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# THE DIGITAL FINANCIAL SERVICES ECOSYSTEM IN LATIN AMERICA AND THE CARIBBEAN



AFI SPECIAL REPORT

Written by:

The  
Economist

INTELLIGENCE  
UNIT

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## ABOUT THIS REPORT

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## ABOUT THE ALLIANCE FOR FINANCIAL INCLUSION (AFI)

The Alliance for Financial Inclusion (AFI) is the world’s leading organization on financial inclusion policy and regulation. More than 100 member institutions make up the AFI network including central banks, ministries of finance and other financial regulators from over 90 developing and emerging countries. Together, AFI and its members work to increase access to quality financial services for unserved and underserved households and communities.

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## FOREWORD BY THE ALLIANCE FOR FINANCIAL INCLUSION

The Alliance for Financial Inclusion (AFI), a policy leadership alliance, owned and driven by members with the common objective of scaling up financial inclusion at country level, has been able to facilitate the implementation of impactful policy changes through its cooperative model that imbeds peer learning, knowledge exchange and peer transformation.

It has been a decade since AFI began this quest to address the global challenge of financial exclusion. We have witnessed tremendous achievements in financial inclusion from our membership, driven by practical policy solutions that draw on lessons across the Network. It is imperative that such lessons are highlighted from each member's perspective on how AFI's peer learning approach has been instrumental in enabling transformation.

Therefore, AFI commissioned The Economist Intelligence Unit (The EIU) to document the state of practice of digital financial services from AFI members in Latin America and the Caribbean. Key policy lessons and challenges highlighted in the report are expected to enhance the design and implementation of smart policies and regulatory reforms at the country level to create an enabling digital ecosystem - both at the supply and demand side - and foster financial inclusion in the region.

We appreciate The EIU team's effort and our AFI members' collaboration to make this report possible, trusting that the results will contribute to policy guidance among the Latin American and the Caribbean regulators and enable impactful change in the digital financial services (DFS) ecosystem.

**Dr. Alfred Hannig**  
Executive Director  
Alliance for Financial Inclusion

## EXECUTIVE SUMMARY

**There is a broad-based consensus on the part of governments and regulatory authorities in Latin America and the Caribbean (LAC) about the importance of boosting provision and uptake of digital financial services (DFS).**

This forms part of a broader strategy to lift financial inclusion and, through pass-through effects, potentially to improve underlying economic conditions. The DFS sector in the region has seen rapid growth in recent years, albeit from a low base. This has incorporated both digital financial provision from traditional banks and also services from non-bank providers, including retailers, mobile money transfer firms and public-sector agencies.

This research programme identified a number of key DFS-related regional trends, including:

### **AN OVERALL CONSENSUS EXISTS ON THE LINK BETWEEN EXPANDING DFS AND BOOSTING FINANCIAL INCLUSION**

Reforms to regulation have fostered the growth of DFS by providing legal certainty surrounding the use of electronic money. National financial inclusion strategies specifically target the use of DFS as a way of encouraging people to move out of a cash-based economy and enter the formal financial system. However, striking the right balance between introducing regulation to facilitate financial inclusion, while maintaining adequate safeguards to prevent fraud, remains a challenge.

### **REGULATORY AGENCIES NEED TO RESPOND TO THE NEW CHALLENGES OF AN EVOLVING DFS ECOSYSTEM**

Although the regulatory environment in most countries provides clarity about regulators and also about penalties for misuse of financial services, including digital financial services, some domestic constraints remain. Regulatory agencies are engaged in a process of broadening their mandates and of enhancing their institutional capacities. This is particularly true of regulation for emerging non-bank providers of DFS.

Online identification and authentication systems are fairly robust in the region

In most cases these are based on tiered Know Your Customer (KYC) requirements, particularly in the banking sector and to some extent in non-banking financial service providers. Interoperability of systems is generally improving. Standards are more mixed across non-bank providers of DFS, with low levels of electronic payments that might be explained by authentication and identification challenges. Some providers are overcoming these issues through greater reliance on biometric technology.

### **SUPPORTING INFRASTRUCTURE IS SET TO IMPROVE, BUT ONLY GRADUALLY**

Most governments are planning to address weak infrastructure, but the pace of improvement will be hampered by a variety of country-specific factors, including domestic contexts and the legacy of damage inflicted by natural disasters, as well as the limited fiscal space for governments to increase spending (which hampers increased investment in telecommunications).

### **A PRONOUNCED RURAL-URBAN DIVIDE HAS CURBED THE EXPANSION OF DFS IN SOME AREAS**

Mobile penetration rates are high, but smartphone ownership is comparatively low by global comparison, reflecting high retail costs relative to income levels. Fourth-generation (4G) coverage is rising but is again fairly low by global comparison. Particularly poor coverage in rural areas, partly reflecting a history of weak profitability, has curbed investment.

### **POPULATION READINESS, IN PARTICULAR, IS CHALLENGING**

Weak digital literacy impedes take-up, while a long-standing reliance on cash transactions means that some people do not see the benefit of moving to DFS unless pushed to do so. The fact that some investments in promoting mobile financial services for the previously unbanked sectors have not yet proven profitable - prompting some players to leave the market - reflects this reticence among consumers. It also raises the risk that new products may be marketed to those who already have a bank account, meaning that future expansion of DFS may not necessarily go hand in hand with an increase in financial inclusion.

## INTRODUCTION

**The Alliance for Financial Inclusion defines digital financial services (DFS) as encompassing the broad range of services developed, deployed, delivered and accessed through digital channels.**

DFS providers supply electronically accessible financial solutions, in areas including, but not limited to, bank accounts and transaction services, digital wallets and electronic fund storage, cash-in and cash-out services, payment services, savings products, investment products, loan or lending services and insurance services.<sup>1</sup>

Although digital financial services in developed economies have long been well developed, thanks to high levels of banking penetration, solid supporting infrastructure, open markets that foster competition and extensive uptake among the population, digital financial services are less well rooted in emerging markets, including across Latin America and the Caribbean (LAC). However, governments, DFS providers and end users are becoming increasingly aware of the transformative potential of DFS, with innovative service provision helping to raise financial inclusion, which could in turn facilitate a deepening of deposit and credit markets and help to reduce the cost of loans for a wider pool of borrowers. Growth in DFS ultimately lifts demand, boosting underlying economic growth, raising living standards and creating employment. For governments, greater use of DFS increases efficiency of payments and channels resources of transfer programs more effectively. The logistical advantages of digital finance over cash payments include better security, increased transparency and faster transaction times.

As in other emerging markets, digital financial services in LAC have spread in a different manner from developed economies. In the latter, the process has been relatively holistic across a wide range of DFS providers. The traditional banking sector led the way, establishing electronic-business units that have steadily eroded non-digital financial services, but non-bank providers of DFS, including retailers, online payment service providers and governments quickly followed suit. However, in LAC, the growth of DFS has taken a different path - it has been non-bank providers that have experienced more rapid growth, though both banks and public-sector services have expanded their e-services provision. While banking-sector penetration has risen in recent years - with 54% of the population aged over 15 having a bank account in 2017, up from 51% in 2014 - this level remains below the global average of 69% (2017).

