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## Cambodia's Digital Transformation: Not Only an Urban Matter

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### Executive Summary

- ❖ High-quality, high-speed Internet is a driver for the improvement of the economy and, in general, of society. However, this digital growth must also account for rural areas to ensure inclusiveness.
- ❖ Developing a digitally skilled workforce is essential to benefit from technological advancement. As part of the future economy, human talent is the most crucial factor of production. The International Telecommunication Union (ITU) identified three skills gaps: equal access to education and training, inclusive Internet access, and committed leaders.
- ❖ The Royal Government of Cambodia (RGC) has initiated and conducted several IT-related projects, with the Ministry of Post and Telecommunications (MPTC) as the lead agency, on a multi-dimensional array of aspects, such as infrastructure, awareness, and education. Nevertheless, it is still far-flung to achieve digital inclusion in rural areas.
- ❖ Cambodia can learn from the past and current projects conducted in other regions to enhance digitalisation and connectivity in rural areas. Those projects can represent a valuable source of constructive feedback and tips, but with the requirement to “tune” them to the Cambodian context, culture, and current situation.

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## **សេចក្តីសង្ខេបអត្ថបទ**

- ❖ ការអភិវឌ្ឍន៍អ៊ិនធឺណិតលឿនលឿនដែលមានគុណភាពខ្ពស់ គឺជាកត្តាដ៏សំខាន់មួយក្នុងការជំរុញ និងចូលរួមឱ្យមានភាពប្រសើរឡើងនៃសេដ្ឋកិច្ច និងសង្គម។ ប៉ុន្តែកំណើនបច្ចេកវិទ្យាឌីជីថលនេះក៏ត្រូវតែគិតគូរផងដែរអំពីតំបន់ជនបទ ដើម្បីធានានូវបរិយាបន្ន។
- ❖ ដើម្បីទទួលបានអត្ថប្រយោជន៍យ៉ាងពេញលេញពីការរីកចម្រើនផ្នែកបច្ចេកវិទ្យា មានភាពចាំបាច់ណាស់ក្នុងការអភិវឌ្ឍន៍កម្លាំងពលកម្មជំនាញឌីជីថល។ ទេពកោសល្យរបស់មនុស្ស នឹងក្លាយជាកត្តាដ៏សំខាន់បំផុតនៃផលិតកម្ម ដែលជាផ្នែកមួយនៃសេដ្ឋកិច្ចនាពេលអនាគត។ គម្លាតនៃជំនាញចំនួនបីដែលត្រូវបានសម្គាល់ ដោយសហភាពទូរគមនាគមន៍អន្តរជាតិ (ITU) មានដូចជា៖ ការទទួលបានការអប់រំនិងការបណ្តុះបណ្តាល ការប្រើប្រាស់អ៊ិនធឺណិតប្រកបដោយបរិយាបន្ន និងការប្តេជ្ញាចិត្តពីថ្នាក់ដឹកនាំ។
- ❖ រាជរដ្ឋាភិបាលកម្ពុជា (RGC) បានផ្តួចផ្តើមនិងអនុវត្តគម្រោងជាច្រើនដែលទាក់ទងនឹងអាយធី (IT) ដោយមានការដឹកនាំដោយក្រសួងប្រៃសណីយ៍ និងទូរគមនាគមន៍ (MPTC) លើទិដ្ឋភាពចម្រុះជាច្រើនដូចជា៖ ហេដ្ឋារចនាសម្ព័ន្ធ ការយល់ដឹង និងការអប់រំ។ ប៉ុន្តែនៅមានផ្លូវវែងឆ្ងាយទៀតដើម្បីធានានូវការរួមបញ្ចូលបច្ចេកវិទ្យាឌីជីថលប្រកបដោយបរិយាបន្ននៅតំបន់ជនបទ។
- ❖ ប្រទេសកម្ពុជាអាចសិក្សាពីគម្រោងចាស់ និងបច្ចុប្បន្នដែលត្រូវបានអនុវត្តនៅក្នុងតំបន់ផ្សេងទៀតដើម្បីបង្កើនឌីជីថលការរូបនីយកម្ម និងការតភ្ជាប់នៅក្នុងតំបន់ជនបទ។ គម្រោងទាំងនោះមាន គំនិតស្ថាបនា និងគន្លឹះផ្សេងៗដែលអាចជាប្រភពឯកសារយោងដ៏មានតម្លៃ។ ប៉ុន្តែជាមួយគ្នានេះដែរ គម្រោងទាំងនោះត្រូវការ "កែតម្រូវ" អោយសមស្របទៅតាមបរិបទ វប្បធម៌ និងស្ថានភាពបច្ចុប្បន្នរបស់កម្ពុជា។

