

ACCELERATING FINANCIAL INCLUSION IN SOUTH-EAST ASIA WITH DIGITAL FINANCE

ASIAN DEVELOPMENT BANK



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PREFACE

Supporting financial sector development has been a strategic priority for ADB over the past several decades because of the critical role the financial sector plays in facilitating economic growth. ADB’s long-term strategic framework, “Strategy 2020,” emphasizes financial inclusion as an essential part of financial sector development: Without access to formal financial services, the unserved and underserved segments of society will be excluded from growth and its benefits.¹ Digital finance presents a potentially transformational opportunity to advance financial inclusion.

ADB engaged Oliver Wyman and *MicroSave* to conduct the following study on the role digital finance can play in accelerating financial inclusion, focusing on four Southeast Asian markets – Indonesia, the Philippines, Cambodia, and Myanmar. This study – informed by more than 80 stakeholder interviews across the four markets, extensive secondary research, and economic analysis – is an endeavour to better understand and quantify the nature of this impact.

Oliver Wyman is a global leader in management consulting with a specialization in financial services. As a recognized thought leader in financial inclusion and digital finance, Oliver Wyman has a strong body of client work covering a broad range of financial institutions, regulators, and multilateral agencies.

MicroSave is a globally recognized research and consulting firm committed to promoting financial access amongst low- and middle-income populations. With over two decades of on-the-ground experience across Africa, Asia and the Pacific, *MicroSave* has worked with public and private sector organizations to guide business strategies, re-engineer processes, and develop customer-centric products.

¹ ADB. 2008. “Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank,” 2008 – 2020. Manila; and ADB. 2014. “Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific,” Manila

EXECUTIVE SUMMARY

Financial inclusion refers to the delivery of formal financial products and services to all segments of a population irrespective of their economic situation. Between 2011 and 2014, bank account ownership worldwide increased from 51% to 62%,² showing significant progress in extending access to formal financial services (FS), despite substantial imbalances across geographic boundaries and between genders. Promoting the use of formal financial services continues to be a challenge, and the depth of engagement varies with different financial products: Only 18% of adults use a bank account to receive wages or pay utility bills, and only 11% borrow from formal sources.

Our research focuses on financial exclusion in three segments: base of pyramid (BoP); women; and micro, small, and medium enterprises (MSMEs). From our research, we estimate that addressing this opportunity could increase Gross Domestic Product (GDP) by between 9% and 14%, even in relatively large economies such as Indonesia and the Philippines. The potential boost to GDP is as high as 32% in Cambodia. Making the most of this opportunity could also help influence the future shape of the financial services industry, particularly in smaller markets such as Cambodia and Myanmar, where only a small percentage of the current needs for financial services are met by formal providers. In Cambodia, for example, formal institutions meet only 16% of the demand for savings facilities from people in the financial inclusion target segment.

Taking this opportunity will require action from regulators, public policymaking institutions, and supply-side participants to address structural issues impeding financial services growth in these segments. On the supply side, resource and investment mobilization continue to be held up by the unattractive economics of serving the three segments. For target customers, the solutions offered by the formal financial services sector often do not appear attractive enough as alternatives to existing informal solutions – partly because of their low level of financial literacy and overall awareness. For public policymaking institutions, the base-of-pyramid population is challenging because there are often conflicts between social, economic, and political priorities.

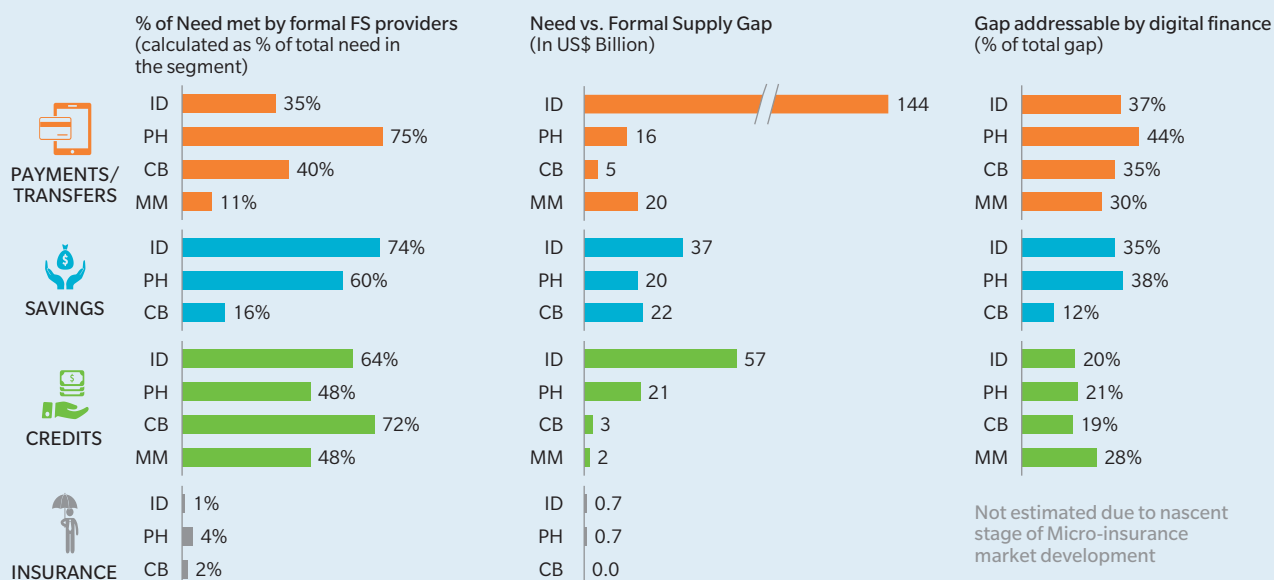
Our research finds that digital financial solutions could play a significant part in closing gaps in financial inclusion. They could address about 40% of the volume of unmet demand for payments services and 20% of the unmet credit needs in the BoP and MSME segments. Digital finance alone cannot entirely close the gaps in financial inclusion. But we estimate that the cumulative effect of digitally driven acceleration in financial inclusion could boost GDP by 2% to 3% in markets like Indonesia and the Philippines, and 6% in Cambodia. For the population earning less than \$2 a day, that would translate to a 10% increase in income in Indonesia and the Philippines, and an increase of around 30% in Cambodia.

² Global Findex Database; Percentage of adult population with bank accounts

Digital solutions will have the most significant positive impact on financial inclusion in five key areas:

- They can enable fast, low-cost, and convenient customer identification and verification processes – especially when powered by unique national identification numbers, a real-time verification infrastructure, and supporting regulatory frameworks such as tiered know-your-customer (KYC) schemes.
- They can meaningfully alter the economics of the supply side by addressing last-mile distribution and servicing issues through low-cost, widespread, digitally-enabled points of physical access such as mobile phones and point-of-sale (POS) devices.
- They are prevalent throughout the payments value chain and ecosystem. Digital government-to-person (G2P)³ payments and remittance flows can create the initial momentum for electronic payments, thereby supporting the development of viable supply-side business cases. These can be sustained and further developed through person-to-all (P2All)⁴ payments systems combined with interoperable networks and open application programming interface (API) platforms.
- They can significantly enhance access to credit by using alternative sources of data, such as payment transactions and telecoms data, as well as analytics. These improve customer profiling, credit risk assessment and fraud detection.
- Savings can be mobilized digitally through alternative, lower-cost origination and distribution channels and more-convenient product designs, such as mobile wallets connected to savings accounts and intuitive goal-based savings products. An easy KYC and onboarding process can also contribute.

Exhibit 1: Gap between demand and formal supply, and impact of digital applications



Source: Oliver Wyman analysis

Note: We were not able to reliably estimate formal savings and insurance supply in Myanmar that targets financial inclusion sub-segments

3 Government-to-person (G2P) payments includes employee payments (such as wages and pensions), as well as social transfers

4 Person-to-all (P2All) payments consists of all payments made by individuals. It includes remittances and transfers, payments made by individuals to businesses, and payments made to the government (such as taxes)

Since much digital enablement will be driven by the supply side, regulatory and public policy actions will play a significant role in creating a favourable environment. We see a particular need for action in three areas. (See Section 4 for a more comprehensive list of specific regulatory actions)

- **Supply-side entry barriers:** Create a level playing field by allowing collaboration and competition between traditional financial services players and new types of supply-side participant such as mobile network operators (MNOs).
- **Suitable solution design and delivery:** Develop a “safe space” for businesses to test new ideas in a live environment with a regulatory sandbox approach; provide clear guidance on the development and role of agent networks, and allow different supply-side operators to use these alternative channels; and promote frictionless payment channels and network infrastructure, for example by advocating and mandating interoperability between mobile money platforms.
- **Shared vision:** Produce a unified roadmap for financial inclusion in order to focus the efforts of various stakeholders; and put in place a governance mechanism to facilitate coordination and ensure accountability for action in all relevant government departments.

While digital innovation can provide a significant boost to financial inclusion, digital finance also presents regulators with new challenges. They are charged with protecting consumers in a rapidly changing and increasingly complex supply-side ecosystem, as well as dealing with the growing risks related to data governance. The data generated by individuals’ digital footprints is increasing exponentially and includes, for example, whom they call, what they write in texts, whom they engage with on social media, what they buy, and which websites they visit. This raises a variety of data governance issues relating to how data is accessed, used, stored, and shared. Addressing these issues requires coordination between regulators. The BoP is a particularly vulnerable segment given its low awareness of these issues, its lack of alternative options (for accessing credit, for example), and the difficulty it has in voicing grievances effectively. Public policy will play a vital role in consumer education and protection, by articulating the responsibilities of supply-side participants through suitable policies and regulations, as well as ensuring compliance.

1. INTRODUCTION

Financial inclusion means that all segments of a population – even those with the lowest incomes – can access formal financial products and services. The financially excluded comprise both the unbanked and the underbanked. While financial inclusion is often measured as the percentage of the population with a bank account, in fact several dimensions of financial inclusion need to be considered.

- Access to formal financial services does not necessarily imply making use of them. More than half (54%) of the adults in the poorest 40% of households remain unbanked. Access to credit from formal channels and use of insurance solutions are significantly lower. Only 18% of adults use a bank account to receive wages and pay utility bills. Just 27% of adults save formally and 11% borrow formally. Consequently, our analysis considers both the breadth and depth of financial inclusion, by quantifying unmet needs in payments, savings, credit, and insurance.
- Significant imbalances in financial inclusion exist within markets. Differences exist between regions, between urban and rural areas, and between men and women: Global data show that only 58% of women have an account, compared to 65% of men.⁵

Digital technology has already emerged as a game-changing enabler across many industries, and is now beginning to create a similar impact in financial services. A 2016 report by Oliver Wyman estimates that digital technology could result in \$1 trillion of increased revenue and cost savings, equivalent to about 17% of global financial services industry revenue.⁶ Digital financial services (DFS) have the potential to make a large impact in financial inclusion, as already evidenced by progress in some African markets. In Tanzania, for example, 17.3% of adults had a bank account in 2011, rising to 39.8%⁷ in 2014. The Bank of Tanzania attributed the rise to innovation in the financial sector and, in particular, the use of mobile phones to access financial services – there were 19 million active users in the country as of the end of December 2015.⁸

In this paper, we focus specifically on areas where digital financial services have significant potential to accelerate financial inclusion through their impact on existing business models. We also provide recommendations for governments and regulatory authorities on how to encourage the development of digital financial services to increase inclusion. In particular, we examine financial inclusion at the base of the pyramid,⁹ for women, and for MSMEs in four Southeast Asian markets: Indonesia, the Philippines, Cambodia, and Myanmar. Southeast Asia was chosen as a geographic focus because the region represents a microcosm of the emerging markets universe, with countries at various stages of development. The four markets chosen for this study represent the diverse market structures and development

5 <http://datatopics.worldbank.org/financialinclusion/indv-characteristics/gender>

6 The financial services industry is worth US\$5.7 trillion in revenues (Oliver Wyman 2016, “Modular Financial Services – the new shape of the industry”)

7 Global Findex database

8 <http://allafrica.com/stories/201602120505.html>

9 The base-of-the-pyramid segment has been defined as individuals earning less than \$5 a day

stages we see across Southeast Asia. At one end, Indonesia is a major global economy, where financial inclusion efforts have largely been driven by state-owned banks and the digital economy has started to emerge. At the other end, Cambodia's economy is one-fortieth the size of Indonesia's, and financial inclusion has largely been served by Microfinance Institutions (MFIs). This allows us to draw out common themes that may resonate in other emerging markets, as well as important market-specific nuances that may only apply to a narrower group.

This paper is structured as follows:

- **Quantifying the opportunity:** Our approach quantifies the differences between supply and needs, showing the significant gaps between access to formal financial services and use of them.¹⁰
- **Framework to identify barriers to financial inclusion:** We apply a consistent evaluation framework to eight key barriers (both cross-product and product-specific) to identify challenges and constraints in each country.
- **The impact of digital finance:**¹¹ We use value chain analysis in payments, savings, credit, and insurance to determine where digital innovation could have the most significant impact in breaking down barriers to financial inclusion. We also highlight how regulation and public policy can encourage these solutions.
- **Quantifying the impact:** We estimate how far the gap between needs and formal supply can be narrowed through digital innovation and the potential boost from financial inclusion to a country's GDP.
- **Country-level analysis:** For each of the four countries selected, we estimate the potential impact of and analyse key barriers to financial inclusion, quantify the impact of digital finance, and recommend regulatory and public-policy enablers.
- **Concluding remarks**

¹⁰ Access refers to the ability of individuals or enterprises to obtain financial services, while usage refers to the frequency of access

¹¹ Digital finance refers to the use of digital technology to disrupt and disintermediate, with the potential to disaggregate the banking value chain. (Refer to Section 4 for further details.)

2. CURRENT SITUATION AND OPPORTUNITY

Access to formal financial services has improved significantly, with worldwide account ownership increasing from 51% to 62%¹² between 2011 and 2014. However, access to financial services does not necessarily imply deep engagement with providers: Only 27% of adults worldwide have saved with a financial institution and 11% have borrowed from one.

We consider the breadth and depth of financial inclusion by quantifying the gap in financial inclusion. This is defined as the mismatch between the formal supply¹³ of financial services and the need¹⁴ for them in our target population segments across four categories: payments and transfers, savings, credit, and insurance. In other words, the formal supply-needs gap is the demand from our target population segments that is currently not served by formal financial services.¹⁵ To see the relative size of this gap, we also compare it with the supply of formal financial services to the entire population.

- **Payments and transfers gap:** This is the difference between the payments needs of a target segment and the current electronic payments volume linked to this segment. This gap amounts to more than \$180 billion across the four focus countries. The Philippines has the lowest gap at 25%,¹⁶ as electronic payments there are relatively evolved. The government has made active efforts to drive a cash-light society through the 2020 E-Peso project and by disbursing most G2P payments through digital channels. In contrast, the payments gap in Indonesia exceeds 65%, as electronic G2P payments only constitute 16%¹⁷ of total government transfers, and most domestic remittances are still cash-based.
- **Savings gap:** This is the difference between the savings capacity¹⁸ of a target segment and the amount of savings in the segment mobilized through formal financial services providers. This totals more than \$80 billion across the four countries. Indonesia has made the most progress on this front, and has a gap of only 25%. One reason for this is the historic focus of Bank BRI and BPRs¹⁹ on mobilizing micro-savings and savings in rural areas. Another is the more recent drive to mobilize low-cost basic accounts via agent banking, which was enabled by the Laku Pandai regulation.²⁰ On the other hand, the Philippines has a gap of 40% and Cambodia a gap of 85%, and both markets are dominated by informal savings.²¹ Bank branch density is especially limited in Cambodia

12 Global Findex database; Percentage of adult population with bank accounts

13 Formal supply is defined as the current value of financial activities captured by the formal financial sector, using data provided from public sources such as central banks.

14 Need is defined as both formal demand and unmet or unrecognized needs based on a top-down estimation approach. For example, Payment Needs = Daily spend per capita * Target segment size

15 Further details on the methodology are provided in Appendix A

16 Calculated as percentage of total need in the segment

17 Global Findex Database

18 Savings capacity is calculated based on household income, the savings rate in the segment, and they share of such savings that is captured by formal and informal financial institutions.

19 BPRs (Bank Perkreditan Rakyat) refers to rural banks in Indonesia

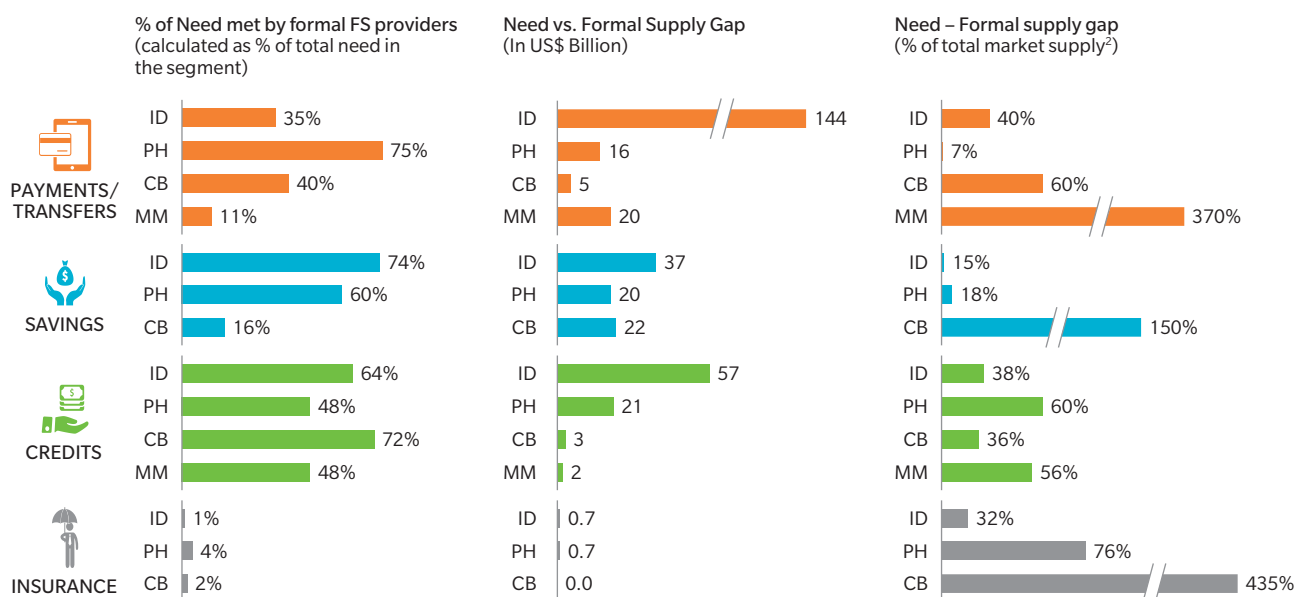
20 Indonesia's nationwide initiative to promote branchless banking. It was initiated by the government in order to increase the poorest segment of the population's access to basic, no-minimum-balance bank accounts.

21 "Informal" savers refers to customers who do not save through a formal institution such as a bank or MFI, and instead save through informal groups such as the Rotating Savings and Credit Associations (ROSCAs) or Accumulated Savings and Credit Associations (ASCAs). Such informal savings arrangements accounted for 95% (Philippines) and 78% (Cambodia) of all savers in 2014. Source: Global Findex Database

and Myanmar,²² while banks in the Philippines are unable to leverage agent networks²³ to open savings accounts due to regulatory constraints. Further, agent banking is still fairly new in Cambodia, where limited pilot projects are being run by selected operators.

- **Credit gap:** This is the credit need of the target segments that is currently met by informal lenders.²⁴ It amounts to approximately \$80 billion across the four countries. The credit gap is most significant in the Philippines (50%), in large part because of demand for loans from the micro-business segment, which large banks have not been very active in serving. Cambodia has the lowest gap (around 30%), as it has the most-developed network of MFIs of the four countries. MFI penetration²⁵ is 14.1% in Cambodia, compared to 3.7% in the Philippines and 0.8% in the wider East Asia and Pacific region.²⁶
- **Insurance gap:** This has been assessed in a more top-down manner, as the market is relatively undeveloped. Insurance penetration is low in each of the four markets. It is relatively high in the Philippines, where about 4% of insurance needs are currently met by micro-insurance providers, but in Indonesia only about 1% of current needs are met. Unmet demand for insurance in both these countries is estimated to be in the range of \$600 million to \$700 million in terms of annual premium potential.

Exhibit 2: Gap between needs and formal supply in different markets



Note: target segment = base of the Pyramid (BoP), women and micro businesses in four markets

1. Supply catered to target segment = total Payments and Transfers/Savings/Credit accessed through formal financial services that is attributable to the target segment
2. Formal financial services attributed to all segments (i.e. including target segment)
3. We were not able to reliably estimate the formal supply of savings and insurance in Myanmar that targets the sub-segments for financial inclusion.

22 Branch density defined as commercial bank branches per 100,000 adults: 4.2 (Cambodia), 1.7 (Myanmar), 7.9 (Philippines) and 8.7 (Indonesia) vs. 11.5 (world)

23 Agent banking refers to the delivery of financial services using agents and technology, such as POS terminals and mobile phones, for real-time transaction processing by banks and MFIs

24 Estimated based on IFC MSME gap research and Oliver Wyman analysis

25 Defined as the number of MFI borrowers divided by the total population

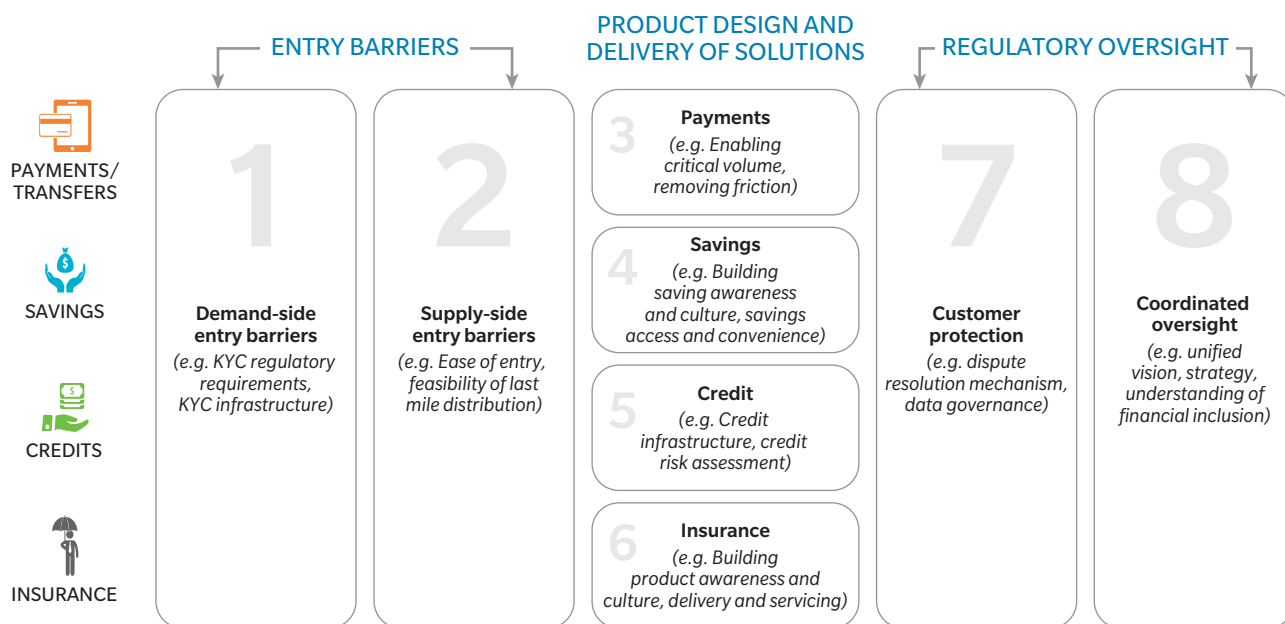
26 2014 Findex database

3. FRAMEWORK TO IDENTIFY BARRIERS TO FINANCIAL INCLUSION

To be able to close the gaps highlighted in Exhibit 2, a comprehensive understanding is needed of the key barriers and constraints in each country. We classify these barriers into three broad groups and examine each in more detail in this section (See summary in Exhibit 3)

- **Entry barriers:** These are demand-side constraints that deter or restrict individuals from signing up for formal financial services, as well as supply-side constraints that restrict suppliers from providing products and services, thereby limiting market competition. Our analysis includes regulatory constraints to assess both demand-side and supply-side entry barriers.
- **Product design and delivery of solutions:** This refers to constraints that relate to the design, delivery or servicing of specific products (such as payments and transfers, credit, savings, and insurance) for the target segments. For example, the use of new data sources and analytics improves credit risk assessment, which enables providers to serve the financially excluded, who may not have credit histories. By targeting this previously untapped market, the providers minimize the gap between needs and formal supply.
- **Regulatory oversight:** This includes constraints arising from the nature of regulatory oversight, coordination between different regulatory bodies, and regulators’ handling of emerging issues in data governance and customer protection. We explore eight themes

Exhibit 3: Summary of key constraints



Source: Oliver Wyman and MicroSave analysis

from these three groups, and then identify factors under each theme that can potentially impede financial inclusion. For each factor, we illustrate selected best practices and evaluate the extent to which these have been adopted in each of the four markets. A summary of our findings is presented in Exhibit 4, and more details are included in the country-level analyses in Section 6.