Furthermore, it is important to note that bank account ownership increased from 39% in 2011 to 51% in 2014, representing a significantly higher growth rate than the increase from 51% in 2014 to 54% in 2017.<sup>2</sup>

As a direct result, mobile money services - defined as the provision of financial services through mobile phones - have spread quickly: according to the Centre of Latin American Monetary Studies (Centro de Estudios Monetarios Latinoamericanos, CEMLA), as of January 2017 there were 43 mobile-money products in 26 economies. Of these products, six have registered more than 1m customers: Tigo Money in Honduras, Paraguay and El Salvador; Daviplata and Ahorro a la Mano in Colombia; and Transfer in Mexico.<sup>3</sup>

Nevertheless, in terms of uptake levels, e-commerce and the DFS ecosystem still accommodate a relatively marginal proportion of the population, while digital wallets continue to cater to a very small market. Structural constraints, including low levels of physical infrastructure and recent regulatory reforms, as well as the high percentage of people outside the formal labour market, could remain a barrier to more widespread adoption of DFS among the population at large. In many markets, there are disconnects between comparatively high levels of smartphone ownership and low levels of m-commerce, between rising bank penetration but weak credit growth, and between increasingly mature identification and authentication systems but ongoing issues with security and safety.

This report’s objective is to gauge the sophistication of the DFS ecosystem at the country level for six selected countries in the region Brazil, El Salvador, Haiti, Mexico, Paraguay and Peru. To do so, we assessed the available literature and consulted with specialist academics, using the results of this research to draw up an evaluation framework that is broadly structured on three major domains: (1) infrastructure readiness, (2) regulatory readiness and (3) population readiness. Each domain consists of four main indicators to evaluate country-specific DFS sophistication or performance across major constituent areas. In turn, each main indicator is informed by four guidance pointers that determine performance at the indicator level (see Figure 1).

In order to assess the six countries across all of these areas, we carried out extensive primary and secondary research, speaking with key stakeholders in each respective country, from both the public and private sectors. This was geared towards ascertaining the progress that authorities have made in each country in developing DFS provision, as well as identifying key drivers and constraints that are affecting development of the sector. Our findings have helped to inform the report’s conclusions about the appropriate steps that regulators and private-sector participants can consider in order to further financial inclusion through the spread of DFS in the region.

FIGURE 1: INDICATOR FRAMEWORK: DIGITAL FINANCIAL SERVICES IN LAC

Domain 1 Infrastructure readiness		Domain 2 Regulatory readiness		Domain 3 Population readiness	
1.1	<b>Maturity of identification and authentication systems</b>	2.1	<b>Coverage of overall DFS-related regulation</b>	3.1	<b>Financial literacy and the market for financial products</b>
Questionnaire guidance	<ul style="list-style-type: none"> <li>- Online identification and authentication mechanism/s; national/sectorial/private-sector electronic IDs</li> <li>- Innovation in identification and authentication specific to online transactions</li> <li>- Issues around transparency/traceability/security in transacting digitally</li> <li>- Provisions for, and implementation of E-KYC or KYC requirements/ processes at the merchant level</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Innovative policies for financial inclusion and DFS at the country-level</li> <li>- DFS legal approach: Command and control vs. incentivisation-based</li> <li>- Fiscal/tax environment and the business case for moving to DFS</li> <li>- Data protection and consumer protection legal framework: development, safety, transparency</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- National financial literacy initiatives-existence, examples, reach, success, limitations</li> <li>- Inclusion in the national curriculum; consumer protection laws and DFS comparability</li> <li>- Access to digital financial products/services (limitations around income, geography)</li> <li>- Digital literacy; population-level smart/feature-phone penetration vs. utilisation/availability of DFS</li> </ul>
1.2	<b>Adequacy of technical infrastructure</b>	2.2	<b>Law enforcement and institutional capacity</b>	3.2	<b>Incorporation of the informal economy</b>
Questionnaire guidance	<ul style="list-style-type: none"> <li>- Energy availability and coverage (% of units with access) to support needs of the DFS ecosystem</li> <li>- Quality, security and sophistication of voice and data communication networks</li> <li>- 3G and 4G coverage, across the nation's rural-urban/geographic divide</li> <li>- Issues across agent/telecommunication networks; cash-in cash-out burden</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Strength of national policies/action plans (especially financial inclusion)</li> <li>- Mandating users and the creation of use-cases for DFS</li> <li>- Institutions: strength, remit, autonomy, efficiency, coordination, budget</li> <li>- Regulation across DFS ecosystem stakeholder groups; e-money issuers</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Size and significance of the informal economy (% of labour force, % of businesses)</li> <li>- Transaction systems generally used in the informal economy, and extending DFS to the sector</li> <li>- Informal sector incorporation in national financial inclusion strategies/action plans</li> <li>- Cost vs. benefits of adopting DFS for the informal sector (e.g. new tax implications vs. safety)</li> </ul>
1.3	<b>Reach of information and communications technology (ICT) sector</b>	2.3	<b>Level of stakeholder engagement and past experiences</b>	3.3	<b>Innovation and uptake in the DFS space</b>
Questionnaire guidance	<ul style="list-style-type: none"> <li>- Trends in mobile vs. bank account penetration (data, growth rates and their sustainability)</li> <li>- Smartphone/feature-phone penetration vs. m-commerce availability</li> <li>- Role and reporting requirements for credit bureaus; maturity of systems evaluating credit-worthiness</li> <li>- ICT, DFS as drivers of financial inclusion: e.g. informal sector access; links to microfinancing</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Role of ICT providers and telecom regulators in the DFS ecosystem</li> <li>- Convening power of industry groups representing DFS providers</li> <li>- Engaging the private sector and NGOs in financial inclusion strategies</li> <li>- Competition: pricing; barriers to entry (e.g. bank vs. non-bank DFS providers); product/service quality</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Major country-specific examples of DFS/initiatives: success and barrier analysis</li> <li>- Trends around DFS in the traditional banking and non-bank products/providers market space</li> <li>- Analysis of key DFS providers in the country: bank vs. non-bank providers; user targeting</li> <li>- Innovation around DFS commercial models for wider uptake</li> </ul>
1.4	<b>Electronic transactions, settlement and interconnectedness</b>	2.4	<b>Overall success of enabling regulation</b>	3.4	<b>Population perceptions around DFS</b>
Questionnaire guidance	<ul style="list-style-type: none"> <li>- Nature (stakeholders, open vs. closed loop) of payment systems; transaction fees for DFS services</li> <li>- Degree of interoperability among different DFS solutions and providers, and related issues</li> <li>- Country-specific examples of innovation/s in the digital payment platforms space</li> <li>- Average cost of payments—domestic or cross-border (including remittances)</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Regulations and implications enabling or constraining widespread adoption</li> <li>- Country-specific effectiveness of enabling regulation in the DFS ecosystem</li> <li>- Analysis of traditional and innovative DFS commercial/business models, driven by regulation</li> <li>- Acceptance of e-money by merchants, market volumes, number and types of DFS products available</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Perceptions around reliability/security in the DFS ecosystem; gender neutrality of DFS technology and regulation</li> <li>- Country-specific individual incentives available through the adoption of DFS</li> <li>- Key reasons for/deterrents against individual adoption of DFS; preference for cash</li> <li>- Impact of country-specific banking/corruption scandals on DFS uptake-discuss example/s</li> </ul>

## FINDINGS AND TREND ANALYSIS

### INFRASTRUCTURE READINESS

**DFS can only thrive if the necessary supporting infrastructure is in place. This includes robust payment systems that facilitate transactions between and among consumers, merchants, businesses and governments.**

These payment systems may be purely public, semi-public or solely private. Based on the configuration of the service, they may be “closed-loop” (custom-built by the provider, with no interoperability with other systems) or “open-loop” (where transactions are not merchant-specific).