## Introduction

Telecommunication, business services, and transport are vital for the development of least-developed countries. They are capable of transforming contemporary societies (Philip and Williams 2019). The World Bank defines telecommunication and IT infrastructure as the essential backbone of a nation's economic performance (World Bank 2014). Over recent years, many governments and non-governmental bodies published strategies and recommendations for digital telecommunications infrastructure (Philip and Williams 2019). However, today the issue of the digital divide is still prevalent in many regions across the world. As Philip and William (2019, 1) wrote, "Engagement in the digital society is widely assumed to be ubiquitous, yet amid a phenomenal changing pace of a stubborn social, economic and territorial divide remains between those who are digitally connected and those who are not."

Considering the vision of the Royal Government of Cambodia (RGC) to transform Cambodia into a digital society, telecommunications infrastructure represents an essential foundation for enabling such a transition. Yet, it only represents an ingredient, not the whole recipe. Specifically, an effective process must account for the digital readiness of the transformation ecosystem, considering what has been done and planned, aligning with the existing guidelines at the national and regional levels. It is thus important for Cambodia to begin with fully understanding its current situation, while analysing case studies from neighbouring countries so that it can learn from the mistakes and success of others. Cambodian policymakers should be aware that every solution, though already implemented with success, must be tuned to the local digital ecosystem and other local contexts.

This article starts by offering an overview of the importance of telecommunications and IT infrastructure in the broad context of digital transformation. Then, it dives deeper into Cambodia's current situation, focusing on digital readiness and the digital divide and investigating what has been done. The last section before the conclusion suggests a list of useful case studies for policy consideration.

## Telecommunications and IT Infrastructure

The impact of telecommunications infrastructure on economic development and societies represents a topic that has been widely studied, with the findings heavily depending on cross-section and time-series data analysis (Matalqah and Warad 2017). Matalqah and Warad (2017) highlighted that, in some cases, the results pointed out a bidirectional causality between the development of telecommunications infrastructure and economic growth, while other studies reported only a one-way relationship between the two. Kawaljeet and Neena (2014) investigated the causal relationship between telecommunication development and Gross Domestic Product (GDP), highlighting the long-running relationship between telecommunication growth and economic growth at the aggregate and sectoral levels, specifically in the Indian context.

Telecommunications infrastructure is fundamental for non-urban areas to ensure their inclusion in development. The lower population density in a specific location implies higher transportation costs, loss of economies of scope, and economies of scale. Besides, attracting and retaining professionals in the healthcare sector is difficult to achieve (OECD 2021). OECD (2021) wrote, "New technological advances have opened the door to providing quality services in new forms and substituting physical forms of delivery with virtual ones." It allowed

“decoupling service provision from specific locations, greatly improving access to education or health care services”.

The development of high-quality, high-speed Internet improves the overall economy of a society (Adipat et al. 2019). It is also crucial to highlight that adopting service regulations is insufficient for economic success. Regulations would bring about fundamental challenges to businesses that need to be reviewed and streamlined. Therefore, there should be prioritisation and diversification of the existing services sector and the nurturing of the evolving services industry toward more modern and sophisticated services (World Bank 2014). Developing a digitally skilled workforce is essential to benefit from technological advancement (ITU 2021). The International Telecommunication Union (ITU) expressly noted that, to be part of the future economy, human talent was the most crucial factor of production. The ITU identified three skills gaps: (1) equal access to education and training, (2) inclusive Internet access, and (3) committed leaders (ITU 2021).