Exhibit 4: Analysis of key constraints: summary of country-level results

ENTRY BARRIERS

AREA OF CONSTRAINTS	SUB-AREA OF CONSTRAINTS	BEST PRACTICE EXAMPLES	IND	PHI	CAM	MYN
DEMAND-SIDE CONSTRAINTS	Financial and digital literacy	<ul style="list-style-type: none"> Defined NFIS¹ with DFS component and consistent rollout across the nation (both urban and rural) Majority of the population is financially and digitally literate 	Major	Major	Major	Major
	KYC regulatory requirements	<ul style="list-style-type: none"> Tiered KYC/Free look period/Cross-product KYC acceptance Digital account opening (e.g. signature) and digital archiving of KYC documents permitted 	Minor	Major	Major	Minor
	KYC infrastructure	<ul style="list-style-type: none"> Unique national ID with real time verification National IDs linked to FS accounts for electronic KYC and transaction authentication 	Major	Major	Major	Major
	Cost and quality of digital access	<ul style="list-style-type: none"> High degree of 3G network geographic coverage Low cost of data connection and consumption 	Minor	Minor	Minor	Minor



Minor constraint ← Major constraint

1. NFIS: National Financial Inclusion Survey

AREA OF CONSTRAINTS	SUB-AREA OF CONSTRAINTS	BEST PRACTICE EXAMPLES	IND	PHI	CAM	MYN
SUPPLY-SIDE CONSTRAINTS	Clear and consistent view on role of Public and Private capital in FI	<ul style="list-style-type: none"> Defined FI vision and guidelines, with support and regulations that promote parity across types of players engaged in DFS 	Major	Minor	Minor	Minor
	Regulator and public policy equivalence in treatment of different players	<ul style="list-style-type: none"> Objectively defined (rule based) role of different types of players (e.g. banks versus MFIs versus fintechs) All players treated equally and accorded equal opportunities 	Major	Minor	Minor	Minor
	Ease of entry (e.g. regulatory and licensing requirements)	<ul style="list-style-type: none"> Appropriate minimum capital requirements and unrestrictive sources of funding, streamlined and efficient licensing process with reasonable licensing fees 	Minor	Minor	Minor	Minor
	Cost of ongoing regulatory compliance	<ul style="list-style-type: none"> On-going licensing fee and other regulation complying costs are not a key concern of providers 	Minor	Minor	Minor	Minor
	Cost effectiveness of last mile distribution	<ul style="list-style-type: none"> Availability of alternate distribution channels (e.g. agent network) to different supply side players Efficient and available operating platform enabling agent to service provider and agent to customer 	Major	Major	Minor	Minor



Minor constraint ← Major constraint

PRODUCT DESIGN AND DELIVERY OF SOLUTIONS


AREA OF CONSTRAINTS	SUB-AREA OF CONSTRAINTS	BEST PRACTICE EXAMPLES	IND	PHI	CAM	MYN	
	Enabling critical volume – G2P and P2G	<ul style="list-style-type: none"> Digitization of social cash transfer programs Digitization of government payment receipts (e.g. tax, tolls, fees/ fines for government services, etc.) 					
	Enabling critical volume – P2All	<ul style="list-style-type: none"> Multiple electronic platforms offering P2P remittance services at scale (e.g. Mobile money agent networks) Strong adoption of electronic payment use cases in other areas of P2All (e.g. bill payment, E-commerce) 					
	Removing Friction – Interoperability	<ul style="list-style-type: none"> Near universal interoperability within and across various retail payment networks; mandated or market driven effort championed by the regulator 					
	Removing Friction – Reliability	<ul style="list-style-type: none"> Very high levels of network availability (99%+) and low levels of transaction failure (less than 1-2%) in retail payments; may need to be championed by the regulator 					
	PAYMENTS	Removing Friction – Cost of transaction and complexity around consumer fees	<ul style="list-style-type: none"> Consistent, low and simple fee structures clearly shown to customers in a visual way (Web, fee-chart board) 				
	Extending access – Points of physical access	<ul style="list-style-type: none"> Large scale agent network enabled with digital device/ applications operating under clear legal guidance Cashless strategy led by the Govt. to promote on/offline merchant payments (e.g. incentives such as tax breaks, lower levels of authentication requirements for small transactions etc.) 					
	Extending access – Electronic access in last mile	<ul style="list-style-type: none"> Majority of target customers residing within short distance of electronic access point Majority of customers enabled to transact in a digital way (not just carry out OTC transactions at agents) Market players focused on enhancing digital payment experience (e.g. app-based payments) 					
	Building savings awareness and culture	<ul style="list-style-type: none"> Target segment understands necessity of savings and save surplus disposable income 					
	SAVINGS	Embedding savings in product structure and enabling contextual savings habit	<ul style="list-style-type: none"> Providers actively promoting embedded savings and savings-habit-enabling products with nationwide coverage Human-centred design approach in product development that makes the product tailored to segment’s needs and savings capabilities (e.g. Dollar a week savings capacity) 				
	Savings access and convenience	<ul style="list-style-type: none"> Low cost, highly reliable and frictionless top up and drawdown mechanisms linked to savings account Partnership with community based institutions such as cooperatives to digitize and formalise member savings Sub-segment need based product design (e.g. migrant workers, women entrepreneurs, garment workers etc.) 					



PRODUCT DESIGN AND DELIVERY OF SOLUTIONS

AREA OF CONSTRAINTS	SUB-AREA OF CONSTRAINTS	BEST PRACTICE EXAMPLES	IND	PHI	CAM	MYN
 CREDIT	Credit Infrastructure	<ul style="list-style-type: none"> Established central credit bureau with universal reporting of credit lines and open access (at a fee) to all lending organizations Enhanced data reporting in credit bureau (e.g. utility payments) that extends potential coverage to unbanked 				
	Credit risk assessment	<ul style="list-style-type: none"> Mandatory credit bureau checks before disbursement of micro loans (to avoid over leveraging) Use of alternative credit scoring/assessment models (e.g. based on airtime usage, mobile money usage, bill payments history, social media usage etc.) particularly in unbanked/under-banked segment 				
	Credit targeting and delivering	<ul style="list-style-type: none"> Use of credit bureau and other sources of data in assessment of credit need and targeting of prospects Credit disbursement via alternate channels (e.g. agents) 				
	Credit servicing and collections	<ul style="list-style-type: none"> Use of alternative channels such as mobile/internet channel or agents for credit origination and servicing 				
 INSURANCE	Building product awareness and culture	<ul style="list-style-type: none"> Target segment understands necessity of insurance and how it works Availability of tailored products that fits specific risks of the segment/sub-segment (e.g. agriculture-crop insurance) 				
	Delivery and servicing	<ul style="list-style-type: none"> Enablement of low cost and digital servicing channels Low friction process in claims filing and settlement; can be digitally initiated and interactively managed 				
	Enabling environment	<ul style="list-style-type: none"> Defined guidelines with clear definition of roles and limits of different players in enabling Insurance Co-ordinated approach in market development across banking and insurance regulators as well as supply side players 				

Minor constraint Major constraint



REGULATORY OVERSIGHT

AREA OF CONSTRAINTS	SUB-AREA OF CONSTRAINTS	BEST PRACTICE EXAMPLES	IND	PHI	CAM	MYN
CUSTOMER PROTECTION	Constraints on predatory practices (e.g. lending)	<ul style="list-style-type: none"> Defined regulations for predatory practices and regular monitoring of agents and providers 				
	Data governance, privacy laws and enforcement mechanisms	<ul style="list-style-type: none"> Creating a controlled environment for data sharing Establishment of rules around data standardization that enables cross-platform data usage Defined data privacy laws with track record of enforcement 				
	Dispute resolution mechanisms	<ul style="list-style-type: none"> Elaborate definition of standard dispute resolution approaches in case of multi party transactions (e.g. mobile money account to bank account payment) High degree of customer awareness and access to dispute resolution mechanisms 				
COORDINATED OVERSIGHT	Unified vision, strategy and understanding of financial inclusion	<ul style="list-style-type: none"> National Financial Inclusion strategy developed in consultation with all relevant agencies Involved Govt. bodies and working groups following the strategy and regularly check on FI progress/updates 				
	Regulatory co-ordination	<ul style="list-style-type: none"> All relevant regulators (e.g. Telco and Financial regulators) are involved, consistent and coordinated in their regulatory actions 				
	Reporting, monitoring and an evidence based approach	<ul style="list-style-type: none"> Statistics on financial inclusion impact tracked regularly (i.e. annual) and shared across relevant regulators 				
	Balance between ex-ante and ex-post regulation	<ul style="list-style-type: none"> Well-defined ex-ante rules for players to have clear view on their playing field and immediate authority intervention 				

The overall assessment highlights considerable barriers in each markets across many of the eight areas of constraints. But it is important to note that significant progress has been made in many areas, and that there are ongoing initiatives that will address some of the remaining issues. In the following paragraphs, we provide a brief, market-level summary of progress made so far and the barriers that remain.

INDONESIA: Significant progress has been made through the Laku Pandai and e-money initiatives²⁷ to target the financially excluded, especially those in rural areas.²⁸ Bank Indonesia introduced e-money regulations in 2009, and followed up with a DFS pilot project in 2013. E-money regulations were amended in 2014 to enable BUKU IV²⁹ banks to partner with individual entities. In addition, regulations for branchless banks were introduced by the Financial Services Authority (OJK) in 2014. Bank-led models appear to dominate, with banks able to participate in both e-money and Laku Pandai. MNOs and telco-led models are restricted to e-money.

²⁷ e-Money regulation launched (11/12/PBI/2009); BI e-Money regulation amendment (16/8/PBI/2014) as a follow up to BI DFS pilot, where Book IV banks are allowed to partner with individual entities; Branchless Banking regulation launched (19/POJK.03/2014) applicable for Banks & Financial institutions

²⁸ Indonesia's nation wide initiative to promote branch less banking. Introduced by OJK as a new initiative in March 2015.

²⁹ Indonesian Financial Services Authority (OJK) classifies banks in to four categories (known as "BUKU") based on the amount of the bank's core capital. Banks with core capital less than IDR 1TN are categorized as BUKU I while large banks with core capital in excess of IDR 30TN constitute the highest tier of BUKU IV

Indonesia has also made good progress in implementing the national ID programme (e-KTP³⁰), which covers 86% of the population, and it has detailed an ambitious plan to digitize all social benefits payments by 2017. On the other hand, Indonesia lacks a unified real-time ID database linked to financial services for electronic KYC and authentication of transactions. Similarly, a lack of integration between e-money and Laku Pandai-based solutions has confused both the supply side and end customers. Another major barrier is the absence of the credit infrastructure required to underwrite small and micro loans, which highlights the business case for alternative credit scoring using non-traditional data. Coordination between regulators could also be improved, particularly on cross-industry issues. One example of this is the Philippines, where the central bank has created a bank-wide committee to coordinate financial inclusion programmes, including institutionalized information sharing between departments in the central bank and with other agencies.³¹ In addition, there are untapped but potentially suitable roles for MNOs in Indonesia, such as driving mobile money platforms by leveraging their extensive distribution networks.

PHILIPPINES: There has been a consistent and coordinated effort by regulators and public policy-setting institutions to drive financial inclusion. This was clearly articulated in the National Strategy for Financial Inclusion 2015, and continues to be evaluated in an evidence-based manner via the National Baseline Survey. The central bank has been active in its efforts to increase financial inclusion. It has encouraged micro-savings³² and allowed banks to expand their footprints by establishing micro-banking offices in areas where it may not be economically feasible to open a full branch immediately.

The government has also achieved significant success in digitizing G2P and public-to-government (P2G) payments. About 54% of disbursements are currently done electronically, and the National Retail Payments System (NRPS) is going to provide the necessary policy and technology framework for the interoperability of mobile money and e money services offered by different players. However, progress in other areas has been held back by an absence of unique National IDs, as well as cumbersome processes for KYC verification and account activation (even though only one identification document is required). As a result, customers often do not verify their e-money accounts, and prefer to conduct over-the-counter (OTC) transactions. The depth of financial inclusion continues to be low: More than 40% of adults save money, but only about 30% of these do so with a bank.³³ The regulator could help address this issue by taking a more active role in creating an interoperable and reliable retail payment network. Similarly, fast-track development of agent banking networks could help deepen financial services access and integrate offerings across different supply-side players, such as rural banks, MFIs, cooperatives, and pawnshops.

30 e-KTP (Electronic Kartu Tanda Penduduk) is the Unique National ID program of Indonesia, which maintains an online database of national IDs that can be used for identity verification purposes

31 http://www.afi-global.org/sites/default/files/publications/the_use_of_financial_inclusion_data_country_case_study_philippines.pdf

32 In 2010, the BSP issued Circular 694, which expanded microfinance products to include micro-deposits (also known as microfinance savings deposits). In May 2013, the BSP issued Circular 796, which amends the general features of micro-deposits by increasing the ADB to PHP 40,000 (US\$927)

33 Bangko Sentral ng Pilipinas 2015 National Baseline Survey on Financial Inclusion

CAMBODIA: Cambodia's financial inclusion landscape remains highly skewed. Significant progress has been made in enabling the BoP segment to access credit via the active participation of MFIs. A more recent trend has been the widespread adoption of mobile payments for domestic money transfer services: 33% of adults said they have received money through mobile money services in 2016.³⁴ However, only 13% of adults have bank accounts, and fewer than 4% save with a formal institution.³⁵ None of the mobile money service providers currently offers savings products, and none of the MFIs has been able to develop a large network of agents to help mobilize micro-deposits. However, the government has taken a number of important steps to address underlying infrastructure issues, and approximately 70% of the adult population now has a National ID. Cambodia launched the FinScope Consumer Survey in July 2016, which will pave the way to a National Financial Inclusion Strategy. The National Bank of Cambodia (NBC) is working on a Payment Service Provider License that could augment or replace the existing license requirements for third-party processors (TPPs),³⁶ which restrict non-bank players' ability to operate agent networks.

MYANMAR: Myanmar has one of the lowest levels of financial inclusion in Southeast Asia: Only 23%³⁷ of the adult population has a bank account. However, considerable progress has been made over the last couple of years, and the overall trajectory is very positive. The "Financial Inclusion Roadmap 2014-2020 for Myanmar" has for the first time provided direction in terms of the ambitions and priorities for this critical issue. The newly elected government is focusing on financial inclusion, and has issued a guideline to banks to target the opening of one bank account per household. The regulator has also been proactive in allowing MNOs to play a lead role in financial inclusion. Regulatory guidelines on Mobile Finance Services issued in March 2016 allow MNOs and non-banks to offer mobile-led financial services independently of banks. This has already led to a number of mobile money players entering the market. However, significant challenges remain for formal financial services access and usage. A lack of trust in formal banking services providers is a systemic issue that will need to be addressed via sustained public campaigns and financial literacy efforts. Weak KYC infrastructure makes banking services very dependent on branches. The technical stability of the digital payments infrastructure is also very doubtful due to power outages, software issues, and the weak connectivity of the telecommunications and Internet networks. The credit delivery infrastructure is still inadequate because of the absence of a national credit bureau and an industry-wide reliance on manual, paper-based processes to make credit decisions. Over the next five years, initiatives related to financial inclusion will need to address these fundamental issues.

34 <http://shift.uncdf.org/launch-cambodia-financial-inclusion-demand-side-survey>

35 <http://datatopics.worldbank.org/financialinclusion/country/cambodia>

36 Third-party processors (TPP) are able to provide outsourced payments and agent management services to banks in Cambodia

37 CGAP 2015

4. IMPACT OF DIGITAL FINANCE

Digital innovation has the potential to fundamentally change the provision of financial services to the underserved BoP, female, and MSME segments. As well as impacting the way in which traditional incumbents conduct their businesses, digital technology is being adopted by new entrants. They have the potential to disrupt and disintermediate, thus disaggregating the banking value chain. Examples of uses of the new technologies include:

- Alternative platforms, such as mobile phones and digital platforms, to enable last-mile access. These will be able to reach the financially excluded and people in rural areas without the need for physical bank branches.
- Alternative digital information, such as biometrics data, to verify customer identity for account opening and payment authorisation.
- Analysis of transactional and digital footprint data to generate insights to improve customer targeting and credit risk assessment.
- Mobile wallets developed by non-banks, such as MNOs, to improve the customer experience in savings and payments.

We believe there are five key areas where digital solutions can have a positive disruptive impact on financial inclusion. However, the participation of new players, combined with the proliferation of new data, could also create new challenges for regulatory oversight. We categorise these impacts according to the framework in Exhibit 3.

ENTRY BARRIERS:

- 1. Demand-side entry constraints – Digitally enabled customer identification and verification:** Digital solutions can enable fast, low-cost, and convenient customer identification and verification processes. This is especially so when the processes are powered by unique national IDs, a real-time verification infrastructure, and a supporting regulatory framework featuring tiered KYC and cross-product KYC. As an example, e-KYC in India, based on the Aadhaar 12-digit unique identity number, has reduced the time required for customer verification to less than a minute, from two to four weeks.
- 2. Supply-side entry barriers – Scalable delivery by tackling last-mile distribution:** Digital technology can also meaningfully alter the supply side by addressing the problem of last-mile distribution and servicing. This can be done through alternative low-cost, widespread points of physical access that are digitally enabled, for example using mobile money or point of sale systems. A study by the Consultative Group to Assist the Poor (CGAP) estimated that digitally enabled last-mile delivery could reduce the distribution costs of lending and insurance products by between 15 and 30%.³⁸

³⁸ <http://www.slideshare.net/CGAP/projecting-impact-of-nontraditional-data-and-advanced-analytics-on-delivery-costs>

PRODUCT DESIGN AND DELIVERY OF SOLUTIONS:

- 3. Payments – End-to-end digitization in the flow, access, and infrastructure of retail payments:** The payment value chain and ecosystem can be completely overhauled by end-to-end digitization. Digital G2P payments and remittance flows can create the initial momentum for electronic payments, thereby supporting the development of viable business cases. Development of P2All use cases combined with interoperable networks and open API platforms can help sustain and further develop digital retail payments. For example, Wing in Cambodia now processes a volume of transactions equivalent to about 50% of the country's GDP through a mobile money network consisting of some 4,000 digitally connected agents. In doing so, it has reduced money transfer fees by between 40% and 80%.
- 4. Credit – Credit and fraud risk reduction via digitally-enabled data capture and analytics:** Digital technology can significantly enhance access to credit through the use of alternative sources of data, such as data from payment transactions and telecoms providers, combined with analytics. These can improve customer profiling, credit risk assessment, and fraud detection. A number of Fintech players have been active in this space in the four focus markets, and are pursuing various approaches to risk assessment. Lenddo has been using data from digital footprints for fraud detection and credit risk assessment. TrustingSocial has been using telecoms data for similar purposes. EFL has followed an approach to the credit assessment of micro-borrowers based on psychometric tests.
- 5. Savings – Cost-effective mobilization of low-cost deposits through a digital access and service platform:** Savings mobilization can be digitally activated by lower-cost alternative distribution channels, such as agents; more-convenient product designs, such as mobile wallets connected to savings accounts and goal-based savings products in the form of games; and an easy KYC and onboarding process. Indonesia's Laku Pandai program has enabled banks to collect \$3 billion in deposits from 1.1 million new customers in rural areas in less than a year. In Kenya, M-Shwari generated an active customer base of more than 5 million within one year of its savings product launch.

Outside these five areas of positive disruption, we also analysed the impact of digital finance on insurance and regulatory oversight, and reached somewhat different conclusions.

- 6. Impact of digital finance on insurance:** We recognise that there may be significant digital opportunities in micro-insurance. However, micro-insurance is still nascent in each of our focus markets, and most of the digital finance solutions in insurance are still in early pilot stages. We therefore believe that the impact of digital finance on micro-insurance and, in turn, its impact on financial inclusion in general will be limited over the next five years.
- 7. Impact on regulatory oversight - Data governance and customer protection:** Digital finance presents new challenges for regulators because of the rapidly changing and more-complex supply-side ecosystem, as well as the increasing amounts of personal data generated in a more digital world. Both these trends make it harder to ensure consumer protection. Data governance and customer protection: Digital technology

is enabling business models based on insights drawn from vast amounts of data – for example credit risk assessment based on telecoms data. This use of data raises a variety of challenges that need to be addressed, related to data quality, accessibility, and security. The BoP is a particularly vulnerable market segment, given its members’ lower awareness of these issues, their lack of alternative options, and the difficulty they have in voicing complaints. Regulators need to play a lead role in this area by setting guidelines on data-sharing governance and limitations, encouraging customer-driven data permissioning platforms, and setting standard operating procedures for dispute resolution. These actions are particularly important given increasingly disaggregated value chains, in which multiple participants combine to provide customers with end solutions.