There are several necessary components that ensure infrastructure readiness in terms of payment services. Robust security is required but should be balanced with a level of efficiency that facilitates rapid transaction speeds. Systems should be innovative and based on KYC requirements; processes should not be unnecessarily onerous for providers and consumers. On a logistical level, basic electricity, mobile phone and internet coverage should be solid across both urban and rural areas. Mobile penetration levels should be high, and systems for evaluating credit risk should be robust. The cost of digital transactions should be low in order to foster demand. In sum, countries should ensure that underlying infrastructure provision is solid enough to facilitate investment in DFS and sufficiently robust to alleviate concerns about insecurity, while at the same time dynamic enough to ensure that transactions and authentication processes are rapid.

### IDENTIFICATION AND AUTHENTICATION SYSTEMS ARE GENERALLY SOUND

As the LAC region’s DFS ecosystem has developed, issues relating to identification and authentication have become increasingly relevant. Identity systems must be capable of identifying end users and their product/service providers, and authentication systems must be capable of recognising and validating these identities. In general, these systems have become increasingly sophisticated, with providers investing in new measures to verify identity. Some national IDs, in particular, are becoming biometrically enabled, which is filtering down to DFS providers. There has been greater progress in countries with increased uptake of mobile banking and mobile money services, as higher demand has led to more investment from providers.

Online identification and authentication systems are fairly robust in Mexico: in August 2017 the Comisión Nacional Bancaria y de Valores (CNBV, the banking supervisory regulator) issued new regulations mandating all banks to introduce fingerprint scanners for customers within the following 12 months in order to strengthen identification and authentication systems.<sup>4</sup> Regulated financial institutions will have to scan fingerprints during the account creation process and for loan and credit card applications. These data can then be electronically compared with data held by the Instituto Nacional Electoral (INE), which maintains an electronic database of all registered citizens with photographic ID, date of birth and address.<sup>5</sup> This new regulation will lead to an immediate improvement in identification and authentication processes, although it is unclear whether all banks are on track to implement the new biometric requirements by the set deadline.<sup>6</sup> Under the new regulation, banks will also be allowed to introduce voice and facial recognition technology to improve the security of online banking, but this has not yet been made mandatory, owing to the cost of rolling out this technology on a national scale, as well as the fact that some customers will be using older smartphones, which may not be compatible.<sup>7</sup>

Banks are legally required to adhere to KYC processes to verify the identity of the account holder on registration. On the regulatory front, Mexico has adopted a tiered KYC process, which facilitates access for individuals outside the formal financial system to secure affordable deposit accounts by simplifying the documentation requirements for account opening proportionate to the perceived level of risk posed by the customer.<sup>8</sup> At the most basic level, low-risk accounts, in which maximum transactions are capped, can be opened with no ID and without a face-to-face application process. By the highest-risk level, which includes large-scale transactions and loans, face-to-face account opening must be carried out, along with multiple identification and authentication documents.

Authentication and identification systems are technically robust for bank providers of DFS in Mexico, especially with the ongoing roll-out of biometric technology. However, challenges to security remain considerable.<sup>9</sup> Some of these are related to the ways networks are used to overcome security protocols through human/insider intelligence, rather than hacking, such as setting up multiple small bank accounts at the lowest level of KYC requirements.

Although the major non-bank providers of DFS have invested significantly in improving authentication and identification, with some using the same systems employed by banks, standards have been more mixed among smaller providers. However, this is showing signs of changing.

As non-banks increasingly expand the range of services offered, participating in all stages of the payments process and across all payment instruments, non-bank providers of DFS may begin to benefit from economies of scale, as well as from the trend among banks to outsource some services to other providers. Larger numbers of non-bank DFS providers, including a range of mobile-money transfer providers, are using the bank clearing system, known locally as the Sistema de Pagos Electrónicos Interbancarios (SPEI).

All of Brazil's five main banks have smartphone apps, and these five banks account for nearly 90% of the banking sector, meaning that the majority of customers have access to banking applications.<sup>10</sup> The use of biometric technology is increasing in Brazil and is set to become increasingly prevalent in an effort to reduce high levels of fraud. For example, start-up bank Neon launched in July 2016 using only biometric identification and authentication, in partnership with a US technology firm.<sup>11</sup> This uses facial recognition technology to open and access accounts and authorise transactions. Other banks are following Neon's lead.

Banks in Brazil are legally required to adhere to KYC processes in order to verify the identity of the account holder on registration. Brazil has altered its regulations requiring face-to-face account opening, and new customers can now send "selfies" of themselves and photographs of their documents. The flexibility provided by this new regulation is designed to increase financial inclusion by removing cumbersome administrative processes during both account opening and account activity. For example, existing Banco do Brasil clients now have a variety of options for accessing digital financial services: they can log in online using a password or use various ways to access the banking app, including biometric fingerprint technology.<sup>12</sup> This is also intended to provide assurance to banks that another person is not using the client's bank account, potentially to make illegal or unauthorised transactions. Tighter banking security for clients is in line with stricter compliance requirements for financial institutions following revisions to anti-money-laundering legislation in 2012.<sup>13</sup>

This has helped tighten authentication and identification processes in the banking sector, although still-high fraud levels in the non-banking sector indicate that provisions are not sufficiently tight. Brazil regularly features in global surveys as one of the countries with the highest levels of credit-card fraud.<sup>14</sup> Although firms are investing in tailored fraud-prevention measures in a bid to tackle this, the fact that the Cadastro de Pessoas Físicas (CPF, an 11-digit taxpayer identification number) is used for such a broad array of financial and retail activity has made it a target for phishing and malware attacks.

Digital service providers in Peru are in the process of developing secure and sophisticated identification and authentication systems. All major banks offer online banking with the facility to make and receive payments electronically. Banco de Crédito del Perú, one of the country's largest domestic banks, allows existing bank holders to register for online banking using their existing credit or debit card details. Users can then set an online passcode<sup>15</sup> and generate a separate passcode for telephone banking. Completely Automated Public Turing Test to Tell Computers and Humans Apart (CAPTCHA) technology is used as standard for each login to prevent hacking.<sup>16</sup>

Banks in Peru are legally required to adhere to KYC processes in order to verify the identity of the account holder on registration. Applicants for an account must come to the branch to sign documents and present identification to prevent online identity theft, although application forms can be downloaded online. The key documentation is the national identity card (DNI)<sup>17</sup>, which cannot be substituted by other documentation by Peruvian nationals. Having one standardised form of identification makes it easier to prevent fraud. The DNI card includes a cryptographic chip to prevent forgery, and the government maintains a centralised electronic DNI registry so that banks and other institutions can check the validity of DNI documentation. The government has promoted the use of e-ID as part of its national financial inclusion strategy, approved in 2015, and is encouraging financial and mobile institutions to promote e-IDs as part of their identification process.