Finally, a robust digital economy depends on the availability of digitally skilled labour, essential for a sustainable and inclusive digital transition of the national economy. The fast digital transformation caused by the pandemic will not bring societies back to the pre-pandemic level. Countries will experience a continuum in the rapid spread of digitalisation, heavily demanding an efficient digital infrastructure and fundamental digital skills (ITU 2021). Digital skills are an indispensable component and enabler of a successful digital transition, so they become an integral part of national digital transformation strategies (Ibid). Digital skills and telecommunications infrastructure go hand in hand with the development process of the digital economy.

## **Digital Readiness and Digital Divide**

Cambodia has expressed interest in moving forward towards digitalisation. The country has also expressed its commitment to developing its digital economy, with the first official step being represented by the introduction in 2018 of the Rectangular Strategy Phase IV. It has expressed its interest in transforming into a digital economy by 2023 (Chan, Chhem, and Nay 2021).

However, Cambodia’s digital-skilled workforce is not yet fully developed due to such issues as outdated university curriculum and low university tuition fees, which, in the last ten years, have increased at a much lower rate than the inflation rate, consequently making it difficult in attracting skilled instructors and building strong infrastructures. As a result, there is a general lack of skilled academicians in cutting-edge technology fields such as Blockchain, Fintech, Cloud Computing, and Artificial Intelligence (CADT 2021). Besides, the offering of IT-related educational programmes, although increased in the past years, is still insufficient to respond to the growing demand from the job market (CADT 2021; Corrado, Kay, and Tungjan 2021). In addition to the lack of tech-savvy human resources, Cambodia is struggling to address a digital divide between urban and rural areas (CADT 2021; Chan, Chhem, and Nay 2021; Corrado and Liwan 2021; Corrado and Tungjan 2019; Luo and Chea 2018; UNICEF 2021).

Regarding the digital divide in the Kingdom, a UNICEF Cambodia report in 2021 found that Cambodia was still suffering from a “significant digital divide”, with uneven access to technology, ICT equipment, and communication-related applications, such as Zoom and WhatsApp (Badzmierowski 2021). The same report found that teachers and educational

institutions across 15 provinces in the country had experienced low accessibility to ICT devices and stable internet, with only 58 per cent having access to electricity and 32 per cent to the internet (UNICEF 2021). It also found that 23 per cent had access to ICT devices such as computers, laptops, or tablets (Ibid).

Furthermore, according to a UNDP representative, Cambodian “female students and rural students are disproportionately affected by this digital gap”, and “rural and female youths have a lower digital literacy level than their [urban] counterparts, leaving them with employment disadvantages in the digital age” (Badzmierowski 2021). This raises concerns about the issue of digital inclusiveness in the Kingdom and the risk of widening the gaps between “the haves and have nots” (Badzmierowski 2021).

Regarding education, the common challenges in terms of connectivity during the Covid-19 pandemic included poor internet connectivity (54 per cent); financial problems, making it difficult to purchase internet/phone credit (42 per cent); inconvenience related to sharing devices (23 per cent); poor television or radio coverage (10 per cent); lack of awareness of television or radio schedules for broadcasting (22 per cent); and no time to learn due to daily chores or taking care of siblings (18 per cent) (UNICEF 2021). In summary, several studies and statistics have shown that the digital divide and digital illiteracy affecting Cambodia are real and serious issues (Chan 2018).

With these premises, Cambodia, aware of the importance of digital transformation, has embarked on many projects envisioning to digitalise the country by offering a telecommunications infrastructure capable of supporting the digital transition required to stay afloat in the competitive market (Corrado, Flinn, and Tungjan 2019; Corrado and Tungjan 2019; Corrado and Hill 2021). The establishment of the Cambodia Digital Economy and Society Policy Framework 2021–2035 firmly marked the RGC’s long-term vision of “orienting the development and process of a digital transformation” with an approach based on clearly defined steps revolving around the private and public sector’s needs, resources, and capabilities (RGC 2021, 2).

With this framework, the RGC outlined the vision to “build a vibrant digital economy and society by laying the foundations for promoting digital adoption and transformation in all sectors of society – the state, citizens, and businesses – to promote new economic growth and improve social welfare in the new normal” (RGC 2021, 2). In the framework, the government identified three specific pillars for a Cambodian digital economy: digital citizens, empowered with digital leadership skills and digital preparation for responding to the job market needs; digital government; and an ecosystem capable of fostering digital business, entrepreneurship, and digital value chains (Corrado et al. 2021a).

