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NATIONAL BANK OF CAMBODIA

Riel. Stability. Development.

FinTech Development Roadmap (2020 – 2025)

(National Bank of Cambodia)

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PREFACE

As a young developing country, Cambodia has witnessed trajectory economic growth over the last 20 years, with GDP increasing nearly nine-fold from USD 3.12 billion in 1998 to USD 27.089 billion in 2019. The astute leadership of **Samdech Akka Moha Sena Padei Techo HUN SEN**, Prime Minister of the Kingdom of Cambodia, has ushered in peace and stability for Cambodia, which in turn attracted investment funds and resources to be purposed towards the rebuilding, restructuring, developing and investing in physical infrastructure, human capital and technological advancement for a twenty first century Cambodia.

FinTech is one of the breakthrough industries in Cambodia which conveys affirmation for fulfilling the aspirations of a nation with a cutting-edge. Since 2010, the application of FinTech has been resolutely pursued in promoting financial inclusion to achieve sustainable financial growth in the nation. To date, most of the FinTech advancements have proliferated in the mobile remittances and payments space, extending from the cities to the provincial heartland.

The National Bank of Cambodia has adopted an approach of observation, development and implementation towards the exponential growth of FinTech applications. To align with international best practices of leading central monetary authorities and regulators, the National Bank of Cambodia serves as the main facilitator for the FinTech ecosystem to champion national and regional collaborations and innovations. It is in this context that the FinTech Development Roadmap 2020-2025 has been formulated to provide a flexible regulatory environment to launch new digital financial services in Cambodia.

The FinTech Development Roadmap 2020-2025 aims to facilitate the smooth transition and advancement of FinTech to provide digital-enhanced services that will include the under-resourced and unbanked communities in Cambodia. Moving in tandem with the National Financial Inclusion Strategy 2025, the FinTech Development Roadmap 2020-2025 aims to deliver digital financial services and products with greater accessibility, efficiency, and affordability.

We wish to thank all our participating stakeholders from the Association of Banks in Cambodia, the Cambodian Microfinance Association, and the Cambodian Association of Finance and Technology who have been most forthcoming in their contributions toward potential solutions and recommendations for the future of FinTech development within a national digital eco-system. We are deeply appreciative of the technical assistance provided by Asian Development Bank, and we are confident that the FinTech Development Roadmap 2020-2025 will support our national goals in accelerating financial inclusion through FinTech services in Cambodia.

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FOREWORD

Since the dawn of the new millennium, Cambodia has advanced significantly in the areas of human development and poverty reduction, boosted by a rapidly developing economy with strong sectoral growth in agriculture, garment manufacturing, and tourism. Under the prudent leadership of **Samdech Akka Moha Sena Padei Techo HUN SEN**, Prime Minister of the Kingdom of Cambodia, the poverty rate in Cambodia has declined from 47.8% in 2007 to 13.5% in 2014, and Cambodia has achieved the Millennium Development Goal (MDG) target of halving poverty by 2009. In 2015, Cambodia attained lower middle-income status and is targeting to reach upper middle-income status by 2030. With a growth rate of 7.1% in 2019, Cambodia remains one of the top-performing Southeast Asian economies in the world.

The inspiring progress has, in turn, encouraged commitment towards greater financial inclusion for Cambodia. Currently, approximately 27.7% or 4.5 million Cambodians are conceded as marginal-poor and are at risk of poverty in the event of economic and external shocks. The recent COVID-19 situation has increased the urgency for cost-effective and easy-to-access digital banking for the financially excluded to be activated across Cambodia.

The National Bank of Cambodia acknowledges the need to further promote a conducive environment for FinTech to expand in both scale and scope within Cambodia. With technical assistance from the Asian Development Bank, the National Bank of Cambodia is working on introducing the FinTech Development Roadmap 2020-2025 which focuses on three main pillars: (i) FinTech Activities, (ii) Enabling Technologies and (iii) Policy Enablers. In addition to credit information, the National Bank of Cambodia aims to promote the growth of FinTech activities in the credit space, where additional and innovative products and services can be offered. Enabling policies in relation to innovation facilitators, digital ID, open banking and other initiatives are also explored in the Roadmap.

The FinTech Development Roadmap 2020-2025 is purposed as the policy guideline to invoke digital financial services by strengthening the nascent FinTech ecosystem in Cambodia that supports the smooth implementation of the over-arching strategy, objectives and priority activities of the National Financial Inclusion Strategy. It is envisaged that financial inclusion will be reinforced through digital connectivity that brings efficiency and safety for digital transactions. The Roadmap is anticipated to consociate FinTech players in Cambodia through the Bakong backbone payment system to create an interoperable infrastructure that will usher future financial technology innovations. Finally, it sets the stage for open banking initiatives in Cambodia which rely on open data, open APIs and payment channel access to create new FinTech collaborations in line with international standards.

Finally, I would like to express my sincere appreciation to the banking and financial institutions and related stakeholders for contributing their knowledge and experience in the preparation of the FinTech Development Roadmap 2020-2025. I would also like to convey my profound thanks to the Asian Development Bank for the technical assistance provided. Finally, it is my resolute belief that the priority activities outlined in the Roadmap will sustain financial inclusion through having efficient and safe digital payments in Cambodia.

ABBREVIATION AND ACRONYMS

ABC	Association of Banks in Cambodia
ADB	Asian Development Bank
AML	Anti-Money Laundering
ASEAN	Association of Southeast Asian Nations
CAFT	Cambodian Association of Finance and Technology
CBC	Credit Bureau of Cambodia
CFA	Cambodia FinTech Association
CMA	Cambodia Microfinance Association
CSS	Cambodian Shared Switch
CTF	Counter Terrorism Financing
ECS	Electronic clearing system
EFT	Electronic Fund Transfer
FDR	FinTech Development Roadmap 2020-2025
FSDS	Financial Sector Development Strategy 2016-2025
IMWG-FISF	Inter-Ministerial Working Group on Financial Inclusion Strategy Formulation
KICPAA	Kampuchea Institute of Certified Public Accountants and Auditors
KYC	Know Your Customer
MAFF	Ministry of Agriculture, Forestry and Fisheries
MBI	Mekong Business Initiative
MDI	Microfinance Deposit taking Institution
MEF	Ministry of Economy and Finance
MFI	Microfinance Institution
MOC	Ministry of Commerce
MOI	Ministry of Interior
MOJ	Ministry of Justice
MoSVY	Ministry of Social Affairs, Veterans and Youth Rehabilitation
MOU	Memorandum of Understanding
MPS	Mobile payment system
MPTC	Ministry of Posts and Telecommunications
MSME	Micro Small and Medium enterprises
NBC	National Bank of Cambodia
NBRS	National Biometric Registration System
NCS	National Clearing System
NFIS	National Financial Inclusion Strategy 2019-2025
NGO	Non Government Organisation
NSSF	National Social Security Fund
NSSFC	National Social Security Fund for Civil Servants
PSP	Payment Service Provider
QPS	QR-code payment system
RFT	Real Time Funds Transfer
RPS	Retail Payment System
RTGS	Real Time Gross Settlement
SECC	Securities and Exchange Commission of Cambodia
TPP	Third Party Processor
TSC	Techo Startup Centre
USD	United States of America Dollar

EXECUTIVE SUMMARY

The culmination of Cambodia’s young population, proliferation of mobile connections, relatively higher percentages of mobile money accounts, online purchases and digital payments compared to credit card holders and changing attitudes toward digital payments indicates the sizeable potential for FinTech to promote financial inclusion in Cambodia. Considering the advantages of FinTech including the young population, high coverage of internet access and smart phone penetration, the NBC (as the banking sector regulator) sees FinTech development as a means to improve access to finance and financial inclusion.

The FinTech Development Roadmap (FDR) 2020-2025 is developed in alignment with the objectives of the Financial Sector Development Strategy (FSDS) 2016-2025 and the National Financial Inclusion Strategy (NFIS) 2019-2025. The FDR is expected to increase the use of formal financial services, promote adoption of FinTech services and encourage ownership of mobile money ownership by adults in Cambodia.

The FDR focuses on the three main pillars as defined by Ehrentraud, Ocampo, Garzoni, and Piccolo (2020): (i) FinTech Activities, (ii) Enabling Technologies and (iii) Policy Enablers. In addition, the FDR highlights key priority areas which are foundational for FinTech development in Cambodia, namely:

Pillars	Areas	Strategies
Pillar 1: FinTech activities	Digital banking	Launch Automated Saving Programs
		Launch Spending and Budgeting Programs
	FinTech balance sheet lending	N.A.
	Loan crowdfunding	Develop Marketplace Lending Platform Regulation
	Equity crowdfunding	Develop Equity Crowdfunding Regulation
	Robo-advice	N.A.
	E-Money/Digital payment services	Strengthen Regulatory Requirements addressing FinTech activities relating to payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)
	Insurtech	Develop Provisions for Insurtech under Regulatory Sandbox
	ICO/Coins	N.A.
Pillar 2: Enabling technologies	API/Open Banking Initiatives	Establish Open API Framework for banking and financial institutions
	AI/ML	Provide training on AI/ML
	Biometrics	Consider adoption of new biometric-based national identity cards

	Cloud computing	Establish Cloud Services Policy Framework and Security Standards
	Distributed ledger technology	Establish DLT Standards for Payment System
Pillar 3: Policy enablers	Digital identity systems	Enable NBRS for standardised shared KYC platform
	Open Banking	Enact policies for Open Banking infrastructure
	Data protection frameworks	Strengthen Regulatory Requirements for eKYC and Transparency of Bank Product Information
		Issue Consumer Protection Policy for Fintech Payment activities in Cambodia
	Cyber security frameworks	Issue Cybersecurity Risk Guideline for banking and financial institution in Cambodia
	Innovation facilitator initiatives	Define Regulatory Sandbox
		Enhance Incubator Hub/Accelerator
Promote Government Adoption of FinTech		
Introduce FinTech-friendly fiscal policies		
	Plan Annual FinTech Activities	

The priority areas of the strategy have been detailed in the action plan. The implementation of the priority activities will be implemented by the NBC, and other related ministries/agencies. These activities are designed to be implemented over the next 5 years.

Upon approval of the FDR and endorsement as a policy, the NBC will coordinate implementation of the action plan to ensure a coordinated effort between all stakeholders to achieve the FinTech development objective. The NBC takes the leading and facilitating roles with support from ADB, and will have a team to spearhead the process. One of the key activities is to ensure effective dissemination of the action plan and to hold a stakeholder’s consultation to identify suitable representatives to lead the different activities outlined in the action plan.

CHAPTER 1: INTRODUCTION

I. Background

As the central bank, the NBC plays a crucial role as regulator in balancing the advantages of FinTech activities for financial inclusion against potential disruptions to the economy, particularly the financial sectors. In recent years, financial technology – or FinTech – has taken off in a huge way in Cambodia. The speed of FinTech innovation in products and market development has blindsided formal financial institutions such as banks and microfinance firms, who are usually at the forefront of new breakthroughs in financial product offerings. FinTech has arguably democratized financial services and products, allowing non-traditional firms to enter the space.

FinTech is leading the charge into a new era of digital-driven banking and financial services by rapidly re-shaping traditional banking channels (online or mobile banking versus branch and over the counter services), transforming backend processing (ML and big data analytics), and promoting the utilisation of blockchain (distributed ledger technologies). The advent of FinTech has caused formal financial institutions to critically assess their traditional ways of conducting business and accelerating their digitisation of through the leveraging of digital technology.

Given the disruptive nature of FinTech, there is a compelling urgency for a comprehensive regulatory framework which governs the rise of FinTech (for instance, in consumer data privacy and protection for digital transactions) whilst harnessing its potential in enhancing financial inclusion, particularly at the lower income levels, in Cambodia.

II. The Objective of the FDR

The objectives of the FDR 2020-2025 are: (1) to promote financial inclusion and improve lives, living and livelihoods in Cambodia through greater adoption of fintech services such as digital payments that is accessible and affordable, particularly for farmers, self-employed and informally employed; (2) to introduce systemic regulations which provide a better environment for FinTech development over the short, medium and long-term for Cambodia to transit from a traditional economy to a digital economy while minimising disruptions to the traditional banking and financial sector; (3) to enhance the existing regulatory framework of FinTech activities in Cambodia by regulating and monitoring FinTech activities in areas such as system security, consumer protection, Anti-Money Laundering and Combating Financial Terrorism. In particular, the FDR adopts the conceptual framework of “FinTech tree” proposed by Ehrentraud, Ocampo, Garzoni, and Piccolo (2020) to discuss the background of Cambodia’s FinTech environment. In particular, the FDR focuses on the three main pillars as defined by Ehrentraud et al (2020): (i) FinTech Activities, (ii) Enabling Technologies and (iii) Policy Enablers.

III. The Benefits of the FDR

The FDR is expected to provide the following benefits:

- **Financial Inclusion** Increasing use of formal financial services (Online Banking Services / Mobile Banking Apps / Automated Saving Programs / Spending and Budgeting Programs) by adults in Cambodia from a baseline of 59% in 2021 to a target of 70% in 2025;
- **Fintech Adoption** Promoting adoption of fintech services (Peer to Peer Lending / Crowdfunding / Invoice Financing / Smart Credit Decision Tools / Credit

Management/Accounting, Bookkeeping and E-invoicing / Digital Payment) by adults in Cambodia from a baseline of 3.8% in 2021 to a target of 10% in 2025;

- **Mobile Money Ownership** Promoting use of digital payments through registration of mobile wallet accounts by adults in Cambodia from a baseline of 5.7% in 2021 to a target of 15% in 2025.

IV. The Importance of the FDR

FinTech has played a significant role in promoting financial inclusion and digital transactions in Cambodia. In recognition of its potential, the NBC has focused its efforts on developing the FinTech ecosystem, particularly the enabling of FinTech payments for MSMEs and consumers. Despite promising results from initial developments, the NBC acknowledges the need to further promote a more conducive environment for FinTech activities in both scale and scope within Cambodia. This is especially due to the meteoric rise of FinTech, particularly in the development of original products not covered by existing financial regulations.

The speed of growth within the burgeoning FinTech industry has raised concerns over how current financial regulations should be adapted to govern FinTech innovations, and how new FinTech activities should be allowed to develop and grow whilst new financial regulations are being rolled out. On the one hand, FinTech activities have the potential to lower the costs of financial services and promote financial access for Cambodians from lower-income groups who are unable to qualify for traditional financial services. On the other hand, FinTech activities can be vulnerable to extant risks in fraud, AML/CTF, cybersecurity and personal data protection, and the advent of creative payment tools may cause unintended ripple effects on monetary policies and the economy. Furthermore, Cambodian consumers may not fully appreciate or understand the concepts of new FinTech payments or loans and run the risk of overcommitting themselves to financial liabilities they can ill afford. Therefore, the NBC seeks to maintain a right balance between the advantages and risks of adopting and embracing FinTech without disrupting the traditional formal financial industry in Cambodia.

With technical assistance from the ADB, the NBC is working on introducing the FinTech development roadmap which focuses on three main pillars, namely: FinTech activities, enabling technologies, and policy enablers. In light of the pros and cons of FinTech, the importance of the FDR is to harmonise the need for FinTech development with the smooth functioning of banking and financial services in Cambodia. The FDR aims to develop a conducive environment for FinTech development in Cambodia to positively contribute toward the goal of financial inclusion as outlined in the FSDDS and the NFIS.

CHAPTER 2: CAMBODIA'S FINTECH ENVIRONMENT

I. Current FinTech Environment in Cambodia

The financial sector in Cambodia is currently experiencing remarkable growth, and there is increasing adoption of FinTech by existing players in the financial industry. As such, there is an immediate urgency to improve the intermediation and diversification of financial services with regards to the practice of FinTech activities in Cambodia.

In 2017, the NBC conducted a mapping of FinTech activities with the cooperation of international development partners such as the ADB to gain a better understanding of FinTech operations in Cambodia. The mapping concluded that FinTech firms in Cambodia operate largely within the payment space. From the development of the banking industry, it was observed that more and more banks and payment service institutions have begun to introduce banking services, especially payment services, via digital platforms such as internet and mobile banking, mobile payments and recently QR code payments. These forms of payments have gained tremendous popularity given their convenience, security, and cost-effectiveness. Due to the increased quality of mobile connections and greater access to ICT infrastructure, smartphones have now taken on the role of mobile wallets, where individuals can access and conduct banking services without having to visit a branch or ATM.

According to the World Bank 2017 Global Findex, 5.7% of Cambodians aged 15 and above have mobile money accounts compared with 17.8% having financial institution accounts, and 15.6% conducted digital payments in the previous year (3.8% internet, 5.9% mobile). At the same time, the United Nations Population Fund report that one in three Cambodians are aged 10-24. These indicators signal the potential for growth and adoption of FinTech activities in Cambodia over the next 5 years.

The World Bank 2017 Global Findex also highlighted that more Cambodians aged 15 and above made use of informal channels for savings and loans, with 5.3% having savings with financial institutions and 26.7% having loans from financial institutions versus 11% having savings with a savings club or person outside the family and 35.1% having loans from family or friends. The higher prevalence of such informal savings and loans implies greater risks for the Cambodian economy, as these shadow banking activities traditionally lack AML/CFT measures, KYC requirements and regulatory compliance to manage liquidity and capital ratios, and can create greater market stress during economic crises.

A. FinTech Mapping

Currently, there are more than 50 FinTech-related companies in Cambodia. The World Economic Forum has identified six core functions which comprise the primary financial services offered by FinTech firms, which are: (i) Payments, (ii) Market Provisioning, (iii) Investment Management, (iv) Insurance, (v) Deposits & Lending, and (vi) Capital Raising (FinTech, 2017).

1. **Deposits & Lending:** Deposits and lending are the main traditional banking services provided by banking and financial institutions in Cambodia. Due to the advancements in modern day technologies, banks have begun to leverage and adopt the use of technology to support

financial products and services for greater efficiency. As of mid-2020, there are more than 50 banking and financial institutions in Cambodia which provide mobile banking apps for their customers to access online banking and financial services such as deposits, loans, utilities payments and others. There are also 2 FinTech startups, Karprak.com and KomChey, which have kickstarted P2P lending with some platforms by offering this option for members of partnering platforms.