The development of mobile banking and mobile money services has encouraged innovation in identification and authentication systems. Apps linked to existing bank services rely on the KYC processes already carried out during account opening and encryption services for secure transactions. Mobile money providers such as BiM (a service launched in 2015 that encompasses most banks, the public sector and all telecommunications firms, enabling customers to carry out a broad range of financial activity) do not require an existing bank account or a smartphone so different identification processes need to be put in place.<sup>18</sup> Applicants for BiM services simply need to send a text message quoting their unique DNI number and then reply to a confirmation text to open their account. They are then able to make and receive payments by text. Although using the e-ID system to confirm the DNI submitted meets standard KYC requirements for mobile money providers, BiM users could use their accounts on behalf of others, therefore making it difficult for mobile money providers to confirm the ultimate source or beneficiary of funds being transferred. A means of countering this challenge is the introduction of biometric ID verification for new purchases of prepaid mobile phones.<sup>19</sup>



In Paraguay, international players such as Itau, BBVA and Banco GNB Sudameris have led innovation with regard to payment and authentication, with local players catching up and offering improved services as a result. For those customers with bank accounts, smartphones and internet access, all the main financial institutions offer digital financial services such as online banking, with most of them also having apps and offering the facility to make and receive payments electronically. Some improvements regarding regulation of e-commerce, digital signatures and customer protection have been made in recent years through tighter legislation and regulation.<sup>20</sup>

Authentication systems are generally secure and the protective ecosystem is in place to protect electronic transactions, with the Unit for Security and Technology at the Central Bank of Paraguay targeting potential cyber and fraud attacks. Security issues remain a concern, but these tend to be related to clients sharing their own data or failing to protect passwords.<sup>21</sup>

Banks in Paraguay are legally required to adhere to KYC processes in order to verify the identity of the account holder on registration. On the regulatory side, in November 2013, the government approved a new law to prevent money-laundering and combat terrorist financing. The law took effect in February 2014 and strengthens the rules for reporting on financial transactions. Individuals and financial institutions must now provide significantly more information about their financial transactions and identities. Large-scale transactions require multiple identification and authentication documents, and clients must fill out a form explaining the origin of funds to the country's anti-money-laundering agency.

Online authentication and identification systems are less well developed in El Salvador, partly because the country is still in the early stages of developing e-commerce. This in turn reflects a relatively low (albeit growing) internet penetration rate of 38% in 2017. Global Findex data report that just 3-4% of the population had used the internet to make a purchase online or pay bills in 2017, compared with an average of 11% in LAC. The Electronic Signatures Law (*Ley de Firma Electrónica*) has been in place since 2015, allowing the Ministry of Economy to regulate electronic signatures and requiring users to register to obtain a private key. KYC-covered entities include banks, agricultural credit institutions, pension funds, insurance companies, money exchanges, auditors, accountants, notaries, gaming centres, auto dealers and securities dealers.<sup>22</sup> In May 2017 it was reported that the government would table a new draft law specifically addressing e-commerce and identifying relevant rights and responsibilities of both merchants and consumers, with both parties needing to confirm their identities by

providing data such as email and physical addresses, but the reforms remain under deliberation.<sup>23</sup>

Low levels of branch penetration in Haiti mean that banks and other non-bank providers are looking to innovate through online and mobile banking. This has led to the implementation of new identification and authentication systems for online technology. Banks have adopted globally recognised authentication systems, such as the use of mobile phones to generate One-Time-Pin codes for accessing online accounts and making online transactions.<sup>24</sup> As with opening a bank account in person, applicants for online bank accounts must provide proof of identification, such as passport number, national identity card (CIN) or fiscal identity card (NIF).<sup>25</sup> This is a KYC requirement stipulated by government regulations.

The development of mobile banking has stimulated further innovation, largely led by the private sector rather than as a result of government regulation. Unibank Haiti has introduced fingerprint biometric technology that can be used in conjunction with a smartphone and bank card, which facilitates the spread of branchless banking (the delivery of financial services outside conventional bricks-and-mortar branches<sup>26</sup>) and allows more Haitians in remote areas to access bank services.<sup>27</sup> Mobile money services are on the increase, with providers such as Digicel's MonCash marketing themselves to both banked and unbanked customers.<sup>28</sup> Haitian regulation requires that mobile money providers must have a bank partner, which means that traditional identification can be used to open an account, coupled with PIN generators and biometric/voice recognition technology once the account is active. Using national identification cards to open accounts provides basic KYC for providers, as registration for identity cards is compulsory in Haiti.

Challenges to identification and authentication system development include the relatively slow uptake of mobile banking and mobile money services in Haiti. This has reduced available investment into the sector, which is preventing the development of new start-ups and greater competition, which would be likely to benefit consumers. In part, this is because of lingering mistrust among consumers regarding security, as well as a lack of knowledge about the services offered.<sup>29</sup> Only around 2% of users utilise encryption technology on their mobile phones to protect transactions.<sup>30</sup> Account and application opening regulations require standard KYC checks based on the national identification card, but consumers may use their accounts on behalf of others, such as unbanked family members or friends, or those who do not use or trust mobile money providers. This raises KYC issues for merchants, as they are not always able to confirm the ultimate beneficiaries of transfers made through their systems.

## RURAL-URBAN DIVIDE UNDERMINES TECHNICAL DFS PROVISION

A pronounced rural-urban divide has been one of the most significant barriers to the expansion of DFS in the LAC region. Income inequality is significant in LAC, but the division between rural areas (which generate large numbers of jobs but only a fraction of countries' GDP) and urban areas is particularly marked. Weak government revenue has precluded public investment in physical infrastructure in most countries in the region, to the detriment of transport and communication networks linking rural areas with major cities. Low income levels in rural areas and weak physical infrastructure have resulted in low numbers of traditional bricks-and-mortar institutions, while weak 4G network coverage has hampered the expansion of DFS in the region.

This has contributed to the development of an extensive banking agent network, in which agents offer the services of one or several financial institutions in lieu of a formal branch presence. In theory, this provides important opportunities for DFS development in rural areas, as long as agents are interconnected and open to working with different service providers.

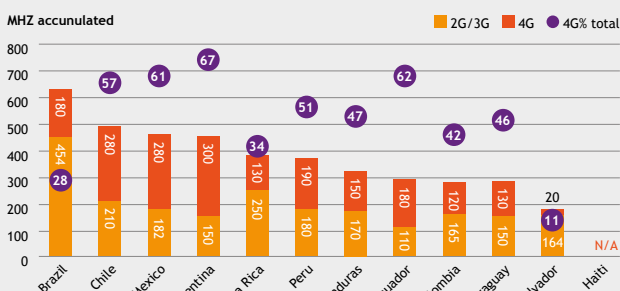
Mexico's large geographical size means that it suffers from a pronounced rural-urban divide in terms of technical infrastructure, which has curbed the expansion of digital financial services in certain areas. Around 99% of the population have access to electricity, but some of this coverage can be patchy and unreliable.<sup>31</sup> Despite being the third-largest mobile market in Latin America, the mobile penetration rate in Mexico is among the lowest in the region, at an estimated 89% in 2017.<sup>32</sup> Mexico is expected to achieve universal mobile coverage (above 100%) by 2020; it will be among the last countries to do so globally. 4G connectivity is expanding rapidly, accounting for 50% of mobile connections, but almost all remaining connections are still supported through 3G.<sup>33</sup>

Mexico has a relatively weak bank branch infrastructure, supporting the introduction of innovative financial services. At end-2016 around 81% of rural municipalities did not have a local bank branch, 91% had no automated teller machine (ATM) and 78% lacked any establishment with a point-of-sale (PoS) terminal.<sup>34</sup> This has led to the development of an extensive banking-agent network, in which agents at other types of merchants offer the services of one or several financial institutions in lieu of a formal branch presence. While this provides a means of accessing financial services, it is limited, since agents often affiliate to only one institution and do not offer interoperability. In addition, the use of agents is heavily cash-based, with users withdrawing payments, whether state benefits or remittances, all at once. This means that the problems associated with maintaining a largely cash-based economy, such as vulnerability to theft or loss of cash savings, persist.