Additionally, the MPTC has been working actively on several IT-related projects on a multi-dimensional array of aspects, such as infrastructure, public awareness-raising, and education. Concerning awareness education, the MPTC has conducted a public awareness programme called *Kit Kou Kon* [Caring for Children] in collaboration with the Ministry of Education, Youth and Sports, the Ministry of Social Affairs, Veterans, and Youth Rehabilitation, the Ministry of Women’s Affairs, the Ministry of Interior, the Embassy of India, and Facebook. Moreover, through its regulatory arm, the Telecommunication Regulator of Cambodia (TRC), the MPTC, in cooperation with the General Commissioner of the National Police, has initiated an investigation campaign, specifically for targeting and closing malicious websites and URLs.

Furthermore, the MPTC's educational arm, the Cambodia Academy of Digital Technology (CADT), has initiated a research project to assess the situation of Internet usage in Cambodia. It has conducted the project in collaboration with the United Nations Educational, Scientific and Cultural Organization (UNESCO). Besides, the MPTC, in cooperation with the United Nations Development Programme (UNDP), has launched a series of training programmes called "Stronger with Digital", aiming to promote digital businesses more widely among Cambodian micro, small and medium enterprises (MSMEs) as well as among consumers.

In addressing the needed digital infrastructure, the MPTC has set up five task forces to attain the following objectives:

- To strengthen digital connectivity;
- To strengthen and expand 4G coverage;
- To pave the path for 5G implementation;
- To boost the Internet broadband infrastructure, including submarine cable;
- To foster and promote infrastructure sharing among operators;
- To encourage private investments in the development of telecom infrastructure; and
- To continuously update and improve the telecom-related legislation.

All the projects mentioned above are aimed at supporting the digital transition in the country that has experienced remarkable telecommunications growth in the past years. Internet penetration in Cambodia increased from 0.53% in 2009 to 40.5% in 2018 (TRC 2022). Moreover, Internet subscriptions have more than doubled from 2016 to 2022, with almost 130 mobile subscriptions for every 100 people in 2019. Compared with 2000 and 2010, there were only 1.07 and 56.95 subscriptions per 100 inhabitants (Statista 2021). However, due to the pandemic, the overall mobile market in terms of total subscribers slightly fell back during the past two years, yet it remained in good health as mobile users increased their data usage over the period (De Rosbo 2021). Considering the pre-pandemic high penetration trend, it has been forecasted that the numbers will bounce back in the next few years (Ibid).

From a societal perspective, Cambodia has experienced remarkable growth in the past years. However, a lot needs to be done in terms of aligning the current digital skills with the required ones to ensure the country's successful digital transformation. In a society characterised by a digital economy, content skills, cognitive abilities, process skills, social skills (such as persuasion and emotional intelligence), and cognitive abilities (such as creativity, logical reasoning, and problem sensitivity) are all essential elements to be fostered in the future Cambodian professionals (Corrado et al. 2021b). However, in Cambodia, there is still a lack of these skills to sustain a digital economy and, in general, the digital transition of every aspect of the society, as also indicated by its relatively low ranking of Cambodia in the Global Digital Readiness Index (Corrado et al. 2019; Corrado et al. 2021b), in addition to an improved yet struggling higher education ecosystem (Corrado and Tungjan 2019; Chhaing 2022).

In summary, the MPTC and the RGC have committed to fostering an inclusive digital campaign across many aspects of the Kingdom. Still, it is essential to understand that a change

cannot happen overnight. It requires time, effort, financial support, and a switch in the mindset of Cambodians regarding the importance of Information Communications Technology (ICT) and the increase of digital skills, beginning from K-12 education. Additionally, it is essential to pay attention to the digitalisation of rural areas to support inclusive and sustainable digital growth.

### **Some Models to Consider**

Enhancing connectivity and supporting the digital transformation of rural areas are not new topics. However, few projects across the world have targeted digitalisation in rural areas. For example, the CORA (Connecting Remote Areas) project has been implemented in the European North Sea region to connect remote areas with digital infrastructure and services (CORA 2021). The project focuses on three main areas to achieve its goal: (1) Digital Services, (2) Digital Skills, and (3) Digital Infrastructure (Ibid). In addition, it focuses on monitoring “cross-border fibre sharing, inter-generational digital training, and solutions to improve digital awareness.” These aspects are directly related to addressing the digital divide (Price, Deville, and Ashmore 2022, 684).