2. **E-Payments:** In recent years, the number of payment service institutions providing e-payments in Cambodia has increased remarkably. As of 2020, there are 24 payment service institutions licensed to provide diverse e-wallet based mobile payment services, which can be categorized as fund transfers, cash in/cash out, retail payments, utilities payments, remittances, acquirers for international credit card schemes, online payments and others.
3. **Insurance:** Investment management products and services which utilize insurtech include BIMA, IG Aetins Asia and Cambodia Life Insurance.
4. **Market Provisioning:** Market provisioning products and services which utilize AI, ML, Big Data, automated data collection and analysis, and market information platforms include Spean Loan and KiuAsia.
5. **Investment Management:** Investment management products and services which utilize cloud computing, open-source IT and advanced algorithms include Morakot Technology and Banhji.
6. **Capital Raising:** Capital raising products and services which utilize crowdfunding include Tos Fund, Cambodian Investors Capital Partners and Gold Whale.

Within the context of the FDR, FinTech products and services fall under Pillar 1: FinTech Activities. Further details of the products and services available in Cambodia can be found in Chapter 4: Progress and Achievements - Cambodia's Fintech Status.

B. Current Regulations to Support FinTech

Since 2010, Cambodia has passed a series of regulations to support the development of FinTech. In addition, NBC serves as the key regulator of the financial industry. Therefore, the NBC plays an important role in ensuring a sound and appropriate legal framework to support and govern FinTech activities in the areas of payment, remittance, and lending. The Securities and Exchange Commission of Cambodia (SECC) serves as the key regulator of capital markets. Under the prevailing regulatory regime, FinTech firms are required to comply with existing relevant regulations by NBC, SECC and other statutory bodies in Cambodia depending on the nature of their activities.

1. Regulations for Digital Payments:

Prakas on Third Party Processor: In 2010, the NBC introduced a Prakas on Third Party Processors to regulate and adopt procedures on licensing for any legal persons providing payment services in Cambodia. The aim of this Prakas is to allow banks to outsource one or more portions of their payment transaction services to one or more third-party processors. The third-party processors shall then be entrusted by the outsourcing banks to conduct payment services on behalf of the banks. Once entrusted by banks and licensed by the NBC, a third-party processor may act on behalf of the banks to provide payment services to the public.

Prakas on Payment Service Institutions: In 2017, the NBC issued a Prakas on Payment Services Institutions to regulate and adopt procedures on licensing for any legal person who intends to provide payment services in Cambodia. The aim of this Prakas is to promote digital payments within Cambodia and regulate FinTech players in the payment and remittance space by allowing them to operate on a standalone basis without the need to be entrusted by any banking institution. Under this Prakas, payment service institutions retain the possibility for partnering with banking institutions and accessing their agent networks as well as the central infrastructure. The regulation also puts in place measures to ensure the safety and soundness of payment services, including provision for stability and integrity which focuses on major issues such as the safety of funds, AML/CFT, operational risks, and consumer protection.

2. ***Regulation for Equity Crowdfunding:*** Equity crowdfunding in Cambodia is regulated by the Law on the Issuance and Trading of Non-Government Securities promulgated on 19 October 2007, and the License/Authorization of Fund Management Company, Trustee, Distribution Company, Fund Administrator, Fund Management Representative, Crowdfunding Representative and Fund Selling Representative under the Collective Investment Scheme announced on 11 June 2018. Given that the nature of the transactions deals with securities, FinTech firms providing equity crowdfunding are supervised mainly by SECC. Both the issuer of the securities and the provider of the FinTech platform must meet the requirements of the Law before they can provide equity crowdfunding in Cambodia. According to Article 23 of the Law, FinTech platforms which support securities issuing and transacting must seek approval from the Director General of the SECC, who will assess which license is required based on the requirements of relevant regulations (CCAF, ADBI, FinTechSpace, 2019).
3. ***Regulation for E-Commerce and Consumer Protection:*** E-commerce and consumer protection in Cambodia is regulated under the Laws on E-Commerce and Consumer Protection, both of which were released on 2 November 2019. The Law on E-Commerce provides regulatory oversight of the activities of e-commerce firms, and the authenticity, integrity and reliability of electronic forms, promoting safe and secure electronic commerce, promoting public confidence, and facilitating electronic filing of documents through the use of reliable electronic records in Cambodia. The Law on Consumer Protection looks into the protection of personal data. In addition, there are other rights to privacy, which encompasses elements of consumer protection, consumer privacy and cyber security: Constitution of the Kingdom of Cambodia 2010, Civil Code of Cambodia 2007, Criminal Code of the Kingdom of Cambodia 2009, Labour Law 1997, Law on Banking and Financial Institutions 1999, Prakas on Credit Reporting dated 24 May 2011, Law on Press 1995 and Sub-decree on the Code of Medical Ethics dated 28 August 2003. These laws regulate both institutions (banks, financial institutions) and individuals (press, medical professionals, citizens, residents). Currently, e-commerce activities and consumer protection in Cambodia fall under the purview of the Ministry of Commerce (MOC).
4. ***Regulation for ICO/Cryptoassets:*** It appears that there are no formal regulations governing cryptoassets in Cambodia. However, a joint statement issued on 11 May 2018 by NBC, SECC and the General-Commissariat of the National Police, stated the illegal nature of unlicensed activities dealing with cryptoassets. It can be safely concluded that ICOs and cryptoassets are not welcome in Cambodia and will not be legalised anytime soon in the near future.
5. ***Regulation for InsurTech:*** All insurance activities, including insurtech, in Cambodia are

regulated by the Insurance Law of the Kingdom of Cambodia, which was adopted on 27 June 2014. Given that the nature of insurtech deal with insurances, FinTech firms providing insurtech solutions are supervised mainly by the Insurance Division, Financial Industry Department, Ministry of Economy and Finance (MEF). There is no major distinction in the treatment of insurtech FinTech firms from traditional insurance firms, and both are subject to the same requirements for legal operations in Cambodia.

6. **Regulation for Cyber Security and Cyber Crimes:** Cyber security and cyber crimes in Cambodia are regulated under the draft version 1.0 Cybercrime Law released on 9 April 2014.

C. Current Infrastructure to Support FinTech

In March 2018, Cambodia announced the aim of achieving a digital economy by 2023. Subsequently, a number of initiatives were launched to develop the necessary infrastructure to support FinTech development in the nation. These include initiatives to benefit start-ups in general as well as specific infrastructure support for FinTech entrepreneurs.

1. **Foreign Ownership of Companies:** Currently, 100% foreign ownership is allowed for companies in Cambodia. Apart from attracting foreign direct investments, this scheme aims to attract foreign talents, including technology and FinTech entrepreneurs, to consider setting up their base of operations and innovations in Cambodia.
2. **Investor Support:** The Cambodian Investment Board provides investor support in the form of reliefs for taxes, duties and application costs for investments in technology, job creation, exports, tourism, environmental conservation, and rural development.
3. **Cross-Border FinTech Collaboration:** Regional cooperation for payment systems interlinkage plays a vital role in supporting cross-border payments and remittances within the ASEAN region. In this regard, the NBC has proactively formed regional collaborations with other central banks and partners in the region. To date, the NBC has signed MOUs with the Bank of Thailand, the Monetary Authority of Singapore, and Maybank Malayan Berhad, Malaysia to strengthen regional cooperation in the areas of payments, remittances and FinTech innovation.
4. **Backbone Payment System:** The Bakong project is a backbone payment system implemented by the NBC to embrace blockchain technology in modernising its national payment system. Bakong aims to address the issues of interconnectivity and interoperability across platforms of payment operators, with the objectives of attaining efficiency (lower cost, greater speed and enhanced security) in payment systems, and promoting financial inclusion. The Bakong system was launched in October 2020 with participation from many leading banks and payment service institutions in Cambodia. As Bakong promotes interoperability among banks and payment service institutions, it has the potential to become the common payment gateway to support future development of e-payments. In addition, the NBC is also exploring the feasibility of using Bakong to facilitate large value payment systems.
5. **FinTech Startup Support:** Launched in 2019, the Techo Startup Centre (TSC) aims to support young entrepreneurs and aid the Royal Government of Cambodia's plans to transform Cambodia into a digital economy. The Centre is located within the Royal University of Phnom Penh (RUPP) and specializes in skills development for budding tech entrepreneurs through a

4-6 month accelerator program. The Centre connects these tech entrepreneurs to its mentor network, which supports them in the roll out of minimum viable product prototypes and preparation of seed funding pitches. In June 2020, the Centre assisted in the development of the Cambodia Data Exchange (CamDX) in support of the launch of the new Cambodia Online Business Registration System. The Centre falls under the purview of MEF. (FinTech in Cambodia 2020, 2020)

6. **FinTech Associations:** Not-for-profit organization Cambodia FinTech Association (CFA) was set up in 2018 to support the Cambodia FinTech Community through FinTech startups, hubs, accelerators and VCs. On 9 July 2020, CFA merged with the Cambodia Association of Finance & Technology (CAFT) to provide a dynamic forum for partnerships, advocacy and investment in Cambodia's burgeoning FinTech sector. Founded by leading Cambodian FinTech players, CAFT is homegrown and focused on supporting the FinTech industry in Cambodia. (Cambodia FinTech association merges with CAFT, 2020).
7. **FinTech Events:** The NBC has focused efforts on developing the FinTech ecosystem, especially FinTech payments, in Cambodia. In cooperation with international development partners such as the ADB, the NBC hosted the Annual FinTech Day in 2017 and 2019. The objectives of the Annual FinTech Day are to raise awareness among all stakeholders and the general public on the importance of FinTech development and provide a platform for FinTech players and financial institutions to interact and cooperate. The NBC acknowledges the need to further promote a more conducive environment for FinTech development to further advance in both scale and scope.
8. **Financial Literacy and Digital Literacy:** The NBC is collaborating with the World Bank and UNCDF to improve the levels of financial and digital literacy in Cambodia. Since 2016, NBC has embarked on a series of financial literacy programs to educate Cambodians, particularly in the areas of consumer empowerment and financial sector transparency. The objectives of these financial literacy programs are to enhance financial inclusion as well as to educate vulnerable customers who may be unfamiliar with financial products and services.

II. Key Challenges for FinTech in Cambodia

1. **Regulatory frameworks to support FinTech:** The rapid pace of advancement and development of payment systems as well as payment instruments have outstripped the current legal and regulatory framework, which is unable to adequately address some of the key aspects related to FinTech activities under banking services. As such, there remain challenges with regards to regulatory changes. Currently, there is a dearth of relevant regulations to support FinTech activities in Cambodia, such as market place lending and financing (P2P lending models), big tech offerings in financial services, credit scoring and data analytics, and open banking. In addition, the NBC has not introduced a "Sandbox Approach" to allow for controlled experimentation and piloting of new digital financial products and innovative business models. Such approaches are vital not just for technological innovation but also for improving customer experiences. Specific and targeted FinTech regulations are needed to ensure sustainable growth in the FinTech sector.
2. **Unbanked Population:** According to Data Reportal (2020), 18% of Cambodia's population aged 15 and above have accounts with financial institutions. This is in alignment with NFIS (2019) findings, where 59% of Cambodians have access to formal financial institutions (17% banks, 42% others including MDIs). Currently, 29% of Cambodia's population is considered

unbanked, that is, they are excluded from access to formal financial services.

3. **Preference for Cash:** Although paper-based and electronic payment instruments have been introduced for a number of years, Cambodia predominantly remains a cash-based economy, and electronic payments in Cambodia are deemed to be at a very early stage of adoption. As highlighted in NFIS (2019), 49% of the adult population in Cambodia prefer to keep savings in cash and assets instead of depositing them with formal financial institutions. Furthermore, 89% of the adult population prefer to use cash for transactions over other forms of payment (NFIS, 2019). This largely stems from general perceptions regarding costs (transactions, maintenance, annual fees) and requirements (minimum account balances) associated with saving accounts from formal financial institutions. The high usage of cash also poses issues for AML/CFT, as cash transactions are not easily traceable with regards to their origins and increases the need for robust KYC by formal financial institutions.
4. **Low Level of Financial Literacy and Digital Literacy:** Currently, there is a low level of financial literacy (18%) in the adult and young population in Cambodia. Cambodia was ranked 135th out of 140+ countries in the 2015 Global Financial Literacy survey and received a score of 11.5 out of 21 for ADB's financial literacy survey in 2017. Morgan, Peter and Trinh (2019) found that education levels (tertiary), income (household income >USD 310), age (30-60) and employment status (self-employed, salaried workers, and housewives) accounted for significant differences in literacy scores in Cambodia. In September 2020, UNDP Cambodia released a report *Digital Literacy for Employability and Entrepreneurship among Cambodian Youth*, which examined the competencies of 1,285 high school, undergraduates and working youths in four digital literacy areas: fundamentals of hardware and software, information and data literacy, digital content creation and safety (Vamoeurn, 2020). The report recommended the design and implementation of a digital literacy framework for the Royal Government of Cambodia to enhance digital literacy levels of youths in Cambodia. Since 2016, NBC has embarked on a series of financial and digital literacy programs to educate Cambodians, particularly in the areas of fintech, consumer empowerment and financial sector transparency, to enhance financial inclusion and support vulnerable customers.

III. Key Opportunities for FinTech in Cambodia

1. **Mobile Connections:** Mobile connections in Cambodia reached 21.24 million mobile in January 2020 (128% of Cambodia's 16.6m population) with a year-on-year increase of 3.7% or 765,000. (DataReportal, 2020).
2. **Young Population:** 64% or 10.6m of the population are aged 16 and above (DataReportal, 2020). In 2019, MoEYS endorsed and supported the Digital Literacy and Internet Safety Pilot Program by Smart Axiata, Google and GSMA with participation by MPTC. To date, the program has equipped 1,500 teachers as well as Grade 10 and 11 students in Phnom Penh, Kampong Cham and Kampong Chhnang with digital literacy skills.
3. **Credit Card vs Mobile Money and Online Purchases/Payments:** 0.6% of Cambodia's population hold credit cards (0.8% of all women in Cambodia and 0.2% of all men in Cambodia) as compared to 5.7% with mobile money accounts. Furthermore, 3.8% of Cambodia's population makes online purchases and payments (4.3% of all women in Cambodia and 3.2% of all men in Cambodia) (DataReportal, 2020).

4. **Changing Attitudes towards Digital Payments:** Visa’s Consumer Payment Attitudes Study 2018 found that more Cambodians were using digital payments using Visa cards (43% annual growth in total value of purchases, 58 % annual growth in transactions). 24% of those surveyed showed an interest in mobile payments and 33% showed an interest in contactless payments as well as QR code payments. Approximately 33% of those surveyed expect digital payments to become more popular, and 54% believe Cambodia can achieve a cashless economy by 2025, particularly for entertainment, health and fitness, retail (79% supermarkets, 61% large shopping malls, 49% chain/convenience stores), and travel.

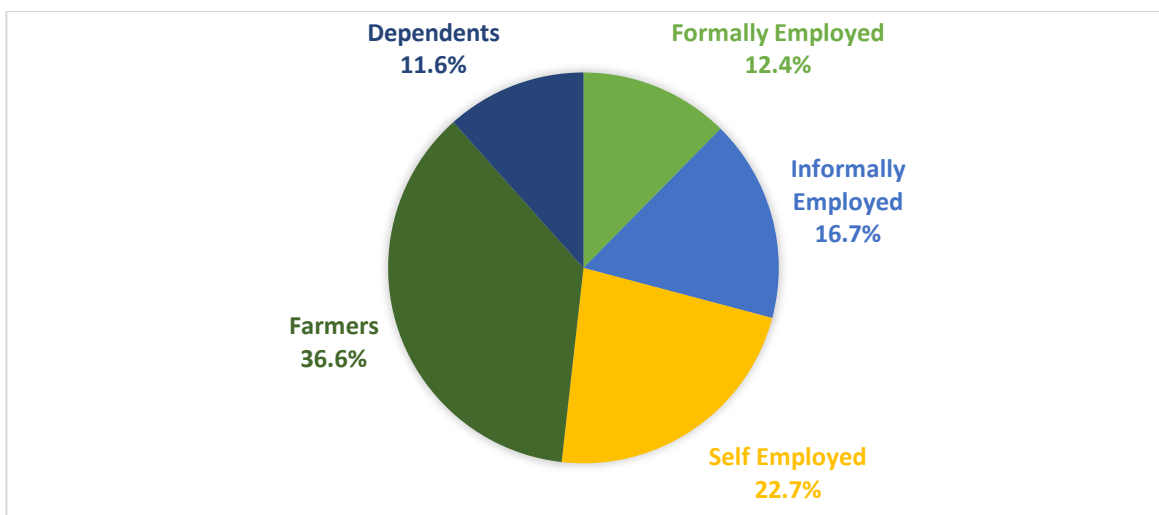
The culmination of Cambodia’s young population, proliferation of mobile connections, relatively higher percentages of mobile money accounts, online purchases and digital payments compared to credit card holders and changing attitudes toward digital payments indicates the sizeable potential for FinTech to promote financial inclusion in Cambodia. Considering the advantages of FinTech including the young population, high coverage of internet access and smart phone penetration, the NBC (as the banking sector regulator) sees FinTech development as a means to improve access to finance and financial inclusion.

Towards this end, the vision of the FinTech Development Roadmap 2020-2025 is to support financial inclusion in Cambodia through FinTech. The FinTech Development Roadmap is developed in alignment with the objectives of the Financial Sector Development Strategy 2016–2025 and the National Financial Inclusion Strategy 2019-2025.

IV. Cambodia’s Target Market Needs: FinTech Support

1. There are five customer segments identified in NFIS (2019), namely: Formally Employed (1.11 million, 12.4%), Informally Employed (1.50 million, 16.7%), Self Employed (2.03 million, 22.7%), Farmers (3.28 million, 36.6%) and Dependents (1.04 million, 11.) (Figure 1).