Brazil also suffers from a pronounced rural-urban divide in terms of technical infrastructure. Virtually all of the population has access to electricity<sup>35</sup>, although coverage can be patchy and unreliable, particularly in rural areas. Consumer interest in broadband internet was initially slow to take off, other than in higher-income brackets, as prices remain prohibitively high. However, prices are now coming down and growth is beginning to pick up. The government collaborated with Telebras (a Brazilian telecommunications company which was the state-owned monopoly telephone system, broken up in July 1998 into twelve separate companies) to introduce the Internet for All programme, which aims to extend coverage in underserved areas, but take-up has so far been focused on urban areas. Brazil is the world's fourth-largest mobile-telephony market by subscribers (behind China, the US and India).<sup>36</sup> The country's recession, combined with a move by operators to disconnect inactive SIM cards, has led to a fall in subscriptions since 2014, to 236.2m by January 2018, according to data from the regulator, Anatel, although penetration is still high, at 113%. 4G accounts for around 40% of connections.

FIGURE 2: LICENSED MOBILE SPECTRUM, BY COUNTRY

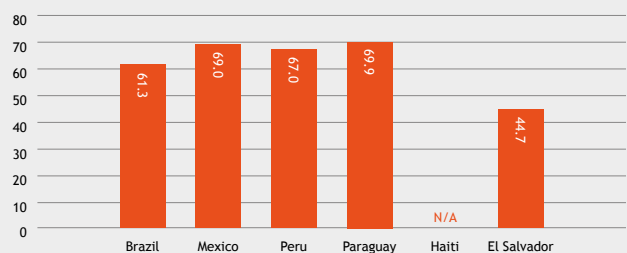
Average amount of licensed spectrum across region  
2012 - 223 MHz  
2017 - 336 MHz



Source: GSMA Intelligence

FIGURE 3: 4G LTE COVERAGE, BY COUNTRY

% Q4 2017



Source: OpenSignal

In Peru, the coastal urban areas benefit from greater infrastructure development and maintenance, while Peru's remote Andean and Amazon areas are extremely limited in terms of infrastructure provision. Around 93% of the population has access to some electricity, but this belies fairly low coverage in rural areas (75%), compared with 99% in urban areas.<sup>37</sup> In addition, electricity services in remote areas can be unreliable and prone to blackouts, often providing only a few hours of electricity per day. This has curtailed the expansion of digital financial services in remote areas, despite Peru's generally supportive electricity coverage. Mobile-phone penetration in Peru is high, at 112% in 2016.<sup>38</sup> Smartphone adoption is also reasonably firm by regional comparison, at 31% in 2016.<sup>39</sup> However, 4G coverage is low, accounting for just 16% of connections in 2016. The government plans to improve infrastructure provision, but spending constraints may curb the potential for expansion of digital financial services in the short term. Moreover, current investment projects are focused on reconstruction following major flooding in 2017, and so electricity grid expansion into other areas may proceed very slowly.

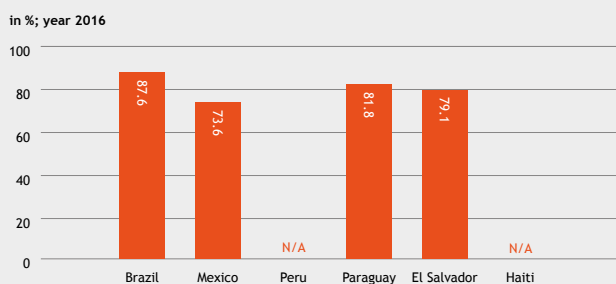
Paraguay's population is also highly concentrated in urban areas, meaning that other areas suffer from weak access to financial services infrastructure. However, progress has been achieved in recent years, and only 12% of districts now lack access to bricks-and-mortar financial services, down from 28% in 2013. Electronic payment companies cover 243 of the country's 245.<sup>40</sup> More than 98% of the population have access to electricity<sup>41</sup>, although, as in the rest of the region, some of this coverage can be patchy and unreliable.

The mobile penetration rate in Paraguay is fairly high, at 96% in 2016.<sup>42</sup> 4G connectivity is expanding rapidly, and at around 40% of connections it is among the highest in the region.

In El Salvador, mobile penetration and mobile internet use has increased steadily in recent years. The International Telecommunication Union (ITU) reported a mobile penetration rate of 112% in 2017, with a mobile broadband penetration rate of 29%. Mobile penetration is high given El Salvador's economic indicators, being around one-third higher than the average for Latin America and the Caribbean. However, the country was one of the last in the region to provide long-term evolution (LTE) services, due mainly to the inadequate provision of suitable spectrum<sup>43</sup>, and as a result 4G coverage remains very low.

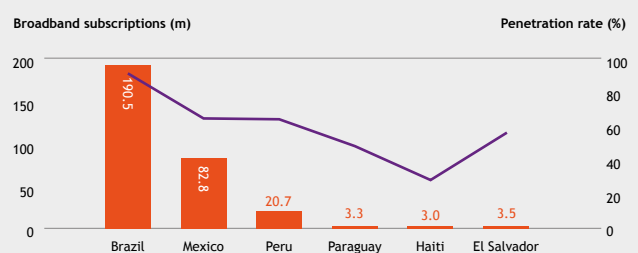
Digital financial services in Haiti suffer from a lack of sufficient infrastructure. This stems from long-term economic weakness, which has prevented government investment in infrastructure and has left infrastructure development largely dependent on foreign aid and private investment. Only 60% of installed electricity capacity is reliable, owing to degraded infrastructure and lack of maintenance.<sup>44</sup> Haiti has recently experienced major natural disasters, such as the earthquake in January 2010 and Hurricane Matthew in October 2016, which have caused significant disruption to telecoms and electricity networks.<sup>45</sup> This infrastructure damage has severely curtailed the ability of financial institutions to provide reliable online banking services and has driven the sector towards greater use of mobile banking and mobile money to compensate. Mobile-phone penetration is low, at just 65% of the population. Also constraining the development of mobile banking is a low level of 4G coverage, with only five of Haiti's ten departments having access to 4G services.<sup>46</sup>

**FIGURE 4: PERCENTAGE OF INDIVIDUALS USING A MOBILE TELEPHONE, BY COUNTRY**



Source: ITU 2017 data Notes: El Salvador (2014 data), Paraguay (2015 data)

**FIGURE 5: BROADBAND SUBSCRIPTIONS IN 2017, BY COUNTRY**



Source: ITU; EIU calculation

### FAIRLY LOW BANKING SECTOR PENETRATION POSES STRUCTURAL CONSTRAINTS

In most LAC countries, levels of banking-sector penetration are rising, but they still remain low by global comparison. In 2017, 55% of over-15s had a bank account, up from 52% in 2014 and 39% in 2011. However, these percentages are significantly lower than the global average (69% in 2017) as well as the average of developing economies (63% in 2017). By contrast, mobile penetration rates are much higher, although the quality of network provision remains weaker in rural areas. With most financial service providers offering online banking services, those people who have banking accounts have benefited from greater access to DFS. Non-bank providers are entering the market in an attempt to reach people with mobile phones but no bank account, although a lack of profitability to date has hampered the expansion of these services.

