector as well as the transportation and logistics sector. 54.5 percent want to see further digital transformation in the education sector in the future. This may be influenced by the recent surge in digital adoption and adaptation in the education sector caused by the outbreak of COVID-19. Following the education sector, 41.8 percent want to see further digital transformation in the finance and banking sector in the future. The finance and banking sector is one of the leading sectors in Cambodia that has been adopting digital solutions. From this finding, it can be understood that young people are not satisfied with the current digital transformation in the finance and banking sector yet. This can be reflected with the concerns regarding security issues, data privacy, and the quality of the platforms mentioned in the earlier part. Moreover, our focus group discussions confirmed that it is crucial for the finance and banking sector to build consumers' confidence by protecting their money. Fairly, youths still choose the cash-on-delivery option, showing hesitation to link their bank accounts or visa cards to other digital platforms, goods and services. In this sense, the finance and banking sector may play an important role in leading the digital transformation in Cambodia.

Figure 14: Which sectors do you want to see further digital transformation in the future?



6. Conclusion

Existing literature illustrates a promising picture of Cambodia's progress in transforming itself into a digital economy. Nonetheless, to achieve this long-term goal, Cambodia requires further investment across different supporting pillars, such as human capital, basic and digital infrastructure, and digital adoption and adaptation among businesses as well as within the government. With the acknowledgment that youths, who are the main consumers of digital platforms, goods and services, are playing a major role in promoting digital transformation in Cambodia, this study contributes to the existing literature by providing insights from youths' perspectives as key adopters and consumers in the digital economy. Our perspective survey

provided further understanding of the overview of the current level of usage of digital platforms, goods and services, and the motivating factors behind the usage. Moreover, the survey also explored the challenges and concerns that youths face as well as their understanding and preferences for the digital economy that Cambodia will develop in the future.

The 378 respondents, who reside in Phnom Penh and are between the age of 15-35 years old, make up the sample of this study. The sample characteristics can be summarized as coming from middle-class families, being educated, and having access to digital technologies. The majority (more than 90 percent) own a smartphone and a laptop. Moreover, the majority can access the internet on daily basis.

Overall, the findings suggest that youths who participated in our survey are considerably exposed to using or consuming digital platforms, goods and services. This suggests that young people are increasingly adapting to the digital transformation in Cambodia as well as increasingly adopting digital technologies into their lifestyle, especially through increasingly available platforms, goods and services offered by private companies. Nonetheless, the level of frequency of usage or consumption highlights a less promising picture as the respondents indicated that they do not use the digital platforms, goods and services frequently (a large number of respondents chose "rarely" for most provided options). Having the ICT device(s) is certainly the most agreed factor that encourages digital consumption among youths. However, youths are less likely to be influenced by third-parties, such as peers, family members, or companies when deciding to consume or use certain digital platforms, goods and services. At the same time, issues of low quality, complexity, and concerns over data protection by firms were raised to be the major factors influencing youths' decision not to use or consume. Despite this, an overwhelming majority of youths indicated that they see themselves using more digital platforms, goods and services in the future, presenting an opportunity for the development of a digital economy in Cambodia.

Respondents also confirmed the existing studies' assessment about the challenges in developing the digital economy in Cambodia by raising the issue of internet speed and price as well as the issues of stability and price of electricity as their main challenges when using or consuming digital alternatives. In regards to concerns, youths demonstrated considerable understanding of the potential risks and threats of their digital consumption. To be specific, three main concerns were raised, which include cybersecurity (hacking), internet scams, and data and privacy.

The high digital exposure and consumption may not translate to the understanding of the digital economy. In fact, less than half of the respondents indicated that they know what the digital economy is while 36 percent were not certain. Yet, the perspective survey shows that almost all respondents agree that it is beneficial for Cambodia to transform itself into a digital economy and that they are ready for the digital transformation, suggesting that the youth population is supportive of the government's plan and vision for digital transformation. With respect to the sectors that youths are more likely to welcome digital transformation, education ranked first, finance and banking ranked second, and transportation and logistics ranked third.

Key-takeaways that the government as well as private companies can take into consideration from this study are summarized as follows.

1. **ICT infrastructure, device and literacy matter:** Adding to existing literatures and as a reminder, addressing the digital divide is crucial in the development of a digital economy. Reflecting on the sample socio-economic and digital characteristics as well as the challenges they face, it can be understood that Cambodian youths will use more digital platforms, goods and services if they have the capacity (having ICT devices and basic digital literacy) and are enabled by good internet connection and electricity to access and explore the digital options. In this sense, to promote digital adoption in other parts of Cambodia, more investments should be made to promote the affordability of ICT devices and improve the coverage of the Internet and electricity. At same time, although having capacity and access are important, youths need adequate digital literacy that would allow them to use digital alternatives and avoid associated risks. Thus, more investments should also be made to improve youths' digital literacy. In short, these findings call for the scaling of conditions which make digital transformation in Phnom Penh possible to other provinces in order the further develop digital economy across Cambodia.
2. **More attention should be given to the issue of cybersecurity, data protection and privacy:** Reflecting on the concerns indicated by the respondents, it can be understood that more investments should also be made on soft infrastructures to protect consumers' online transactions and personal data. As these concerns may demotivate youths from digital adoption and consumption, this finding invites the government to focus greatly on building safe environment where consumers are properly protected by laws and regulations with proper and effective enforcement mechanisms. At the same time, this finding invites the private sector to spend additional attention toward building consumers' confidence and trust in adopting digital solutions by protecting their data and privacy. Noticeably, these issues were mainly linked with digital payment and online transactions, indicating that the finance and banking sector can lead the way in building consumers' confidence in digital solutions.
3. **Youths' interests in digital economy can be leveraged by offering them better digital experience:** With Cambodian youths' open and supportive attitude towards digital adoption and adaptation, this is an opportunity for both the public and private sectors to further encourage youths/consumers' participation in Cambodia's digital economy. As the findings on the motivating factors suggest, quality, ease of usage, and affordability are key factors that suppliers can focus on in order to provide better digital experience to consumers. As the demand side is showing positive response to digital solutions, this may also indicate the potential of a growing market that can welcome new entrepreneurs and innovators. Unfortunately, the study did not look at youth's participation in a digital economy as entrepreneurs or the workforce. This topic should be explored in future studies to understand how the interests can be leveraged to encourage youth's active participation in Cambodia's digital economy.

As previously mentioned, this study is limited to the perspectives of Phnom Penh youths who come from middle-class families, are considerably educated and are substantially exposed to digital alternatives. Therefore, despite having the advantage of understanding the pain points in developing digital economy further from consumers' perspectives, the data from this paper cannot be used to represent youths from all over Cambodia. For a more comprehensive study, it is recommended for researchers to expand the scope of the sample to youths in other provinces and income groups on a case-by-case basis. Moreover, rolling out the questionnaire physically may provide new insights as well, for online surveys can be restricted to youths who are more exposed to digital transformation. Lastly, because the data was collected during the period of COVID-19 pandemic, the level of digital adoption and consumption for certain platforms, goods and services may be higher as illustrated during the focus group discussions. Therefore, it is also recommended that a similar study should be done once again after the pandemic is over in order to dive deeper into assessing the potential impacts of COVID-19 on digital transformation in Cambodia.

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