Figure 1: Five Customer Segments in Cambodia



2. Financial needs were also identified for each customer segment, with Table 1 highlighting the relevant FinTech support for identified needs:

Table 1: FinTech Support for Identified Needs

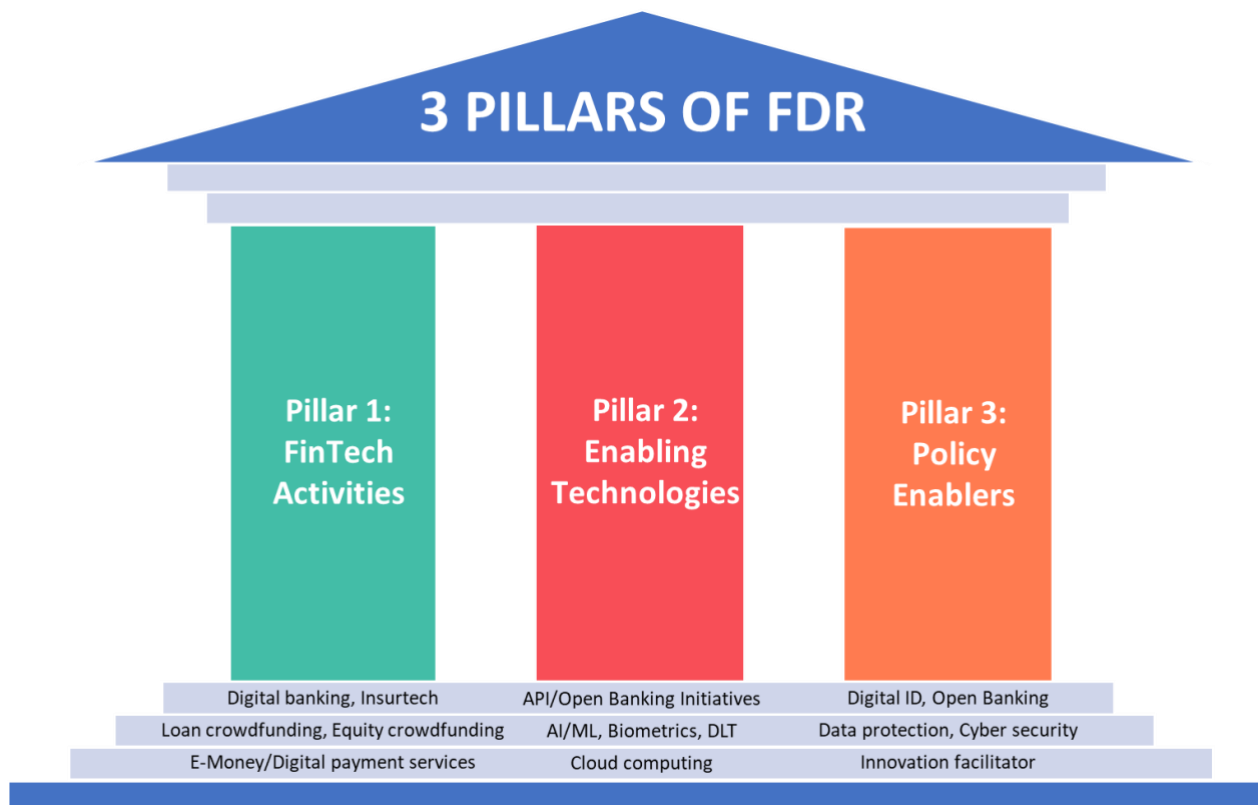
Segment	FinTech Support for Identified Needs
Formally Employed	<ul style="list-style-type: none"> ● Internet/mobile banking for cost-effective (i) salary receipt accounts and (ii) bundled financial products (savings, credit, transactions) which allow digital transactions such as mobile top-up, fund transfer, utility bill payment, and merchant payments ● Cost-effective medical and life insurance products, possibly through FinTech
Informally Employed	<ul style="list-style-type: none"> ● Cost-effective and easy-to-access digital remittance products to encourage savings and potential savings-based credit loans
Self Employed	<ul style="list-style-type: none"> ● Internet/mobile banking to encourage cost-effective and easy-to-access savings accounts which allow cost-effective digital payments ● Cost-effective household and business insurance products (associated with key-person risk), possibly through FinTech
Farmers	<ul style="list-style-type: none"> ● Internet/mobile banking to encourage cost-effective and easy-to-access savings accounts which allow cost-effective savings ● Cost-effective farming-related insurance products (associated with natural calamities, agriculture, and key-person risk), possibly through FinTech
Dependents	<ul style="list-style-type: none"> ● Internet/mobile banking to encourage cost-effective and easy-to-access savings accounts which allow cost-effective receipts of remittances

3. From Table 1, it is clear that the general FinTech support required to support identified needs is mainly Internet/mobile banking to support savings accounts, which allow for digital transactions (payments, loans, remittances,) as well as possibly FinTech-driven insurance products. In addition, the FinTech support must be cost-effective and easy to access for the customers.

CHAPTER 3: FINTECH PILLARS

I. The Main Pillars of FDR

The FDR adopts the conceptual framework of “FinTech tree” proposed by Ehrentraud, Ocampo, Garzoni, and Piccolo (2020) to discuss the background of Cambodia’s FinTech environment. In particular, the FDR focuses on the three main pillars as defined by Ehrentraud et al (2020): (i) FinTech Activities, (ii) Enabling Technologies and (iii) Policy Enablers. The definitions of the fintech terms under the three main pillars, which are described in the following sections as well as in the Glossary at the end of this report, are extracted from Ehrentraud et al (2020).



II. Pillar 1: FinTech activities

There are a variety of fintech activities which are prevalent within the financial industry. For the ease of discussion, the FDR adopts the definitions of Ehrentraud et al (2020), which assigns fintech activities into the following groups: (i) deposits and lending; (ii) capital-raising and alternative sources of funding; (iii) asset management trading and related services; (iv) payments, clearing and settlement services; (v) insurance; and (vi) cryptoassets (where i-v are adapted from Financial Stability Board’s 2017 definitions and vi is a new classification due to the rising number of use cases that are distinct and separate from i-v).

A. Deposits and lending

1. **Digital banking** Deposit-taking institutions that are members of a deposit insurance scheme and deliver banking services primarily through electronic channels instead of physical branches.
2. **FinTech balance sheet lending** A credit activity facilitated by internet-based platforms (not operated by commercial banks) that use their own balance sheet in the ordinary course of business to intermediate borrowers and lenders.
3. **Loan crowdfunding** A credit activity facilitated by internet-based platforms (not operated by commercial banks) that match borrowers with lenders. Individual loan contracts are established between borrowers and lenders, without the platform being engaged in risk transformation.

B. Capital raising and alternative source of funding

Equity crowdfunding An activity where investors provide funding to private companies in the form of equity. The FinTech platform matches investors with companies they want to invest in, enabling them to participate in the early capital-raising activities of startups and other companies.

C. Asset management trading and related service

Robo-advice Financial advice on investment products that is provided with no or limited human intervention and relies on technology to automate the client onboarding process and the generation of advice through algorithm-based tools.

D. Payments, clearing and settlement services

1. **E-Money** Issuance of debt-like instruments (e-money) for the purpose of facilitating payment transactions.
2. **Digital payment services** Digital payment service providers make use of technology to facilitate payment transactions by transferring money, clearing or settling balances digitally, without the use of physical money.

E. Insurance

Insurtech Technology-driven innovative business models that are emerging in two major areas of insurance: (i) distribution, such as comparison portals and digital brokers; and (ii) underwriting, such as mobile, on-demand, usage-based or technology-enabled peer-to-peer and parametric insurance.

F. Cryptoassets

Cryptoassets A type of private asset that depends primarily on cryptography and distributed ledger or similar technology as part of its perceived or inherent value.

III. Pillar 2: Enabling technologies

There are a number of enabling technologies which have been employed for fintech innovation in the financial industry: (i) application programming interfaces (API); (ii) artificial intelligence (AI); (iii) machine learning (ML); (iv) biometric-based identification and authentication (biometrics); (v) cloud computing (CC); and (vi) distributed ledger technology (DLT). The revolutionary nature of these enabling technologies have resulted in breakthrough applications for fintech purposes – APIs for safe access to customer banking data by non-bank firms; AI and ML for robo-advisory, credit scoring, high-frequency trading and robo-advice; biometrics for digital customer authentication; CC for big data acquiring, validating, storing, protecting, and processing of financial information; and DLT for secured databases of financial information that are more robust against cyberattacks, increases efficiency and reduces costs.

A. Application programming interfaces (API)

A set of rules and specifications followed by software programs to communicate with each other, forming an interface between different software programs that facilitates their interaction.

B. Artificial intelligence (AI)

Information technology (IT) systems that perform functions requiring human capabilities. AI can ask questions, discover and test hypotheses, and make decisions automatically based on advanced analytics operating on extensive data sets.

C. Machine learning (ML)

A method of designing problem-solving rules that improve automatically through experience. ML algorithms give computers the ability to learn without specifying all the knowledge a computer would need to perform the desired task. The technology also allows computers to study and build algorithms that they can learn from and make predictions based on data and experience. ML is a subcategory of AI.

D. Biometric-based identification and authentication (Biometrics)

Automated recognition of individuals based on their biological and behavioural characteristics. It covers a variety of technologies in which unique identifiable attributes of people are used for identification and authentication. These include (but are not limited to) a person's fingerprint, iris print, hand, face, voice, gait or signature, which can be used to validate the identity of individuals.

E. Cloud computing (CC)

The use of an online network ("cloud") of hosting processors to increase the scale and flexibility of computing capacity. This model enables convenient on-demand network access to a shared pool of configurable computing resources (for example networks, servers, storage facilities, applications and services) that can be rapidly released with minimal management effort or service provider interaction.

F. Distributed ledger technology (DLT)

A means of recording information through a distributed ledger, that is, a repeated digital copy of data at multiple locations. This technology enables nodes in a network to securely propose, validate and record state changes (or updates) to a synchronised ledger that is distributed across the network's nodes.

IV. Pillar 3: Policy enablers

The foundation of fintech development rests upon steadfast growth guided by policy enablers. Globally, national governments have established fintech policies and regulations to lay the grounds for digital infrastructures necessary to power fintech development: (i) digital identity systems; (ii) open banking; (iii) data protection frameworks; (iv) cyber security

frameworks; and (v) innovation facilitator initiatives. Policy enablers are enacted either at the national level or within the financial industry, depending on the objectives of the policy.

A. Digital identity systems

A system that covers the process of identity proofing/enrolment and authentication. Identity proofing and enrolment can be either digital or physical (documentary), or a combination, but binding, credentialing, authentication, and portability/federation must be digital.

B. Open banking

The sharing and leveraging of customer-permissioned data from banks with third-party developers and firms to build applications and services that provide real-time payments, greater financial transparency options for account holders, marketing, etc.

C. Data protection frameworks

A system of laws where the most common requirement is to ask citizens for consent before data about them (such as location, financial or health information) may be collected, used or shared. In all jurisdictions with a data protection framework, the purpose of data collection and use should be explicitly specified. More comprehensive frameworks also establish new rights for individuals, like data portability, the right not to be profiled or the right to be forgotten

D. Cyber security frameworks

National and/or sectoral regulations, guidance and supervisory practices that facilitates entities' mitigation of cyber risk and effective response to and recovery from cyberattacks. Most of these have been drawn from different cyber security frameworks and guidance developed by international, national and industry organisations, both public and private sector. The usual starting point for a cyber security framework is to require financial institutions to have a documented cyber security programme or policy. Institutions are expected to identify critical information assets that need to be protected. Testing institutions' vulnerability and resilience to cyber risk (such as through penetration testing) is a common requirement, as well as the reporting of cyber events. Other common requirements relate to having clear responsibilities and accountabilities at financial institutions and ensuring the capabilities of third-party providers as key components of their cyber security framework. Less common regulatory requirements include cyber threat intelligence-sharing (although it is generally encouraged).

E. Innovation facilitator initiatives

The three main types of facilitators are innovation hubs, regulatory sandboxes and accelerators. Hubs are set up by supervisory agencies and provide support, advice or guidance to regulated or unregulated firms in navigating the regulatory framework or identifying supervisory policy or legal issues and concerns. A regulatory sandbox is a controlled testing environment, sometimes featuring regulatory forbearance and alleviation through the use of legally provided discretions by the supervisory agency. Accelerators refer to a partnership arrangement between fintech providers and central banks/supervisory agencies to develop use cases that may involve funding support and/or authorities' endorsement/approval for future use in central banking operations or in the conduct of supervisory tasks. Among jurisdictions that have innovation facilitators in operation, innovation hubs are the most common, with similar objectives: (i) to provide support and guidance on regulatory requirements applying to innovations to be developed; and (ii) to serve as a communication channel with the fintech sector. In some jurisdictions, innovation hubs serve as a prior step for applying to the regulatory sandbox.

CHAPTER 4: PROGRESS AND ACHIEVEMENTS OF CAMBODIAN FINTECH STANDING

In 2018, NBC described the role of FinTech as part of the supporting infrastructure for Cambodia's Financial Inclusion Strategy with examples in four of the six priority areas.

A. Encourage Savings in Formal Financial Institutions

Key Activities	FinTech Support
<ul style="list-style-type: none"> ● Promotion of Saving Culture ● Tax Incentive for Low Income Clients ● Role of Agent to Collect Saving ● Support the Development of Low-Cost Approaches to Mobilize Saving 	<ul style="list-style-type: none"> ● Online Banking Services ● Mobile Banking Apps ● Automated Saving Programs ● Spending and Budgeting Programs

B. Promote Innovative Credit Products for Consumers and MSMEs

Key Activities	FinTech Support
<ul style="list-style-type: none"> ● Explore Modalities for Expanding Noncollateralized Credit for MSMEs ● Improved Credit Reporting and Credit Risk Assessments ● Establishment of A Well-Functioning Dispute Handling Mechanism 	<ul style="list-style-type: none"> ● Peer to Peer Lending ● Invoice Financing ● Smart Credit Decision Tools ● Credit Management ● Accounting and Bookkeeping ● Digital Payment and E-invoicing

C. Payment System Infrastructure

Key Activities	FinTech Support
<ul style="list-style-type: none"> ● Plan for Transition to Digital Transactions ● Facilitate the Development of Remittance Channels ● Incentivize Development of Payment Infrastructure ● Review Interconnection Options and Explore possibility for Regional Inter-linkages ● Forward Looking Regulations to Encourage Market Growth 	<ul style="list-style-type: none"> ● RTGS System ● Real Time Funds Transfer ● Central Shared Switch ● Online Platform ● Open API ● Domestic Payment Hub ● Cross Border Payments and Remittances

D. Increase Consumer Empowerment and Sector Transparency

Key Activities	FinTech Support
<ul style="list-style-type: none"> ● Promote literacy campaigns to address low level of financial literacy scenario ● Strengthen Consumer Protection Provisions 	<ul style="list-style-type: none"> ● Social Media ● Web Base Platform API for Information on the Products and Services ● Open Data Platform

I. Encourage savings in formal financial institutions

A. Online Banking Services / Mobile Banking Apps

The number of banks and microfinance deposit taking institutions (MDI) offering electronic banking such as internet and mobile banking services is on the rise in Cambodia. As of mid 2020, there are 27 banking and financial institutions providing internet banking service and 23 banking and financial institutions offering mobile banking services. Mobile payments and electronic banking services are key enablers in encouraging savings in formal financial institutions.

B. Automated Saving Programs / Spending and Budgeting Programs

Currently, it appears there are no automated saving programs or spending and budgeting programs in Cambodia. However, some of the larger banks and MFIs are considering the development and launch of such schemes once foundations for digitization has been laid.

II. Promote innovative credit products for Consumers and MSMEs

A. Peer to Peer Lending

In July 2016 Karprak.com was launched as Cambodia's first online P2P lending platform, designed to facilitate low cost loans for borrowers while increasing the return and managing risk for the lenders. Karprak.com combines traditional lending practices with social networking to create a platform for borrowers and lenders to transact. KomChey was launched in October 2016 as a loan matching platform offering P2B loans from investors to MSMEs in Cambodia. Operating as a stealth mode startup, KomChey assesses the borrower's credit criteria and KYC as well as loan repayments, enabling MSMEs to raise working capital without the need for property as collateral. Currently, P2P lending is regulated by the Law on Banking and Financial Institutions.

B. Crowdfunding

In November 2015 Tos Fund was launched as a collaborative project between Action IEC, USAID, Come Together, and Alien Dev. Conceptually similar to Kickstarter and Indiegogo, Tos Fund aimed to make use of crowdfunding in the form of mobile phone credits to support projects in IT and arts. However, Tos Fund has been inactive since July 2016. On 10 July 2019, Cambodian Investors Capital Partners Plc received the first license from SECC to manage collective investment schemes for its Penh-based crowd-funding platform, which aims to mobilize investors to provide Cambodian MSMEs a new solution to cash flow financing challenges. On 29 Aug 2019, Gold Whale Co Ltd received a fund management licence from the SECC to establish and manage public fund or/and private fund of collective investment scheme via electronic systems. Gold Whale seeks to offer an innovative and cutting edge electronic fund platform for alternative finance solutions, including crowdfunding. Currently, equity crowdfunding in Cambodia is regulated by the Law on the Issuance and Trading of Non-Government Securities.

C. Invoice Financing

In 21 February 2017 KiuAsia was launched in Cambodia as an e-commerce vendor trading platform across South East Asia countries and global purchasers. Kiupay, Kiu's financing & payments processing unit, allows MSMEs to receive digital payments and provides access for credit and invoice discounting services.

D. Smart Credit Decision Tools

In January 2019, Spean Luy launched microloans mobile app Spean Loan, which allows users to apply digitally without the need for a physical visit or paperwork. Machine learning is used to create a credit scoring system which calculates the repayment ability of users and then recommends the approved amount of the microloan (from USD 50-1,000) and repayment terms (from 2 weeks to 4 months).

E. Credit Management

The Credit Bureau of Cambodia (CBC) holds a centralized database of credit reports for both individuals and enterprises in Cambodia. CBC aims to promote financial inclusion for individuals by maintaining accurate credit information while ensuring that enterprises have access to the correct information to manage loans and extension of credit for consumers. However, the individual credit report checking is underused as few Cambodians are aware that they can access their personal credit report.

F. Accounting, Bookkeeping and e-invoicing

Morakot Technology is a Cambodian cloud-based core-banking system for Banks, MFIs, and Credit Operators that was founded on 1 June 2014. Morakot's system offers fully integrated and automated accounting and supports multi-branch and multi-currency records. Banhji is a Cambodian cloud-based accounting platform that was founded in April 2016. Banhji helps Cambodian MSMEs ensure that their accounting and bookkeeping comply with relevant regulations, including taxes. In addition, Banhji has also developed an e-invoicing module to provide paperless billing services for MSMEs.

G. Digital Payment

In recent years, the payment market has witnessed a remarkable increase in the number of banking and financial institutions and payment service institutions. As of 2020, there are 24 payment service institutions licensed to provide diverse e-wallet based mobile payment services in Cambodia. These services can be categorized as fund transfers, cash in/cash out, retail payments, utilities payments, remittances, acquirers for international credit card schemes, and online payments (E-commerce).