The reach of the mobile-phone sector in Mexico is larger than that of the banking sector, supporting greater take-up of mobile banking and mobile money services promoted by banks and other financial institutions, as well as non-bank e- and m-commerce activity. Mobile-phone penetration stands at 89%<sup>47</sup>, but only 37% of the adult population had a bank account in 2017 - a figure not only lower than a regional average of 54% but also representing a fall from 39% in 2014.<sup>48</sup> E-commerce is relatively low at present, accounting for just 2% of retail sales, but there is considerable scope for expansion, led by rapid growth of the m-commerce subsector. The use of mobile money wallets is a key factor and is likely to account for over 10% of the e-commerce market by 2021, up from 8% currently.<sup>49</sup> This sharp rise in m-commerce is facilitated by rising smartphone use and increasing competition between mobile money providers. As of June 2017, 62% of the population had mobile internet services, indicating that there is sufficient m-commerce infrastructure in place to support an expansion of service offerings. In addition, several providers specifically target

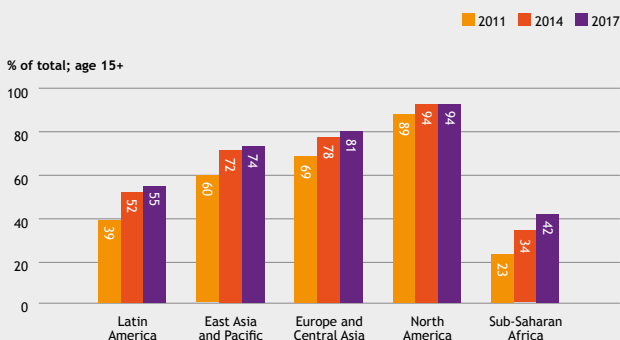
non-smartphone users in order to offer financial and commercial services to poorer and more isolated users, such as CitiBanamex's text-message-based Transfer mobile banking service.<sup>50</sup>

The reach of the mobile-phone sector in Brazil is larger than the reach of the banking sector, but levels in both areas are relatively high, with mobile-phone penetration at 119%<sup>51</sup>, while 70% of the adult population had a bank account in 2017.<sup>52</sup> Although the high level of mobile-phone penetration indicates that there is, in theory, considerable room for expansion of the mobile banking and mobile money sector (which may also allow the unbanked population to enter the digital financial services space), progress has been slow in this respect. Despite high mobile-phone penetration levels, only 18% of the adult population used the internet to pay bills or make a purchase online in 2017. Smartphones account for over 90% of total mobile-phone sales, but the recession hit sales hard. According to the Associação Brasileira da Indústria Elétrica e Eletrônica, which represents the electronics industry, unit sales of smartphones fell by an estimated 11% in 2016, although sales are believed to have started to recover in 2017. E-commerce sales fared better during Brazil's recession than other sales. Online purchases made through a mobile device grew to 27% of total e-commerce transactions.<sup>53</sup> Mobile commerce is increasing sharply as consumers take advantage of broad mobile-phone coverage.

Similar trends are evident in Peru, with the reach of the mobile-phone sector being larger than the reach of the banking sector. Mobile-phone penetration stands at 71%<sup>54</sup>, but only 43% of the adult population had a bank account in 2017.<sup>55</sup> The government supports the expansion of m-commerce as part of its national strategy on financial inclusion.<sup>56</sup> The m-commerce space is supported by a strong regulatory framework that allows consumers and merchants to access credit information easily and so allow or deny transactions. Information is standardised across the financial sector as the public credit registry is required to share its database with credit bureaus,<sup>57</sup> allowing mobile money providers to make swift and easy decisions about whether to extend credit.

In Paraguay, the mobile-phone sector is a key driver for financial inclusion.<sup>58</sup> More than a decade of constant growth and adequate regulation have led to Paraguay's mobile money sector being the leader in the region and have consolidated a mature and stable sector that is an example for other countries to follow.<sup>59</sup> In 2017 Bangladesh, Iran, Mongolia and Paraguay (29%) were the only countries outside Sub-Saharan Africa in which 20% or more adults owned a mobile money account.<sup>60</sup>

FIGURE 6: POPULATION WITH A BANK ACCOUNT, BY REGION



Source: Global Findex Database

The mobile payments market registered massive growth in 2016 (the most recent data available): the average number of daily transactions reached 223,477, five times higher than in the previous year<sup>61</sup>, with a sharp increase also registered in the average value of transactions.<sup>62</sup>

Trends are less favourable in El Salvador. Based on the latest Global Findex report (2017), which drew on the Central Bank of El Salvador’s (Banco Central de la Reserva or BCR) 2016 Financial Inclusion Survey, the level of financial inclusion in El Salvador may be at risk of going backwards, amid continued weak economic growth and a failure to tackle both low levels of formal employment and gender inequality. Only 30% of respondents above 15 years of age have a bank account, a figure that has fallen in recent years from 37% in 2014, representing one of the lowest penetration levels in the region.

The central bank’s aim is for e-money to become a gateway - especially for those in rural areas - to receive salaries, send remittances and pay for basic services through a mobile phone without having to travel long distances.<sup>63</sup> There are some signs of likely progress, with initiatives such as the ACCESO programme between Tigo Money and the Clinton Foundation helping to promote DFS to women in rural areas, but infrastructure deficiencies and underlying economic weakness are likely to hamper progress.

The current reach of ICT in Haiti is also weak. The mobile-phone penetration rate stands at just 65%<sup>64</sup>, while only 33% of adults have a bank account (this is, however, up sharply from 19% in 2014).<sup>65</sup> Although relatively expensive, smartphone use is rising, facilitating the growth of m-commerce among higher-income sectors of the population. A recent survey found that 72% of mobile users have smartphones<sup>66</sup>, with the proportion being higher in urban areas. A large secondary market for smartphone handsets supports growing usage across the country. Haiti’s credit unions are exploiting the potential for accessing new customers among the unbanked sector using mobile banking. This sector is large and generally well regulated, as Haiti’s central bank has oversight of all financial institutions, including credit unions.<sup>67</sup> However, these unions can often be very small and do not have the information and communications technology (ICT) capability or knowledge to explore mobile banking or money options; they also often lack investment.

FIGURE 7A: POPULATION WITH A MOBILE MONEY ACCOUNT, BY REGION

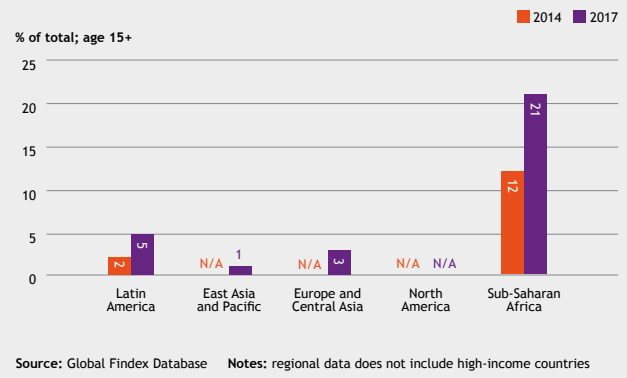


FIGURE 7B: POPULATION WITH A MOBILE MONEY ACCOUNT, BY COUNTRY

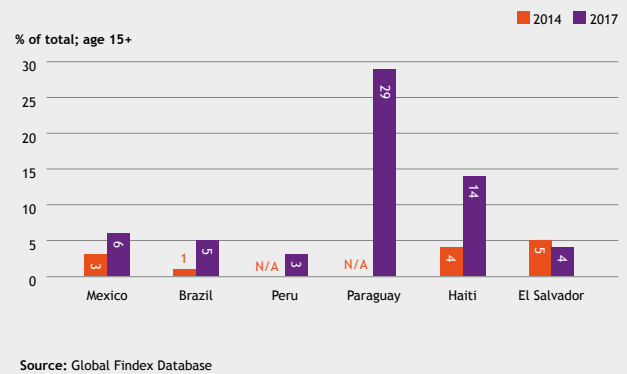
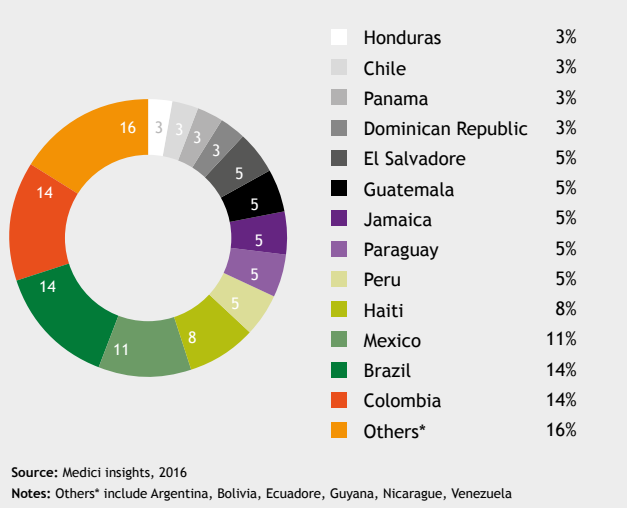