One of the pilot projects is the Smart Fibre Hubs in South West Flanders, intended to “connect urban and rural areas by installing an open-access fibre network, developing new digital services and creating added value from data collected by these new services” (CORA 2021, 4). Under the main umbrella project, the so-called Amt Hüttener Berge project aims to build large-format digital outdoor and touch-sensitive indoor screens in public areas, such as village community houses, to share information with citizens and tourists about the region (CORA 2021). In addition, more projects have been implemented in close geographical areas to enhance public welfare. Those projects are for fostering sustainable transportation and mobility, especially in remote areas; developing new tourism-oriented digital services to enhance visitors’ experience; increasing broadband connectivity; enlarging medical support for personal health issues, such as dementia; and supporting education, mostly related to the digital sphere (Ibid).

Another project also being implemented in Europe is the Rural Public Access Wi-Fi Service (Rural PAWS), an interdisciplinary collaboration involving Internet engineers and human geographers (Philip and Williams 2019), with the support of satellite company Avanti. Rural PAWS provides rate-limited broadband service capable of supporting important activities, “such as email, online banking, and basic web browsing, alongside a faster service for ‘whitelisted’ sites” (Ibid, 4). A vital aspect identified during the project implementation is an array of challenges faced by small and micro-businesses operating in remote rural areas in an increasingly digital economy, while pointing out the importance of creating a specific ad-hoc digital infrastructure to support rural household livelihoods (Ibid).

However, the CORA and the Rural PAWS projects are not the only ones in the literature. In ASEAN, Thailand initiated a Village Broadband Internet Project called “Net Pracharat”, which represents “Thailand’s flagship digital infrastructure development project to promote availability, accessibility, and affordability to access broadband Internet services for people in rural areas across the country” (Adipat et al. 2019, 11). It is also one of the most significant investment projects of the Thai Government to strengthen the capabilities of the national digital infrastructure (Ibid). The project aims to offer Internet connection to people in rural areas where the income per household is not high, thus limiting the attractiveness of private players to invest

(Setthasuravich and Kato 2020; Phansatarn 2021). As a result of this project, high-speed, fibre-optic cable networks for enabling free public Wi-Fi hotspots have been installed in more than 24 thousand targeted villages in rural areas across the country (Dalferro 2022). However, due to the pandemic, the use of Net Pracharat has declined “due to fears of Covid-19 transmission in public spaces, revealing the importance of extending rural connectivity projects to individual households” (Ibid).

Those examples mentioned above represent a pool of learning opportunities that can be adapted to Cambodia’s local context. The lessons from other countries represent a great starting point for assisting Cambodia in drafting a roadmap to achieve an inclusive digital transformation across all the provinces, not only in urban areas. Financial and human resources may represent an obstacle to the digitalisation plans of developing countries like Cambodia. However, connectivity is a pivotal element for supporting national growth and realising the vision of the RGC, as stated in the Cambodia Digital Economy and Society Policy Framework 2021–2035.

## Conclusion

High-quality, high-speed Internet is a driver for improving the overall economy of a society based on the inclusiveness and sustainability pillars. In the digitalisation process, Cambodia needs to pay attention to its rural areas to ensure that no one is left behind and falls victim to the digital divide. Cambodia’s digital growth must also account for rural areas to assure inclusiveness. The RGC has already initiated and implemented several projects, with the MPTC as the lead agency actively working on several IT-related projects aiming at improving digital infrastructure, awareness raising, and education. Nevertheless, it is still a long way before digital inclusion in rural areas can be realised.

Cambodia can benefit from the lessons of digital project implementation in rural areas in other parts of the world. Those projects can represent a valuable source of constructive feedback and tips for boosting rural digital transformation and connectivity in Cambodia, but Cambodia needs to “tune” them to its context, culture, and situation.

*The opinions expressed are the author’s own and do not reflect the views of the Asian Vision Institute.*

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