III. Payment system infrastructure

Payment systems are one of the most critical components which support the FinTech ecosystem in Cambodia. Therefore, the development and modernization of payment system infrastructures are critical in promoting enhanced interoperability between banking and financial institutions and the acceleration in the efficiency of inter-bank payments. The NBC has committed tremendous efforts to develop central infrastructures which promote interoperability among different players and provide an enabling regulatory environment to support the growing adoption of the FinTech in payment. Several infrastructures have been introduced as follows:

In late 2012, the National Clearing System (NCS) was officially launched to facilitate the clearing and settlement of inter-bank transactions. The system is capable of processing the centralized clearing of interbank payment using checks and electronic payment orders such as direct credit, direct debit, and credit remittance in Riel and USD. Currently, there are 47 institutions participating within the system of which 43 institutions are direct members and 14 are indirect members. In order to promote electronic payment and local currency usage, NBC introduced Fast Payment system in 2016. The system processes interbank fund transfer

in KHR through credit remittance with maximum amount of 40 million KHR and allows customer to receive fund immediately. Currently, there are 52 institutions participating within the system including 45 commercial banks, 1 specialized bank and 6 microfinance-deposit taking institutions (MDI). NBC encourages the members to expand Fast Payment channel in their Mobile and internet banking as well as other electronic channels to increase the convenience of using Fast Payment. Currently, 7 institutions integrated the system into online platform. Fast Payment, however did not address card payment connectivity. To this end, in 2017 the NBC introduced CSS, a nationwide infrastructure for payment card switch. CSS allows participating institutions to save investment cost of deployment while expanding the access of their services. Currently, CSS system has 51 institutions as member including 43 commercial banks, 6 microfinance deposit taking institutions and 1 payment service institution. The NBC introduced Online Banking System (OBS) in 2016 to enable banking and financial Institutions and treasury department to directly carry out inter-bank and intra-bank fund transfer transactions online. The system helps remove paperwork which is time consuming and complicated. The OBS has the participation of 51 financial institutions including the treasury department, which is in line with the government's efforts to digitize its revenue collection and budget expenditures. Settlement between members is made in real-time using their current accounts held at the NBC. In order to promote interbank market transaction, the NBC introduced the NBC-Platform in 2017, supporting the growth of central bank security trading, foreign exchange dealing, and discount window. Introduction of the system helps participants to better manage their treasury position with repo transaction and facilitate the conduct of the monetary policy, while settlement of funds between participants is carried out in real-time.

In 2016, NBC established a working group to explore the use of blockchain and distributed ledger technology ("DLT") in payment systems. Through research and experimentation, the NBC has cautiously and prudently explored how to harness the rapid advancement of new technological innovations. In particular, the NBC has studied the degree to which blockchain technology can be adopted in Cambodia to bring about benefits from such technological innovations. By early 2017, the group had developed use-cases under the auspices of Project Bakong, which embraces the use of blockchain technology in modernising its national payment system. Bakong aims to address the issues of interconnectivity and interoperability across platforms of payment operators, with the objectives of attaining efficiency (lower cost, greater speed and enhanced security) in payment systems, promoting financial inclusion, and reducing Riel cash payments. Bakong is a backbone payment system operating on DLT which can be used as a wallet-based electronic currency through a mobile application. This eliminates the need for non-digitised banks and PSIs to develop their own mobile applications while allowing those with existing mobile applications to easily integrate with Bakong through open API. The adoption of Bakong will allow the public to enjoy value-added benefits at reduced costs, as it enables real-time fund transfers and instant payment transactions using QR code across different payment service providers. In addition, Bakong offers customers the possibility to link their e-wallets to bank accounts, enabling fund transfers from Bakong accounts to bank accounts and vice versa. The Bakong system was official launched in October 2020 with participation from many banks and payment service institutions.

- A. Domestic Payment Hub:** As Bakong promotes interoperability among bank and payment service institutions, it has the potential to become the Domestic Payment Hub in Cambodia. Currently, NBC is exploring the use of Bakong as the payment hub to support cross border standardized QR code and E-commerce payments as well as remittances.
- B. Cross Border Payments and Remittances:** During the meeting of ASEAN Finance Ministers and Central Bank Governors on 4-5 April 2019, Bank of Thailand (BOT) and NBC agreed to enact an “Interoperable QR Payment” between Bank in Thailand and Cambodia. This allowed cross-border QR payments and remittances vice versa in both countries. In addition, Cambodia was one of the eight ASEAN countries to reach a consensus on the ASEAN Payment Connectivity, which aims to integrate regional ASEAN financial services to reduce transaction fees. This further enhances Cambodia’s fintech capabilities for cross-border payments and remittances in ASEAN.

IV. Improve broader access to insurance

Insurtech: In 2014, BIMA was the first company to launch an insurtech business model in Cambodia. Partnering with Smart Axiata, BIMA offered its mobile-delivered Smart Life Insurance to Smart Axiata subscribers. BIMA currently offers life insurance, personal accident insurance and health insurance via mobile phone. Since then, other insurtech collaborations have sprung up. In September 2018, Aetins Malaysia and IG Tech Cambodia set up IG Aetins Asia to provide digitised insurance solutions and services for insurance companies in Cambodia. In March 2019, Cambodia Life Insurance announced it would provide life and health microinsurance products via mobile phones in partnership with Democrance UAE and Cellcard Cambodia. Currently, insurance activities in Cambodia are regulated by the Insurance Division, Financial Industry Department, Ministry of Economy and Finance (MEF).

V. Strengthen the capacity of the financial sector regulators

A. Technical skill development plan

As highlighted in NFIS and FSDS, a financial sector training needs assessment is necessary for all sectors and all levels due to the shortage of skills. This includes FinTech related skills. Beschorne et. al. (2018) highlighted key relevant skills that are necessary for Cambodia to become a digital economy (Table 2).

Table 2 Relevant skills for the digital economy

Types	Description	Target	Examples
Basic digital/ICT skills	Skills needed to use digital technologies <ul style="list-style-type: none"> ● send email ● find work-related information on the Internet ● ability to use digital apps and non-specialized software ● awareness and ability to stay safe in cyberspace 	All citizens and workers	EU: Digital Competence Framework for Citizens
Digital/ICT complementary skills	Soft skills required to carry out work in a technology-rich environment and to address the expanding number of opportunities for ICT-enabled collaborative work <ul style="list-style-type: none"> ● communicate on social networks ● brand products on e-commerce platforms ● analyze data gathered from the web 	Middle-skill to High-skill professionals	USA: Partnership for 21st Century Skills USA: Agenda for New Skills for Jobs
Advanced and specialist skills	Skills required to drive innovation and to support digital infrastructure and the functioning of the digital ecosystem <ul style="list-style-type: none"> ● program software ● develop applications ● manage networks ● data analytics 	Industry- and occupation-specific	Singapore: Skills for Information Age (SFIA) Singapore's Workforce Qualification scheme

Source: Beschorner et.al. (2018)

B. Regulator's Capacity Building

In NFIS, the key technical skills necessary for regulatory staff to oversee insurance regulatory activities include risk-based supervision, market-conduct supervision, complaint handling, and other technical skills such as actuarial analysis. These are relevant for FinTech regulatory activities as well.

C. Strengthen Regulatory Implementation

A number of FinTech relevant regulations have either been passed (payment service

providers, e-commerce, consumer personal data protection and privacy) or are being planned (sandbox, eKYC) in Cambodia. However, implementation can be a challenge, as FinTech firms may not clearly understand which regulations apply to them. In this regard, NBC has set a clear precedent for FinTech firms to conform to the latest regulations (for example, licensed third party processors have to now convert to payment service providers licensing). In terms of follow-ups and follow-throughs, a standardized approach should be taken for the announcement of new regulations i.e. official news broadcast, direct contacting of FinTech firms affected, follow-up on progress or status of conversion to new licensing, or compliance with new regulations.

VI. Increase consumer empowerment and protection, and financial sector transparency

A. Social Media

Apart from Facebook, Twitter and YouTube, NBC has set up three RSS feeds (News, Speeches and Press Releases) to provide the general public with updates on the latest developments in banking and finance issues in Cambodia.

B. Web Base Platform API for Information on the Products and Services

Currently, it appears there is no web-based platform API for information on products and services from different banks and MFIs in Cambodia. However, NBC is in talks with relevant associations to discuss the future development of such a platform to promote consumer empowerment, protection and transparency of banking operations, particularly for FinTech activities.

C. Open Data Platform

Officially registered as a local NGO in August 2015, Open Development Cambodia is a novel open data platform which gathers and maintain timely and authenticated information on Cambodia's economic and social conditions. All data and materials are freely available for download and provide a channel for transparency of developments in the FinTech and financial sectors.

D. Financial and Digital Literacy

On 16 January 2020, the NBC launched a 1 year financial and digital literacy program in collaboration with Ministry of Women's Affairs (MoWA), and Visa. Aimed at women, the program includes themes such as "Financial and Digital Literacy for Entrepreneurship Development" and "Access to safe Financial Services". NBC is also planning to roll out similar financial and digital literacy programs for other target customer segments in 2021 and beyond.

CHAPTER 5: POLICY AND REGULATORY RESPONSES FOR CAMBODIA

I. Policy Responses Based on Lessons Learnt from ASEAN FinTech Regulations

Since 2015, FinTech policies, regulations, regulatory sandboxes and incubator hubs have been introduced in many countries around the world. This includes ADB ASEAN member countries Brunei Darussalam (2017), Indonesia (2018), Malaysia (2018), Philippines (2017), Singapore (2016), Thailand (2016) and Vietnam (proposed 2020).

Amongst these countries, Singapore, Thailand and Indonesia stand out with above average infrastructure, high mobile penetration, laws/regulations in support of FinTech development and taking reference from best practices globally. In addition, these 3 countries are amongst the top destinations for ASEAN FinTech firms to set up shop. Furthermore, the general cultures of Singapore, Thailand and Indonesia are not too dissimilar to that of Cambodia.

Policy responses from the 3 leading countries were compared and compiled into 3 main areas: (i) support measures for FinTech start-ups, (ii) FinTech infrastructure and (iii) regulatory framework.

A. Support Measures for FinTech Start-Ups

Direct support for ecosystem: Direct support measures for the ecosystem can come in the form of organisation of annual FinTech conferences, events, seminars, training workshops. FinTech accelerators, incubators, and common work-spaces. These are especially beneficial to FinTech start-ups with limited resources.

Early FinTech adoption: Government use of FinTech solutions through digitisation of regular payments e.g. digital payments of salaries for civil service, pensions, social benefits etc both encourage adoption by consumers as well as create market opportunities for innovative FinTech solutions.

FinTech-friendly fiscal policies These can include lowering of tax rates, or provision of tax incentives for FinTech start-ups, subsidies for angel investors, and FinTech specific investments, such as funding and infrastructure for FinTech purposes.

Digital Innovation Hub An innovation hub can be established to function for three purposes: (i) as a FinTech R&D /learning and innovation center, (ii) as a media channel for coordination, collaboration and regulatory updates among key stakeholders, and (iii) as a laboratory for regulatory sandbox testing of FinTech firms.

B. FinTech Infrastructure

Improve digital connectivity Although basic digital infrastructure is in place, its speed, quality, and capacity must be increased to meet the demands of the digital economy. Weak connectivity and costly data will limit the potential market for products and services.

Interoperable infrastructure Interoperability between Bakong RTGS, QR code standards (Cambodia and ASEAN) and NBRS will strengthen and enable existing or new FinTech applications such as eKYC and cross-border payments.

Encourage open data, payment channel access, and open APIs Fair access to key finance channels – RTGS System, Real Time Funds Transfer, Central Shared Switch, Online Platform, Open API Framework (Risk-based principles governing products and services such as deposits, loans, insurance, and investments) and Cross Border Payments and Remittances – will enable more innovative FinTech solutions to be developed. AI/ML and cloud computing technologies can be employed to enhance the level of access to these key finance channels.

C. Regulatory Framework

Agile regulatory framework: Industry-driven, principles-based regulations with flexibility for FinTech firms to define codes of conduct and operating standards including AML, CFT, eKYC, e-Commerce ensure that regulations can be tweaked in response to new FinTech developments.

Consumer Protection Policy FinTech firms must ensure customer protection to create and maintain trust in the industry. Pertinent issues include transparency, fair treatment, reliability, data privacy, data security, and handling of customers' complaints.

Market conduct supervision FinTech firms must apply sound corporate governance, risk management, and compliance with all relevant laws and regulations. The NBC is partnering with CAFT to oversee member associations' conduct.

Regulatory Sandbox The regulatory sandbox should aim to provide a regulatory environment to encourage FinTech experimentation that promotes financial inclusion which increases access to financial services, decreases cost for customers and limits disruption to the overall financial system.

II. Regulatory Responses Based on Lessons Learnt from ASEAN FinTech Regulations

To highlight the lessons learnt from the 3 leading countries, a comparative analysis was carried out to identify tested and proven best practices most relevant and useful in the development of FinTech regulations for Cambodia. The comparative analysis will also help NBC to identify the most suitable lessons learnt for Cambodia. Appendix A provides a detailed comparison of FinTech regulations from Singapore, Thailand, Indonesia, and Cambodia.

The results of the comparative analysis have turned up key lessons for Cambodia, which are summarised as follows:

- A. Payment Platforms:** Consider enhancing and formulating Regulatory Requirements addressing FinTech activities relating to payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)
- B. Loan crowdfunding:** Consider developing regulations on Marketplace Financing Lending Platform (P2P lending, Invoice Financing, Smart Credit Decision Tools, Credit management, Account book-keeping and E-invoicing)
- C. Equity crowdfunding:** Consider developing regulations on equity crowdfunding.
- D. InsurTech:** Consider issuing regulations addressing FinTech activities relating to insurance compensation to beneficiaries.
- E. Blockchain:** Consider discussing and releasing an official statement, regulation or Prakas together with relevant ministries on the proper use of blockchain as a backend supporting

technology for legal FinTech activities such as digital payments, e-money, e-wallet etc.

- F. Government Initiatives:** Consider initiatives for incubators, accelerators, and funding schemes to promote capacity development of FinTech talent in Cambodia. Consider also related government initiatives by other ministries, such as biometric-based national identity cards, which has implications for a national KYC platform for eKYC purposes, and cybercrime/cyber-security rules and regulations, which are national level policies.

III. Key Issues based on Meetings with Key Financial Institutions in Cambodia

Between 1-30 Jun2 2020, a series of meetings were arranged by NBC with 21 key FIs in to discuss key issues related to FinTech activities in Cambodia (Appendix B). Among the interviewed banks, digital strategies are still being prepared for many, and FinTech strategies are at the nascent stage, is still under preparation for many banks. Among the MFIs, it is estimated that only the Top 7 MDIs are able to carry out digital transformation. The key issues are summarised as follows:

- ⇒ **Is FinTech keeping the Banks busy?** There is a focus on cost reduction through digital channels (customer self-service, ATMs, mobile apps), adopting best practices from Singapore and Indonesia, rather than digital transformation towards FinTech solutions. Cards are popular as they minimize the need for branch banking by customers. Corebanking – both technology development and business process improvement – may be a hindering factor, as some FIs are dealing with legacy systems. For now, most FIs work with PSPs such as Wing, True Money, and e-Money for transfers.
- ⇒ **Are MFIs using FinTech to fulfil their mandate?** Generally, the primary goal among MFIs is to achieve a bank license, and more case studies are needed to create a FinTech awareness.
- ⇒ **How are PSPs using FinTech?** Generally, the primary goal among PSPs is to expand their agent network and increase bank partnerships
- ⇒ **What are the key challenges towards FinTech?** The primary challenge is the lack of talents with technology skills to support digital or FinTech activities, with the limited skilled manpower both expensive and very mobile i.e. not tied down to Cambodia. During the meetings, a number of FIs expressed and supported the formulation of a decentralized sandbox and an e-KYC guideline for Cambodia in line with international best practices in ASEAN. Building on these views, recommendations for a sandbox (Appendix C) and e-KYC guidelines (Appendix D) have been provided based on best practices from Singapore, Malaysia and Thailand.

IV. Strategic Responses and Recommendations for FDR

Strategic responses and recommendations for the FDR are drawn from the lessons learnt from Singapore, Thailand, and Indonesia for policy and regulatory responses, as well as the findings based on meetings with 21 key FIs in Cambodia. These strategic responses and recommendations have been re-classified under the three pillars and its relevant areas to form the broad strategic focuses that the FDR aims to target over the course of its implementation.

Pillars	Areas	Strategic Responses and Recommendations	Strategies
Pillar 1: FinTech activities	Digital banking	III. Key Issues Focus on cost reduction through digital channels (customer self-service, ATMs, mobile apps), adopting best practices from Singapore and Indonesia	Launch Automated Saving Programs Launch Spending and Budgeting Programs
	FinTech balance sheet lending	Not applicable for Cambodia	N.A.
	Loan crowdfunding	II. Regulatory Responses, B. Loan crowdfunding: Consider developing regulations on Marketplace Financing Lending Platform (P2P lending, Invoice Financing, Smart Credit Decision Tools, Credit management, Account book-keeping and E-invoicing).	Develop Marketplace Lending Platform Regulation
	Equity crowdfunding	II. Regulatory Responses, C. Equity crowdfunding: Consider developing regulations on equity crowdfunding.	Develop Equity Crowdfunding Regulation
	Robo-advice	Not applicable for Cambodia	N.A.
	E-Money/ Digital payment services	II. Regulatory Responses, A. Payment Platforms: Consider enhancing and formulating Regulatory Requirements addressing FinTech activities relating to payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)	Strengthen Regulatory Requirements addressing FinTech activities relating to payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)
	Insurtech	II. Regulatory Responses, D. Insurtech: Consider issuing regulations addressing FinTech activities relating to insurance compensation to beneficiaries.	Develop Provisions for Insurtech under Regulatory Sandbox
	ICO/Coins	Illegal in Cambodia	N.A.