FIGURE 8: MOBILE MONEY SERVICES IN LATIN AMERICA; BY COUNTRY, %



### PAYMENT SYSTEMS ARE WELL CONNECTED

Payment systems are an aspect of the overall infrastructure provision that is well-developed. Financial services providers have invested in systems that facilitate transactions between and among end users, including consumers, merchants, businesses and governments. Most countries in the LAC region have payment systems that are characterised by a relatively high level of security and a certain degree of system interoperability among participants. In this respect, it is rather paradoxical that more sophisticated payment systems have had little impact on lifting banking penetration rates in many countries, indicating that either the design of payment systems does not appeal to unbanked potential customers in rural areas, or that local authorities have failed to communicate the improved provision to their respective population. Surveys of public opinion demonstrate still-high levels of suspicion about the security of online payment systems, providing some explanation for this paradox of fairly sophisticated payment systems, yet low take-up rates.

The Mexican government has sought to lead the way with regard to innovation in digital payments by requiring government departments to begin to adopt centralised electronic payments (government-to-government, or G2G) from 2010 and then to roll this out to government-to-person (G2P) payments on a gradual basis.<sup>68</sup> A supportive legal environment has encouraged other stakeholders to adopt electronic transactions and innovate with new digital financial services. Regulations encourage interoperability of systems and all major banking institutions in Mexico connect to each other, allowing consumers to make open-loop transactions through online banking.<sup>69</sup> Most banking apps also provide interoperability as part of an expected level of service: a competitive banking sector means that users are discerning about their choices of bank and are keen to utilise interoperable services. This level of competition has also exerted downward pressure on costs for digital financial services. Within Mexico, online transactions are usually free or are included in standard bank account charges. Card payment fees have fallen for consumers and merchants as a result of increased competition since the 2014 banking reform.<sup>70</sup> Most banks charge fees for foreign-remittance transactions, such as from the US into Mexican bank accounts, although this cost is charged to the sender in the US rather than to the recipient in Mexico.<sup>71</sup>

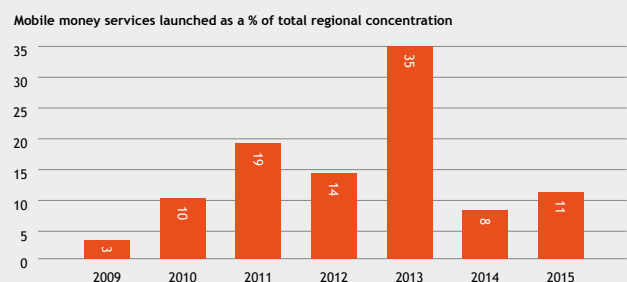
Providers within Mexico have rolled out several different types of mobile money services in an effort to tap the unbanked market and promote financial inclusion. One example with broad reach is the Saldazo card<sup>72</sup>, a joint venture between one of the largest commercial banks (Banamex Bank) and the OXXO retail chain. OXXO issues a Visa card, which can be used as a mobile money wallet and also links to an entry-

level bank account with low KYC requirements. The Saldazo programme can also be linked to the bank's app, giving users the opportunity to deepen their level of engagement with the formal banking system. While Saldazo is technically a closed-loop wallet that can be used in OXXO stores and Visa outlets, this represents a large number of outlets that provides users with an approximation of interoperability. Saldazo appears to be functioning as a useful gateway to financial services for the unbanked, as it is the first formal banking service for 42% of its users.<sup>73</sup> This provides a useful model for other providers to expand in this market.

Brazil's government promotes electronic payments, including through mobile services. Similar to Mexico, the government is rolling out G2G and G2P payments on a gradual basis. In particular, the government has transitioned its main social security payment programme, Bolsa Familia, to electronic payments, saving an estimated 75% in administrative costs.<sup>74</sup> Caixa, Brazil's second-largest bank, facilitates the payments through an electronic benefit card and the funds can be withdrawn within 90 days from a linked ATM.<sup>75</sup> This has the added advantage of providing recipients with a de facto banking facility, as a means of introducing the unbanked into the formal banking sector and encouraging them to increase their use of digital financial services. Regulations encourage interoperability of systems and all major banking institutions in Brazil connect to each other, allowing consumers to make open-loop transactions through online banking.

There are now several start-ups and fintech enterprises, and several others are in the process of being authorised. One problem is friction between traditional and new financial institutions, which requires new regulations to make these sectors interoperable.<sup>76</sup>

FIGURE 9: MOBILE MONEY SERVICES LAUNCH YEARS IN LATIN AMERICA



Source: Medici insights, 2015

To date, telecoms firms have not begun to innovate in the mobile money space, in part because the financial sector is so dominant and banks are taking the initiative in introducing mobile banking apps. Innovation is more focused on encouraging take-up among those who are unbanked or underbanked. For example, the Boleto Bancario is a long-standing payment scheme that allows people to transfer money without having a bank account. The Boleto system has been updated to allow electronic transactions, although these take 2-3 days to be confirmed. The incorporation of the Boleto system into the wider electronic payment system offers another avenue for Brazil's estimated 55m unbanked people to access digital financial services.

Peru offers a broad variety of digital financial services, encouraged by support from the government and an enabling regulatory framework. Electronic payments and signatures are legal in Peru, and the government offers a number of electronic payment services. Peruvians are able to pay their taxes electronically, and the government heavily promotes the electronic identification services by registering the national identity card electronically.<sup>77</sup>

The government has led a project to create and launch a fully interoperable mobile money service with financial institutions, telecoms companies, microfinance institutions and other providers.<sup>78</sup> Rival banks and telecoms operators were incentivised to join by the prospect of a linked digital financial services platform and the prospect that they might see a fall in their customer base if they did not participate. As BiM operated only on mobile-phone networks for the first year, this was a low-cost solution for consumers, who only needed to pay the cost of a text message for each transaction. The government caps the transaction fee so that it is lower than the fees charged by agents at money service businesses, with the aim of incentivising users to switch to BiM and gradually to become incorporated into the formal banking sector.

There are 26 financial entities offering interoperable services within BiM, and money can also be sent to designated agents to enable individuals without accounts to withdraw funds. The broad service and low-cost model of BiM is proving successful and aims to reach 2m users by 2020. The initial success of BiM may have the negative impact of reducing competition in the sector as smaller services become affiliated to BiM or lose customer share. Nonetheless, the collaborative effort behind BiM (known as Modelo Peru) looks set to encourage further innovation as BiM expands its services to include interaction with government electronic payment systems.