4.1. DEMAND-SIDE ENTRY CONSTRAINT – DIGITALLY ENABLED CUSTOMER IDENTIFICATION AND VERIFICATION

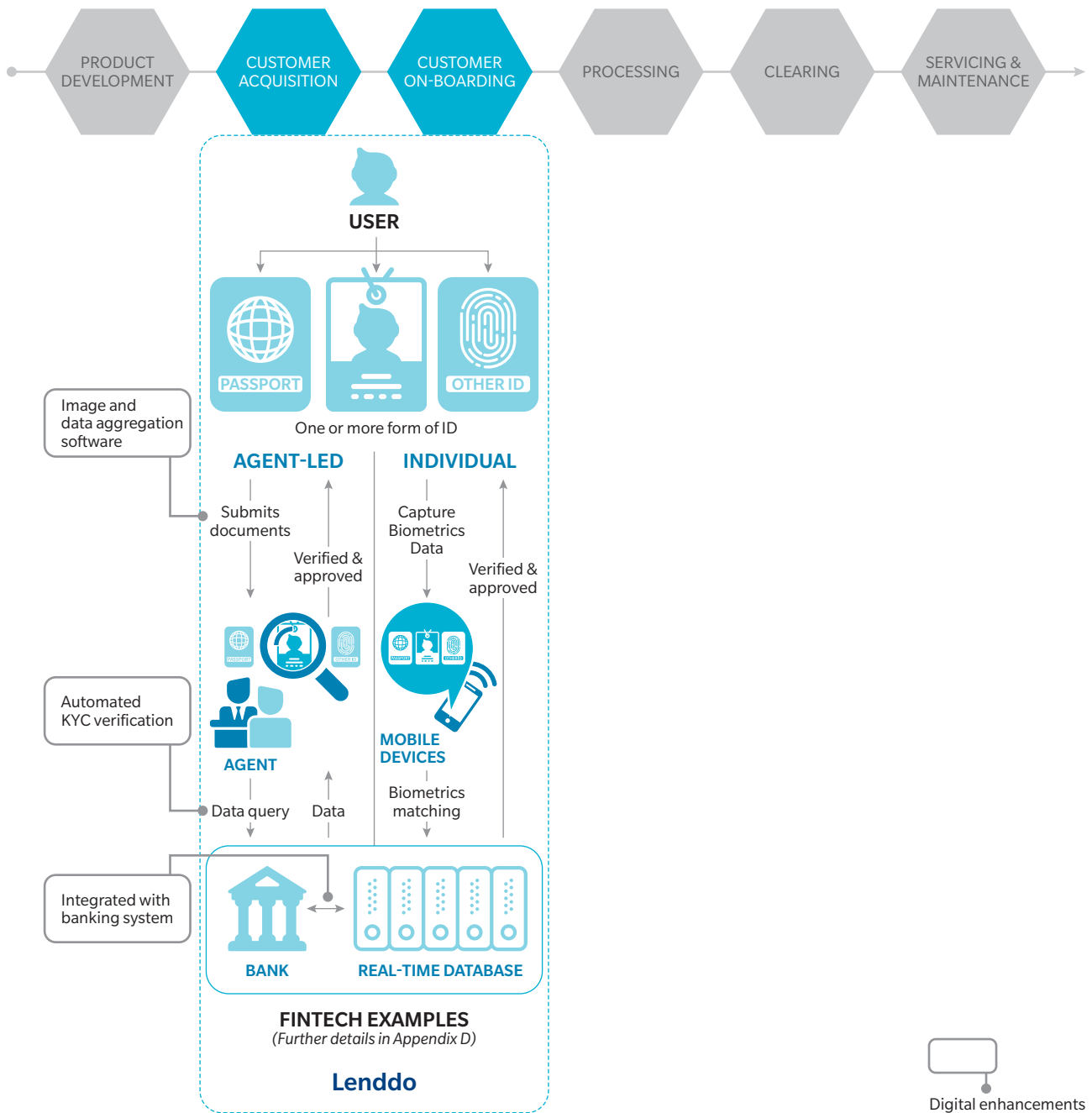
KYC is integral to the spread of formal financial services and the management of risks associated with a globally integrated financial system. However, customer identification and verification is often a challenge when no unique, universal customer ID exists, and when infrastructure is inadequate to carry out the process in an efficient manner. This is a significant barrier to greater access to and use of financial services. In the absence of alternatives, prospective customers need to appear in person at the branch of a bank or other financial services provider, often with a set of documents, just to open a basic savings account. Even then, the process will not be completed for two or three weeks. Such a process is inconvenient for customers, expensive for financial services providers, and still open to significant risks – as human verification of identifying documents is far from fool-proof.

Digital technology can enable two alternative approaches, both better than the traditional approach described above:

- **Automated agent-enabled customer identification** – where an agent is able to capture a customer’s identification documents digitally using a mobile application. The captured data is automatically verified against databases linked to the financial services provider’s back end platform.
- **Automated individual-enabled customer identification** – where an individual is able to submit identity proof, such as a fingerprint, remotely to a financial services provider. This enables verification of the customer’s identity in real time through links to national databases.

These approaches are illustrated in Exhibit 5, next page.

Exhibit 5: Mapping digital KYC enhancements to product value chains



There are three key benefits of digital KYC. First, automating the KYC process and integrating public records with bank systems increase provider efficiency, and reduce the costs and processing times in formal financial services. Second, individuals previously excluded due to missing or limited formal documents can now be considered for KYC, since verification is performed using both public records and non-traditional data sources. Third, the robustness of digital KYC verification motivates regulators and providers to reduce onerous KYC requirements.

Ideally, both agent-enabled and individual-enabled identification need access to a real-time public database, such as India’s Aadhaar.³⁹ Although national ID systems may not be available in some markets, for example the Philippines, or not accessible in real time when they do exist, as in Indonesia, there are a number of digital interim solutions. The table below lists specific actions that regulators and policymakers can consider to foster digital KYC solutions.

CATEGORY	REGULATORY OR PUBLIC POLICY OBJECTIVE	DIGITAL ENABLEMENT	SUPPLY-SIDE RESPONSE
KYC regulatory requirements	<ul style="list-style-type: none"> Minimize KYC documentary requirements and simplify procedures Adopt risk-based approach with tiered KYC requirements Allow KYC portability across products and providers Allow pilot solutions leveraging alternative data sources, such as telecoms and social media data, and new identity verification approaches, such as facial recognition 	<ul style="list-style-type: none"> Digital verification Paperless applications 	<ul style="list-style-type: none"> Engage with the regulator and technology innovators to develop pilot projects Develop industry platforms that enable KYC portability Explore partnerships with alternative data providers
KYC infrastructure	<ul style="list-style-type: none"> Establish and enforce a unique national ID system Establish unique ID as the primary basis for KYC Develop common standards and practices to leverage public record databases Mandatory mobile phone number registration and portability 	<ul style="list-style-type: none"> National ID database with real-time access Biometric verification embedded in national ID program Digitize and enable access to public records Digitization and enhancement of financial services provider back offices 	<ul style="list-style-type: none"> Invest to enhance the technology platform to enable digitization of the KYC process Reengineer and automate the existing KYC process

39 Aadhaar is India’s national ID database

Indonesia has tried to tackle its KYC-related barrier by allowing banks to partner with agents to conduct simplified KYC procedures for Laku Pandai accounts.⁴⁰ Individuals are now able to open accounts with just a letter from the local village officer. The regulator has also allowed agents to capture customer documents digitally using mobile devices such as smartphones and tablets. The documents are then uploaded directly to bank servers. However, the absence of an integrated national ID database means that automated KYC cannot be conducted in spite of Indonesia's electronic national identity (e-KTP) program.

Indonesia's progress is a contrast to the Philippines' cumbersome customer identification and verification process. Mobile money accounts can be opened with as many as 20 paper-based IDs, all of which require a photo of the individual. Bank accounts can only be opened personally at a branch. A few local governments have issued digital ID cards, but these are small-scale initiatives that are not standardized, so the scale is limited. Furthermore, the regulator has not yet permitted digital KYC procedures, and the infrastructure needed for digital verification is lacking. Myanmar has a similar challenge, as no unique universal national ID exists, and there is no public database that can be remotely accessed to verify customers' identity.

India is a recent, noteworthy example of how a unique, universal national ID project can trigger rapid development of KYC infrastructure and regulations. *A recent study on KYC benchmarking and harmonisation conducted by MicroSave*⁴¹ highlighted that e-KYC enabled by India's **Aadhaar system** could result in an estimated direct saving of over \$1.5 billion⁴² over the next five years.⁴³ Apart from substantial cost savings for banks and financial institutions, Aadhaar-enabled e-KYC is significantly more efficient than current, paper-based KYC. Traditional customer enrolment processes followed by banks mean it can take from two to four weeks before an account is activated and all the KYC details have been verified and stored. Using Aadhaar, e-KYC can enable bank accounts to be activated and readied for transactions in a minute.

40 According to simplified KYC procedures, banks and agents must demand, at a minimum: a) full name, b) residential address and corresponding identity document, c) place and date of birth, and d) work details and supporting documents. But they do not require a photo ID

41 The benchmarking study covered a range of institutions, including banks, mobile operators, mobile money providers, and providers of semi-closed and open wallets

42 The savings potential can be viewed in the context of the \$3.7 billion capital infusion into public sector banks that the Government of India has announced in the budget for the 2016-17 fiscal year. The infusion is intended to deal with their high level of non-performing assets and the twin-balance-sheet challenge

43 This estimate is conservative, considering that since August 2015 over 212 million new accounts have been opened under the PMJDY, India's national mission for financial inclusion. As a result, new accounts will be opened at a lower rate in the foreseeable future

4.2. SUPPLY-SIDE ENTRY CONSTRAINT – SCALABLE DELIVERY BY TACKLING LAST-MILE DISTRIBUTION

A key challenge for the financially excluded is their inability to access formal financial services through traditional banking infrastructure such as branches and ATMs. These are typically concentrated in high-density urban areas, and are much more limited in rural areas. Travel costs and opportunity loss add to the fees charged for banking services to present a significant cost barrier for the BoP segment. In the Philippines, it takes an average of 26 minutes to reach a bank branch, and another 33 minutes waiting in a queue to be served.⁴⁴

Innovations in digital financial services could lower providers' distribution and servicing costs for basic financial services by making possible alternative platforms and channels, such as mobile phones, point-of-sale devices, and agent networks. According to a study by CGAP, the use of digital financial solutions can lower the delivery costs of lending and insurance products by between 15% and 30%.⁴⁵ Such cost reductions provide massive opportunities for scaling up and reaching distant locations not previously served by financial services providers. Bank BRI in Indonesia has rolled out more than 25,000 agents under its Laku Pandai model in just one year, establishing five times the number of points of presence in that time as it did branches over 50 years.

This is clearly an area of potential digital disruption, though we believe that the nature and impact of last-mile distribution solutions are going to depend on specific products. Disruption is likely to be faster and more significant in the case of payments than it is for credit. Agent networks and point-of-sale terminals provide low-cost alternatives to branch banking, offering services such as cash-in and cash-out, bill payment, account transfers, credit disbursement, and collections. Agent networks can be built rapidly, as demonstrated in Indonesia: 130,000 Laku Pandai agents have been added in just one year, compared to about 20,000⁴⁶ bank branches nationwide over decades of traditional banking. However, the development of agent networks comes with additional operational risks. Operators must recruit their agents and agent network managers carefully, and then train and supervise them adequately. In addition, maintaining agent activity is a key challenge. Though there are about 25,000 e-money agents in the Philippines, almost three times the number of bank branches, a high proportion of them are dormant.

44 National Baseline Survey on Financial Inclusion 2015

45 <http://www.slideshare.net/CGAP/projecting-impact-of-nontraditional-data-and-advanced-analytics-on-delivery-costs>

46 World Bank: number of bank branches per 100,000 adults (11), adult population (age over 15, 177.7 million)

4.3. PAYMENTS AND TRANSFERS – END-TO-END DIGITIZATION

Gaining some kind of access to the formal payments network is a typical first step for an individual or MSME to become financially included. Successful implementation of payments initiatives often results in broader effects too, by facilitating access to other financial services such as savings and credit, since loans are usually tied or linked to transaction accounts. The formal payments system is thus a way to deepen financial inclusion.

While cash is still prevalent in all four focus countries,⁴⁷ an enabling ecosystem can create a point of inflexion for the use of electronic payments. In Kenya, for example, the introduction of the mobile phone-based M-Pesa service and its successful integration into the daily lives of individuals have led to 70% of all person-to-person (P2P) payments being carried out electronically.

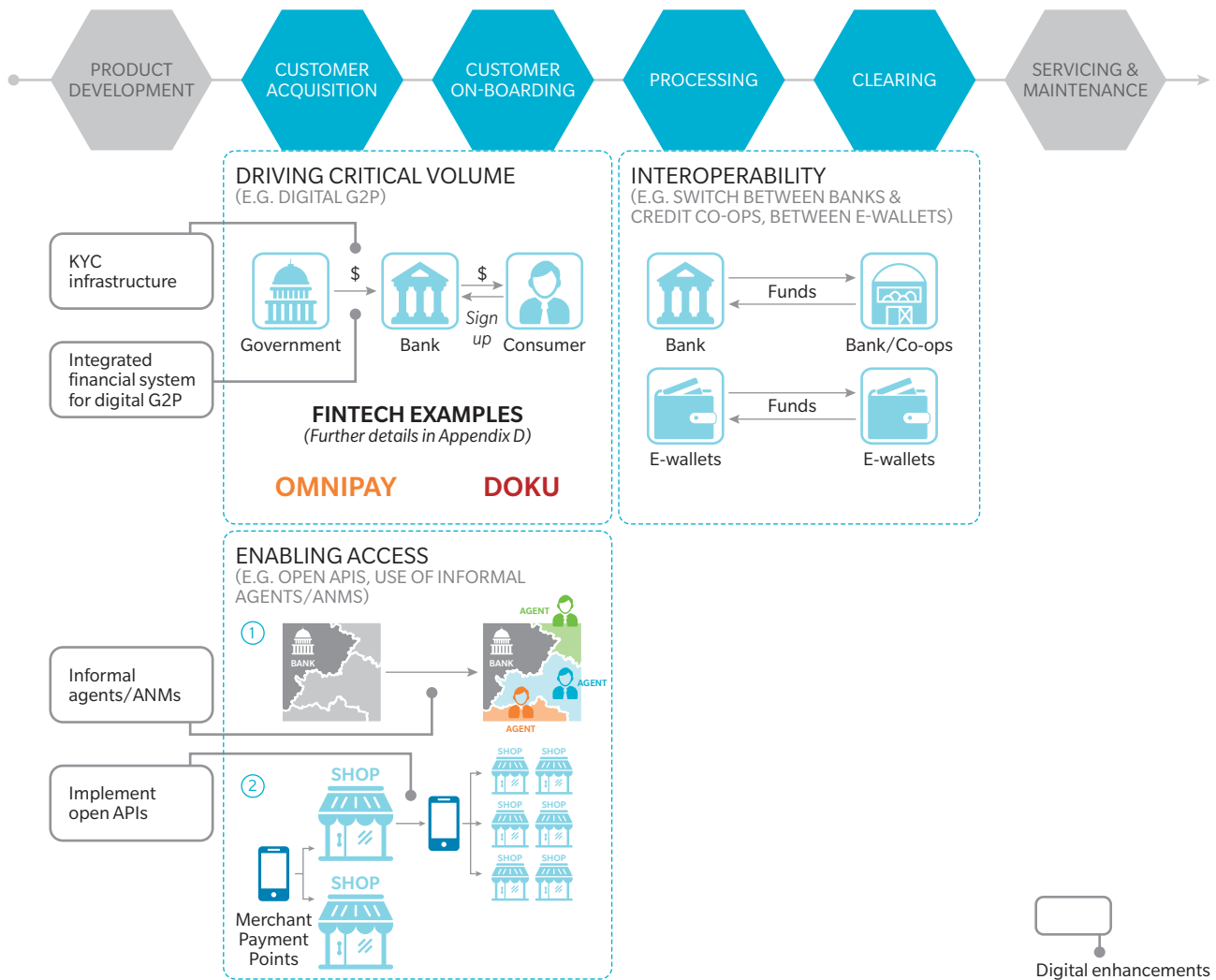
We identified three main ways in which payments and transfers can be digitally enabled. These areas cover most activities along the payments value chain:

- **Driving critical volume through digital G2P and P2P payments:** Digitization enables governments to disburse social transfers in an efficient, safe, and secure manner, and to reduce leakage. As the digitization of remittance flows replaces informal channels, it provides an initial platform from which the supply side can build an economically viable payments business. Once established, such a platform can be broadened to deliver other services, including P2G payments such as taxes, bill payments, mobile top-ups, and e-commerce purchases.
- **Increase access and enable usage through open APIs:** Open APIs allow providers to leverage existing infrastructure to introduce innovative, low-cost products and services, similar to the way in which Uber uses the GPS infrastructure. In the case of a mobile money platform, such measures can facilitate payments for new services, providing consumers with additional product options, enhancing the value proposition, and increasing usage.
- **Removing friction through interoperability:**⁴⁸ Interoperability (for example intra- and inter-bank, bank-MNO, and inter-MNO) enables the ecosystem to leverage common payment rails, reducing duplication. It also provides more transaction options for end-users. When combined with simple, intuitive user experiences, it can drive transaction volumes significantly.

⁴⁷ Cashless payments in Indonesia account for only 10.3% of total payments <http://en.tempo.co/read/news/2015/04/24/056660543/BI-Cash-Transactions-Still-More-Popular-than-E-payments>

⁴⁸ Defined as the ability of customers to transfer money between customer accounts at mobile money schemes and accounts at banks <http://www.gsma.com/digitalcommerce/mobile-money-interoperability/a2a-interoperabil>

Exhibit 6: Mapping digital KYC enhancements to product value chain



Digital G2P delivers three key benefits. First, governments are able to reduce the cost of social transfers and on-board the financially excluded. In South Africa, the government delivered social grants electronically at just 40% of the cost of cash payments, and on-boarded 60% of the previously-unbanked population.⁴⁹ Second, digital G2P reduces leakage and increases transparency. Third, digital G2P payments generate consistent payments traffic, which helps providers create a viable business model.

49 <http://www.cgap.org/blog/can-digital-cash-transfers-enable-financial-inclusion-india>

A substantial share of the target population for financial inclusion receives some form of social welfare transfer in each of the four focus markets. For example, about 70 million adults in Indonesia receive some sort of government benefit.⁵⁰ In total, G2P payments account for 84% of all government transfers in Indonesia. However, they are often cash-based. Indonesia intends to leverage digital platforms for social transfers through its Laku Pandai program, which is expected to reach rural areas and cover at least 75% of the population. The Philippines has already achieved significant success in this dimension through strong co-ordination between the Department of Social Welfare and the Development and Land Bank: More than 50% of the country's transfers are carried out digitally.⁵¹ However, this opportunity has not been fully leveraged to develop a broader electronic payments ecosystem. Most of the G2P payment accounts operate as one-way disbursement accounts: Money is withdrawn from them, and they are not used for other electronic transactions.

India's experience with G2P can be instructive for other developing economies with similar government agendas. India has a huge social welfare state, with a budget of \$43 billion in 2015-16 for a range of subsidies. The Government of India has been leveraging national digital IDs and payment systems across a range of G2P programmes to implement the direct transfer of benefits. The aim is to limit outlays on subsidies through de-duplication and efficiency. Among the early successes, savings of over \$1.7 billion have been realized by digitizing the cooking gas subsidy. It is estimated that recurring annual savings of over \$1.2 billion are possible under this programme.

The Indian government is now accelerating the implementation of larger G2P initiatives that cover employment guarantees, pensions, food, and subsidies for fuel and fertilizers. These are larger, more complex programmes, and they need to be designed and executed appropriately to realize the envisioned savings and impact. Programmes like the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), the world's largest public employment generation scheme with an annual budget of \$6 billion, will need improvements in governance and a significant overhaul of processes to achieve the desired outcomes.

The task in India is a mammoth one. The rural population is large and relatively disconnected, and the large bureaucracy requires coordination across central ministries and departments, as well as 29 state governments. These challenges are not unique and would apply to many other countries seeking to increase the efficiency and accountability of their welfare payments. In India, three key elements converged to enable early success: an enabling infrastructure, a business case for the G2P partners, and channels such as banks and agents, which provide a delivery mechanism offering convenience to the customer and which have adequate grievance redress mechanisms.⁵²

50 <http://www.tnp2k.go.id/en/frequently-asked-questions-faqs/unified-database/>

51 Better than Cash Alliance 2015 – Philippines Country Diagnostics

52 CGAP. https://www.cgap.org/sites/default/files/Brief-From-Cash-to-Digital-Transfers-in-India-Feb-2015_0.pdf

Open APIs enable the private sector to build on public infrastructure and goods. For example, a national ID system built with open APIs could enable providers to integrate their systems for KYC. Multiple providers are integrating with the Aadhaar eKYC platform in India using open APIs and offering a range of credit and P2P lending products. Dwolla is another relevant example – a payments processing platform that provides money transfer services and an open API that can integrate its services into other platforms.

Interoperability increases the number of transaction partners and payment options, encouraging usage and yielding benefits to all stakeholders in the payments ecosystem. Customers benefit from greater convenience and flexibility, while providers benefit from sharing the cost of common infrastructure. Bangladesh’s B-Kash, for example, was able to reach 11 million accounts in just 2.5 years⁵³ thanks to network interoperability. Interoperability also reduces costs. A 2008 World Bank study estimated that Brazil could save 0.7% of GDP each year thanks to interoperability.⁵⁴

Indonesia established the world’s first MNO interoperability agreement in 2013 between the three main operators. This enables customers in a mobile money scheme in one network to transact seamlessly with customers in another. In contrast, the lack of interoperability between MNOs has been a major impediment to the adoption of e-payments in the Philippines.⁵⁵ Only recently, two major players, GCash and PayMaya, have started an interoperability pilot project that may address this issue.

The table below lists specific actions that regulators and policymakers can consider to foster end-to-end digitization in payments and transfers.

53 <https://www.cgap.org/blog/bkash-bangladesh-what-explains-its-fast-start>

54 <https://www.cgap.org/blog/bkash-bangladesh-what-explains-its-fast-start>

55 http://www.ifc.org/wps/wcm/connect/8d518d004799ebf1bb8fff299ede9589/IFC+Tanzania+Case+study+10_03_2015.pdf?MOD=AJPERES

CATEGORY	DIGITAL ENABLEMENT	REGULATORY AND PUBLIC POLICY ENABLEMENT	SUPPLY-SIDE RESPONSES
Enabling critical volume – G2P	<ul style="list-style-type: none"> Identify, verify and digitize beneficiary database Use of an integrated financial system to digitally administer salaries, pensions, and licensing receipts 	<ul style="list-style-type: none"> Level playing field by allowing MNOs to participate in G2P payments Streamlining G2P program implementation across ministries to act as a catalyst Focused implementation, guidance, monitoring and supervision of outcomes and impacts 	<ul style="list-style-type: none"> Promote cashless digital transactions via branches and agent networks, and leverage them to make G2P payments
Enabling critical volume – P2All	<ul style="list-style-type: none"> Mobile POS terminals for customers to utilize e-money Electronic money transfer platforms for remittances, such as P2P Bill payment aggregator to enable one-stop payments (including P2G) online, in provider branches, or through agents 	<ul style="list-style-type: none"> Develop cashless strategy and work with providers to promote financial and digital literacy Initiate a single aggregator platform and direct G2P payment flows through the platform 	<ul style="list-style-type: none"> Supply digital payment instruments, such as POS and payment terminals Reduce per-unit merchant discount rate (MDR) and transaction fees, which will be compensated by volumes
Extending access	<ul style="list-style-type: none"> Integration of merchant POS with payment processing platforms, such as open API 	<ul style="list-style-type: none"> Invest in or develop an open API platform that can be connected to payment platforms Encourage working groups with key payment platform suppliers to advocate open API architecture 	<ul style="list-style-type: none"> Develop and open payment platforms with open API architecture
	<ul style="list-style-type: none"> Agent network and enhanced POS 	<ul style="list-style-type: none"> Allow providers to partner with agent network managers and to leverage informal agents 	<ul style="list-style-type: none"> Formalize agent network or partner with agent network managers (ANM) for broader agent network management
Interoperability	<ul style="list-style-type: none"> Switches and networks that enable account-level interoperability (intra and inter) between banks, credit unions and cooperatives, and MNO wallets 	<ul style="list-style-type: none"> Champion (and if necessary mandate) interoperability Develop interoperability standards and guidelines 	<ul style="list-style-type: none"> Enable access to transaction networks that are required for interoperability Lower fees for interbank and inter-entity remittances and transactions

4.4. CREDIT – RISK REDUCTION VIA ADDITIONAL DATA AND ANALYTICS

Access to credit enables investment in human capital and businesses, and has the potential to reduce inequality in society and drive economic growth. However, commercial banks often have limited appetite to offer credit to BoP individuals and MSMEs for a variety of reasons:

- Lenders often struggle to understand the risk profiles of people who are less integrated into the financial system, due to a lack of customer data with which to assess creditworthiness. For example, the people may have no credit file, no track record of using financial services, and no verifiable information about themselves.
- Some members of the population are ineligible to access formal credit because they lack a lack of formal income, required identification, or collateral. These barriers also drive gender imbalances in access to credit.
- People living in rural areas typically have less access to physical banking infrastructure, because the density of branches is significantly lower. Consequently, they face a higher opportunity cost to reach a formal lender, because of the time taken to travel.