Pillar 2: Enabling technologies	API/Open Banking Initiatives	I. Policy Responses, B. FinTech Infrastructure Encourage open data, payment channel access, and open APIs: Fair access to key finance channels – RTGS System, Real Time Funds Transfer, Central Shared Switch, Online Platform, Open API Framework (Risk-based principles governing products and services such as deposits, loans, insurance, and investments) and Cross Border Payments and Remittance	Establish Open API Framework for banking and financial institutions
	AI/ML	I. Policy Responses, B. FinTech Infrastructure Encourage open data, payment channel access, and open APIs AI/ML and cloud computing technologies can be employed to enhance the level of access to these key finance channels.	Provide training on AI/ML
	Biometrics	II. Regulatory Responses, E. Government Initiatives Consider also related government initiatives by other ministries, such as biometric-based national identity cards, which has implications for a national KYC platform for eKYC purposes.	Consider adoption of new biometric-based national identity cards
	Cloud computing	I. Policy Responses, B. FinTech Infrastructure Encourage open data, payment channel access, and open APIs AI/ML and cloud computing technologies can be employed to enhance the level of access to these key finance channels.	Establish Cloud Services Policy Framework and Security Standards
	Distributed ledger technology	I. Policy Responses, B. FinTech Infrastructure Interoperable infrastructure: Interoperability between Bakong RTGS, QR code standards (Cambodia and ASEAN) and NBRS will	Establish DLT Standards for Payment System

		strengthen and enable existing or new FinTech applications such as eKYC and cross-border payments.	
Pillar 3: Policy enablers	Digital identity systems	II. Regulatory Responses, E. Government Initiatives Consider also related government initiatives by other ministries, such as biometric-based national identity cards, which has implications for a national KYC platform for eKYC purposes.	Enable NBRS for standardised shared KYC platform
	Open Banking	III. Key Issues NBC supportive of regulatory sandbox to test open banking platform, business ideas, more convenience for FinTech firms to look for partners to develop APIs, good if Cambodian businesses are open to putting their APIs onto a platform similar to Singapore APIX and commercial banks as foundation to have access APIs/middleware	Enact policies for Open Banking infrastructure
	Data protection frameworks	I. Policy Responses, C. Regulatory Framework Agile regulatory framework: Industry-driven, principles-based regulations with flexibility for FinTech firms to define codes of conduct and operating standards including AML, CFT, e-KYC, e-Commerce	Strengthen Regulatory Requirements for e-KYC and Transparency of Bank Product Information
		I. Policy Responses, C. Regulatory Framework Consumer Protection Policy: transparency, fair treatment, reliability, data privacy, data security, and handling of customers' complaints.	Issue Consumer Protection Policy for Fintech Payment activities in Cambodia
	Cyber security frameworks	II. Regulatory Responses, E. Government Initiatives... and cybercrime/cyber-security rules and regulations, which are national level policies.	Issue Cybersecurity Risk Guideline for banking and financial institution in Cambodia

Innovation facilitator initiatives	<p>I. Policy Responses, C. Regulatory Framework Regulatory Sandbox aim to provide a regulatory environment to encourage FinTech experimentation that promotes financial inclusion which increases access to financial services, decreases cost for customers and limits disruption to the overall financial system.</p>	Define Regulatory Sandbox
	<p>I. Policy Responses, A. Support Measures for FinTech Start-Ups Digital Innovation Hub: (i) as a FinTech R&D /learning and innovation center, (ii) as a media channel for coordination, collaboration and regulatory updates among key stakeholders, and (iii) as a laboratory for regulatory sandbox testing of FinTech firms. II. Regulatory Responses, E. Government Initiatives incubators, accelerators, and funding schemes to promote capacity development of FinTech talent in Cambodia</p>	Enhance Incubator Hub/Accelerator
	<p>I. Policy Responses, A. Support Measures for FinTech Start-Ups Early FinTech adoption Government use of FinTech solutions through digitisation of routine payments e.g. digital payments of salaries for civil service, pensions, social benefits etc</p>	Promote Government Adoption of FinTech
	<p>I. Policy Responses, A. Support Measures for FinTech Start-Ups FinTech-friendly fiscal policies lowering of tax rates, or provision of tax incentives for FinTech start-ups, subsidies for angel investors, and FinTech specific investments, such as</p>	Introduce FinTech-friendly fiscal policies

		funding and infrastructure for FinTech purposes	
		I. Policy Responses, A. Support Measures for FinTech Start-Ups Direct support for ecosystem organisation of annual FinTech conferences, events, seminars, training workshops. FinTech accelerators, incubators, and common work-spaces.	Plan Annual FinTech Activities

CHAPTER 6: KEY PRIORITY ACTIVITIES OF FDR

The FDR highlights key priority activities which are foundational for FinTech development in Cambodia under the three main pillars:

Pillars	Areas	Strategies
Pillar 1: FinTech activities	Digital banking	Launch Automated Saving Programs
		Launch Spending and Budgeting Programs
	FinTech balance sheet lending	N.A.
	Loan crowdfunding	Develop Marketplace Lending Platform Regulation
	Equity crowdfunding	Develop Equity Crowdfunding Regulation
	Robo-advice	N.A.
	E-Money/Digital payment services	Strengthen Regulatory Requirements addressing FinTech activities relating to payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)
Pillar 2: Enabling technologies	Insurtech	Develop Provisions for Insurtech under Regulatory Sandbox
	ICO/Coins	N.A.
	API/Open Banking Initiatives	Establish Open API Framework for banking and financial institutions
	AI/ML	Provide training on AI/ML
	Biometrics	Consider adoption of new biometric-based national identity cards
	Cloud computing	Establish Cloud Services Policy Framework and Security Standards
Pillar 3: Policy enablers	Distributed ledger technology	Establish DLT Standards for Payment System
	Digital identity systems	Enable NBRS for standardised shared KYC platform
	Open Banking	Enact policies for Open Banking infrastructure
	Data protection frameworks	Strengthen Regulatory Requirements for eKYC and Transparency of Bank Product Information
		Issue Consumer Protection Policy for Fintech Payment activities in Cambodia
	Cyber security frameworks	Issue Cybersecurity Risk Guideline for banking and financial institution in Cambodia
	Define Regulatory Sandbox	

	Innovation facilitator initiatives	Enhance Incubator Hub/Accelerator
		Promote Government Adoption of FinTech
		Introduce FinTech-friendly fiscal policies
		Plan Annual FinTech Activities

The laying of these foundations will enable the burgeoning FinTech players in Cambodia to gain clarity as well as provide a better environment for future development of FinTech solutions. The priority areas of the strategy have been detailed in the action plan. Upon approval of the FDR and endorsement as a policy, the NBC will coordinate implementation of the action plan to ensure a coordinated effort between all stakeholders to achieve the FinTech development objective. The NBC takes the leading and facilitating roles with support from ADB, and will have a team to spearhead the process. One of the key activities is to ensure effective dissemination of the action plan and to hold a stakeholder’s consultation to identify suitable representatives to lead the different activities outlined in the action plan.

CHAPTER 7: FINTECH DEVELOPMENT ROADMAP

I. Key priorities under NBC's authority

	Strategies	Activities	Short term (2020-2021)	Medium term (2022-2023)	Long term (2024-2025)
			Development	Implementation	Monitoring/Evaluation
Payments and lending					
	1) Launch Automated Saving Programs	Pilot automated savings programs with selected banks, MDIs, MFIs and FinTech firms for farmers, self-employed and informally employed	<ul style="list-style-type: none"> Arranging piloting consultations with selected banks, MDIs, MFIs, FinTech firms and representative end users from farmers, self-employed and informally employed on amount, interest rates, fees etc 	<ul style="list-style-type: none"> Implementing pilots in test sites with selected banks, MDIs, MFIs, FinTech firms and representative end users from farmers, self-employed and informally employed 	<ul style="list-style-type: none"> Reviewing pilots in test sites with selected banks, MDIs, MFIs, FinTech firms and representative end users from farmers, self-employed and informally employed
	2) Launch Spending and Budgeting Programs	Pilot spending and budgeting programs with selected banks, MDIs, MFIs and FinTech firms for farmers, self-employed and informally employed	<ul style="list-style-type: none"> Arranging piloting consultations with selected banks, MDIs, MFIs, FinTech firms and representative end users from farmers, self-employed and informally employed on amount, interest rates, fees etc 	<ul style="list-style-type: none"> Implementing pilots in test sites with selected banks, MDIs, MFIs, FinTech firms and representative end users from farmers, self-employed and informally employed 	<ul style="list-style-type: none"> Reviewing pilots in test sites with selected banks, MDIs, MFIs, FinTech firms and representative end users from farmers, self-employed and informally employed
	Develop Market Place Financing Lending Platform Regulation	Formulate market place financing lending platform regulations for low cost consumer and MSME loans that minimize risks and maximise returns for lenders	<ul style="list-style-type: none"> Drafting market place financing lending platform lending regulations for consumer and MSME loans, with particular emphasis on the following: <ul style="list-style-type: none"> Risk Information Disclosure to Lenders Lending Platform Requirements and Compliance Consumer Protection Fairness of Loan Contracts Loan Asset Protection 	<ul style="list-style-type: none"> Introducing market place financing lending platform lending regulations for consumer and MSME loans, with particular emphasis on the following: <ul style="list-style-type: none"> Risk Information Disclosure to Lenders Lending Platform Requirements and Compliance Consumer Protection Fairness of Loan Contracts Loan Asset Protection 	<ul style="list-style-type: none"> Reviewing market place financing lending platform lending regulations for consumer and MSME loans, with particular emphasis on the following: <ul style="list-style-type: none"> Risk Information Disclosure to Lenders Lending Platform Requirements and Compliance Consumer Protection Fairness of Loan Contracts Loan Asset Protection
Payments, clearing and settlement services					
	Strengthen Regulatory Requirements addressing FinTech activities relating to	Consider enhance/Update regulations addressing FinTech activities	<ul style="list-style-type: none"> Consider enhance/Update regulations addressing FinTech activities relating to 	<ul style="list-style-type: none"> Implement regulations addressing FinTech activities relating to payment (Fund 	<ul style="list-style-type: none"> Reviewing regulations addressing FinTech activities relating to payment (Fund

	payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)	relating to payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)	payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)	transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)	transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)
en g es	Establish Open API Framework for banking and financial institutions	Establish open API framework (technical, governance and security compliance) based on risk-based principles to govern Banking products and services (deposits, loans)	<ul style="list-style-type: none"> Formulating open API framework (technical, governance and security compliance) that ensure fair access to payment channel access and key finance channels: <ul style="list-style-type: none"> RTGS System RPS (RFT,MPS, QPS, ECS) CSS Bakong Cross Border Payments and Remittances 	<ul style="list-style-type: none"> Implementing open API framework (technical, governance and security compliance) that ensure fair access to payment channel access and key finance channels: <ul style="list-style-type: none"> RTGS System RPS (RFT,MPS, QPS, ECS) CSS Bakong Cross Border Payments and Remittances 	<ul style="list-style-type: none"> Reviewing open API framework (technical, governance and security compliance) that ensure fair access to payment channel access and key finance channels: <ul style="list-style-type: none"> RTGS System RPS (RFT,MPS, QPS, ECS) CSS Bakong Cross Border Payments and Remittances
ed y	Establish DLT Standards for Payment System	Establish DLT standards (technical, governance and security compliance) based on risk-based principles to govern use of DLT for Payment system by financial institutions or FinTech firms in Cambodia	<ul style="list-style-type: none"> Developing DLT standards (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/TC 307 Blockchain and distributed ledger technologies ISO/TR 23455:2019 Blockchain and distributed ledger technologies — Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems 	<ul style="list-style-type: none"> Implementing DLT standards (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/TC 307 Blockchain and distributed ledger technologies ISO/TR 23455:2019 Blockchain and distributed ledger technologies — Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems 	<ul style="list-style-type: none"> Reviewing DLT standards (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/TC 307 Blockchain and distributed ledger technologies ISO/TR 23455:2019 Blockchain and distributed ledger technologies — Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems

	<p>Prepare policies for interoperable infrastructure</p>	<p>Promote interoperability QR code standards (Cambodia and ASEAN) and NBRIS</p>	<ul style="list-style-type: none"> Developing partnerships with other ASEAN nations such as Indonesia, Malaysia, Vietnam and promoting interoperability (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/IEC 18004:2015 Information – Automatic identification and data capture techniques – QR Code barcode symbology specification 	<ul style="list-style-type: none"> Implementing partnerships with other ASEAN nations such as Indonesia, Malaysia, Vietnam and promoting interoperability (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/IEC 18004:2015 Information – Automatic identification and data capture techniques – QR Code barcode symbology specification 	<ul style="list-style-type: none"> Reviewing partnerships with other ASEAN nations such as Indonesia, Malaysia, Vietnam and promoting interoperability (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/IEC 18004:2015 Information – Automatic identification and data capture techniques – QR Code barcode symbology specification
<p>1) Strengthen Regulatory Requirements for eKYC and Transparency of Bank Product Information</p>	<p>Enhance regulatory requirements for e-KYC and transparency of bank product information for banks, MDIs, MFIs and FinTech firms</p>	<ul style="list-style-type: none"> Developing regulations for the following: <ul style="list-style-type: none"> e-KYC (refer to Appendix D for recommendations) Transparency of Bank Product Information 	<ul style="list-style-type: none"> Implementing regulations for the following: <ul style="list-style-type: none"> e-KYC Transparency of Bank Product Information 	<ul style="list-style-type: none"> Reviewing regulations for the following: <ul style="list-style-type: none"> e-KYC Transparency of Bank Product Information 	
<p>2) Issue Consumer Protection Policy for Fintech in payment activities</p>	<p>Establish Consumer Protection Policy for FinTech in Payment activities</p>	<ul style="list-style-type: none"> Developing Consumer Protection Policy for FinTech in Payment activities 	<ul style="list-style-type: none"> Implementing Consumer Protection Policy for FinTech in Payment activities 	<ul style="list-style-type: none"> Reviewing Consumer Protection Policy for FinTech in Payment activities 	
<p>Issue Cybersecurity Risk Guideline for Payment system in Cambodia</p>	<p>Establish cybersecurity risk guideline for payment system in Cambodia</p>	<ul style="list-style-type: none"> Developing a Cybersecurity Risk Guideline for payment system in Cambodia 	<ul style="list-style-type: none"> Implementing Cybersecurity Risk Guideline for payment system in Cambodia 	<ul style="list-style-type: none"> Reviewing Cybersecurity Risk Guideline for payment system in Cambodia 	
<p>1-Define Regulatory Sandbox for Fintech in Payment activities</p>	<p>Design, apply and assess regulatory sandbox for FinTech in Payment activities</p>	<ul style="list-style-type: none"> Drafting Regulatory Sandbox (refer to Appendix C for recommendations) 	<ul style="list-style-type: none"> Launching of Regulatory Sandbox 	<ul style="list-style-type: none"> Assessment of Regulatory Sandbox 	
<p>2-Plan Annual FinTech Activities</p>	<p>Organise FinTech conferences, events, seminars, training workshops on a monthly, bi-monthly,</p>	<ul style="list-style-type: none"> Planning for FinTech conferences, events, seminars, training workshops including but not limited to the following: 	<ul style="list-style-type: none"> Launch of FinTech conferences, events, seminars, training workshops including but not limited to the following: 	<ul style="list-style-type: none"> Review of FinTech conferences, events, seminars, training workshops including but not limited to the following: 	

	quarterly and annually basis	<ul style="list-style-type: none"> ○ Cambodia FinTech Day (Annual) ○ FinTech Investments (Quarterly) ○ FinTech Developments (Monthly/Bi-Monthly) <ul style="list-style-type: none"> ▪ Mobile Payment ▪ P2P Lending, ▪ Equity Crowdfundin g ▪ Digital Identity ▪ E-Money ▪ e-KYC ▪ InsurTech ▪ Cross-border Collaboration s ▪ FinTech Regulations 	<ul style="list-style-type: none"> ○ Cambodia FinTech Day (Annual) ○ FinTech Investments (Quarterly) ○ FinTech Developments (Monthly/Bi-Monthly) <ul style="list-style-type: none"> ▪ Mobile Payment ▪ P2P Lending, ▪ Equity Crowdfundin g ▪ Digital Identity ▪ E-Money ▪ e-KYC ▪ InsurTech ▪ Cross-border Collaboration s ▪ FinTech Regulations 	<ul style="list-style-type: none"> ○ Cambodia FinTech Day (Annual) ○ FinTech Investments (Quarterly) ○ FinTech Developments (Monthly/Bi-Monthly) <ul style="list-style-type: none"> ▪ Mobile Payment ▪ P2P Lending, ▪ Equity Crowdfundin g ▪ Digital Identity ▪ E-Money ▪ e-KYC ▪ InsurTech ▪ Cross-border Collaboration s ▪ FinTech Regulations
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II. Key priorities under related authorities