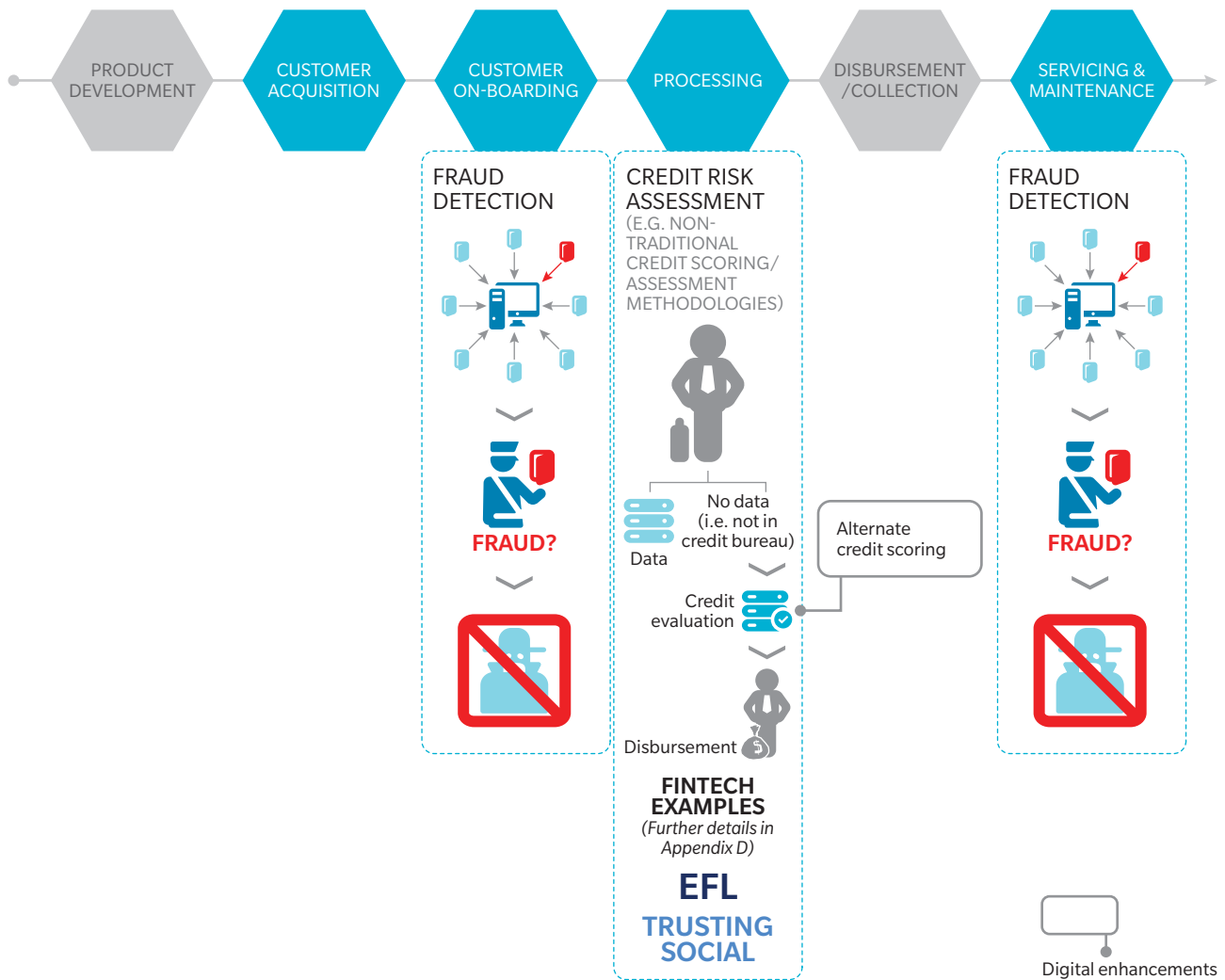
Faced with limited options, unbanked and underbanked people often turn to informal channels, where they may be charged significantly higher interest rates and are vulnerable to exploitation by the less-scrupulous business practices of unregulated players.

The introduction of branchless banking, often accompanied by simplified KYC requirements, enables providers to leverage agent networks and target rural populations. However, credit access remains challenging for three key reasons. First, in the case of individual micro-finance loans, there is not yet any proven alternative to the manual underwriting performed by credit officers. They live and work in these areas, and can thus use their local knowledge when underwriting credit. Second, the presence of a credit bureau does not necessarily translate into the availability of credit data. For example, the public credit bureau in the Philippines is at an early stage of development and private bureaus cover only 9% of the adult population.⁵⁶ Third, the lack of formal documents limits credit access, because providers are unable to verify a customer's identity or their source and level of income. Hence, providers restrict loans to minimize fraud and credit risk.

We have identified two key enhancements through which the traditional credit value chain (as it applies to our target segments) can be digitally disrupted. (See Exhibit 7)

⁵⁶ http://compendium.mastercard.com/app/SKU_pdfs/alternativeData.pdf

Exhibit 7: Mapping digital enhancements to the credit value chain



- Improved credit risk assessment using new data sources and analytics:** Digital platforms and applications can provide non-traditional data to enable credit scoring, for example payment transaction data, insights based on psychometric tests, telecoms data, and geolocation information. These alternative data sources can help assess the credit risks of individuals who may not have existing credit histories, established formal banking relationships, or verifiable sources of income. Consequently, providers are now able to target a previously untapped market, while previously excluded potential borrowers can access formal credit instead of being limited to informal loans.

This is an area where Fintech players are significantly active. Some are operating as balance sheet lenders, leveraging their proprietary new approaches to data analytics to offer loans to selected segments of the population. Others have developed intermediary P2P lending models, matching investors and borrowers. A third set of players is focused purely on providing data analytics solutions. Among the better-known entrants operating in alternative credit risk scoring are Lenddo, EFL, and Credit Sesame. EFL has partnered with BTPN in Indonesia to implement psychometric tests for credit scoring,

and has reduced turnaround time by 79%.⁵⁷ Similarly, Sesame Credit (Alibaba) uses its unique database of information on about 400 million consumers to compile individual “social credit” scores based on online and offline data, such as e-commerce payment histories and bank and government records. While these players’ ongoing activities have great promise, many of the new entrants have models with limited historical data, which have not been tested through a full economic cycle.

- **Improved fraud detection with digital applications and analytics:** Digital finance innovations are improving financial service providers’ detection of a range of types of fraudulent activities.

First, providers are better able to crosscheck the identity data to pre-qualify customers and minimize online identity and credit fraud. For example, the Reserve Bank of India (RBI) set up a central fraud registry in 2016, through which providers are able to pool data and share fraud and risk patterns with each another. Second, psychometric testing can detect instances of online gaming (for example through changes in the pattern of prepaid airtime purchases) or fraud carried out by either applicants or loan officers. For example, vendors are providing solutions that enable providers to crosscheck customer identity against proprietary and public data resources, using algorithms to identify borrowers who are likely to have lied. Third, data analytics allows providers to monitor potentially fraudulent transactions in real time, using defined parameters based on behavioural pattern detection tools. These can alert fraud teams to suspicious activities.

The table below lists specific actions that regulators and policymakers can consider to encourage the development of innovative credit and fraud risk management solutions.

CATEGORY	DIGITAL ENABLEMENT	REGULATORY AND PUBLIC POLICY ENABLEMENT	SUPPLY-SIDE RESPONSES
Credit risk assessment	<ul style="list-style-type: none"> • Use of alternative credit scoring methodology, using digital footprints and non-traditional data (for example psychometric testing and e-payments history) 	<ul style="list-style-type: none"> • Support the establishment and development of alternative credit scoring methodologies • Mandate reporting of credit information to central bureaus • Encourage the sharing of credit scores across different provider types 	<ul style="list-style-type: none"> • Capitalize on the use of non-traditional credit scoring methodologies based on data from outside the banking industry (for example data from telecoms, social media, and business transactions) • Share credit scores across providers of credit bureaus
Fraud detection	<ul style="list-style-type: none"> • Use of digital platforms to minimize identity fraud • Use of non-traditional data to conduct customer screening to minimize fraud risk (that is, detect fraud intent) • Use of real-time systems to monitor and manage fraud 	<ul style="list-style-type: none"> • Mandate regular monitoring and reporting of fraud incidents • Develop standards and guidelines around fraud management 	<ul style="list-style-type: none"> • Implement systems to monitor fraud automatically

4.5. SAVINGS – COST-EFFECTIVE MOBILIZATION

By saving in the formal financial system, individuals can safeguard their money, earn a financial return, smooth their expense flows, reduce their dependence on credit, and build up account balances to enable them to deal better with shocks (for example to cope with unexpected emergencies such as family illnesses).

However, the BoP segment typically does not save formally for a variety of reasons. These include bureaucracy (dealing with banks), cost, and physical (and in some cases even cultural) barriers. This issue is most clearly seen in Cambodia, which has the lowest rate of formal saving of the four countries. While 69% of the population has saved money in the past year, only 10% saved at a financial institution.⁵⁸ However, it became apparent through anecdotal evidence that most low-income Cambodians participate in “Ton Tin” – local rotating savings and credit associations (or ROSCAs). Members of these long-standing informal groups commit small amounts of surplus cash on the basis of trust. In return, members get access to a pool of capital in times of need and the promise of more-lucrative⁵⁹ monthly interest than that offered by the banks.

We identify the following key ways through which digital technology can help to disrupt the savings value chain:

- **Increase access to savings products:** Providers can offer access to broader segments of the population through mobile devices. By linking dedicated savings accounts to mobile money or e-wallets, users now can access a savings account at a licensed deposit-taking institution and earn interest. The account can be automatically topped up using mobile money or cash stored in e-wallets. Similarly, money can easily be transferred out for payments using mobile or e-money.
- **Increase cash-in and cash-out points:** Agent networks enable individuals to access additional outlets for cash-in and cash-out. They can be supported by digital technology to enable providers to monitor liquidity in real time so as to ensure that agents do not run out of cash. This has had an impact in Indonesia following the introduction of basic savings accounts (“TabunganKu”), with more than 12 million new accounts opening in the first four years of the scheme (up to April 2014).⁶⁰ Also, the branchless banking program (Laku Pandai), piloted in 2013 and rolled out in 2014, has resulted in 1.1 million new customers.⁶¹ Consequently, the proportion of Indonesians saving at a financial institution increased from 15% in 2011 to 27% in 2014. The Philippines, by contrast, does not have similar initiatives, and the percentage of the population that saved at a financial institution was flat at 15% in both 2011 and 2014.

58 2015 FinScope Consumer Survey (Cambodia)

59 As compared to the 2% to 2.5% per annum offered at banks.

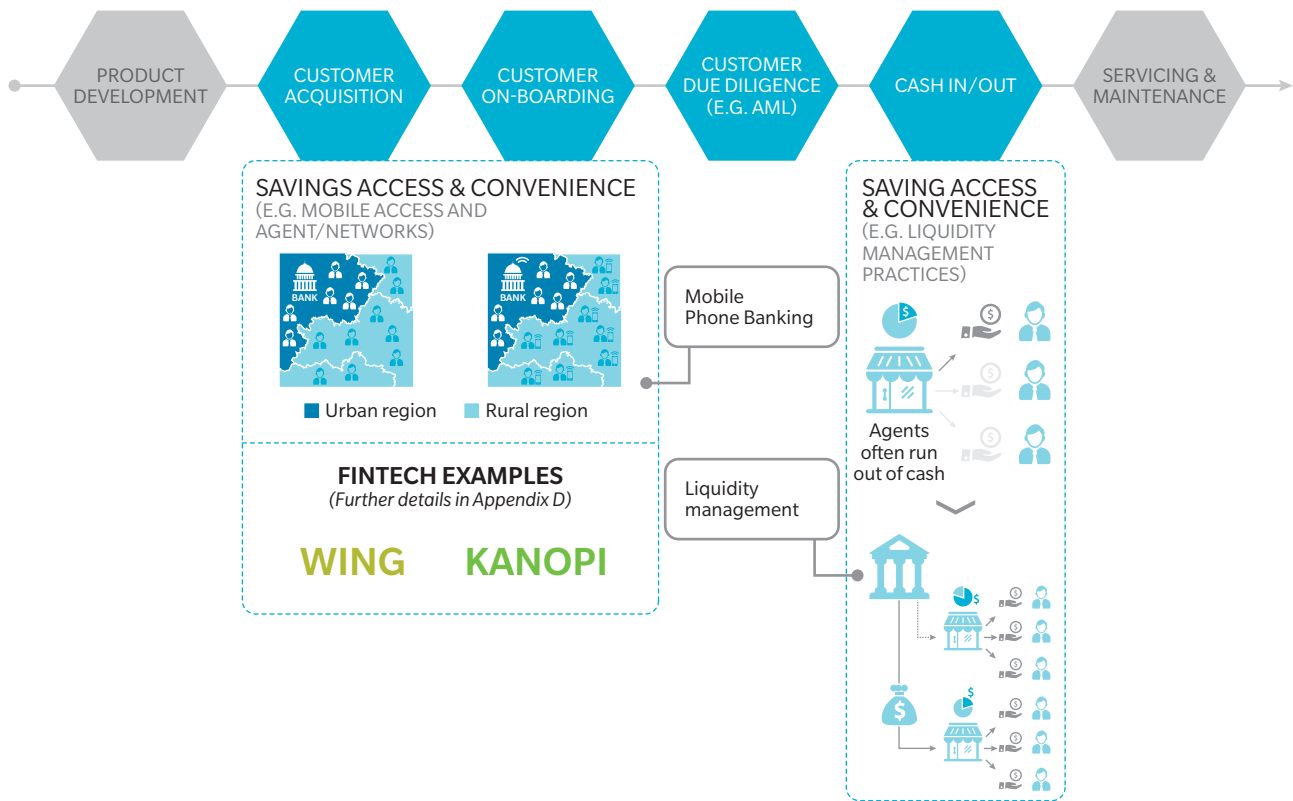
60 <http://siteresources.worldbank.org/EXTFINANCIALSECTOR/Resources/282884-1339624653091/8703882-1339624678024/8703850-1412710292190/Driving-Indonesian-FinInclusion-through-Basic-Savings-Accounts.pdf> (April 2014)

61 <http://www.thejakartapost.com/news/2016/01/05/ojk-invites-more-players-join-branchless-banking-program.html>

- Increase use of savings products:** Digital technology enables providers to offer customized and more-suitable products, such as commitment-based savings plans. It also enables savings product customization, so that providers can offer goal-based savings accounts aligned with the savings models of the BoP segment.⁶² For example, the State Bank of India offers a flexible recurring savings product starting with a minimum instalment as low as 15 cents. ICICI Bank's I-wish is a goal-based savings product delivered by digital means.

People in some of these markets prefer group savings schemes, and mobile group savings are becoming a relevant product for providers.⁶³ As well as earning interest on the pooled amount, group members can check the group's account activity in real time. Furthermore, they can use multiple Short Message Service (SMS) sign-offs to approve members and verify the withdrawal of funds.⁶⁴

Exhibit 8: Mapping digital enhancements to the credit value chain



62 http://www.microsave.net/files/pdf/BN_158_How_Saving_Is_Influenced_by_Behavioural_Biases.pdf

63 Tigo in Chad launched Tigo Paare, a mobile-savings group product.

64 GSMA 2015

Compared to payments and credit, there have been fewer global success stories of digitally-driven, low-cost savings mobilization. This is due to a number of factors. First, formal savings habits develop on the back of other products and hence typically come later in the natural cycle of financial inclusion. Second, savings have a high trust threshold, and digital channels need to be trusted before they can be considered for savings. Third, the business case for low-ticket savings gathering may not be compelling to financial services providers until a low-cost mobilization and servicing platform becomes available.

While joint mobile savings and credit products such as M-Shwari and KCB-M-Pesa have emerged, few people use these accounts on a regular basis.⁶⁵ It has also been found that savings trends on these platforms are driven primarily by demand for credit.⁶⁶ There are, however, other innovative approaches inspired by the idea of goal-setting.⁶⁷ In Kenya, Equitel’s mobile phone plan offers an elegant system of “pockets,” which enable clients to set dates and amounts for putting money aside for goals. This acts as a kind of virtual savings group (chama) – something that may be easier to relate to for customers with irregular incomes who would otherwise use informal savings channels. Banco Davidenda “bolsillios” in Colombia adopted a similar approach, and increased average balances by 30% compared to a peer group not using such pockets.

The table below lists specific actions regulators and policymakers can consider facilitating the mobilization of low-cost savings through digital applications and platforms.

CATEGORY	DIGITAL ENABLEMENT	REGULATORY AND PUBLIC POLICY ENABLEMENT	SUPPLY-SIDE RESPONSES
Savings access and convenience	<ul style="list-style-type: none"> Mobile wallet with savings functionality and customizable features 	<ul style="list-style-type: none"> Encourage partnership between providers (for example financial services and MNOs) and retailers to increase deposit access points Permit deposit mobilization via agent network and mobile banking (for example, allow agents to open savings accounts for customers) Review guidelines on mobile wallets and allow providers to give incentives similar to interest (for example through a specialized banking license) 	<ul style="list-style-type: none"> Leverage cash-in access points (networks of agents with POS machines) and mobile banking system Develop commitment-based savings products that link savings to life goals
	<ul style="list-style-type: none"> Agent liquidity management 	<ul style="list-style-type: none"> Develop liquidity management guidelines for agent network (that is, the minimum buffer required per agent) Regularly monitor agent liquidity status and review transaction failure reports 	<ul style="list-style-type: none"> Develop IT system with protocol and procedure for agent network management, including dynamic monitoring of agent liquidity Develop and maintain a high-quality agent network that helps build trust with customers

65 MicroSave. “Two More Revolutions Underway in Kenya”. May 2015

66 Intermedia’s FII survey (<http://finclusion.org/uploads/file/reports/FII-Kenya-M-Shwari-Report.pdf>) found that the single biggest reason customers deposit at M-Shwari is to increase their loan limit.

67 Ignacio Mas. <http://blog.microsave.net/naming-sub-accounts-to-trigger-intuition-and-fun-around-customer-intentions/>. MicroSave, 2013

4.6. IMPACT OF DIGITAL FINANCE ON INSURANCE

We recognise that there may be significant digital opportunities in micro-insurance. However, the micro-insurance segment is still at an early stage of development in each of the focus markets we studied, and most of the digital insurance solutions are still in the early stages of pilot runs. We therefore believe that the impact of digital finance on insurance and, in turn, that of insurance on financial inclusion overall will be limited over the next five years.

There is potential demand from millions of people for insurance products designed and custom-delivered for low-income segments, particularly where state support networks are underdeveloped. For example, in Asia, insurance coverage levels are less than 5%.⁶⁸ Mobile insurance – that is, micro-insurance services offered through mobile phones – is emerging as a medium that could accelerate growth. An estimated 20 million clients have been served in the past four or five years.⁶⁹ The biggest gain mobile technology offers micro-insurance is the capacity to make up for the lack of traditional economic infrastructure in developing economies, which has limited the spread of insurance products. Increased process efficiency, through reduced turnaround times and paper load, makes low-value, high-volume transactions more viable. Ultimately, these cost savings increase affordability and allow insurance to reach a larger client base.

THE NEW FACE OF INSURANCE

Mobile Network Operators (MNOs) already offer a total of more than 120 insurance services in 33 emerging markets. As seen below from the different payment models available, the role of MNOs has become more strategic over time. MNOs now play across the value chain: They are responsible for branding, marketing, and shaping products, as well as for servicing the customer relationship. Their reach across the value chain is also reflected by their acquisitions of insurance licenses and their strategic investments and partnerships with technical service providers (TSPs). Examples of these include Telenor's investment in MicroEnsure to establish a joint venture in Asia, and Tigo's group-wide partnership with BIMA in South Africa.

⁶⁸ *MicroSave* analysis and websites of providers

⁶⁹ *MicroSave* analysis and websites of providers

MOBILE INSURANCE PAYMENT MODELS

MODEL	LOYALTY INSURANCE	“FREEMIUM” MODEL	MOBILE MONEY OR AIRTIME DEDUCTION MODEL
Description	This is effectively free for the customer: The MNO pays the premium. Registration in these schemes involves the client sending the MNO SMS messages containing the nominees’ names, national IDs and other details. The insurer, in turn, is allowed to use MNO data to target and enrol clients.	This model is a hybrid of loyalty insurance and voluntary mobile insurance. A client can choose to top up their insurance coverage above what they receive free of charge.	The premium is either paid using mobile money or deducted from the client’s airtime balance. In geographies where mobile money is not prevalent, airtime-based payments ensure high outreach and a hassle-free payment process.
Examples	<i>MicroEnsure, Jubilee Life Insurance and Telenor Pakistan</i> <ul style="list-style-type: none"> Life insurance cover to Telenor’s subscriber base of 30 million. Clients who spend \$ 1.86 or more on prepaid airtime can enrol via phone without a medical examination or paperwork, qualifying for a benefit of between \$186 and \$930. 	<i>Tigo’s life plan “Family care insurance” in Ghana</i> <ul style="list-style-type: none"> Coverage provided if customers use a minimum amount of airtime. The benefit scheme ranges from \$104 to \$520 for airtime expenditure worth \$2.60 to \$20.80. Covers the client and one dependent. By paying an additional \$0.68 a month for a supplementary product, Xtra-Life, users can double their coverage to \$1,040. 	<i>MTN’s (Mobile Telephone Networks) Y’ello Cover in Nigeria</i> <ul style="list-style-type: none"> The product costs approximately \$0.075 a day or \$0.5012 a week. The benefits go up to \$1,750 to cover medical expenses or permanent disability⁷⁰

Looking at these emerging models, we infer that two major trends are emerging. The first is mobile insurance as a strategic offering by MNOs (loyalty and freemium models), where the insurance product serves to promote, for example, greater client stickiness and value-added services that will boost the core business. The second approach is more transactional: MNOs enable mobile money platforms (or airtime used as a payment mode if applicable). Here, insurance is but one of the transactions facilitated.

From a commercial perspective, most micro-insurance suppliers are yet to reach a critical mass of low-income customers in a sustainable way. But recent data indicate a shift towards premium services, with 67% of insurance suppliers surveyed employing premium or freemium commercial models in Asia. While loyalty-based services still have a unique role in catalysing the sector, it is promising that paid insurance models can increase in scale over time. CGAP reported that in Ghana, 55% of Tigo BIMA clients converted to a paid product.

⁷⁰ See for example, <http://www.telecompaper.com/news/airtel-mtn-nigeria-sell-100000-insurance-policies-a-month--1006979> and <http://mansardinsurance.com/about-us/the-team/155-mtn-y-ello-life-in-collaboration-with-mansard>

REGULATORY CHALLENGES OF MOBILE INSURANCE AND CUSTOMER PROTECTION

The role of regulatory entities is first and foremost to protect the interests of customers. This role becomes more critical when the customers come from low-income population segments. The introduction of a new interface, new players, and new partnerships between multiple actors (insurers, MNOs and TSPs) means that mobile insurance customers face greater risks than when they purchase regular, non-digital micro-insurance products. There are regulatory and supervisory challenges due to dealing with new business models and because several regulatory bodies might be involved.

In mobile insurance, there are essentially three challenges:

1. Regulatory arbitrage:

Mobile insurance often engages more than one regulator: the central bank or chief financial regulator controlling financial transactions, the insurance regulator, and the telecoms regulator. This leads to possible conflicts between the regulators over payments, consumer protection principles, infrastructure, agents, and processes. The result can be a sense of confusion for market players, which may incentivize some to take undue advantage of it to implement processes that conflict with consumer interests. Hence, there is an emerging need for greater dialogue and coordination amongst regulators in order to keep up with these 'disruptive models', to ensure transparency and to safeguard consumers' interests.