Strategies	Activities	Short term (2020-21)	Medium term (2022-2023)	Long term (2024-025)
		Development	Implementation	Monitoring/Evalu
Launch Automated Saving Programs	Pilot automated savings programs with selected banks, MDIs, MFIs and FinTech firms for farmers, self-employed and informally employed	<ul style="list-style-type: none"> ● Arranging piloting consultations with selected banks, MDIs, MFIs, FinTech firms and representative end users from farmers, self-employed and informally employed on amount, interest rates, fees etc 	<ul style="list-style-type: none"> ● Implementing pilots in test sites with selected banks, MDIs, MFIs, FinTech firms and representative end users from farmers, self-employed and informally employed 	<ul style="list-style-type: none"> ● Reviewing pilots sites with s banks, MDIs, FinTech firms representative en from farmers, employed informally employ
N.A.	N.A.	N.A.	N.A.	N.A.
Develop Market Place Financing Lending Platform Regulation	Formulate market place financing lending platform regulations for low cost consumer and MSME loans that minimize risks and	<ul style="list-style-type: none"> ● Drafting market place financing lending platform lending regulations for consumer and MSME loans, with particular emphasis on the following: 	<ul style="list-style-type: none"> ● Introducing market place financing lending platform lending regulations for consumer and MSME loans, with particular emphasis on the following: 	<ul style="list-style-type: none"> ● Reviewing market financing lending platform lending regulations for cor and MSME loans, v particular emphasis the following:

		maximise returns for lenders	<ul style="list-style-type: none"> ○ Risk Information Disclosure to Lenders ○ Lending Platform Requirements and Compliance ○ Consumer Protection ○ Fairness of Loan Contracts ○ Loan Asset Protection 	<ul style="list-style-type: none"> ○ Risk Information Disclosure to Lenders ○ Lending Platform Requirements and Compliance ○ Consumer Protection ○ Fairness of Loan Contracts ○ Loan Asset Protection 	<ul style="list-style-type: none"> ○ Risk Information Disclosure to Lenders ○ Lending Platform Requirements and Compliance ○ Consumer Protection ○ Fairness of Loan Contracts ○ Loan Asset Protection
Capital raising and alternative source of funding					
Equity Crowdfunding Regulation	Develop Equity Crowdfunding Regulation	Enhance/Update regulations addressing FinTech activities relating to equity	<ul style="list-style-type: none"> ● Enhance/Update regulations addressing FinTech activities relating to equity 	<ul style="list-style-type: none"> ● Implement regulations addressing FinTech activities relating to equity 	<ul style="list-style-type: none"> ● Reviewing regulations addressing FinTech activities relating to equity
Asset management trading and related service					
Investment Advice	N.A.	N.A.	N.A.	N.A.	N.A.
Payments, clearing and settlement services					
Payment Gateway/ Merchant Services	Strengthen Regulatory Requirements addressing FinTech activities relating to payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)	Consider enhance/ Update regulations addressing FinTech activities relating to payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)	<ul style="list-style-type: none"> ● Consider enhance/Update regulations addressing FinTech activities relating to payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection) 	<ul style="list-style-type: none"> ● Implement regulations addressing FinTech activities relating to payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection) 	<ul style="list-style-type: none"> ● Reviewing regulations addressing FinTech activities relating to payment (Fund transfer, Card payment, E-money and e-wallet, Risk management and Customer protection)
Insurance					
Insurance	Develop Provisions for Insurtech under Regulatory Sandbox	Developing regulations addressing fintech activities relating to insurance compensation under the regulatory sandbox	Introducing regulations addressing fintech activities relating to insurance compensation under the regulatory sandbox	Implementing specific regulations addressing fintech activities relating to insurance compensation under the regulatory sandbox	Assessing specific regulations addressing fintech activities relating to insurance compensation under the regulatory sandbox
Payments to assets					
Payments to Assets	N.A.	N.A.	N.A.	N.A.	N.A.
Open Banking	Establish Open API Framework for banking and financial institutions	Establish open API framework (technical, governance and security compliance) based on risk-based principles to govern Banking products and services (deposits, loans)	<ul style="list-style-type: none"> ● Formulating open API framework (technical, governance and security compliance) that ensure fair access to payment channel access and key finance channels: <ul style="list-style-type: none"> ○ RTGS System ○ RPS (RFT, MPS, QPS, ECS) ○ CSS ○ Bakong 	<ul style="list-style-type: none"> ● Implementing open API framework (technical, governance and security compliance) that ensure fair access to payment channel access and key finance channels: <ul style="list-style-type: none"> ○ RTGS System ○ RPS (RFT, MPS, QPS, ECS) ○ CSS ○ Bakong 	<ul style="list-style-type: none"> ● Reviewing open API framework (technical, governance and security compliance) that ensure fair access to payment channel access and key finance channels: <ul style="list-style-type: none"> ○ RTGS System ○ RPS (RFT, MPS, QPS, ECS) ○ CSS ○ Bakong

			<ul style="list-style-type: none"> ○ Cross Border Payments and Remittances 	<ul style="list-style-type: none"> ○ Cross Border Payments and Remittances 	<ul style="list-style-type: none"> ○ Cross Border Payments and Remittances
L	Provide training on AI/ML	Partner, promote and develop AI/ML training pilots in Cambodia with selected fintech firms and training	<ul style="list-style-type: none"> ● Arranging consultations with AI/ML fintech firms and training academies such as Spean Loan, TSC, Machine Learning Cambodia and Deep Learning Cambodia to determine key AI/ML training required for Cambodia. e.g. <ul style="list-style-type: none"> ○ Python (including open-source module KhmerML) ○ Java ○ TensorFlow ○ Deep Java Library ○ Kubeflow ○ OpenNLP ○ Java Machine Learning Library ○ Neuroph ○ Prolog ○ Lisp ○ Haskell ○ Julia 	<ul style="list-style-type: none"> ● Implementing training pilots with AI/ML fintech firms and training academies such as Spean Loan, TSC, Machine Learning Cambodia and Deep Learning Cambodia to determine key AI/ML training required for Cambodia. e.g. <ul style="list-style-type: none"> ○ Python (including open-source module KhmerML) ○ Java ○ TensorFlow ○ Deep Java Library ○ Kubeflow ○ OpenNLP ○ Java Machine Learning Library ○ Neuroph ○ Prolog ○ Lisp ○ Haskell ○ Julia 	<ul style="list-style-type: none"> ● Reviewing training pilots with AI/ML fintech firms and training academies such as Spean Loan, TSC, Machine Learning Cambodia and Deep Learning Cambodia to determine key AI/ML training required for Cambodia. e.g. <ul style="list-style-type: none"> ○ Python (including open-source module KhmerML) ○ Java ○ TensorFlow ○ Deep Java Library ○ Kubeflow ○ OpenNLP ○ Java Machine Learning Library ○ Neuroph ○ Prolog ○ Lisp ○ Haskell ○ Julia
tr- atio ics)	Consider adoption of new biometric-based national identity cards	Increasing ownership of new biometric-based national identity cards for all Cambodians particularly for Cambodians in the rural areas	<ul style="list-style-type: none"> ● Increasing ownership of new biometric-based national identity cards for all Cambodians, particularly for Cambodians in the rural areas 	<ul style="list-style-type: none"> ● Increasing ownership of new biometric-based national identity cards for all Cambodians, particularly for Cambodians in the rural areas 	<ul style="list-style-type: none"> ● Increasing ownership of new biometric-based national identity cards for all Cambodians, particularly for Cambodians in the rural areas
ing	Establish Cloud Services Policy Framework and Security Standards	Create cloud services policy framework and security standards (technical, governance and security compliance) based on risk-based principles to govern use of CC by financial institutions or fintech firms	<ul style="list-style-type: none"> ● Developing cloud services policy framework and security standards (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ○ ISO/IEC 17788, Cloud computing – Overview and vocabulary ○ ISO/IEC 17789, Cloud computing – Reference architecture ○ ISO/IEC JTC 1/SC 27 Information security, 	<ul style="list-style-type: none"> ● Implementing cloud services policy framework and security standards (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ○ ISO/IEC 17788, Cloud computing – Overview and vocabulary ○ ISO/IEC 17789, Cloud computing – Reference architecture ○ ISO/IEC JTC 1/SC 27 Information security, 	<ul style="list-style-type: none"> ● Reviewing cloud services policy framework and security standards (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ○ ISO/IEC 17788, Cloud computing – Overview and vocabulary ○ ISO/IEC 17789, Cloud computing – Reference architecture ○ ISO/IEC JTC 1/SC 27 Information security,

			cybersecurity and privacy protection	cybersecurity and privacy protection	cybersecurity and privacy protection
Establish DLT Standards for Payment System	Establish DLT standards (technical, governance and security compliance) based on risk-based principles to govern use of DLT for Payment system by financial institutions or FinTech firms in Cambodia	Developing DLT standards (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/TC 307 Blockchain and distributed ledger technologies ISO/TR 23455:2019 Blockchain and distributed ledger technologies — Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems 	Implementing DLT standards (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/TC 307 Blockchain and distributed ledger technologies ISO/TR 23455:2019 Blockchain and distributed ledger technologies — Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems 	Reviewing DLT standards (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/TC 307 Blockchain and distributed ledger technologies ISO/TR 23455:2019 Blockchain and distributed ledger technologies — Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems 	
Enable NBRS for standardised shared KYC platform	Pilot relevant data from NBRS to develop a new standardised, shared KYC platform for compliance, due diligence, KYC/ e-KYC	<ul style="list-style-type: none"> Developing regulations for the following: <ul style="list-style-type: none"> Use of NBRS for compliance, due diligence, KYC/ e-KYC Shared KYC Platform Standards (technical, governance and security compliance including AML/CFT) 	<ul style="list-style-type: none"> Implementing regulations for the following: <ul style="list-style-type: none"> Use of NBRS for compliance, due diligence, KYC/ e-KYC Shared KYC Platform Standards (technical, governance and security compliance including AML/CFT) 	<ul style="list-style-type: none"> Reviewing regulations for the following: <ul style="list-style-type: none"> Use of NBRS for compliance, due diligence, KYC/ e-KYC Shared KYC Platform Standards (technical, governance and security compliance including AML/CFT) 	
Formulate policies for interoperable infrastructure	Promote interoperability QR code standards (Cambodia and ASEAN) and NBRS	Developing partnerships with other ASEAN nations such as Indonesia, Malaysia, Vietnam and promoting interoperability (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/IEC 18004:2015 Information – Automatic identification and data capture techniques – QR Code barcode 	Implementing partnerships with other ASEAN nations such as Indonesia, Malaysia, Vietnam and promoting interoperability (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/IEC 18004:2015 Information – Automatic identification and data capture techniques – QR Code barcode 	Reviewing partnerships with other ASEAN nations such as Indonesia, Malaysia, Vietnam and promoting interoperability (technical, governance and security compliance) that ensure secure delivery and transparency. Reference standards include <ul style="list-style-type: none"> ISO/IEC 18004:2015 Information – Automatic identification and data capture techniques – QR Code barcode 	

			symbology specification	symbology specification	symbology specification
on orks	1) Strengthen Regulatory Requirements for eKYC and Transparency of Bank Product Information	Enhance regulatory requirements for e-KYC and transparency of bank product information for banks, MDIs, MFIs and FinTech in payment	<ul style="list-style-type: none"> Developing regulations for the following: <ul style="list-style-type: none"> e-KYC (refer to Appendix D for recommendations) Transparency of Bank Product Information 	<ul style="list-style-type: none"> Implementing regulations for the following: <ul style="list-style-type: none"> e-KYC Transparency of Bank Product Information 	<ul style="list-style-type: none"> Reviewing regula for the following: <ul style="list-style-type: none"> e-KYC Transparency Bank Product Information
	2) Issue Consumer Protection Policy for Fintech Payment activities in Cambodia	Establish Consumer Protection Policy for FinTech in Payment activities	Developing Consumer Protection Policy for FinTech in Payment activities	Implementing Consumer Protection Policy for FinTech in Payment activities	Reviewing Consumer Protection Policy for FinTech in Payment activities
	Issue Consumer Protection Policy	Establish Consumer Protection Policy With focus on FinTech in Cambodia and in alignment with Draft Law on Consumer Protection	<ul style="list-style-type: none"> Developing a FinTech Consumer Protection Policy for Cambodia focusing on transparency, fair treatment, reliability, data privacy, data security, and handling of customers' complaints related to FinTech firm 	<ul style="list-style-type: none"> Implementing national standards based on FinTech Consumer Protection Policy in Cambodia 	<ul style="list-style-type: none"> Reviewing Assess national standard based on FinTech Consumer Protec Policy in Cambod
r orks	1-Issue Cybersecurity Risk Guideline for Payment system in Cambodia	Establish cybersecurity risk guideline for payment system in Cambodia	<ul style="list-style-type: none"> Developing a Cybersecurity Risk Guideline for payment system in Cambodia 	<ul style="list-style-type: none"> Implementing Cybersecurity Risk Guideline for payment system in Cambodia 	<ul style="list-style-type: none"> Reviewing Cybers Risk Guideline for payment system in Cambodia
	2-Issue Cybersecurity Risk Guideline for Cambodia	Establish national standards for cybersecurity in alignment with Cybercrime Law	<ul style="list-style-type: none"> Developing a Cybersecurity Risk Guideline for Cambodia 	<ul style="list-style-type: none"> Implementing national standards based on Cybersecurity Risk Guideline for Cambodia 	<ul style="list-style-type: none"> Assessing national standards based on Cybersecurity Risk Guideline for Cam
	3-Produce draft version 2.0 Cybercrime Law	Update cybercrime law in line with international best practices	<ul style="list-style-type: none"> Reviewing and draft version 1.0 Cybercrime Law 	<ul style="list-style-type: none"> Introducing draft version 2.0 Cybercrime Law 	<ul style="list-style-type: none"> Monitoring draft v 2.0 Cybercrime La line with internati developments
ion or es	1-Define Regulatory Sandbox	Design, apply and assess regulatory sandbox for FinTech in Cambodia	Drafting Regulatory Sandbox (refer to Appendix C for recommendations)	Launching of Regulatory Sandbox	Assessment of Regu Sandbox
	2-Define Regulatory Sandbox for Fintech Payment	Design, apply and assess regulatory sandbox for FinTech Payment activities in Cambodia	Drafting Regulatory Sandbox (refer to Appendix C for recommendations)	Launching of Regulatory Sandbox	Assessment of Regu Sandbox
	3-Enhance Incubator Hub/ Accelerator	Develop Techo Startup Centre into an incubator hub (i) as a fintech R&D /learning and innovation center, (ii)	<ul style="list-style-type: none"> Arranging planning consultations with fintech firms, associations, relevant government institutions, 	<ul style="list-style-type: none"> Re-branding of Techo Startup Centre as fintech incubator hub and accelerator in Cambodia 	<ul style="list-style-type: none"> Reviewing of Tecl Startup Centre as incubator hub and accelerator in Car

	as a media channel for coordination, collaboration and regulatory updates among key stakeholders, and (iii) as a laboratory for regulatory sandbox testing of fintech firms.	regulators and representative end users on development of Techo Startup Centre as incubator hub and accelerator specific to fintech activities in Cambodia		
4-Promote Government Adoption of Fintech	Advance government use of fintech solutions through digitisation of routine payments such as digital payments of salaries, pensions, and social benefits for the civil service in Cambodia	<ul style="list-style-type: none"> • Arranging piloting consultations with MoSVY, NSSF, NSSF, selected banks, MDIs, MFIs, fintech firms and representative end users from the civil service in Cambodia 	<ul style="list-style-type: none"> • Implementing pilots in test sites with MoSVY, NSSF, NSSF, selected banks, MDIs, MFIs, fintech firms and representative end users from the civil service in Cambodia 	<ul style="list-style-type: none"> • Reviewing pilots in test sites with MoSVY, NSSF, NSSF, selected banks, MDIs, MFIs, fintech firms and representative end users from the civil service in Cambodia
5-Introduce fintech-friendly fiscal policies	Formulate fintech-friendly fiscal policies such as: <ul style="list-style-type: none"> ○ lowering of tax rates ○ provision of tax incentives ○ subsidies for angel investors ○ funding and infrastructure for fintech purposes 	<ul style="list-style-type: none"> • Arranging planning consultations with fintech firms, associations, relevant government institutions, regulators and representative end users on establishment of fintech-friendly fiscal policies specific to fintech activities in Cambodia 	<ul style="list-style-type: none"> • Launch of fintech-friendly fiscal policies <ul style="list-style-type: none"> ○ lowering of tax rates ○ provision of tax incentives ○ subsidies for angel investors ○ funding and infrastructure for fintech purposes 	<ul style="list-style-type: none"> • Review of fintech-friendly fiscal policies <ul style="list-style-type: none"> ○ lowering of tax rates ○ provision of tax incentives ○ subsidies for angel investors ○ funding and infrastructure for fintech purposes
6-Plan Annual Fintech Activities	Organise fintech conferences, events, seminars, training workshops on a monthly, bi-monthly, quarterly and annually basis	<ul style="list-style-type: none"> • Planning for fintech conferences, events, seminars, training workshops including but not limited to the following: <ul style="list-style-type: none"> ○ Cambodia FinTech Day (Annual) ○ Fintech Investments (Quarterly) ○ Fintech Developments (Monthly/Bi-Monthly) <ul style="list-style-type: none"> ▪ Mobile Payment ▪ P2P Lending, ▪ Equity Crowdfunding ▪ Digital Identity ▪ E-Money ▪ e-KYC ▪ InsurTech ▪ Cross-border Collaborations ▪ Fintech Regulations 	<ul style="list-style-type: none"> • Launch of fintech conferences, events, seminars, training workshops including but not limited to the following: <ul style="list-style-type: none"> ○ Cambodia FinTech Day (Annual) ○ Fintech Investments (Quarterly) ○ Fintech Developments (Monthly/Bi-Monthly) <ul style="list-style-type: none"> ▪ Mobile Payment ▪ P2P Lending, ▪ Equity Crowdfunding ▪ Digital Identity ▪ E-Money ▪ eKYC ▪ InsurTech ▪ Cross-border Collaborations 	<ul style="list-style-type: none"> • Review of fintech conferences, events, seminars, training workshops including but not limited to the following: <ul style="list-style-type: none"> ○ Cambodia FinTech Day (Annual) ○ Fintech Investments (Quarterly) ○ Fintech Developments (Monthly/Bi-Monthly) <ul style="list-style-type: none"> ▪ Mobile Payment ▪ P2P Lending, ▪ Equity Crowdfunding ▪ Digital Identity ▪ E-Money ▪ e-KYC ▪ InsurTech ▪ Cross-border Collaborations ▪ Fintech Regulations

അനുബന്ധം

APPENDIX A COMPARISON OF BEST PRACTICES FOR FINTECH REGULATIONS

BEST PRACTICES	SINGAPORE ¹	THAILAND ²	INDONESIA ³
I. Finance & Fintech Overview			
Financial entities regulated	<p><u>Banking</u></p> <ul style="list-style-type: none"> ● Banks ● Asset managers (hedge fund, private equity, real estate managers) <p><u>Non-Banking Finance</u></p> <ul style="list-style-type: none"> ● Insurance (insurers, reinsurers, insurance brokers, captive management and risk management firms) ● Financial advisers, payment services providers, stored value system operators, factoring intermediaries, finance companies, private market financing platforms (securities-based crowd-funding and P2P lending platform operators) 	<p><u>Banking</u></p> <ul style="list-style-type: none"> ● Commercial banks <p><u>Non-Banking Finance</u></p> <ul style="list-style-type: none"> ● Real estate credit institutions ● Finance companies ● Investment advisory firms ● Stock exchanges ● Bitcoin exchanges ● Bond Electronic Exchange ● Thailand Futures Exchange ● Securities brokerage companies ● Securities associations ● Securities dealers ● Securities underwriters ● Mutual fund managers ● Private fund management companies ● Venture capital firms 	<p><u>Banking</u></p> <ul style="list-style-type: none"> ● Banks (traditional de taking and banking p services) <p><u>Non-Banking Finance</u></p> <ul style="list-style-type: none"> ● Insurance ● Capital markets ● Pension funds <p><u>Other financial institu</u></p> <ul style="list-style-type: none"> ● Pawnshops ● Guarantee institutio ● Export financing inst ● Secondary property/ funding institutions (security, pension fun
Key Regulators	<ul style="list-style-type: none"> ● <u>Monetary Authority of Singapore (MAS)</u> Banks, Insurers, Capital market intermediaries, Financial advisers, Stock exchange, commodity futures contracts ● <u>Enterprise Singapore Board</u> Commodity Trading Act: business activities involving spot commodity trading) ● <u>Registry of Moneylenders</u> 	<ul style="list-style-type: none"> ● <u>Bank of Thailand (BOT)</u> financial institutions ● <u>Ministry of Finance (MOF)</u> all aspects of financial markets ● <u>Securities and Exchange Commission (SEC)</u> Securities business sector, capital markets ● <u>Capital Market Supervisory Board</u> executes regulatory functions of SEC 	<ul style="list-style-type: none"> ● <u>Bank Indonesia (BI)</u> monetary and payme systems, maintain st of country's currency ● <u>Indonesian Financia Services Authority (OJK)</u> activities of financial services sector, inclu banks, capital marke insurance, pension f other financing instit financial services ins ● <u>Commodity Futures Regulatory Agency (Pengawas Perdagangan</u>

¹ Ang, A. and Yap, A. (2020, January 1). FinTech in Singapore: overview. Allen & Gledhill: Singapore.