2. New types of players and partnership models disrupting the insurance value chain:

As a disruptive technology, mobile insurance is leading new intermediaries to enter the insurance value chain, such as BIMA and MicroEnsure, which provide third-party technical services. It is a challenge to manage the dealings of these entities with more-traditional players like insurers and MNOs. The story of Ecolife is a precautionary tale for regulators. Ecolife, a Zimbabwean mobile insurance offering, was launched by a partnership between First Mutual Life (an insurer), Econet (an MNO), and Trustco (the technical-support provider). The product grew to cover nearly 20% of the adult population of Zimbabwe within a short period. However, the product had to be called off abruptly due to a dispute between Econet and Trustco. Overnight, 1.6 million people lost their coverage. As a result, insurance suffered a serious loss of reputation and trust.

So regulators need to consider how to regulate such emerging partnerships, and to ensure that client interests are safeguarded when such partnerships sour. Clear exit guidelines could be drawn up, using ideas like a living will.

3. Other protection challenges driven by digital processes:

The digital interface creates consumer protection risks that need to be recognized by regulators. These include:⁷¹

- A. Lack of transparency on terms and costs due to the limits imposed by the digital mechanism – notably that an SMS can only contain 160 characters
- B. Fraudulent usage of SIM cards shared by different people and the hacking of phones and accounts
- C. Data privacy and protection
- D. Inadequate and unclear consumer recourse for complaints and disputes
- E. Increased risk of consumer detriment⁷² due to the digital sales process: a poor choice of product when they are sold by non-insurance sales staff; or a lack of effort in sales
- F. Technology and internet weaknesses, such as low connectivity and server breakdown
- G. Lack of access to physical support infrastructure, making grievance redressal a challenge for low-income customers: They may not be comfortable with call centres and staff may not speak the local language; or they may not have access to smart phones to engage with Internet sites
- H. Mobile money or airtime balances may be debited incorrectly
- I. Concerns over loss of cover if a customer loses their phone or changes their phone number

⁷¹ Adapted from "The emergence of Responsible Digital Finance" (Zimmerman, 2014) and from https://www.responsiblefinanceforum.org/wp-content/uploads/140828_CGAP-Presentation.pdf
http://www.smartcampaign.org/storage/documents/Tools_and_Resources/EoS_Risk_identification_and_analysis_vSA_AR_LT.pdf

⁷² Consumer detriment is defined as "consumers purchasing on price without considering the difference in quality of product and post-sale charges; the sale of add-on products; and firms manufacturing products that are of little use to the customers who buy them" (Friel, 2012).

4.7. REGULATORY OVERSIGHT – DATA GOVERNANCE AND CUSTOMER PROTECTION

While digital innovation can provide a significant boost to financial inclusion, digital finance presents regulators with new challenges for achieving their objective of consumer protection. The supply-side ecosystem is changing rapidly and growing more complex, and risks are increasing related to data governance. In an increasingly digital world, there is an exponential increase in data generated by individuals' digital footprints. This includes information on whom they call, what they write in texts, whom they engage with on social media, and which websites they visit. The increase in data raises a variety of data governance issues relating to how data is accessed, used, stored, and shared. The BoP is a particularly vulnerable segment given its low awareness of these issues, its lack of alternative options (for example to access credit), and its challenges in effectively voicing grievances. Public policy will have a vital role in consumer education and protection. Suitable policies and regulations will be essential to articulate the responsibilities of supply-side participants and to ensure compliance. Specifically, guidelines will be needed on dispute resolution management, data standards and protocols, control mechanisms, and reporting requirements.

5. QUANTIFYING THE IMPACT OF DIGITAL IN FINANCIAL INCLUSION

The benefits of financial inclusion have been widely cited, and they range from reducing poverty to increasing incomes and promoting economic growth. A 2015 publication by the ADB⁷³ studied the importance of financial inclusion in reducing poverty and lowering income inequality in developing Asia. (The authors constructed a financial inclusion indicator for each developing Asian economy) They report found a robust and significant correlation between higher financial inclusion and lower poverty and income equality.

For this study, we have estimated the quantitative impact of digital applications and related regulatory initiatives on overall GDP growth. We have also estimated the impact on the income of a key beneficiary segment: individuals earning less than \$2 a day.⁷⁴ Our approach estimates the impact on the supply side, looking at the potential additional income banks and MFIs could generate with higher levels of financial inclusion. This could come in the form of transaction margins from formal payments and returns on a larger savings base. We also estimate the impact on the consumer side, looking at the benefits to customers of the cost savings from formal payments and the interest earned on formal savings. We have also used the findings of a recent IMF-MIT⁷⁵ working paper, which quantified the impact on GDP of closing the credit gap. We apply this as a proxy to estimate the potential boost to GDP. A more detailed description of our methodology is provided in Appendixes G and H.

While the absolute scale of the impact varies according to country, estimates indicate significant potential increases in GDP in all the three markets for which we were able to make estimates. (See Exhibit 9)

Exhibit 9: Potential impact on GDP growth

IMPACT OF DIGITAL APPLICATIONS ON GDP GROWTH AND TARGET SEGMENT INCOME LEVEL

	INDONESIA	PHILIPPINES	CAMBODIA
Total GDP growth potential	9%	14%	32%
GDP growth impact of digital applications	2%	3%	6%
Target segment income level	10%	11%	30%

Source: Oliver Wyman analysis

Target segment includes individuals with daily income of <\$2

73 ADB (2015): No.426 "Financial inclusion, poverty, and income equality in developing Asia"

74 We have defined the target segment for financial inclusion as individuals earning less than \$5 a day. We chose to evaluate the impact on income growth for the lower half of this segment so as to assess more directly the impact on poverty alleviation of the digital applications and related regulatory actions we have identified.

75 IMF (2015): "Identifying Constraints to Financial Inclusion and Their Impact on GDP and Inequality: A Structural Framework for Policy"

In each market, digital finance applications will promote growth in the markets for payments, savings, and credit. However, we have not been able to reliably assess the impact of digital applications on micro-insurance, because this market is still at a relatively early stage of development, and it lacks proven, quantified success stories.⁷⁶

Exhibit 10: Impact of digital applications on the growth of the financial services market

US\$ VOLUME INCREASES FROM DIGITAL APPLICATIONS IN FINANCIAL INCLUSION; VOLUME INCREASES AS PERCENTAGE OF TOTAL MARKET SUPPLY

	INDONESIA	PHILIPPINES	CAMBODIA
Payments	54 million (15%) <i>Large G2P and P2All untapped opportunity</i>	7 million (3%) <i>Modest opportunity given significant level of current payment digitization</i>	2 million (24%) <i>Significant opportunity in enabling e/m-commerce</i>
Savings	13 million (5%)	7 million (6%)	3 million (37%) <i>Significant untapped potential given largely informal savings habits</i>
Credit	11 million (7%) <i>Opportunity in digital delivery of credit</i>	4 million (11%) <i>Advanced pilots in use of alternate data sources can help realize this opportunity</i>	1 million (13%) <i>Opportunity in digital delivery of credit</i>

Note: We have not been able to reliably assess the impact of Micro insurance gap given relatively nascent stage of market development in this area and lack of proven (and quantified) success stories

⁷⁶ The impact of digital applications on specific needs gap was assessed based on the type of digital intervention. For example, the digitization of G2P payments leads to first-order payment handling revenue and also to additional revenues. These come from the circulation of received payments, the potential savings when receiving payments, and other fees generated by the circulation of P2All payments.

6. SEGMENT-SPECIFIC INSIGHTS

Previous sections of this report primarily drew out general observations about how far digital technology can boost financial inclusion. This section provides insights on two specific segments: women and MSMEs. It details the constraints they face, some potential solutions from digital finance, and recommendations for regulatory initiatives.

6.1. WOMEN

More women now have access to formal financial services than ever before. Female account ownership worldwide increased from 47% in 2011 to 58% in 2014.⁷⁷ The gender gap in account ownership has also narrowed over time, and now stands at 7% points globally and 4% points in East Asia and the Pacific. According to 2014 data from Findex, the gender gap has actually reversed in Indonesia (minus 3%) and the Philippines (minus 13%), so the percentage of women who own accounts in these markets is higher than that of men.

While this progress is significant, one should not infer that women have achieved the same level of financial inclusion as men. First, there is still a significant gender gap in basic financial access in many parts of the world. Myanmar, for example, has a significant gender gap in account ownership (11%), as does South Asia (18%). Second, as we broaden our perspective from account ownership to financial services needs and usage, significant gender-related challenges remain. A recent study in Indonesia by IFC and USAID⁷⁸ found that 40% of women managing SMEs perceived bank procedures for the extension of credit as too complicated, compared with just 28% of male managers. From supply-side interviews conducted during the course of this study, we identified a general lack of focus on women in the development of financial services solutions.

⁷⁷ Global Findex database

⁷⁸ "Women-owned SMEs in Indonesia: A Golden opportunity for Local Financial Institutions"

We identified three substantive gender-related issues during the course of this study:

- **Difficulty in meeting loan eligibility criteria:** While lending policies followed by banks are gender-neutral, unintended gender biases follow from the nature of the credit policy rules and requirements generally in place. For example, most lending to SMEs is based on collateral. Because of the gender gap in asset ownership, it is difficult for women to secure a loan without a male asset owner in her family co-signing the loan document. Women are less likely to own their business site than men: Data from Indonesia indicates that 43% of men own their business sites, compared with only 35% of women. Women are also less likely than men to have land in their name. Recent data is not available for most countries, but 2004 data from Viet Nam showed a gender gap of 20%⁷⁹ in agricultural land ownership, and 2010 data from Bangladesh showed a gap of 42%.
- **Lack of customized products and services:** The supply side tends not to develop products and solutions specifically for women. There is also a related lack of understanding and appreciation of challenges specific to women. For example, family responsibilities and cultural practices may create time pressures that restrict a woman's ability to travel to a branch to make loan repayments. A doorstep payment pickup service or some other alternative may be a significant convenience for women but not as valuable to men. However, there is little evidence that such nuances are appreciated by the financial services industry. A 2016 IFC survey of banking service expectations showed that 54% of respondents prefer female banking agents over male. However, the same survey found that 97% of agents currently are men.
- **Gender gap in technology access:** A 2015 GSMA study found that women are on average 14% less likely to own a mobile phone than men.⁸⁰ As seen in Indonesia, women also have a lower adoption rate of digital technology: 47% do not use a computer at all, compared to 40% of men.⁸¹ To complicate matters further, women have lower levels of financial literacy. Only 20 to 25% of women were evaluated as "well versed" in financial services in the Baseline Financial Literacy Survey conducted by OJK in Indonesia in 2013. As a result of these factors, women may not be able to take full advantage of digital financial service offerings.

79 FAO database on Gender and Land Rights

80 http://www.gsmamobileeconomy.com/GSMA_Global_Mobile_Economy_Report_2015.pdf

81 IFC 2016 "Women-owned SMEs in Indonesia: A Golden Opportunity for Local Financial Institutions"

We recommend a combination of digital enhancements and public policy efforts to address these women-specific issues.

CATEGORY	DIGITAL ENABLEMENT	REGULATORY AND PUBLIC POLICY ENABLEMENT	SUPPLY-SIDE RESPONSES
Difficulty in meeting loan eligibility criteria	<ul style="list-style-type: none"> Digitization and simplification of business registration process Access to alternative data sources that can help assess creditworthiness 	<ul style="list-style-type: none"> Encourage the formalization of businesses (which helps financial services providers make business credit decisions) Allow joint ownership of assets 	<ul style="list-style-type: none"> Gender-tailored procedures (for example accepting collateral formally owned by a husband) Enable alternative forms of collateral (for example Garanti Bank's Gold Secured Loan programme)
Lack of customized products and services	<ul style="list-style-type: none"> Engage women in the tailoring of products and solutions via digital channels (for example the feature selection that appears during the product discovery process of a mobile application) Use digital channels for targeted marketing efforts and segment access (for example, targeting young mothers with solutions for child health insurance) 	<ul style="list-style-type: none"> Conduct needs-focused research and testing to identify constraints and barriers Review the extent to which banking services are gender-inclusive in order to understand potential gender skews (such as the difference in coverage) Advocate the sharing by providers of the results of offering female-oriented products and services. (This can be done through roundtables and published reports, and the results can be shared with regulators and associations, as well as other providers.) Develop tailored educational materials for female DFS agents 	<ul style="list-style-type: none"> Develop and conduct pilot programmes to test the viability of female-oriented products (such as digital credit, recurring deposits, micro-insurance and pensions) Recruit more female banking agents, especially in rural areas
Gender gap in technology access	<ul style="list-style-type: none"> Reduce the cost of last-mile digital connectivity 	<ul style="list-style-type: none"> Implement and enhance digital literacy programmes in partnership with supply-side entities Explore the potential of distributing and subsidizing low-cost smartphones in partnership with private-sector players 	<ul style="list-style-type: none"> Explore partnership opportunities with the public sector to distribute low-cost smartphones to the unbanked Develop marketing campaigns to target women and promote the use of digital financial services

We have seen a number of successful examples of digitally driven financial inclusion initiatives that target women. These case studies highlight the economic viability of such solutions, so other providers can offer their own versions. We have listed three examples below. Each has features that have proven popular with women, though the products are not only for women.

- **Telenor “Easypaisa – Kushaal Beema” (Pakistan):** Kushaal Beema is a feature of the regular Easypaisa account that incentivizes higher balances. The product is a non-interest bearing account with a minimum balance of \$20, which offers life and accidental death insurance of up to \$9,850. The product incentivizes customers to save because the insurance cover is tiered, and increases with the savings balance. Clients also have the flexibility to nominate an insured person (through their name and national ID) separate from the account owner. This product’s embedded insurance feature is aligned with women’s needs and their concerns for the stability and security of their families.
- **KBS Local Bank “Daily and Weekly Savings” (India):** This product emphasizes the power of incremental small savings to build larger sums, and helps to build discipline. Women can be flexible about what and how much they deposit, and they can easily access the services, as deposits can be collected at their doorsteps. This feature is particularly well suited for women, because they often have part-time jobs where cash flow is seasonal or volatile.
- **Banco Davidenda “bolsillios” (Colombia):** The bank introduced a “pockets” functionality, through which clients set up to four time-determined goals every month. Clients are able to alter settings and track their progress anytime. This feature increased average balances by 30% compared to a non-pocket peer group.

6.2. MSMEs

MSMEs typically employ the vast majority of working adults in an economy and contribute a significant share of its GDP. For Asia Pacific it is estimated that they employ 96% of working adults and contribute 42% of GDP.⁸² Like all businesses, MSMEs need access to capital and credit in order to operate and expand. Spreading credit access to MSMEs has been a cornerstone of financial sector development policy in most emerging economies, including the markets we have focused on. For example, Indonesia initiated a public credit guarantee scheme for MSMEs called People's Business Credit (KUR) in 2007, which guarantees between 70% and 80% of credit granted. In the Philippines, banks are required to set aside 10% of their loan books for MSMEs.⁸³

In spite of such efforts, MSMEs continue to be held back by a significant gap between their financing needs and the available supply. A survey conducted by the World Bank revealed that 41% of SMEs in least-developed countries (LDCs) report access to finance as a major constraint impeding their growth and development.⁸⁴ An Indonesia-wide survey conducted by Oliver Wyman in 2014 revealed that 44% of transitioning microenterprises⁸⁵ located in rural Indonesia⁸⁶ do not currently have any outstanding loan. Of these, 35% said they needed a loan but did not have access to one, while another 30% said they were likely to need to borrow in the foreseeable future.

While the MSME financing gap has been the subject of much public policy debate and economic analysis, the revenue opportunities MSMEs offer in funding and payments have often been overlooked. We estimate that about 700,000 SMEs in Indonesia together take up more than 40% of the total low-cost retail and SME funding available on the market.

MSMEs' financial services product and solution gaps differ according to the size of the business. Micro businesses generally face the most acute credit gaps, but many of them may be difficult to serve because of the challenges involved in accessing them and underwriting their credit risk. Established SMEs are relatively well covered by formal financial services providers, but they often need financing on flexible terms to manage their working capital gaps. This segment should also be a natural target for value-added services provided via digital platforms. Between these is the "missing middle," which has significant unmet needs, as these businesses are often excluded by both MFIs focusing on micro businesses and banks focusing on established SMEs.

82 Asia SME finance monitor 2014

83 <http://www.oecd.org/cfe/smes/adb-oecd-study-enhancing-financial-accessibility-smes.pdf>

84 <http://www.worldbank.org/en/results/2013/04/05/msme-finance-expanding-opportunities-and-creating-jobs>

85 Businesses with monthly revenue of 10 rupiah to 100 million rupiah

86 Refers to rural Kabupaten: regions with a population less than 500,000 and where more than 70% of the population is classified as rural by the Indonesia Bureau of Statistics

Below are more-detailed descriptions of the different needs and available formal supply in MSME sub-segments.

- **Micro (businesses with \$10,000 to \$100,000 in annual turnover):** These businesses often struggle to access credit from commercial banks because of their lack of credible financial statements, limited assets to use as collateral, and lack of banking and credit history. This segment is mainly served by MFIs, as they have less-strict collateral policies, do not require borrowers to have previous banking or credit experience, and have deep local access that is critical to serving the segment. It is worth mentioning that BRI in Indonesia is a notable exception to this general observation, showing that commercial banks can also seize the opportunities in this segment if they develop a focused business model.
- **Missing middle (defined as businesses with \$100,000 to \$1 million in annual turnover⁸⁷):** This segment is often overlooked, as it is too large for MFIs and too small for banks. A 2016 report by Oliver Wyman estimates that lack of access to Indonesia's missing middle represents a lost opportunity of \$130 billion to the broader Indonesian economy (approximately 14% of GDP).
While missing-middle businesses are larger and more likely to be formally registered, they share a number of challenges with micro businesses. Financial statements are often available but hardly reliable. Past credit was often with informal lenders and MFIs, so the data is not available to formal financial services providers for credit underwriting. Also, their banking histories are generally limited. This segment has been specifically targeted by some emerging alternative digital-financing platforms. New, on-balance-sheet digital lenders and marketplace lending platforms have emerged to offer credit to this segment on easier and more flexible terms in countries like the People's Republic of China, India, and Indonesia. These credit arrangements are often underwritten on the basis of newer or more-granular data sources, such as transaction-level payments data, which are still not commonly used by commercial banks.
- **Established SMEs (defined as businesses with \$1 million to \$5 million in annual turnover):** These businesses are generally well banked and have access to formal credit. However, they should be the natural target for value-added services provided via digital platforms.

87 Oliver Wyman 2016: "Time for marketplace lending"

We have listed below a set of digital applications and related regulatory initiatives that could address the challenges faced by MSMEs.

SOLUTION AREAS	DIGITAL ENABLEMENT	REGULATORY AND PUBLIC POLICY ENABLEMENT	APPLICABILITY TO MSME SEGMENTS
Use of electronic accounting platforms	<ul style="list-style-type: none"> Ensure that records are kept up-to-date, are accurate, and are digitally available, hence reducing audit time and expenses Share digitally-captured accounting data with financial services providers to support their underwriting decisions 	<ul style="list-style-type: none"> Advocate the use of electronic accounting platforms and encourage financial services providers to conduct training sessions for MSMEs 	<ul style="list-style-type: none"> Micro Missing middle
Data sharing	<ul style="list-style-type: none"> Data sharing (for example of credit history and collateral) to create a rich depository of data that enables providers to ascertain the creditworthiness of a business 	<ul style="list-style-type: none"> Define data sharing guidelines and advocate the sharing of credit data between providers Mandate reporting of data to credit bureau 	<ul style="list-style-type: none"> Missing middle
Leverage alternative data in lieu of banking records	<ul style="list-style-type: none"> Use of payment histories (such as mobile wallet and transactional accounts) for credit scoring 	<ul style="list-style-type: none"> Support the establishment and development of alternative credit-scoring methodologies 	<ul style="list-style-type: none"> Micro Missing middle
Alternative lending platforms	<ul style="list-style-type: none"> Online or offline platforms extending credit to MSME clients largely for operational use (such as working capital loans) 	<ul style="list-style-type: none"> Develop clear guidelines (including regulatory sandboxes) to define the Fintech operating space 	<ul style="list-style-type: none"> All segments
Digitization of the credit process	<ul style="list-style-type: none"> Automation of credit decision engines to increase the efficiency of the credit process and reduce credit risk through enhanced risk analytics 	<ul style="list-style-type: none"> Advocate the digitization of providers' credit processes (for example through pilot projects) 	<ul style="list-style-type: none"> All segments

While we have focused on MSME credit challenges and corresponding digital and regulatory solutions, we also note that MSMEs face similar challenges in broader financial inclusion. For example, almost all MSMEs (94%) in Indonesia have a savings account. However, 23% of MSMEs never use their savings accounts, while only 42% use them once a month. Most respondents say they prefer saving in cash – often because the nearest bank branch is too far away to visit regularly.⁸⁸ As discussed in Section 4.5, there have been fewer global success stories of digitally driven savings mobilization, as formal savings habits typically develop on the back of other products. Like a 2014 ADB report,⁸⁹ we believe that mobile technology brings about greater speed and convenience, hence increasing the access and use of financial products by MSMEs beyond loans to include payments and transfers.

88 IFC 2016: “Women-owned SMEs in Indonesia: A golden opportunity for local financial institutions”

89 ADB 2014: “Asia SME Finance Monitor”

7. COUNTRY-SPECIFIC INSIGHTS

This section provides summary findings from the four countries that we studied: Indonesia, the Philippines, Cambodia, and Myanmar. We analyse the supply gap at country level, and summarize the results of the barrier analysis. We list key constraints and how they might be addressed through digital finance solutions. We also propose regulatory and supply-side responses that could enable these digital enhancements. Each country-specific sub-section concludes with an impact assessment, including the effect on GDP growth.

7.1. INDONESIA

Of the four focus countries, Indonesia is the largest market and has the largest untapped opportunities. Indonesia has stepped up efforts in financial inclusion and made significant progress over the last five years. Account ownership increased from 20% to 36% in the three years to 2014.⁹⁰ However, significant gaps still remain: Informal service providers continue to dominate the financial inclusion landscape, with 59% of savings and 77% of borrowing still conducted informally; nearly half (45%) of all micro businesses say they have underserved credit needs.

We estimate that Indonesia's GDP could increase by more than 8% if the financial inclusion gap were closed. Digital enablement can be a powerful part of this solution. We estimate that corresponding digital applications and related regulatory initiatives could boost GDP by about 2%, produce more than \$50 billion in additional electronic payment flows, trigger more than \$11 billion in additional credit uptake, and mobilize \$13 billion of savings.

7.1.1. ANALYSIS OF THE GAP BETWEEN NEEDS AND FORMAL SUPPLY

We have assessed Indonesia's needs and formal supply in payments, savings, credit, and insurance.

In payments and transfers the gap exceeds \$140 billion, with only 35% of the target segment's needs currently met. The level of payment digitization is fairly limited: Only 16% of government transfers are paid into a recipient's account at a financial services provider or mobile wallet.⁹¹ Domestic remittances remain mostly cash-based, and only 36% are received through a financial institution or mobile wallet. It is heartening to note that the government and regulator are now aggressively pursuing the digitization of G2P payments. This may help provide critical volume in electronic payment flows and eventually lead to the development of an electronic payments ecosystem.