² Corbett J., Walker G., Sornumpol D. C., and Southern, D. A. (2018, May 1). FinTech in Thailand: overview. Silk Legal: Bangkok.

³ Sawitri D. and Novarazka, M. (2018, May 1). FinTech in Indonesia: overview. Dewi Negara Fachri & Partners - Hogan Lovells: Jakarta.

		<ul style="list-style-type: none"> ● <u>Office of Insurance Committee (OIC)</u> insurance sector ● <u>Electronic Transactions Development Agency</u> developing, promoting and supporting electronic transactions ● <u>Ministry of Commerce (MOC)</u> public limited companies 	<u>Berjangka Komoditi Bappebti</u> all futures commodity trading
Significant Areas of Fintech Influence	<ul style="list-style-type: none"> ● Equity crowd-funding platforms and P2P lending platform ● Robo-advisors ● Electronic payments systems, e-wallets ● Digital banks ● Cryptocurrency, asset tokens and token trading exchanges 	<ul style="list-style-type: none"> ● Money remittance and foreign exchange market ● Retail investment ● Insurance ● Equity crowdfunding ● Electronic payment systems ● P2P Lending ● Investment management and personal finance ● Business tools 	<ul style="list-style-type: none"> ● Payment systems (clearing, final settlement and payment) ● Market support (financial technology aggregators) ● Investment management and risk management (online investment advisory, insurance) ● Lending, funding and financing (P2P lending, crowdfunding) ● Other financial services
Fintech engagement by traditional finance	<ul style="list-style-type: none"> ● Accelerators, incubators and innovation laboratories ● Acquisitions/investments ● Purchase and integration of software or services 	<ul style="list-style-type: none"> ● e-payments using PromptPay (Citizen ID or mobile phone number instead of bank account number) 	<ul style="list-style-type: none"> ● Payment systems ● P2P lending
II. Regulations Regarding Use of Fintech			
Alternative finance	<p><u>Regulator: MAS Securities</u></p> <ul style="list-style-type: none"> ● Securities and Futures Act (Chapter 289: Licensing requirements; prospectus requirements, offer of securities to persons in Singapore) <p><u>Financial Advisory Services</u></p> <ul style="list-style-type: none"> ● Financial Advisors Act (Chapter 110: Licensing requirements) <p><u>Moneylending</u></p> <ul style="list-style-type: none"> ● Moneylenders Act (Chapter 188: Licensing requirements) 	<p><u>Crowdfunding Regulator: SEC</u></p> <ul style="list-style-type: none"> ● Chapter 3, clauses 12 and 13 of Notification of Capital Market Supervisory Board no. 7/2558. <p><u>P2P Lending Regulator: N.A.</u></p> <ul style="list-style-type: none"> ● No specific regulations for marketplace lending platforms (B2B, B2C, C2C, and P2P) 	<p><u>Crowdfunding Regulator: OJK</u></p> <ul style="list-style-type: none"> ● Bank Indonesia Government Regulation No. 19/14/PADG/2017 on Regulatory Sandbox for Financial Technology (Sandbox Regulation) <p><u>P2P Lending Regulator: OJK</u></p> <ul style="list-style-type: none"> ● Regulation No. 77/POJK.01/2016 on Information Technology Lending Borrowing Services

	<p><u>Remittance</u></p> <ul style="list-style-type: none"> • Money-changing and Remittance Businesses Act (Chapter 187: Licensing requirements) 		
Payment Platforms	<p><u>Regulator: MAS</u></p> <p><u>Moneylending</u></p> <ul style="list-style-type: none"> • Moneylenders Act (Chapter 188: Licensing requirements) <p><u>Remittance</u></p> <ul style="list-style-type: none"> • Money-changing and Remittance Businesses Act (Chapter 187: Licensing requirements) <p><u>Payment Systems</u></p> <ul style="list-style-type: none"> • Payment Systems (Oversight) Act (Chapter 222A, regulatory requirements for operator of "payment system" or holder of "stored value facility" (to be replaced by Payment Services Act 2020) 	<p><u>Regulator: BOT</u></p> <ul style="list-style-type: none"> • Thailand Payments Systems Act 2017 	<p><u>Regulator: BI</u></p> <p><u>Funds Transfers</u></p> <ul style="list-style-type: none"> • Law No. 3 of 2011 and regulations <p><u>Electronic Information Transactions</u></p> <ul style="list-style-type: none"> • Law No. 11 of 2008 and amended in relation to regulations in relation to payments transaction processing <p><u>e-Money and e-Wallets</u></p> <ul style="list-style-type: none"> • BI regulations <p><u>Card Payments</u></p> <ul style="list-style-type: none"> • BI regulations <p><u>Transparency Of Bank Product Information and Use Of Customers' Data</u></p> <ul style="list-style-type: none"> • BI regulations <p><u>Risk Management in Information Technology</u></p> <ul style="list-style-type: none"> • OJK regulations <p><u>Risk Management in Internet Banking</u></p> <ul style="list-style-type: none"> • BI regulations
Investment/asset management	<p><u>Regulator: MAS</u></p> <ul style="list-style-type: none"> • Securities and Futures Act (Chapter 289: Licensing requirements; prospectus requirements, offer of securities to persons in Singapore) 	<p><u>Regulator: N.A.</u></p> <ul style="list-style-type: none"> • No investment adviser certificate required for non-personalised robo-advice • No regulations for use of fintech in wholesale securities or retail investments 	<p><u>Regulator: OJK</u></p> <ul style="list-style-type: none"> • No specific regulation issued for FinTech in connection with the securities market (however securities companies to be licensed)
InsurTech	<p><u>Regulator: MAS</u></p> <ul style="list-style-type: none"> • No specific regulation for FinTech in insurance • Follows traditional insurance regulations: Insurance Act, 	<p><u>Regulator: OIC</u></p> <ul style="list-style-type: none"> • 26 Aug 2017: Notifications on insurance activities conducted through 	<p><u>Regulator: OJK</u></p> <ul style="list-style-type: none"> • No specific regulation for FinTech in insurance • BI Sandbox Regulation identifies online insurance

	Chapter 142 and Financial Advisers Act, Chapter 110	<p>electronic channels, including:</p> <ul style="list-style-type: none"> ● Offer of insurance products (Only licenced brokers can sell) ● Issuance of insurance policies (advertising and conduct) ● Payment of insurance compensation (KYC of beneficiaries before any electronic claims are submitted) 	<p>activity providers as financial technology providers</p> <ul style="list-style-type: none"> ● Currently preparing implementation of regulation governing operation with third for the sale of insura products
Blockchain solutions	<p><u>Regulator: N.A.</u></p> <ul style="list-style-type: none"> ● Not regulated under any financial services law. However, regulation may apply depending on use of blockchain solution. <p><u>Securities and Trading</u></p> <ul style="list-style-type: none"> ● Securities and Futures Act (Chapter 289: Licensing requirements; prospectus requirements, offer of securities to persons in Singapore) ● Trading platforms: approved exchange by MAS or recognised operator under SFA <p><u>Cross-Border Transactions</u></p> <ul style="list-style-type: none"> ● Money-changing and Remittance Businesses Act, Chapter 187 and regulatory requirements imposed on operator of "payment system" under Payment Systems (Oversight) Act, Chapter 222A. 	<p><u>Regulator: BOT</u></p> <ul style="list-style-type: none"> ● February 2018: Circular prohibits FIs from being involved in <ul style="list-style-type: none"> ○ Cryptocurrency investment and trading ○ Exchanging cryptocurrencies ○ Creating platforms for trading cryptocurrencies ○ Allowing customers to use credit cards to buy cryptocurrencies ○ Advising customers on cryptocurrency investment and trade <p><u>Regulator: SEC</u></p> <ul style="list-style-type: none"> ● October 2017: Regulatory Approach on Initial Coin Offering (Aor Tor Ngor 34/2560) (Regulates CIS and ICOs qualification as securities on case-by-case basis) ● March 2018: Revenue Code - digital assets trading (including cryptocurrency trading and ICOs) subject to 7% value added tax and 15% withholding tax 	<p><u>Regulator: BI</u></p> <ul style="list-style-type: none"> ● Specifically prohibits virtual currencies as payment instrument use by payment system providers ● Cryptocurrencies are not recognised ● BI Sandbox Regulation identifies blockchain of payment system F (with QR code and distributed ledger) to facilitate: <ul style="list-style-type: none"> ○ Fund transfers ○ E-money ○ E-wallet ○ Mobile payment
Financial services infrastructure	<p><u>Regulator: MAS</u></p> <ul style="list-style-type: none"> ● Digital full bank: allowed to take deposits from, and provide banking services to, 	<p><u>Regulator: N.A.</u></p> <ul style="list-style-type: none"> ● Not regulated under any financial services law 	<p><u>Regulators: Ministry of Communication and Informatics, BI, OJK</u></p>

	<ul style="list-style-type: none"> retail and non-retail customer segments. Digital wholesale bank: will be allowed to take deposits from and provide banking services to SMEs and other non-retail customer segments 		<ul style="list-style-type: none"> Dependent on type of fintech activity ie. P2P lending, insurance etc
Regulatory compliance issues	<ul style="list-style-type: none"> Financial regulatory and compliance (licensing by relevant authority, licensing exemptions for FinTech product/service) Consumer/technology contracts (software licensing contracts, terms of use of FinTech product/service i.e. consumer protection) Data protection (obligations imposed on FinTech companies in relation to personal customer data, Personal Data Protection Act 2012) Intellectual property protection and management Effect of financing (VC investments into FinTech entities) Cybersecurity Act 2018 (unlikely impact on FinTech) FinTech Regulatory Sandbox and Sandbox Express 	<ul style="list-style-type: none"> BOT regulations: e-payment, money transfer, personal lending, provision of insurance services KYC requirements: not specifically applied to FinTech businesses No specific legislation concerning data protection. Currently considering Draft Law on Business Promotion and Public Access to Services Through Financial Technology (data privacy and KYC requirements) 	<ul style="list-style-type: none"> No special licensing authority or regime for FinTech entities Securities/capital market Consumer protection Privacy and data protection AML/CTF measures KYC/KYB requirements Payments systems Prudential banking Offshore loans and foreign exchange activities E-money/e-wallet Fund transfers
Government Initiatives	<ul style="list-style-type: none"> Sandbox and Sandbox Express Regulatory framework for robo-advisors Easier licensing for securities-based crowd-funding and P2P lending platform operators Guidance on regulatory treatment of cryptocurrency/digital token offerings Financial Sector Technology and Innovation (FSTI) scheme A.I.SG programme Accreditation@SGD 	<ul style="list-style-type: none"> Late 2016: Published regulatory sandbox white paper and launched Investment Adviser and Private Fund Sandbox and Clearing and Settlement Sandbox June 2017: OIC regulatory sandbox scheme to allow insurers to beta test InsurTech 	<ul style="list-style-type: none"> BI Sandbox Regulation (allow for trial and error) IDX Incubator (co-working space and training, collaboration with investors) Indonesian Creative Economic Body (Badan Ekonomi Kreatif Indonesia (BeKraf): supports access to capital for FinTech startups

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| | <ul style="list-style-type: none">● Start-up SG Accelerator, Start-up SG Equity, Start-up SG Founder and Start-up SG Talent● Capabilities Development Grant● Early Stage Venture Fund | | |
|--|---|--|--|

APPENDIX B : MINUTES OF MEETINGS

Minutes of Meetings
01 June to 30 June 2020

21 Key Financial Institutions

- ✓ Association of Banks Cambodia
- ✓ Cambodian Microfinance Association
- ✓ Cambodian Association of FinTech
- ✓ Prasac
- ✓ WB Finance
- ✓ Sathapana
- ✓ LOLC
- ✓ AMK
- ✓ WINGS
- ✓ e-Money
- ✓ Lyhour Pay
- ✓ DaraPay
- ✓ Acleda
- ✓ Amret
- ✓ HKL
- ✓ Kookmin Bank
- ✓ ABA
- ✓ FTB
- ✓ PPCB
- ✓ Phillips Bank
- ✓ NGOs

Observer: National Bank Cambodia

Issues Raised	Topical Discussions
<p>Business Strategy</p>	<p>Many banks want to provide 24/7 service. It enhances customer convenience. It is moving customers to do self-service. It is a part of branch efficiency and cost reduction. The push is to reduce customers at the branch counters.</p> <p>Cambodian Microfinance Association says the TOP 10 MFIs are discussion about digital transformation. The bigger MFIs want to be banks. The goal of providing access to finance for the rural communities is a challenge.</p> <p>PSPs are trying to provide payment solutions to bank partners (payment transfer, loans disbursement and collections) and to corporate with many employees (payroll system)</p> <p>Some financial institutions are concerned about Covid-19 that has delayed loan repayments. It may delay the rollout of digital channels and other digital plans.</p>

<p>Business Processes and Technology</p>	<p>Right now, the larger financial institutions are focusing on providing more digital channels.</p> <p>The digital transformation projects currently running are: core banking development, mobile app development, card management development, internet banking, digital channels, eWallet, loan originating system (LOS), eKYC, SMART branch, QR code, bill payment, phone top-up, signing up of partners with payment solutions. Integrating with Bakong.</p> <p>Some foreign-related PSPs want to go international by forging partnership for international remittances with South Korea and Thailand, hoping to expand to other countries as well, transfers across ASEAN/Asia (after local interoperability has been set up).</p> <p>One bank has confirmed that 85% of counter transactions have been pushed to digital channels (transactions through internet banking, ATMs, mobile apps). Open API that allows for network integration with other partners like Wing, E-money to push cash transactions online (currently no licence for agency banking)</p>
<p>Digital Strategy</p>	<p>The top financial institutions have a view toward FinTech. As of now, their business strategies are about having more digital channels and developing the infrastructure to enable the digital applications. However, they do not have a FinTech Strategy per se.</p> <p>The ABC commented that:</p> <ul style="list-style-type: none"> ● Open Banking Platform: Uncertain which direction Cambodia and NBC is headed towards currently, supportive of regulatory sandbox to test open banking platform, business ideas, more convenience for FinTech firms to look for partners to develop APIs, good if Cambodian businesses are open to putting their APIs onto a platform similar to Singapore APIX and commercial banks as foundation to have access APIs/middleware <p>The ABC also brought up a relevant point although not directly with FinTech:</p> <ul style="list-style-type: none"> ● CamDX: currently not available for financial/FinTech services (consider for eKYC, interoperability), 1st module is company registration, 2nd module trying to do digital ID (different from digital signatures), portal for companies to register profiles and work with different ministries for different licensing needs, potentially allows public access to information such as criminal records of potential borrowers in future, credit information by CBC <p>The CAFT reported that the Sandbox should be started to allow FinTech to thrive. And the sandbox must be decentralised rather where the private sector will steer the development.</p>

	<p>It suggested that to develop an Ecosystem of collaborators, such as FIs and 3rd party service providers, where tech companies can collaborate with FIs without barriers, real and imaginary</p> <p>Payment Switch: To offer ecommerce payment comprehensively, a switch should be in place for the bridge connection from all payment service institution for support private and public services. Switch should be owned by separate entity out of regulators</p> <p>BakongPay: For the P2P wallet for money transfers based on blockchain technology (bank technicians are uncertain how Bakong is developed). Now that NBC is preparing merchant modules, it can compete against PSPs.</p>
<p>Challenges to Digital and FinTech</p>	<p>Not easy to convince customers to do self-service. WINGS experience is that they have 10 million customers, but only 2.5 million do self-service (that is scanning of QR codes). While the 7.5 million go through the agents. ABA says, despite the push for self-service, today 65% of customers still prefer branch counters.</p> <p>Case: Acleda ToanChet, only 32-34% customers using, and needs time for people to get used to it Needs time for people to get used to ToanChet (misperception about how online loans registration, application and approval work), sign in and to use it, mobilise people to change culture (promotion) from customer focus to digital channels. We have set up virtual teller machines and card processing machines in our existing physical branches to let customers get used to digital banking i.e. open bank accounts by themselves, obtain ATM cards by themselves, KYC is processed by the machines.</p> <p>COVID-19 may delay progress of the digital transformation.</p> <p>HR Skills in Technology is limited and costly, and suffers a high staff turnover. With the shortage of IT-related staff it is difficult to expand the digital services, especially in the rural areas.</p> <p>FinTech regulations are not available as yet (eg. eKYC; cash payment transfers limit; off-site LOS, Sandbox, P2P Lending)</p> <p>There are other regulations that are restrictive too, such as having to submit application to NBC for every partnership for financial services delivery.</p> <p>Culture of Cash, difficult to convince customers to go digital or FinTech</p> <p>Systemic risks: Only one Card Management System vendor is servicing 10 banks in Cambodia. So, their service delivery is weak.</p>

	<p>Financial Inclusion, Financial Literacy: MFIs find it a real challenge because few are actively engaged is this mandate. Many fin institutions have expressed that there is a lack of understanding on access to loans, client protection principles, client education</p> <p>Digital Literacy: Who will teach the customer to be more IT savvy?</p>
<p>Summary</p>	<p>The FinTech strategy among all financial institutions is at a nascent stage. The digital strategy is still under preparation for many banks. It is estimated that only the Top 7 MFIs are able to carry out digital transformation.</p> <p><u>Is FinTech keeping the Banks busy?</u></p> <p>The banks are focussing on reducing cost using digital channels rather than focussing on digital transformation itself. There is a push towards customer self-service, moving customers away from the branch counters to ATMs or mobile apps. While this is a positive start of FinTech, it is not driven by FinTech. It is driven by cost reduction using digital channels.</p> <p>Card Solutions seem very popular as customers can do self-service banking instead of coming to the branch counters.</p> <p>Most banks are moving cautiously along the trends of other ASEAN countries, for example Singapore and Indonesia, to increase digital channels rather than adopt novel FinTech solutions.</p> <p>Banks and Top MFIs are bogged down by tech development and business process improvement of their corebanking modules, and trying to enable digital channels. For example, the bigger fin institutions are integrating faster with Bakong. Also, the drive towards Card Management Systems.</p> <p>Banks rely on the PSPs to provide payment transfer solutions. The banks are not planning to expand branch network or increase number of ATMs. (This is a good sign for digital transformation, but need a new FinTech strategy, rather than a banking strategy with FinTech).</p> <p><u>Are MFIs using FinTech to fulfil their mandate?</u></p> <p>MFIs are fully aware of their mandate for financial inclusion and access to finance for the rural economies. However, the Top MFIs are trying hard to become banks rather than pushing forward to fulfil their mandate of financial inclusion using a FinTech approach. They have not personally witness a FinTech approach for providing access to finance, without a branch, without ATMS, and without cards. More case studies are needed to create a FinTech awareness.</p> <p><u>Can MFIs lower their interest burden using mobile / Fintech?</u></p>

MFIs have high interest burden due to small monetary amount per transaction and high transaction cost. MFIs are forced to adopt high interest rates for cost recovery. Can mobile technologies / Fintech reduce for interest rates for borrowers? ⁴

How are PSPs using FinTech?