⁹⁰ 2014 Findex database

⁹¹ Global Findex database 2014 dataset

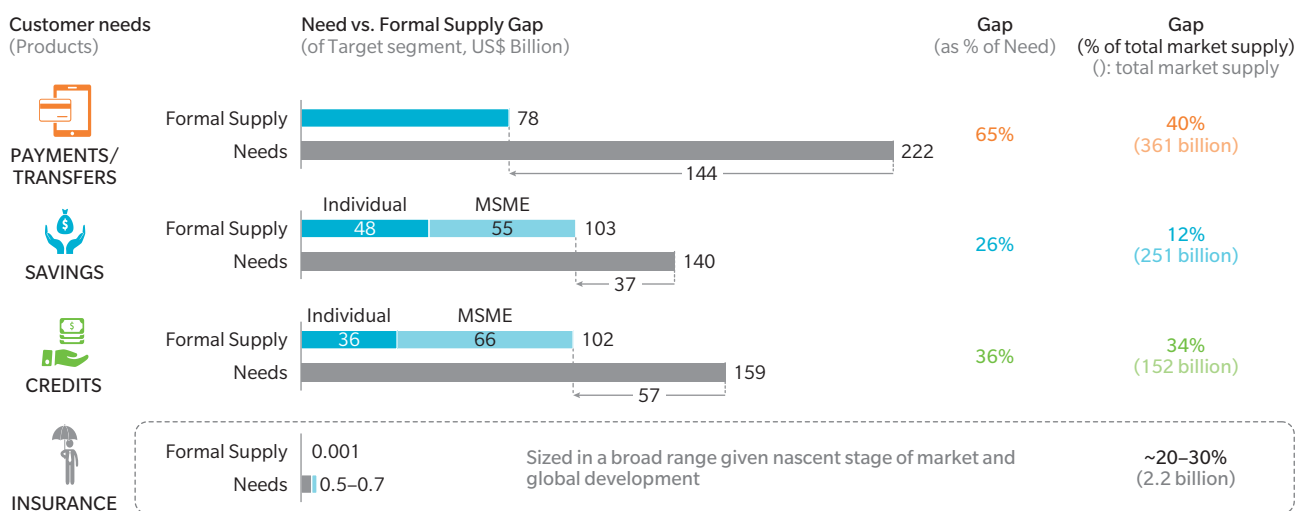
The savings gap is low compared to other products due to its concentrated nature: about 40% of retail savings in Indonesia come from around 700,000 SMEs, and most have already been captured by commercial banks. Active public policy intervention has also been effective in mobilizing formal savings. More than 12 million new basic savings accounts were opened under the TabunganKu scheme. The Laku Pandai initiative launched in 2013 has already onboarded 1.1 million new customers with a basic savings offer leveraging newly established agent networks.

The gap in credit is estimated to be \$57 billion, implying that only 64% of the credit needs of the target segments are being met through formal financial services providers. Progress has been made recently, with the percentage of adults who borrowed from a financial institution increasing from 9% in 2011 to 13% in 2014. But there is still a clear gap, as 77% of loans are obtained from informal sources such as friends, family, and money lenders.

Micro-insurance is still nascent in Indonesia. We estimate that the total insurance needs of our target segments, measured by Annualized Premium Equivalent (“APE”), are between \$500 million and \$700 million. Formal micro-insurance currently amounts to \$1.2 million APE.

Exhibit 11 below provides a full view of Indonesia’s needs and formal supply.

Exhibit 11: Gap between financial services needs and formal supply in Indonesia



7.1.2. CURRENT CONSTRAINTS, DIGITAL SOLUTIONS AND REGULATORY INITIATIVES

We believe digital enablement can be a powerful lever to address the unmet needs of the target segments, with particular impact in four areas:

- Digital solutions can enable KYC to be performed in real time using integrated public databases and alternative verification techniques and platforms.
- The digitization of G2P payments supported by supply-side innovation in P2All use can create a sustainable electronic payments ecosystem.
- Credit access can be broadened through the digitization of credit processes, the use of alternative sources of data (such as payment transactions), and other advanced techniques.
- Digitally-enabled agents and applications (such as wallets) can help mobilize formal savings by reaching more customers and reducing servicing costs.

Regulatory initiatives are needed to enable digital finance to achieve its potential. The table below summarizes our views on the existing constraints and on the regulatory initiatives that could potentially address them.

AREA OF CONSTRAINTS	SHORTLISTED KEY CONSTRAINTS	DESCRIPTION OF CONSTRAINT	REGULATORY ENABLEMENT
Demand-side constraints	Financial/Digital literacy	<ul style="list-style-type: none"> • Implementation of articulated strategy has faced challenges; related initiatives have not been sufficiently embedded into daily life and needs of target customers 	<ul style="list-style-type: none"> • Develop more effective financial literacy programs – segment specific, supported by tools, embedded with communities and co-opted by supply side actors • Focus on effective implementation by setting multi-level targets and evidence based tracking
	KYC infrastructure	<ul style="list-style-type: none"> • Supply side adoption is still limited and E-KTP application ecosystem is nascent 	<ul style="list-style-type: none"> • Support MHA to ensure universal coverage of e-KTP and advocate for real-time ID database • Develop standards/guidelines/ pilots around e-KTP use cases in G2P/health insurance etc. • Advocate Telco regulator to mandate mobile phone number registration and portability
Supply-side constraints	Reg./public policy equivalence in treatment of players	<ul style="list-style-type: none"> • MNO role in financial inclusion has been limited so far – their distribution channel access has been limited to institutional arrangements • BUKU4 banks have often benefited most from new government programs (e.g. KUR) 	<ul style="list-style-type: none"> • Review e-money regulations that restricts MNOs from leveraging their large agent networks • Conduct a pilot study with government and Telco regulator to assess potential role of MNOs in G2P payments and development of overall retail payment ecosystem

AREA OF CONSTRAINTS	SHORTLISTED KEY CONSTRAINTS	DESCRIPTION OF CONSTRAINT	REGULATORY ENABLEMENT
Payments	Enabling critical volume – G2P & P2AII1	<ul style="list-style-type: none"> Lack of coordinated effort across gov. bodies in driving digital G2P payments Lack of non-bank alternates in domestic money transfer services and continued dominance of informal players/ arrangements in this segment 	<ul style="list-style-type: none"> Advocate govt. to streamline digital G2P program implementation across ministries Develop a cashless strategy (e.g. retail/bill payments, P2P remittances), specify role of different stakeholders and identify policy intervention opportunities Initiate a single aggregator platform and direct G2P payment flows through the platform
	Removing friction – Interoperability	<ul style="list-style-type: none"> Limited interoperability across E-money solutions (banks and MNOs) and agents Interbank transfers are still discouraged via fees, inconvenience and network unreliability 	<ul style="list-style-type: none"> Champion interoperability by engaging with market players through technical working groups; push banks to reduce friction in interbank transfers and high service standards
	Extending access – Points of physical presence	<ul style="list-style-type: none"> Limited electronic payment options at agents Smaller banks/MNOs not allowed to use “single agent” networks Providers are discouraged from appointing agent network managers 	<ul style="list-style-type: none"> Allow providers to partner with agent network managers and to leverage single agents Advocate open API architecture and industry utility set ups for new payment applications
Credit	Credit risk assessment and delivery	<ul style="list-style-type: none"> Credit bureau data is still under utilized and insufficient for making robust credit decisions – particularly for FI target customers and Micro loans Credit assessment is still judgment driven with limited use of alternate data 	<ul style="list-style-type: none"> Accelerate credit bureau set up, mandate data sharing and operationalization Encourage alternate data use pilots and advocate use of digital technology in credit delivery
Savings	Savings access and convenience	<ul style="list-style-type: none"> Inconvenient cash-out access points; agents frequently face liquidity challenges Informal savings networks continue to thrive in rural areas Limited product development initiatives 	<ul style="list-style-type: none"> Closely monitor quality of newly established agent networks and service levels Work with various stakeholders to advocate segment specific solutions (e.g. Migrant workers)
Coordinated oversight	Unified vision, strategy, understanding of financial inclusion	<ul style="list-style-type: none"> Coordination among the members of the NFIS taskforce in implementation and monitoring FI related initiatives can be improved There should be clear/measurable metrics to track the FI progress Key regulators (e.g. BI/OJK) often have non convergent views on roles of key financial inclusion initiatives (e.g. E-Money and Laku Pandai) 	<ul style="list-style-type: none"> Include digital financial services as a core component of the NFIS Strategy; regular working group across all relevant ministries (e.g. BI, OJK, Telco regulator etc.) to develop FI curriculum Leverage on the reach of microfinance providers (e.g. banks/BPRs/MFIs) to conduct financial literacy outreach in rural areas for maximum outreach and effectiveness
	Regulatory co-ordination	<ul style="list-style-type: none"> Telco regulator is not always involved in conceptualizing DFS initiatives New regulations are at times too vague and/or inconsistent with earlier guidelines (e.g. digital KYC/CDD process); hence creates supply side confusion 	<ul style="list-style-type: none"> Define clear KPIs to support financial inclusion and advocate for KKBP to ensure regular monitoring to keep track of Financial Inclusion progress

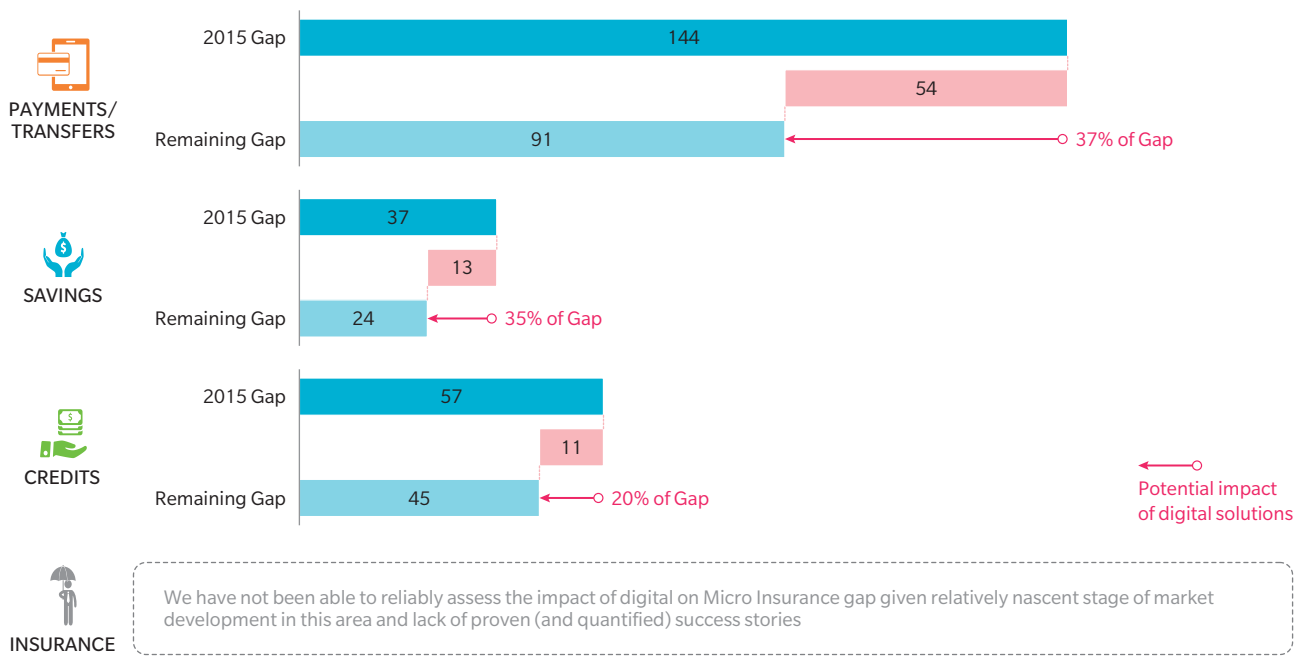
7.1.3. IMPACT ASSESSMENT

Not all the gap in financial inclusion can be addressed through digital initiatives. However, we estimate that regulatory initiatives to support the digital finance applications we have identified could generate more than \$50 billion in additional electronic payment flows, more than \$11 billion in additional credit uptake, and more than \$13 billion in savings mobilization. Tapping these opportunities would lead to an increase of about 2% in Indonesia's GDP and of about 10% in the incomes of the population segment earning less than \$2 per day.

The table below summarizes the upside we expect from various digital initiatives.

Exhibit 12: Indonesia – Assessment of the impact of digital solutions

ESTIMATED IMPACT OF DIGITAL INITIATIVES AND SUPPORTING REGULATIONS ON NEED VS. FORMAL SUPPLY GAP ACROSS PRODUCTS



7.2. PHILIPPINES

The Philippines has been a regional leader in recognizing financial inclusion as an economic development priority and putting it at the centre of financial sector development. In spite of the efforts made over the last decade, access and usage of financial services continue to be limited in many parts of the archipelago. Only 28% of adults in the Philippines have a bank account;⁹² only about 15% save any money with a formal financial institution over a 12-month period; and only 10% borrow money from a formal financial institution over a similar time period.

We estimate that the Philippines' GDP could increase by more than 14% if the financial inclusion gap were closed. Digital enablement can be a powerful part of this solution. We estimate that corresponding digital applications and related regulatory initiatives could boost GDP by about 3%, produce more than \$6 billion in additional electronic payment flows, lead to more than \$4 billion in additional credit uptake, and mobilize more than \$7 billion in savings.

7.2.1. ANALYSIS OF THE GAP BETWEEN NEEDS AND FORMAL SUPPLY

We have assessed needs and formal supply for the Philippines in payments, savings, credit, and insurance.

In payments and transfers, the gap between needs and formal supply gap is \$16 billion, with 75% of the target segments' needs already met via some form electronic payments solution. The Philippines has a relatively advanced electronic payments landscape. The government has made active efforts to promote a cash-light society through its 2020 E-Peso project. It has also directed most G2P payments through digital channels: About 46% of G2P payments are transferred digitally, and 70% of remittances are being sent or received via electronic channels, compared to an average of 18% in East Asia and the Pacific.⁹³

The gap for savings is about \$20 billion. There is still a high reliance on informal channels such as ROSCA,³ which account for 78% of all savings. The share of adults who save at a financial institution has not risen in recent years, remaining at only about 15% between 2011 and 2014.⁹⁴

92 Global Findex Database

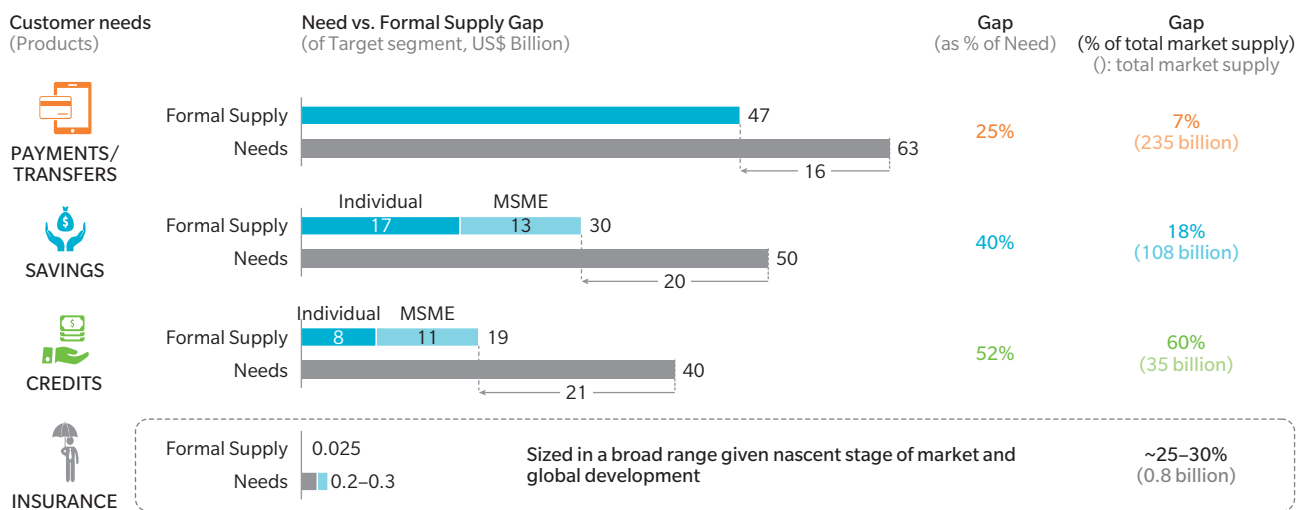
93 USAID and IFC report

94 Global Findex database

The credit gap is the largest of the three gaps in absolute size as well as on a relative basis. The credit needs of the target segment that are unmet by formal financial institutions are estimated to be \$21 billion, indicating that only about 50% of the target segment’s needs have been met so far. The gap is exacerbated by the limited micro-loan book of the banks and large banks’ lack of activity in pursuing this segment. About 97%⁹⁵ of credit in the micro segment is provided by rural banks or NGOs, entities that are naturally constrained in the amount of funding they can mobilize compared to large commercial banks.

Exhibit 13 below provides a full view of needs and formal supply in the Philippines.

Exhibit 13: Gap between financial services needs and formal supply in Indonesia



7.2.2. CURRENT CONSTRAINTS, DIGITAL SOLUTIONS AND REGULATORY INITIATIVES

We believe digital enablement can be a powerful lever to address the unmet needs of the target segments, with particular impact in four areas:

- With digital technology, KYC can be carried out in real time using integrated public databases and alternative verification techniques and platforms.
- Supply-side innovation in P2All development can help create a sustainable electronic payments ecosystem.
- Credit access can be broadened through digitization of the credit process, use of alternative sources of data (for example payment transactions), and other advanced techniques.
- Digitally enabled agents and applications such as wallets can help mobilize formal savings by reaching more customers and reducing servicing costs.

95 Mix Market

Regulatory initiatives are needed for digital finance to achieve its potential. The table below summarizes our view on existing constraints and potential regulatory measures that could address them.

AREA OF CONSTRAINTS	SHORTLISTED KEY CONSTRAINTS	DESCRIPTION OF CONSTRAINT	REGULATORY ENABLEMENT
Demand-side constraints	Financial/Digital literacy	<ul style="list-style-type: none"> Only ~25% of Philippines adult are financially literate Awareness, adoption, and usage of e-money remains limited. (Only 25.6% of the population are currently aware of e-money agents) 	<ul style="list-style-type: none"> Revamp financial education strategy and focus on effective implementation Design digital literacy education program and roll out
	KYC infrastructure	<ul style="list-style-type: none"> Lack of unique national ID (~21 official documentations are being used) Lack of real-time public records database to enable automated KYC verification 	<ul style="list-style-type: none"> Develop real-time digitized ID databases and promote providers to integrate with their banking systems Develop standards/guidelines for providers to integrate systems with ID databases
	KYC regulatory requirements	<ul style="list-style-type: none"> The KYC norms are the same irrespective of the value of transactions No clear guidance around digital KYC and the requirement for machine-based KYC verification 	<ul style="list-style-type: none"> Introduction of tiered KYC requirements and guideline development Clear guidance for digital KYC and the requirement for digital KYC verification
Payments	Enabling critical volume – P2All1	<ul style="list-style-type: none"> Increased electronic payment options available (e.g. Terminals, POS machines in agents) however most users still adopting offline payments (e.g. OTC cash payment) 	<ul style="list-style-type: none"> Initiate a single aggregator online platform for P2G payment Collection of P2G payments through e-money Advocate the use of online platforms (e.g. e-money) to be used for P2P remittances
	Removing friction – Interoperability	<ul style="list-style-type: none"> Payment networks are still very fragmented across different types of players (e.g. Commercial banks, Rural banks, MFIs, NGOs, MNOs) E-money agents and ATMs are not permitted to be shared between banks/Non-Bank FI/EMIs (E-Money Issuer) 	<ul style="list-style-type: none"> Champion (and if necessary mandate) interoperability with Telco regulator Develop interoperability standards and guidelines (along with NRPS)
	Extending access – Points of physical presence	<ul style="list-style-type: none"> Lack of dedicated ANMs (Agent Network Manager) in the market 	<ul style="list-style-type: none"> Advocate open API architecture and industry utility set ups for new payment applications Allow providers to partner with agent network managers
Credit	Credit risk assessment and scoring	<ul style="list-style-type: none"> Lack of effective credit assessment methods especially for small/micro loans which excludes the segments from accessing formal credit Judgmental appraisal of customers' risks largely by interview and society reputation (not statistical credit scoring model) 	<ul style="list-style-type: none"> Support development of alternative credit scoring methodology by enabling acquisition of required data and funds for development Mandate reporting of credit scores to CBs and encourage sharing across providers
Savings	Savings access and convenience	<ul style="list-style-type: none"> Savings with informal FS (cooperatives and ROSCAs) E-money agents are not used for savings mobilization due to regulatory constraints which limits access points for savings 	<ul style="list-style-type: none"> Allow deposit mobilization by agent networks so that agents can open deposit account on behalf of customers Develop guideline for liquidity management for agent network (i.e. minimum required buffer per agent)

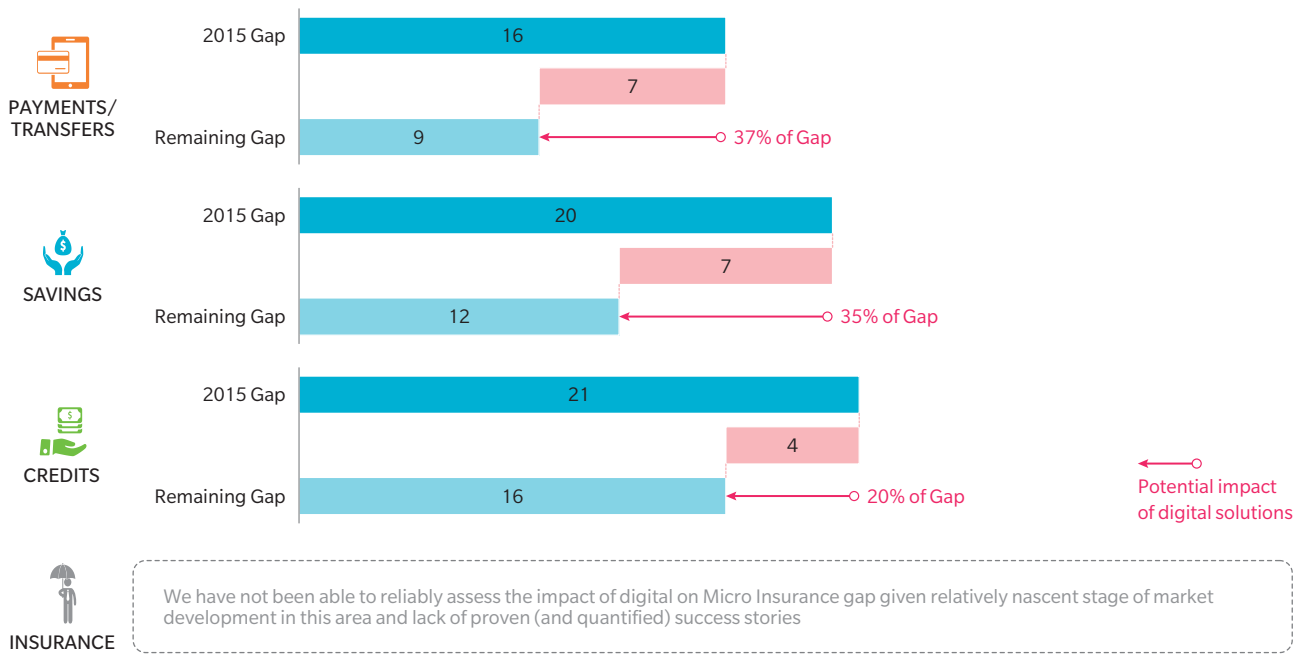
7.2.3. IMPACT ASSESSMENT

Not all the gap in financial inclusion can be addressed through digital initiatives. However, we estimate that regulatory initiatives to support the digital finance applications we have identified could generate more than \$7 billion in additional electronic payment flows, more than \$4 billion in additional credit uptake, and more than \$7 billion in savings mobilization. Tapping these opportunities would lead to an increase of about 3% in the Philippines' GDP and of about 11% in the incomes of the population segment earning less than \$2 per day.

Exhibit 14 below summarizes the upside we expect to see from various digital initiatives.

Exhibit 14: Philippines – Assessment of the impact of digital solutions

ESTIMATED IMPACT OF DIGITAL INITIATIVES AND SUPPORTING REGULATIONS ON NEED VS. FORMAL SUPPLY GAP ACROSS PRODUCTS (ALL AMOUNTS ARE IN \$US BILLION)



7.3. CAMBODIA

Cambodia's progress in financial inclusion has yielded mixed results so far. On one hand, only 13%⁹⁶ of Cambodian adults have a bank account and only 4% save money with a formal financial institution over a 12-month period. On the other, 28% of Cambodian adults borrowed money from a formal financial institution over the same period, a rapid increase from 19.5% in 2011. This rise has been driven by a rapid expansion of the MFI sector in Cambodia over the last decade.

We estimate that Cambodia's GDP could increase by more than 32% if the financial inclusion gap were closed. Digital enablement can be a powerful part of this solution. We estimate that corresponding digital applications and related regulatory initiatives could boost GDP by about 6%, produce more than \$1.7 billion in additional electronic payment flows, lead to more than \$2.5 billion in additional credit uptake, and mobilize more than \$500 million in savings.

7.3.1. ANALYSIS OF THE GAP BETWEEN NEEDS AND FORMAL SUPPLY

We have assessed Cambodia's needs and formal supply in payments, savings, credit, and insurance.

In payments and transfers the gap between needs and formal supply is about \$5 billion, or about 60% of the segment's financial services needs. The transition from cash to digital money is in its early stages in Cambodia. Most recent progress has been driven by transfer platforms based on mobile money. WING is a notable example of success, with an active customer base of more than 300,000 and an agent base of more than 3,000.

The gap between needs and formal supply is most significant in the case of savings. The total gap is estimated to be \$22.5 billion, implying that only about 16% of the segment's need are currently met by formal financial services providers. Of all savers, 95% choose to save informally, and only selected MFIs are deposit-taking institutions. Those MFIs that do take deposits primarily focus on mobilizing those from more affluent customers in urban locations.

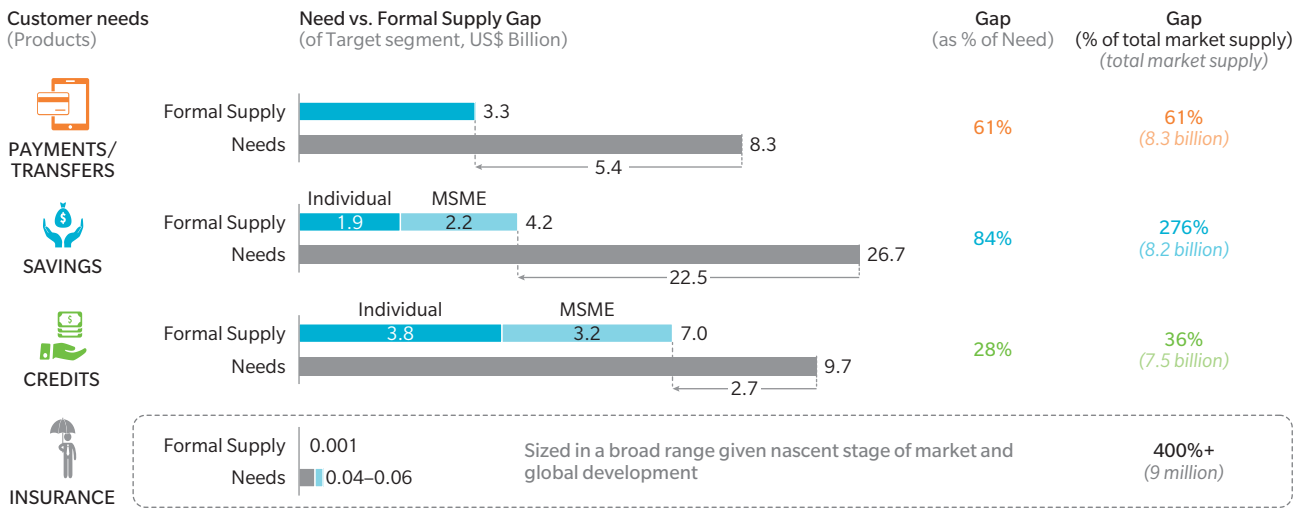
The gap between needs and formal supply is a modest 28% in credit, indicating an opportunity of \$3 billion still unmet by formal financial institutions. Strong development of the MFI sector has led to fast growth in micro credit in Cambodia. The total MFI loan portfolio is three times the size of the total volume of retail loans from banks. More than 60% of the adult population indicate they are borrowing from at least one MFI.⁹⁷

Exhibit 15 provides a full view of Cambodia's needs and formal supply.

⁹⁶ Global Findex Database

⁹⁷ Based on "Study on the Drivers of Over-Indebtedness of Microfinance Borrowers in Cambodia" (BlueOrchard, Incofin and OikoCredit, Cambodia Institute of Development Study) [2013]

Exhibit 15: Gap between financial services needs and formal supply in Cambodia



7.3.2. CURRENT CONSTRAINTS, DIGITAL SOLUTIONS AND REGULATORY INITIATIVES

We believe digital enablement can be a powerful lever to address the unmet needs of the target segments. The follow measures could have significant impacts:

- Digital applications and infrastructure can reduce the cost of mobilizing micro deposits and thus promote financial inclusion and a stable supply side. Reliance on high-cost agent networks and on branch and ATM infrastructure has discouraged MFIs from mobilizing the deposits of their rural borrowers. A savings product based on a mobile wallet and serviced with a cash-in, cash-out agent infrastructure can help address this problem.
- The digitization of credit processes and use of standardized risk assessment models can make credit delivery more efficient and limit the potential impact of over-indebtedness.
- Cambodia lacks an e-KYC infrastructure even though it has a unique national ID. Developing such infrastructure will provide long-term benefits through a more-inclusive financial ecosystem.

Regulatory initiatives are needed to enable digital finance to achieve its potential. The table below summarizes our view of existing constraints and the regulatory initiatives that could address them.

AREA OF CONSTRAINTS	SHORTLISTED KEY CONSTRAINTS	DESCRIPTION OF CONSTRAINT	REGULATORY ENABLEMENT
Demand-side constraints	Financial/Digital literacy	<ul style="list-style-type: none"> • Low levels of financial literacy • No formalized financial education and financial inclusion strategy 	<ul style="list-style-type: none"> • Finalize and roll-out financial inclusion initiative (and potentially integrate into curriculum) • Design financial education strategy and digital literacy education program and roll out
	KYC infrastructure	<ul style="list-style-type: none"> • To open bank account, customers must be present at the branch (regardless of account type) • Banks are required to store physical copies of KYC documents and provide at NBC request 	<ul style="list-style-type: none"> • Develop guidelines for paperless application process and electronic data maintenance for banks and MFIs
	KYC regulatory requirements	<ul style="list-style-type: none"> • Lack of real-time public records database to enable automated KYC verification 	<ul style="list-style-type: none"> • Support MoI to ensure universal coverage of e-ID and advocate for real-time ID database • Develop standards/guidelines for providers to integrate systems with real-time ID databases
Payments	Enabling critical volume – P2All 1	<ul style="list-style-type: none"> • E-commerce is in its infancy with only ACLEDA, ABA Bank (Pay&Go), and FTB working to offer e-commerce solutions • No integrated P2P payment platform 	<ul style="list-style-type: none"> • Develop and advocate cashless strategy (e.g. retail/bill payments, P2P remittances, e-commerce)
	Removing friction – Interoperability	<ul style="list-style-type: none"> • Limited interoperability across <ul style="list-style-type: none"> – Various E-money providers (e.g. Metfone/ Smart works only “on network”) – Banks and non-banking players (e.g. MNOs) 	<ul style="list-style-type: none"> • Champion interoperability by engaging with market players through technical working groups; in particular, across different FSP types (e.g. banks/MFIs and MNOs) • Develop interoperability standards and guidelines
	Extending access – Points of physical presence	<ul style="list-style-type: none"> • No regulation around branchless banking with clear preference towards branch-led model and generally skeptical perception of agent model • Lack of systematic training and network management practices 	<ul style="list-style-type: none"> • Develop agent banking regulations and launch pilots • Design training materials and best practice agent management practices • Explore usage of agent network managers and potential to leverage informal agents
Credit	Credit risk assessment and scoring	<ul style="list-style-type: none"> • Developed approach is very simplistic and does not provide proper risk assessment (e.g. repayment capacity, debt-to-income, # of loans etc.) • Lack of effective credit risk assessment methods, especially for small/micro loans (judgmental assessment by majority of players) • Limited use of automation and digitization for credit assessment and application processing 	<ul style="list-style-type: none"> • Develop standardized credit risk assessment policies, including key factors / ratios to consider (e.g. maximum debt-to-income ratios, # of outstanding loans etc.) • Advocate (and potentially mandate) the use of internal scoring models for credit quality assessment and provide guidelines on model development • Popularize use of automation and digitization for credit assessment and application processing
Savings	Embedding savings in product structure and enabling contextual savings habit	<ul style="list-style-type: none"> • High prevalence of informal savings due to lack of suitable products: less than 4% of the population has saved in formal financial institution in 2014 • Largely credit-focused value proposition from banks and MFIs (borrowers mostly BoP while depositors representing higher income segment) • None of the mobile payments service providers offer any ‘savings’ product • Cambodia remains one of the 2 SEA countries (along with Myanmar) with no deposit insurance program 	<ul style="list-style-type: none"> • Work with stakeholders (providers, ministries etc) to develop segment specific products – i.e., savings products for migrant workers, fishermen community, small holder farmers etc • Incentivize non-banking players develop ‘savings’-type products (e.g. CASA accounts backed by 100% float) • Work on development of deposit insurance scheme and incentivize supply-side players to participate to ensure client take-up of formal deposit products

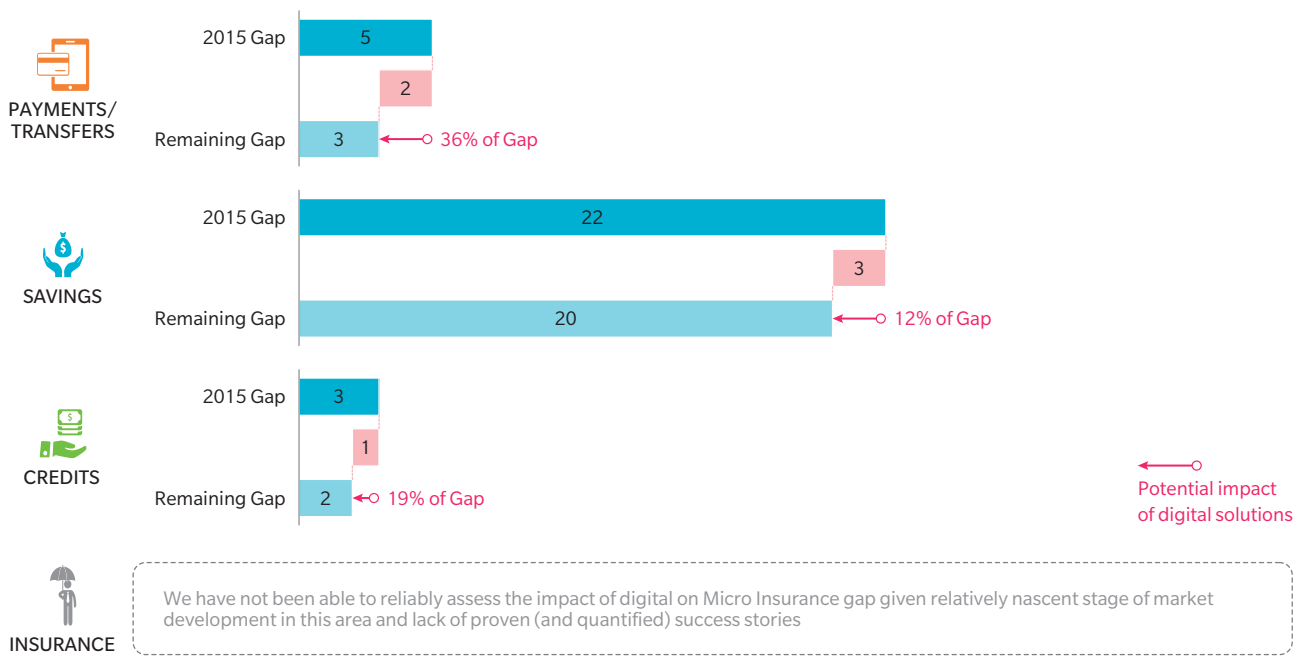
7.3.3. IMPACT ASSESSMENT

We estimate that regulatory initiatives to support the digital finance applications we have identified could generate more than \$2 billion in additional electronic payment flows, more than \$1 billion in additional credit uptake, and more than \$3 billion in savings mobilization. Tapping these opportunities would lead to an increase of about 6% in Cambodia’s GDP and of about 30% in the incomes of the segment of the population segment earning less than \$2 per day.

Exhibit 16 below summarizes the upside we expect from various digital initiatives.

Exhibit 16: Cambodia – Assessment of the impact of digital solutions

ESTIMATED IMPACT OF DIGITAL INITIATIVES AND SUPPORTING REGULATIONS ON NEED VS. FORMAL SUPPLY GAP ACROSS PRODUCTS (ALL AMOUNTS ARE IN US\$ BILLION)



7.4. MYANMAR

Myanmar has the least-developed financial sector of the four focus countries. Access and use of formal financial services is still at a very early stage for most of the population. Only 23% of adults have access to a bank account, and only 13% save money with a formal financial institution over a 12-month period. The banking sector has traditionally not focused on retail and SME banking. Unlike in Cambodia, MFIs have not yet been able to achieve significant scale in Myanmar. However, ongoing financial sector reforms and the rapid adoption of smartphones are likely to change the country's financial services.

We were not able to estimate the opportunity in Myanmar with the same level of analytical depth as the other markets, due to the paucity of reliable information on the size of the market. However, we estimate the total size of unmet demand in payments and transfers at around \$23 billion. This implies that less than 10% of the total needs in payment and transfers are met by formal institutions. The total unmet credit need in Myanmar is estimated at \$4.4 billion.

Digital applications and regulatory actions could help Myanmar's financial institutions make the most of these opportunities. Different financial services stakeholders need to take into account some critical considerations to make this happen. These points are summarized below:

- Back-end processes at the major financial institutions still require automation to meet the real-time reconciliation demands of digital transactions.
- The banks are still trying to hire and train the personnel required to service their current product offerings.
- A transition to DFS would require additional training to manage new channels, such as agents, as well increased capacity at the back end to support these channels.
- A specialised unit on financial inclusion administered by the central bank and other key financial sector stakeholders could help drive financial inclusion in a more coordinated and focused way

The table below summarizes our views on existing constraints and the potential regulatory initiatives that could address them.

AREA OF CONSTRAINTS	SHORTLISTED KEY CONSTRAINTS	DESCRIPTION OF CONSTRAINT	REGULATORY ENABLEMENT
Demand-side constraints	Financial/Digital literacy	<ul style="list-style-type: none"> • Financial literacy is the lowest among Asian countries (Rural population is still untouched from formal financial services) • Limited use of formal financial services (~23% of the population has a bank account) has further restricted the awareness on financial service 	<ul style="list-style-type: none"> • Develop financial education strategy in the NSFI, focusing on effective implementation
	KYC infrastructure	<ul style="list-style-type: none"> • Many people still do not have an ID card (71% of the population (above 10 years of age) have one of the two ID cards, with only less than 2% with NRC1) • Current ID card is still handwritten and cannot be verified in a different township • Industry wide shared KYC database does not exist 	<ul style="list-style-type: none"> • Develop digitized ID databases (of existing IDs in paper fashion) • Promote providers to integrate with their banking systems (Long-term) • Develop standards/guidelines for providers to share KYC and ID databases

AREA OF CONSTRAINTS	SHORTLISTED KEY CONSTRAINTS	DESCRIPTION OF CONSTRAINT	REGULATORY ENABLEMENT
Payments	Enabling critical volume – P2AII1	<ul style="list-style-type: none"> Government expenditure on social protection and assistance is much lower than other countries in the region at 0.57% and 0.02% respectively. However, this could change and be developed as a use case once the recently launched Social Protection Strategic Plan is launched over the next 10 years. No co-ordination for digital G2P payment yet and would need to be put in place to scale it up nationally Cash distribution is prominent due to low bank account penetration and prevailing mistrust among people for banks In any transition to digitization, access to cash-out points particularly in rural areas must first be ensured 	<ul style="list-style-type: none"> Promote the use of online platforms (e.g. e-money) and social media (e.g. Facebook) to be used for P2P remittances Initiate a single aggregator online platform for G2P and P2G payment (Long-term)
	Removing friction – Interoperability	<ul style="list-style-type: none"> Interbank, Banks-Non-banks, Agent interoperability are being set up in terms of initial regulatory environment and infrastructure, but still need further effort to realize the interoperability in actual practices Infrastructure for e-money needs to be upgraded to allow interoperability of services between players 	<ul style="list-style-type: none"> Develop interoperability standards and guidelines (along with CBM-net) Champion (and if necessary mandate) interoperability with Telco regulator
	Extending access – Points of physical presence & E-access to last mile	<ul style="list-style-type: none"> E-money agents exist mostly in urban centers ATMs spreading but only in urban/peri-urban center 	<ul style="list-style-type: none"> Develop specific guidelines for agent network management (including introduction of agent network managers) Invest/develop open API platforms and advocate open API architecture (Long-term)
Credit	Credit risk assessment and scoring	<ul style="list-style-type: none"> Paper based process. Many banks lack automated core banking systems, hence customer information is stored in paper form Manual process where village leaders and group leaders are consulted to identify credit worthiness of applicants and avoid multiple lending to same set of clients 	<ul style="list-style-type: none"> Establish central credit bureau and promote establishment of private credit bureaus Support development of alternative credit scoring (i.e. support MNOs for alternative credit scoring) Mandate reporting of credit scores to CBs and encourage sharing across providers (Long-term)
Savings	Savings access and convenience	<ul style="list-style-type: none"> Low income/capita has an impact on savings ability and leads to cash-mentality. Branches are few and situated far away making people to travel distances to access Agent Liquidity management is not prevalent Savings account uptake is limited due to uncompetitive interest rates (e.g. 36+% from gold/private intermediation offers versus 8% from a savings) 	<ul style="list-style-type: none"> Work with stakeholders (providers, ministries etc) to develop segment specific products – i.e., savings products for migrant workers, small holder farmers etc Develop guideline for liquidity management for agent network (i.e. minimum required buffer per agent) (Long-term)
Coordinated oversight	Regulatory co-ordination	<ul style="list-style-type: none"> CBM and FRD needs to co-ordinate well in order to focus on the missing middle in financial inclusion 	<ul style="list-style-type: none"> The ongoing Financial Inclusion Roadmap process is a good means of engaging all the relevant Government stakeholders on DFS enablement

We estimate that these initiatives could have a significant impact by addressing part of the gap in the market between needs and formal supply. Digital applications could address 30% of the payments gap and 28% of the credit gap.

8. CONCLUDING REMARKS

Accelerating financial inclusion is a national policy priority in the four Southeast Asian markets we studied, namely Indonesia, the Philippines, Cambodia, and Myanmar. While progress has been made in recent years, much remains to be done. Our analysis points to very significant gaps for all four primary financial services – payments, savings, credit, and insurance – for people at the base of the pyramid, for women and for MSMEs.

To accelerate financial inclusion, action is needed from regulators, public policymaking institutions, and supply-side participants to address the structural issues that are impeding the spread of financial services to these segments of the population. The unattractive economics of serving them continues to be a challenge for the supply side in terms of resource and investment mobilization. For the target customers, the solutions on offer are often not attractive alternatives to the current informal solutions. Moreover, they are held back by a low level of financial literacy and overall awareness. For public policymaking institutions, the base-of-the-pyramid segment is challenging, as social, economic, and political priorities often conflict.

We estimate that addressing this opportunity could increase GDP by between 9% and 14%, even in relatively large economies such as Indonesia and the Philippines. In Cambodia, the potential boost to GDP could be more than 30%. These GDP growth opportunities justify the strategic priority placed on financial inclusion, even before one considers the positive impact on the quality of life and income of people who are currently financially excluded. For those earning less than \$2 per day, we estimated that 10% increases in income would be achievable in Indonesia and the Philippines, and a 50% increase in Cambodia.

Digital finance, through its impact on banking value chains, can provide solutions to the key challenges for financial inclusion. In the five areas where digital finance will be most significant, we concluded that it could not entirely close the gap between needs and formal supply, but could reduce it. In the base of pyramid and MSME segments, we estimate that digital finance could address up to 40% of the gap in payments volume and 20% of unmet credit needs. We estimate that the cumulative effects of such digitally driven financial inclusion could boost GDP by 2% to 3% in markets like Indonesia and the Philippines and 6% in Cambodia. In Myanmar, the potential is likely greater, but data limitations preclude a numerical estimate.

Much digital enablement will be driven by the supply side, so regulators and public policymakers have a critical role in creating a favourable environment for innovation in digital finance. Through more than 80 interviews with supply-side operators, regulators and policymakers, we identified the specific barriers to financial inclusion in each market, and found parallels between the markets and lessons that applied to all of them. We identify three broad areas in which the authorities should play an active role to promote digital finance in order to accelerate financial inclusion:

- **Managing supply-side entry barriers:** Create a level playing field by allowing both traditional financial services players and new participants (such as MNOs) to collaborate and compete.
- **Enabling suitable solution design and delivery:** Develop a “safe space” for businesses to test out new ideas in a live environment using a regulatory sandbox; develop clear guidance on the development and role of agent networks, and allow different supply-side operators to leverage these alternative channels; and drive the creation of frictionless payment channels and network infrastructure, for example by advocating or mandating interoperability between mobile money platforms.
- **Creating a shared vision:** Produce a roadmap for financial inclusion to focus the efforts of various stakeholders, put in place a governance mechanism to facilitate coordination, and ensure stakeholder accountability.

The opportunity to accelerate financial inclusion through digital finance is clear, and the impact would be very significant on both the lives of financially excluded people and the broader economy. Regulators and policymakers have critical roles to play in supporting and enabling this digital innovation. At the same time, however, digital finance is also increasing the complexity of the financial services ecosystem by disaggregating traditional value chains and enabling new, non-bank entrants to participate. It is imperative that policymakers remain aware of not only the opportunities afforded by digital finance but also the risks arising from this increased complexity. In particular, they need to be aware of the exponential increase in data generated by individuals and used by supply-side operators. Consumer protection, especially for those individuals new to formal financial services, needs to remain front and centre.

APPENDIX

APPENDIX A. ACRONYMS AND GLOSSARY

A.1. ACRONYMS

ACRONYM	DEFINITION
API	Application Programming Interface
ATM	Automated Teller Machine
CASA	Current Account Savings Account
CGAP	Consultative Group to Assist the Poor
DFS	Digital Financial Services
G2P	Government to Person
GDP	Gross Domestic Product
KYC	Know Your Customer
MDR	Merchant Discount Rate
MFI	Microfinance Institution
MNO	Mobile Network Operator
MSME	Micro, Small, and Medium Enterprises
MTN	Mobile Telephone Network
NFIS	National Financial Inclusion Strategy
NPA	Non-Performing Asset
OTC	Over-the-counter
P2All	P2All consists of P2G, P2B and P2P
P2B	Person to Business
P2G	Person to Government
P2P	Person to Person
ROSCA	Rotating Savings and Credit Association
SMS	Short Message Service
UIDAI	Unique Identification Authority of India

A.2. GLOSSARY

TERM	EXPLANATION
Agent	Any third party acting on behalf of a bank or other provider to deal directly with customers. Agents are typically located in retail locations (such as pharmacies, small stores and gas stations), and receive a commission for services performed, such as cash-in, cash-out, transfers, and customer registration.
Agent network manager	A manager of a network of agents. These can be established distribution networks, such as post offices and retail chains, or can be built from independent, small-scale traders and other retailers. The agents conduct basic transactions on behalf of bank branches.
Application Programming Interface	A set of routine definitions and tools for building software and applications.