PSPs focus on doing more of the same. Their goal is getting more bank partnerships, and having more agents to enable payment transfers. Their FinTech ideas appears limited. They are business driven, not yet using FinTech to drive their business.

What are the key challenges towards FinTech?

The key challenges the financial institutions faced overwhelmingly is the lack of technology skills, that can drive their digital or FinTech strategy. The limited skilled manpower is both expensive and very mobile. This slows down the development digital initiatives.

It also appears that they are awaiting FinTech regulations from NBC before they start FinTech.

⁴ Vong, J. and Song, I. (2015). Lowering the Interest Burden for Microfinance. In *Emerging Technologies for Emerging Markets* (pg. 55-69). Springer.

APPENDIX C : RECOMMENDATIONS FOR SANDBOX

Lessons for Sandbox Guidelines Overview

1. Number of Sandboxes: Consider having one regulatory sandbox guideline governing banks and non-bank financial institutions for a start
2. Type of Model: Consider a narrow sandbox model which regulates accepted institutions only. Consider 'Informal Steer' option to regulate innovations outside current regulations
3. Authority in charge: Consider having Central Bank: National Bank of Cambodia (NBC) to be sole authority in charge

Lessons for Sandbox Requirements

Objectives and Scope

1. Objectives: Consider adopting following objectives:
 - Provide regulatory environment which encourages experimentation of FinTech
 - Promote financial inclusion which increases access to financial services and decreases cost for customers
 - Limit disruption to overall financial system
2. Scope of coverage: Consider adopting following scope of coverage:
 - Sectoral restrictions: Consider not having sectoral restrictions
 - Regulated entity restrictions Consider restricting to existing entities
 - Target Customers: Consider restricting to restricted to certain vertical markets (i.e. mobile payments) or profile of customers

Eligibility Requirements / Evaluation Criteria

1. Eligibility Requirements: Consider adopting and adapting Thailand's eligibility requirements
 - Financial institutions (including Microfinance and Deposit Taking Institutions)
 - Companies within financial business group of financial institutions (including Other Credit Institutions and Credit Information, Payment Service Institutions)
 - Non-financial institutions
 - FinTech firms
 - Technology firms
2. Evaluation Criteria: Consider adopting and adapting the following evaluation criteria
 - Innovation: New technology not currently available in Cambodia
 - Legal/Regulatory: Innovation is not governed by current regulations of NBC
 - Benefits: consumer, industry, ecosystem, jobs creation
 - In-Country Deployment Plan to deploy in Cambodia
 - Test Plan Defined testing plan and outcomes
 - Exit Strategy: Adequate exit and transition strategy

Risk Management, Safeguards, Records and Reporting

1. Risk Management: Consider adopting and adapting the following risk management practices:
 - Risk assessment and mitigation plans
 - Proof of expertise and resources to manage risks
2. Safeguards: Consider adopting and adapting the following safeguards:
 - Personal Data Protection Confidentiality of customer information
 - Fit and Proper Test
 - Committing adequate and competent resources, both financial and expertise, to lead and manage testing
 - AML/CFT
 - Prevention of money laundering and countering financing of terrorism
 - Risks Disclosure
 - Provide consumers with accurate, timely information during testing period
 - Feedback Channels: Provide channels to consumers to receive feedback and manage complaints
 - Claims Mechanism: Allow monetary claims to consumer should they suffer financial loss, not caused by them, during testing period
3. Records and Reporting: Consider adopting and adapting records and reporting practices:
 - Interim Progress Report: Every 2 months from start of approved period
 - (a) Key performance indicators, key milestones and statistical information
 - (b) Key issues arising as observed from fraud or operational incident reports
 - (c) Actions or steps taken to address key issues
 - Final progress report within 30 calendar days at end of approved period
 - (a) Key outcomes
 - (b) Key performance indicators against agreed measures for success or failure of test and findings of test
 - (c) Full account of all incident reports and resolution of customer complaints
 - (d) [Failed Test] lessons learnt from test

Entry, Fees and Duration

1. Entry: Consider adopting and adapting the following entry practices:
 - Timing: Anytime, as long as application and supported documents are completed
 - Application Form: Submit in writing as per NBC template with supporting documents. Encourage electronic submissions where possible.
2. Duration: Consider adopting and adapting duration practices:
 - Varies: to be proposed by applicant during application. Generally 12 months unless extension is approved by NBC

Exit Procedure

1. Exit Procedure: Consider adopting and adapting the following exit procedure practices:
 - Expiry of Legal and Regulatory Relaxations: unless extension is granted by NBC
 - Deployment on Wider Scale:
 - [Success] Applicant must submit application for permission to offer service or introduce product
 - [Failure] Applicant must stop its service after notifying its consumers and submit a report detailing cessation of services to NBC

Benefits and Risks

1. Benefits: Consider adopting and adapting the following benefits:
 - Legal and Regulatory Relaxations: Facilitate experimentation and roll out of products and service under a more relaxed regulatory framework with a well-defined space and duration agreed with NBC for FIs and FinTech players who face challenges in meeting all regulatory requirements
 - Future Framework: Engagement with NBC and bilateral sharing of information may help shape a more practical regulatory framework in future. At very least, it may lend insights into regulator's expectations on application of existing regulations.
2. Risks: Consider adopting and adapting the following risk caveats:
 - Overseas licensing issues and regulatory landscape outside Cambodia if solution targets or has potential to reach a wider range of customers
 - Other potential legal issues in Cambodia to be considered
 - Data privacy
 - Data transfers
 - Cyber security
 - Enforceability of e-contracts
 - Consumer protection laws

APPENDIX D : RECOMMENDATIONS FOR EKYC

Lessons for e-KYC Guidelines Overview

1. Permission/Approval from NBC: Consider having a Prakas or regulation that states prior permission/approval has to be obtained from NBC before any e-KYC solution can be deployed by a FI or a FinTech firm.
2. e-KYC Standards: Consider having the same KYC standards as face-to-face verifications (eg. need to provide photo-based identification such as identity card, passport, driving licence and individual must be present via a video-conference or a phone call)

Lessons for e-KYC Requirements

Relevant Laws and Regulations

1. Compliance: Consider mandating that the e-KYC Guidelines has to be read in tandem with related laws, Prakas, NBC regulations, requirements and licenses, which includes but is not limited to the following:
 - Constitution of the Kingdom of Cambodia 2010
 - Civil Code of Cambodia 2007
 - Criminal Code of the Kingdom of Cambodia 2009
 - Law on Anti-money Laundering and Combating the Financing of the Terrorism
 - Draft Law on Consumer Protection
 - Draft Law on E-commerce
 - Draft Version 1.0 Cybercrime Law

Responsibility of FI/FinTech Firm Applying for Permission/Approval

1. Risk Management Standard Operating Procedures (SOPs): Consider ensuring that applying FI/FinTech firms have identified and put in place measures to mitigate risks in areas such as IT risk, operational risk, ML/TF risk. Details should be provided in the Application Form

Identity Identification and Verification

1. Authentication Checks: Consider having the following requirements
 - Photo-based identification (identity card, passport, driving licence)
 - Personal Information (PIN, date of birth, answers to designated questions)
 - Biometrics (facial, retinal or fingerprint)
2. ML/TF Checks: Consider having the following requirements
 - Fraud Detection: Is photo-based identification a legitimate issue (correct format, signs of tampering or forgery, blurred text/images/font)
 - Live Detection: Consumer is alive and who s/he claims to be (through live videos or live photos where face is clearly visible with no sunglasses or masks)

Effectiveness

1. Effectiveness: Consider having the following requirements
 - Minimum standard: proposed e-KYC product or solution must be as effective or more effective than the face-to-face KYC product or solution it is meant to replace
 - False-Acceptance Rate: The number of successful registrations of non-existing individuals as a percentage of the total number of successful registrations should not be more than 5 per cent
 - Positive-Acceptance Rate: The number of successful registrations of genuine individuals as a percentage of the total number of successful registrations should not be less than 85 per cent

Monitoring and Reporting

1. Monitoring: Consider having the following requirements
 - Access Controls against unauthorised access: Physical (building, offices, server rooms), logical (computer networks, accounts, systems and data only accessible by selected key personnel),
 - Fault Detection: example automatic locks after 5 wrong/unsuccessful log-ins
2. Reporting: Consider having the following requirements to be reported to NBC on a monthly basis
 - Overall Effectiveness
 - (a) Number of successful registrations
 - (b) Number of successful registrations of non-existing individuals (False Acceptance)
 - (c) Number of successful registrations of genuine individuals (Positive Acceptance)
 - (d) False Acceptance Rate (%)
 - (e) Positive-Acceptance Rate (%)
 - Authentication Checks
 - (a) Identity card
 - i. False Acceptance Rate (%)
 - ii. Positive-Acceptance Rate (%)
 - (b) Passport
 - i. False Acceptance Rate (%)
 - ii. Positive-Acceptance Rate (%)
 - (c) Driving licence
 - i. False Acceptance Rate (%)
 - ii. Positive-Acceptance Rate (%)
 - ML/TF Checks
 - (a) Fraud Detection
 - i. False Acceptance Rate (%)
 - ii. Positive-Acceptance Rate (%)
 - (b) Live Detection
 - i. False Acceptance Rate (%)
 - ii. Positive-Acceptance Rate (%)

Application Form for eKYC Permission/Approval

1. Application Form: Consider adopting following requirements:
 - Detailed description of proposed e-KYC product or solution (key features, consumer information required, verification checks, technical aspects, target audience, process flowchart of how proposed e-KYC product or solution works)
 - Results of pilot or trial to demonstrate effectiveness of proposed e-KYC product or solution
 - Risk Management SOPs (identified risks, risk mitigation measures, monitoring and reporting for ML/TF)
 - Additional information deemed necessary by NBC

GLOSSARY

Note: The definition of terms used in this report are taken from Ehrentraud, Ocampo, and Piccolo (2020)

FINTECH ACTIVITIES

No	Term	Description
1.	Cryptoassets	A type of private asset that depends primarily on cryptography and distributed ledger or similar technology as part of its perceived or inherent value
2.	Digital banks	Deposit-taking institutions that are members of a deposit insurance scheme and deliver banking services primarily through electronic channels instead of physical branches
3.	Digital payment services	Digital payment service providers make use of technology to facilitate payment transactions by transferring money, clearing or settling balances digitally, without the use of physical money
4.	E-money services	Issuance of debt-like instruments (e-money) for the purpose of facilitating payment transactions
5.	Equity crowdfunding	An activity where investors provide funding to private companies in the form of equity. The FinTech platform matches investors with companies they want to invest in, enabling them to participate in the early capital-raising activities of startups and other companies
6.	Financial activities related to cryptoassets	Include creating, distributing, storing or exchanging cryptoassets, using them for investment or payment purposes, or as reference in financial products
7.	FinTech balance sheet lending	A credit activity facilitated by internet-based platforms (not operated by commercial banks) that use their own balance sheet in the ordinary course of business to intermediate borrowers and lenders
8.	FinTech platform financing	A funding activity facilitated by internet-based platforms (not operated by commercial banks). FinTech platform financing includes balance sheet lending, loan crowdfunding or equity crowdfunding
9.	Insurtech business models	Technology-driven innovative business models that are emerging in two major areas of insurance: (i) distribution, such as comparison portals and digital brokers; and (ii) underwriting, such as mobile, on-demand, usage-based or technology-enabled peer-to-peer and parametric insurance
10.	Loan crowdfunding	A credit activity facilitated by internet-based platforms (not operated by commercial banks) that match borrowers with lenders. Individual loan contracts are established between borrowers and lenders, without the platform being engaged in risk transformation
11.	Robo-advice	Financial advice on investment products that is provided with no or limited human intervention and relies on technology to automate the client onboarding process and the generation of advice through algorithm-based tools

ENABLING TECHNOLOGIES

N o	Term	Description
1.	Application programming interfaces (APIs)	A set of rules and specifications followed by software programs to communicate with each other, forming an interface between different software programs that facilitates their interaction
2.	Artificial intelligence (AI)	Information technology (IT) systems that perform functions requiring human capabilities. AI can ask questions, discover and test hypotheses, and make decisions automatically based on advanced analytics operating on extensive data sets
3.	Biometrics	Automated recognition of individuals based on their biological and behavioural characteristics. It covers a variety of technologies in which unique identifiable attributes of people are used for identification and authentication. These include (but are not limited to) a person's fingerprint, iris print, hand, face, voice, gait or signature, which can be used to validate the identity of individuals
4.	Cloud computing	The use of an online network ("cloud") of hosting processors to increase the scale and flexibility of computing capacity. This model enables convenient on-demand network access to a shared pool of configurable computing resources (for example networks, servers, storage facilities, applications and services) that can be rapidly released with minimal management effort or service provider interaction
5.	Distributed ledger technology (DLT)	A means of recording information through a distributed ledger, that is, a repeated digital copy of data at multiple locations. This technology enables nodes in a network to securely propose, validate and record state changes (or updates) to a synchronised ledger that is distributed across the network's nodes
6.	Machine learning (ML)	A method of designing problem-solving rules that improve automatically through experience. ML algorithms give computers the ability to learn without specifying all the knowledge a computer would need to perform the desired task. The technology also allows computers to study and build algorithms that they can learn from and make predictions based on data and experience. ML is a subcategory of AI

POLICY ENABLERS

No	Term	Description
1.	Cyber crime	When a computer system or component is the object of a crime (hacking, phishing, spamming) or is the facilitator of a crime (such as theft of information or money)
2.	Cyber resilience	A financial market infrastructure's ability to anticipate, withstand, contain and rapidly recover from a cyber attack
3.	Cyber risk	The combination of the probability of an event occurring within the realm of an organisation's information assets, computer and communication resources and the consequences of that event for the organisation
4.	Digital ID system	A system that covers the process of identity proofing/enrolment and authentication. Identity proofing and enrolment can be either digital or physical (documentary), or a combination, but binding, credentialing, authentication, and portability/federation must be digital
5.	Innovation accelerator	A partnership arrangement between FinTech providers and central banks/supervisory agencies to develop use cases that may involve funding support and/or authorities' endorsement/approval for future use in central banking operations or in the conduct of supervisory tasks
6.	Innovation hub	An innovation facilitator set up by supervisory agencies that provides support, advice or guidance to regulated or unregulated firms in navigating the regulatory framework or identifying supervisory policy or legal issues and concerns
7.	Open banking	The sharing and leveraging of customer-permissioned data from banks with third-party developers and firms to build applications and services that provide real-time payments, greater financial transparency options for account holders, marketing, etc
8.	Regulatory sandbox	A controlled testing environment, sometimes featuring regulatory forbearance and alleviation through the use of legally provided discretions by the supervisory agency. The testing environment may involve limits or parameters within which the firms must operate (eg restrictions on the time a firm may operate in the sandbox)
9.	Data protection framework	A system of laws where the most common requirement is to ask citizens for consent before data about them (such as location, financial or health information) may be collected, used or shared. In all jurisdictions with a data protection framework, the purpose of data collection and use should be explicitly specified. More comprehensive frameworks also establish new rights for individuals, like data portability, the right not to be profiled or the right to be forgotten
10.	Cyber security frameworks	National and/or sectoral regulations, guidance and supervisory practices that facilitates entities' mitigation of cyber risk and effective response to and recovery from cyber attacks. Most of these have been drawn from different cyber security frameworks and guidance developed by international, national and industry organisations, both public and private sector. The usual starting point for a cyber security framework is to require financial institutions to have a documented cyber security programme or policy. Institutions are expected to identify critical information assets that need to be protected. Testing institutions' vulnerability and resilience to cyber risk (such as through penetration testing) is a common requirement, as well as the reporting of cyber events. Other common requirements relate to having clear responsibilities and accountabilities at

		financial institutions and ensuring the capabilities of third-party providers as key components of their cyber security framework. Less common regulatory requirements include cyber threat intelligence-sharing (although it is generally encouraged)
11.	Innovation facilitator initiatives	The three main types of facilitators are innovation hubs, regulatory sandboxes and accelerators. Hubs are set up by supervisory agencies and provide support, advice or guidance to regulated or unregulated firms in navigating the regulatory framework or identifying supervisory policy or legal issues and concerns. A regulatory sandbox is a controlled testing environment, sometimes featuring regulatory forbearance and alleviation through the use of legally provided discretions by the supervisory agency. Accelerators refer to a partnership arrangement between fintech providers and central banks/supervisory agencies to develop use cases that may involve funding support and/or authorities' endorsement/approval for future use in central banking operations or in the conduct of supervisory tasks. Among jurisdictions that have innovation facilitators in operation, innovation hubs are the most common, with similar objectives: (i) to provide support and guidance on regulatory requirements applying to innovations to be developed; and (ii) to serve as a communication channel with the fintech sector. In some jurisdictions, innovation hubs serve as a prior step for applying to the regulatory sandbox

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