TERM	EXPLANATION
Automated Teller Machine	An electronic banking outlet that lets customers perform basic transactions without the aid of a branch representative.
Current Account Savings Account	A combined savings and checking account, which pays very low interest on the current account portion and an above-average return on the savings account portion.
Digital Financial Services	Provision of financial services through digital networks and platforms.
E-Money	An electronic wallet service that lets users store, send, and receive money using their mobile phones.
Government-to-Person Payment	A payment from a government to a person, such as a social transfer, a wage, or a pension.
Interoperability	Payments system in which clients of one provider can carry out transactions over the infrastructure of another. Interoperability requires technical compatibility between systems, as well as an agreed set of payment rules among participating providers.
Know Your Customer	Also known as client due diligence. A standard form is used to establish clients' risk tolerance, investment knowledge, and financial position.
Laku Pandai	Indonesia's nationwide initiative to promote branchless banking. It was initiated by the government in order to increase the poorest segment of the population's access to basic, no-minimum-balance bank accounts.
Merchant Discount Rate	A fee charged to a merchant by a bank for providing debit and credit card services.
Micro, Small, and Medium Enterprises	A group of enterprises ranging from the smallest business entities to medium-sized businesses, as defined by each country.
Microfinance Institution	An organization that offers financial services (such as loans, insurance, and deposits) to low-income populations.
Micro-insurance	Insurance products that offer coverage to individuals with low incomes and little savings.
Mobile Banking	The use of a mobile phone to access banking services and execute financial transactions.
Mobile Money	A service that allows users to make transactions and store value electronically on a dedicated account associated with a mobile phone number. The electronic value can be redeemed as cash. Mobile money services are mostly managed with an electronic wallet.
Mobile Network Operator	A provider of wireless communications services such as data and voice.
Mobile Telephone Network	A network used by a mobile network operator to provide communications services to its subscribers.
National Financial Inclusion Strategy	A national roadmap to achieve financial inclusion objectives such as easier access to a range of financial products. It consists of actions, agreed and defined at the national or subnational level, which stakeholders follow.
National Retail Payment System	A policy and regulatory framework that aims to establish a safe, efficient, reliable, and affordable retail payments system. Examples of a system's actions include promoting electronic payments and improving financial services access for the poor.
Non-Performing Asset	A loan, made by a bank or financial institution, on which repayment or interest payments are not being made on schedule.
Over-the-counter	Traditional, non-electronic payment.
Person to Business	A payment from a person to a business, for example in a retail purchase.
Person to Government	A payment from a person to a government, for a tax or fine, for example.
Person to Person	A payment from one person to another, for example a remittance or a personal loan.
Rotating Savings and Credit Association	A group of individuals that acts as an informal financial institution. The members make contributions to and withdrawals from a common fund.
TabunganKu	An individual savings account in Indonesia that has minimum requirements in order to promote welfare and the habit of saving.
Tiered KYC	A KYC process with several tiers. Each tier has distinct customer identification requirements and credit lines: For example, the first tier might have few ID requirements and offer a relatively small credit line, while the second tier might have more ID requirements and offer a larger credit line.
Unique Identification Authority of India	An agency of India's central government whose objective is to collect residents' biometric and demographic data, store them in a centralized database, and issue a 12-digit unique identity number called an Aadhaar.

APPENDIX B. CASE STUDIES

B.1. KYC

A recent study on KYC benchmarking and harmonization conducted by MicroSave⁹⁸ estimated that Aadhaar-enabled e-KYC could result in a direct saving of over \$1.5 billion⁹⁹ over the next five years.¹⁰⁰ Apart from substantial cost savings for banks and financial institutions, Aadhaar-enabled e-KYC is significantly more efficient than current, paper-based KYC. Using traditional customer enrolment processes, banks can take from two to four weeks to activate an account and verify and store the KYC details for future retrieval. But using Aadhaar-enabled e-KYC, banks can activate accounts and ready them for transactions in a minute.

In addition to e-KYC, the India Stack has several digital platforms based on open APIs. These are designed to solve a range of challenges and provide innovative solutions for a range of financial needs in the mass market.

	BANKS 	BCNM – BANKS 	PPI ISSUERS (Semi Closed) 	PPI ISSUERS (Open) 	MNOS 
END TO END (ACQUISITION, VERIFICATION, ACTIVATION AND STORAGE/ARCHIVAL)					
DAYS 	14–30	10–30	1–2	1*–4	1–2
TIME (IN MINS) 	70–91	40–118	6–203	6*–164	205–226
COSTS (IN INR) 	341–575	104–244	23–112	25*–115	145–175
ACCOUNT ACTIVATION STAGE					
DAYS 	3–6	6–9	1–2	1*–4	1–2
TIME (IN MINS) 	28–31	39–118	6–133	6*–164	133–149
COSTS (IN INR) 	263–381	104–241	21–79	25*–115	84–90

*Figures are for providers using e-KYC

98 The benchmarking study covered a range of institutions including banks, mobile operators, mobile money providers, and providers of semi-closed and open wallets.

99 These potential savings would come after the Government of India announced a \$3.7 billion capital infusion into public sector banks in the budget for the 2016-2017 fiscal year. This money is intended to help deal with the high level of NPAs and the twin-balance sheet challenge.

100 The estimate is conservative, considering that over 212 million new accounts have been opened under PMJDY since August 2015. However, the rate of new account openings will be lower in the foreseeable future.

Innovators and early-adopter service providers are using the India Stack building blocks that are already available to deliver innovative financial products and services. Suvidhaa,¹⁰¹ a financial services provider for the mass market, in collaboration with Axis Bank, was amongst the first to adopt e-KYC and roll it out across its retail points. Building on this, Suvidhaa introduced another innovative product, “Nano Credit,” for mass-market consumers and small businesses that regularly perform transactions at Suvidhaa’s retail outlets. This is a term loan for a period of 18 months and a ticket size of \$225. The interest rate charged is 22% per annum, but there are plans to lower this. Nearly two-thirds of the borrowers so far have taken out the loans for business purposes. The table below compares typical ticket sizes, interest rates, and fees charged, as well as the most common purpose for the loans.

SERVICE PROVIDER	PRODUCT	RATE (PER ANNUM)	TICKET SIZE (\$)	PROCESSING TIME	PURPOSE
Suvidhaa (India)	Nano-credit	22%	225	60 minutes	Livelihood creation, personal needs and emergencies
MFIs (India)	Joint liability group loans	26%	267	7 to 10 days	Nominally for livelihood creation. Very often for consumption.
MFIs (global average)	Micro-credit	36%	no data	One week (typically)	Nominally for livelihood creation. Very often for consumption.
Safaricom (Kenya)	M-Shwari	138% ¹	25	Instant	Mostly for consumption

1. The fee charged is 7.5% per month)

Suvidhaa and Axis Bank are able to offer loan ticket sizes comparable to the microfinance sector, but at lower rates and with much quicker disbursement. Moreover, the loans are mainly being taken out by customers who do not have access to credit from other sources, including microfinance institutions. When benchmarked against global MFIs and the much-lauded M-Shwari, the rates, ticket size, and processing time are in the main significantly better. Suvidhaa’s offering is superior because of factors including its rapid, sophisticated credit scoring of applicants. A scoring algorithm analyses the applicant’s financial transaction history over at least a year, using more than 85 parameters. These include the nature, frequency, and ticket size of transactions; account balances; the locations where the funds were sent and received; and the contact details of the sending agent. Also, e-KYC is carried out for the applicant. A team at the bank performs a rapid appraisal. Finally, credit bureau checks and digital disbursement are carried out using fully interoperable prepaid cards.¹⁰²

101 www.suvidhaa.net

102 For additional details refer to “e-KYC and the India Stack – A Transformative Blueprint for Emerging Markets and Democratizing Financial Services”

B.2. BKASH

Bangladesh's leading mobile financial services provider, bKash, has acquired 21 million users in just four years. This is equivalent to about 12.5% of the country's population and includes many people who were previously financially excluded. bKash enables rural migrants living in cities to transfer money home safely. An estimated 80% of rickshaw riders in Dhaka use the service regularly, according to the central bank governor. bKash has reduced transfer processing time from the 15 days it used to take via the postal service to a matter of seconds. Customers are also able to conduct cash-in and cash-out operations at convenient locations through bKash's network of about 120,000 agents. These features enabled bKash to clear more than 1 billion transactions in 2015 alone and add 1 million new customers every month.

B.3. TIMIZA

Timiza is a digital credit product offered to Airtel Money's existing customers in Tanzania. Established in 2014, Timiza has extended loans to half of its mobile money customer base (that is 2 million people) in just two years. Timiza enables customers to apply for a loan without having to hold savings and make deposits. Moreover, the loan limit is increased each time a loan is repaid, helping customers to build a credit history.

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APPENDIX D. FINTECH EXAMPLES

D.1. LENDDO

Provider	
Operations	Singapore, Philippines, India, Colombia, United States
Products	<ul style="list-style-type: none"> • Automated verification service <ul style="list-style-type: none"> – Embedded into online and mobile application processes to check the veracity of application information against online sources (for example Facebook, LinkedIn, Google, Yahoo and Twitter) – Option to configure service to include documents and face-capture via the camera phone on Android devices – Results used to fast-track an application, reduce required documentation, or eliminate manual checks • Credit scoring <ul style="list-style-type: none"> – Use of non-traditional data to access and serve new and underserved market segments. This can be social network data, mobile data, browser data, telecoms and transactional data, application data, mouse data, and web publishers' data. – Option to use Lenddo as a standalone tool or as a complementary tool integrated with an existing scorecard to complement traditional underwriting tools.
Users	<ul style="list-style-type: none"> • Financial institutions and other firms in 20 countries

D.2. TRUSTINGSOCIAL

Provider	
Operations	<ul style="list-style-type: none"> • United States, Viet Nam, Singapore • API designed for scalability and fast deployment <ul style="list-style-type: none"> – Providers able to add social signup button to online application form – Customer requested to grant access to social media (either LinkedIn or Facebook) – Trustingsocial returns credit score to provider server in five seconds
Products	<ul style="list-style-type: none"> • Fraud detection <ul style="list-style-type: none"> – New customers pre-screened to minimize online fraud – customers are pre-qualified based on social status, ability to pay, and risk – Real-time tracking to detect anomalies in behaviour, network, and interaction patterns • Alternative credit scoring <ul style="list-style-type: none"> – Risk-scoring algorithm to conduct credit scoring based on social, mobile, and web data – Includes database on salaries, jobs, and companies to predict financial credibility
Users	<ul style="list-style-type: none"> • Financial institutions in Europe and Asia to utilize social network data for underwriting consumer loans

D.3. OMNIPAY

Provider	
Operations	<ul style="list-style-type: none">• Philippines
Products	<ul style="list-style-type: none">• Prepaid cash card that also acts as proof of citizenship<ul style="list-style-type: none">– Prepaid reloadable cash card that can be used for payments– Prepaid cash card also functions as the Special Bacoor Resident Card and has been issued to 500,000 residents of Bacoor for proof of identity• Prepaid cash card for G2P payments<ul style="list-style-type: none">– Partnership with Land Bank of the Philippines to distribute prepaid cash cards to agrarian reform beneficiaries (a conditional cash transfer program initiated by the Philippines government)
Users	<ul style="list-style-type: none">• Financial institutions, local governments

D.4. DOKU

Provider	
Operations	<ul style="list-style-type: none">• Indonesia
Products	<ul style="list-style-type: none">• Electronic payment processing<ul style="list-style-type: none">– Online and mobile applications enable e-commerce merchants to accept a wide range of online payment options– Partner with and connect directly to a large network of payment processors and other payment service providers to offer simplified electronic payment• Fraud-screening tools<ul style="list-style-type: none">– Rules applied against a range of criteria to enable real-time monitoring– 3D secure authentication option for merchants
Users	<ul style="list-style-type: none">• E-commerce merchants

D.5. EFL

Provider	
Operations	<ul style="list-style-type: none">• United States, India, Kenya, Indonesia
Products	<ul style="list-style-type: none">• Alternative credit risk scoring based on psychometric tests<ul style="list-style-type: none">– Credit-scoring algorithms built on outcome-based psychometric database– Test can be administered offline via tablet or PC– Partners access psychometric credit score either through secure web portal, API, or automated data transfer• Fraud prevention<ul style="list-style-type: none">– Variety of measures to prevent fraud, including designing around right or wrong answers, content randomization, partner staff tracking, timers, and automated flagging
Users	<ul style="list-style-type: none">• 36 financial institutions in 27 countries

D.6. WING

Provider	
Operations	<ul style="list-style-type: none">• Cambodia
Products	<ul style="list-style-type: none">• Cash transfer and bill payment<ul style="list-style-type: none">– For a fee of 6,000 Cambodian riel (\$1.47) the company lets account holders transfer money and pay bills, in either dollars or riel, via their mobile phones– Cash-in, cash-out• Phone airtime top-up<ul style="list-style-type: none">– Top up mobile phone airtime through Wing account or via Wing agents
Users	<ul style="list-style-type: none">• 600,000 registered accounts (8 million transactions each month)

D.7. KANOPI

Provider	
Operations	<ul style="list-style-type: none">• Indonesia
Products	<ul style="list-style-type: none">• Biometric authentication<ul style="list-style-type: none">– Fingerprint scans for secure field transactions such as cash withdrawals• Technology platform<ul style="list-style-type: none">– Enable monitoring of accounts and transactions– Deliver savings products at low cost• P2P lending platform<ul style="list-style-type: none">– Access and collate individual sources of funding
Users	<ul style="list-style-type: none">• Financial institutions

D.8. TRUE MONEY

Provider	
Operations	<ul style="list-style-type: none">• Thailand, Philippines, Viet Nam, Cambodia, Myanmar, Indonesia
Products	<ul style="list-style-type: none">• TrueMoney Wallet<ul style="list-style-type: none">– Electronic wallet that allows users to scan and pay bills using their mobile phones. Key features include the ability to utilize the phone's camera to scan barcodes and to make P2P money transfers between a TrueMoney Wallet account and a mobile phone number• TrueMoney Cash Card<ul style="list-style-type: none">– Electronic cash card for mobile and game top-up• TrueMoney Express<ul style="list-style-type: none">– OTC service with TrueMoney agents (approximately 8,000 agents in Thailand) to pay bills and top up mobile• Payment Gateway<ul style="list-style-type: none">– Online payment service for online merchants to receive payments for their goods from buyers

D.9. GLOBE

Provider	
Operations	<ul style="list-style-type: none">• Philippines
Products	<ul style="list-style-type: none">• GCash<ul style="list-style-type: none">– Micro-payments service that transforms users' mobile phones into virtual wallets– Provides intra-MNO interoperability, offering a wide spectrum of electronic transaction services, including purchase of prepaid load, bill payment, and donations– Many GCash transactions, such as cash-in, bill payment, and money transfers, are offered free. Cash-out is offered for the cost of an SMS (20 pesos for every 1,000 pesos cashed out)• GCash Remit<ul style="list-style-type: none">– Mobile remittance service offered through 7,000 GCash Remit pay-out outlets– Remittances can be carried out for a fee as low as 10 pesos
Users	<ul style="list-style-type: none">• Over 1 million users• 13,000 fixed partner outlets that accept GCash's cash-in and cash-out transactions

D.10. PAYMAYA

Provider	
Operations	<ul style="list-style-type: none">• Philippines
Products	<ul style="list-style-type: none">• PayMaya<ul style="list-style-type: none">– Mobile phone app that allows users to pay online at any store that accepts PayMaya or VISA– Also known as an "instant virtual VISA," as it offers a re-loadable Visa credit card that can be issued instantly and works like a debit card– Also allows its users to make P2P transfers and carry out telecoms airtime reloading
Users	<ul style="list-style-type: none">• Approximately 1 million users and 15,000 reloading stations (PayMaya plans to reach 1.5 million users by the end of 2016)• Users make around 200 billion pesos of transactions per year

D.11. ANT FINANCIAL SERVICES

Provider	
Operations	<ul style="list-style-type: none">• The People's Republic of China
Products	<ul style="list-style-type: none">• Sesami Credit<ul style="list-style-type: none">– Online credit-scoring service which leverages big data technology and customer behaviour. These are obtained from the Alibaba Group's vast collection of customer data– Users can obtain their creditworthiness, ranging from 350 to 950 points, through the Alipay Wallet mobile app and merchant websites that accept Sesame Credit Services– The People's Republic of China's first credit agency to leverage a credit scoring system for individuals based on online and offline data– Aims to make credit more available to Chinese consumers and small-business owners
Users	<ul style="list-style-type: none">• Alibaba Group's 400 million users have access to Sesami Credit• Data is collected from more than 300 million real-name registered users and 37 million small-business owners

D.12. SAFARICOM

Provider	
Operations	<ul style="list-style-type: none"> • Kenya
Products	<ul style="list-style-type: none"> • M-PESA <ul style="list-style-type: none"> – Mobile phone-based money transfer, financing and microfinancing service, which lets users digitally send and receive money, and pay bills with their mobile phones – Money can be deposited in an account stored on users’ mobile phones, and can be sent to other users via a PIN-secured SMS – Users are charged small fees for withdrawals and transfers <ul style="list-style-type: none"> – Withdrawal from M-PESA agent: 27 Kenyan shillings per 1,000 shillings – Withdrawal from ATM: 33 shillings per 1,000 shillings – Transfer to other M-PESA user: 15 shillings per 1,000 shillings – Transfer to unregistered user: 48 shillings per 1,000 shillings • M-Shwari (provided through a partnership with Commercial Bank of Africa) <ul style="list-style-type: none"> – Paperless banking service offered through M-PESA, which allows users to: <ul style="list-style-type: none"> – Open and operate a bank account with a mobile phone, without having to visit a bank or fill out forms – Move money between their M-Shawari savings account and M-PESA account at no charge – Access micro-credits of a minimum of 100 shillings at any time
Users	<ul style="list-style-type: none"> • More than 10 million M-Shwari accounts and 4.5 million active users (one in five Kenyan adults) • 50,000 loans per day are made through M-Shwari accounts
Results	<ul style="list-style-type: none"> • Financial services extended to many Kenyans: Seven out of 10 Kenyans are active mobile users, meaning they can apply for a loan without previous banking history <ul style="list-style-type: none"> – Since its launch, 2.8 million unique borrowers have gained access to M-Shwari – 54% of M-Shwari account holders do not have any other bank account, highlighting M-Shwari’s role in financial inclusion in Kenya

APPENDIX E. LIST OF STAKEHOLDERS INTERVIEWED

This publication reflects the ideas and contributions of many individuals, gleaned through interviews, conference calls, and document reviews. The project team would like to offer its special gratitude to industry experts who graciously shared their time and insights during the preparation of this report.

INDONESIA



PHILIPPINES



CAMBODIA

HATTHA KAKSEKAR LIMITED
MINISTRY OF ECONOMY AND FINANCE
BIMA AMK GOOD RETURN CARE CELLCARD
BLUE ORCHARD
ENTREPRENEURS DU MONDE CAMBODIA MICROFINANCE ASSOCIATION
PRASAC MICROFINANCE INSTITUTION
PHILIPBANK FTB BIMA ACLEDA BANK PLC
INCOFIN RACHA OXFAM CBC
WING KREDIT MICROFINANCE INSTITUTION PLC CREDIT BUREAU CAMBODIA

MYANMAR

WAVE MONEY
CB BANK
UNCDF MOAI WORLDVISION
FINANCIAL REGULATORY DEPARTMENT
AYA BANK PACT
CENTRAL BANK OF MYANMAR

APPENDIX F. FRAMEWORK FOR BARRIER ANALYSIS

First, we defined a consistent framework with eight key barrier categories (Exhibit 17). These were each divided into four sub-categories and evaluated using a standard scoring methodology.

Second, we conducted a series of in-depth interviews with key policy makers and the senior management of financial services providers (for example MNOs, banks, MFIs, and Fintechs). Insights from these interviews, together with secondary research, helped us to form a full picture of key constraints and to identify them.

Third, we detailed enhancements (regulatory or digital for example) corresponding to each barrier sub-category, and quantified the impact of the enhancements through their disruptive digital potential.

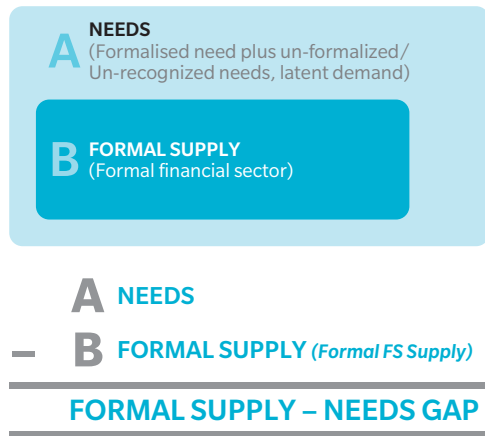
Exhibit 17: Framework for constraint assessment

BARRIER TYPES		BARRIER CATEGORY	STRENGTH	FINANCIAL LITERACY AND DIGITAL LITERACY – KEY FACTORS					
ENTRY BARRIER	1 Demand Side Barrier	1A Financial and digital literacy	4	CRITERIA					
	2 Supply Side Barrier			Key Factors	Country Score	5 (Strong)	3 (Medium)	1 (Weak)	
PRODUCT DESIGN AND DELIVERY	3 Payments	1B KYC regulatory requirements	3	1A(i)	National Financial Inclusion Strategy with DFS component	3	Undefined	Defined NFIS but without DFS component and limited rollout	Defined NFIS but without DFS component and consistent rollout across the nation
	4 Savings			1A(ii)	Degree of Financial literacy across the country	4	<20%	~35%	<50%
	5 Credit								
6 Insurance	1C KYC infrastructure	4							
PROVIDE OVERSIGHT	7 Coordinated Oversight	1D Cost and quality of digital access	3	1A(iii)	Degree of Digital awareness across the country	5	<20%	~35%	<50%
	8 Customer Protection								
				$\bar{x} = 4$					

* Refer to Appendix A for details

APPENDIX G. FORMAL ANALYSIS OF SUPPLY AND NEEDS – METHODOLOGY

FS FORMAL SUPPLY NEEDS



A NEEDS

- **Definition:** Customer needs including formalized demand as well as unmet/unrecognized needs
- **Methodology:** Top-down estimation approach
 - For example, Payment Needs:

$$\text{Daily spend per capita} \quad \times \quad \text{Target segment's size}$$

[=Daily income x (1–Savings rate)]

B FORMAL SUPPLY

- **Definition:** Current value of financial activities captured by formal financial sector
- **Methodology:** Supply from publicly available data (e.g. Central Bank)

APPENDIX H. GDP GROWTH IMPACT ESTIMATION – METHODOLOGY

GDP GROWTH IMPACT CALCULATION METHODOLOGY (GAP CLOSED BY DIGITAL SOLUTIONS)

	SUPPLIER SIDE IMPACT (E.G. INCOME GENERATED FROM BANKS/MFIS)	CONSUMER SIDE IMPACT (E.G. INCOME GENERATED FOR CUSTOMERS)		Supply – Needs Gap closed by Digital	
 PAYMENTS/ TRANSFERS	Payment transaction Margin	Cost saved by formal payment	x	Payment Gap	= GDP impact attributable to Payment/Transfer gap closure
 SAVINGS	Average Banking ROA	Interest Rate for Savings	x	Savings Gap (13 billion)	= GDP impact attributable to Savings gap closure
 CREDITS	For every 1% increase in Credit/Investment Ratio, GDP increases by 0.4% ¹				= GDP impact attributable to Credit gap closure

1. IMF – MIT study “Quantifying Macroeconomic Impacts of Financial Inclusion”, average of developing countries (Malaysia, Philippines, Kenya, Uganda, Mozambique, Egypt)
 Note: 2015 Nominal GDP (current US\$), World Bank Data

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