In Paraguay, the government encourages digital financial transactions through the SIPAP, a system in place since 2013 that allows bank account holders to transfer money to bank accounts free of charge, in real time and securely, with no physical documents required.<sup>79</sup> In 2017 the value of transactions reached US\$6.7bn, up from US\$5.7bn in 2016. A supportive regulatory environment has encouraged stakeholders to adopt electronic transactions and innovate with new digital financial services. Interoperability of systems is in place for banks that connect to each other, allowing consumers to make open-loop transactions through online banking and apps.<sup>80</sup> A bank account holder can also make payments into mobile money wallets, but what is missing is the interoperability that would allow mobile-phone money account holders to transfer money to bank accounts. The central bank is currently working on a full-interoperability system that would allow such operations and expects to have this in place within a year.<sup>81</sup>

In terms of costs, competition has caused transaction costs to remain stable or fall consistently year on year recently. Currently, average transaction costs for debit, mobile transfer and credit-card payments stand at 3%, 4% and 5% respectively. These charges are not considered a burden, as mobile money brings solutions and adds value for customers who are willing to pay for the convenience and the wide range of services.<sup>82</sup>

El Salvador's Law to Facilitate Financial Inclusion does not currently require interoperability, but it does indicate that the central bank will define it by regulation based on market development, indicating a future requirement. It was felt that imposing interoperability at the outset could generate high costs or create barriers to entry. There are currently no agreements between e-money providers to create interoperability. This lack of interoperability would require development of a complete ecosystem to address providers' technical issues and include agreements among different players. It would also involve affiliated merchants and existing agents, which would require resources and time to develop.<sup>83</sup>

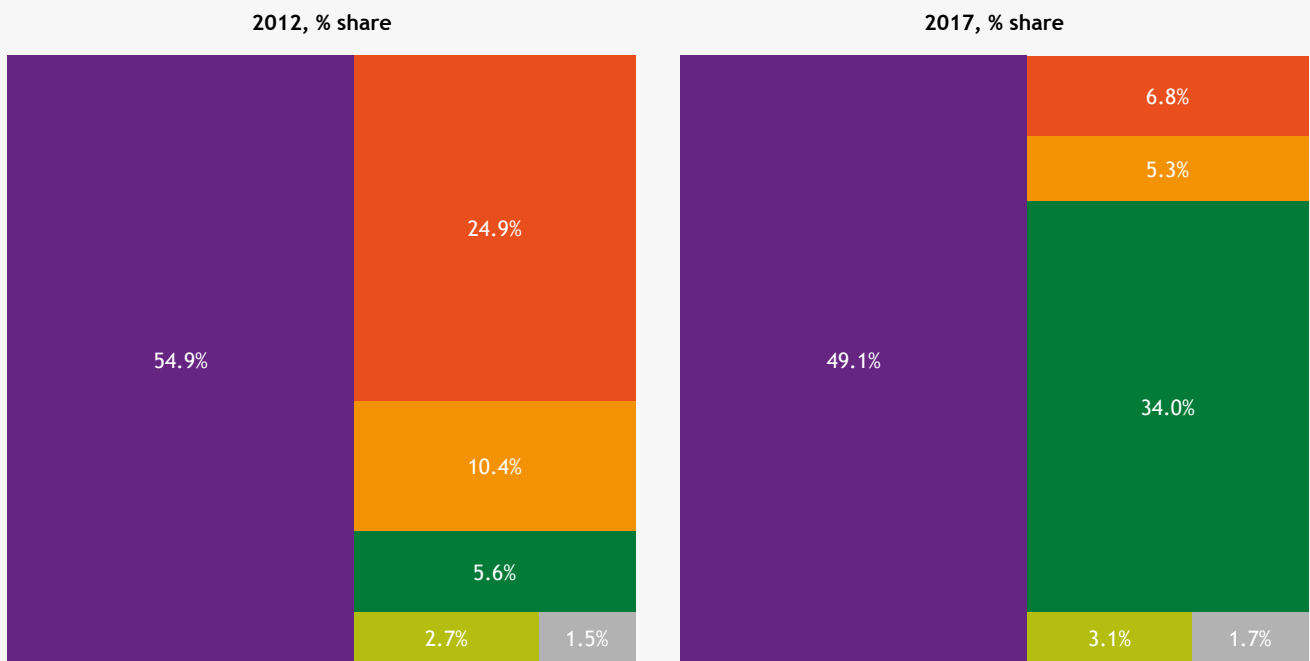
However, according to the central bank, the provider Mobile Money (MoMo) does have de facto interoperability with certain banks. The central bank has also noted that there has been discussion of a Mobile Payments System Administrator, which would be responsible for clearing and settling transactions between e-money providers. This would therefore be a possibility to facilitate interoperability. For now, however, and given the limited number of e-money providers (just two in the market), this remains no more than a proposal.<sup>84</sup>

In Haiti, the landscape is more varied, with key stakeholders including the country’s financial institutions and mobile-phone providers, along with the government/regulatory bodies and international agencies - the latter often providing policy advice and funding for the development of DFS. The government has supported policy development by introducing new regulations, such as an initiative from 2015 that allows nationals to pay taxes and renew car insurance online.<sup>85</sup> In practice, however, only a small minority of payments are made via online or phone payments. The main area of innovation is mobile money, which avoids some of the infrastructure problems facing online payment providers, such as a lack of wired internet access.

The two main providers are Digicel and Natcom, backed by the central bank’s directive that they must partner with a bank to offer mobile money services. Two products offered are Lajan Cash (Natcom) and MonCash (Digicel), which are closed-loop payment systems<sup>86</sup>. However, a lack of widespread adoption of mobile money solutions means that providers have not been spurred to develop broad interoperability. But equally, development of interoperable systems has been slow, which in turn has hindered the presence of more mobile money solutions. Merchants seem to prefer mobile money services offered by financial institutions, as they view them as more trustworthy and favour the open-loop nature of such transactions.

FIGURE 10: GLOBAL SPREAD OF REGISTERED MOBILE MONEY CUSTOMERS; FIVE-YEAR COMPARISON, BY REGION

■ Sub-Saharan Africa ■ Middle East & North Africa ■ East Asia & Pacific ■ South Asia ■ Latin America & the Caribbean ■ Europe & Central Asia



Total accounts



Source: GSMA Global Adoption Survey of Mobile Financial Services 2017



## REGULATORY READINESS

**While DFS can thrive only if the necessary supporting infrastructure is in place, the regulatory framework also needs to facilitate provision of DFS. All six countries covered in this study support the use of ICT, and particularly mobile money services, as a means of promoting financial inclusion and in the long term expanding formal banking services to the unbanked.**

To date, progress has mainly been achieved in expanding access and use of payment or transfer systems. However, over time governments in the region hope that greater use of both bank and non-bank providers of DFS will foster growth in the deposit base, which in turn will encourage these providers to expand credit growth (which remains very low in virtually all countries and has traditionally been a significant barrier to private investment and has held back underlying economic growth).

In most cases, regulatory changes have fostered the growth of digital financial services by providing legal certainty surrounding the use of electronic money. Most governments have launched national financial inclusion strategies in recent years (Brazil in 2012, Paraguay in 2014, Peru in 2015 and Mexico in 2016), specifically targeting the use of financial services such as mobile banking, mobile money wallets and digital remittances as a way of encouraging people to move out of a cash-based economy and enter the formal financial system.

Government support in general encourages the development of products specifically designed to enhance financial inclusion, such as targeting rural and isolated users and particularly the large unbanked sector of the population. Nevertheless, striking a balance between introducing regulation to facilitate financial inclusion and ensuring adequate safeguards to prevent fraud (which in itself hampers public confidence and thus take-up) remains a challenge, particularly in the comparatively new area of DFS.

### STRIKING A BALANCE BETWEEN FACILITATION AND OVERSIGHT REMAINS A CHALLENGE

Mexico's financial inclusion strategy is backed by a series of regulatory reforms undertaken over the past decade in order to provide an enabling ecosystem for DFS. A major banking sector reform was signed into law in January 2014. The reform was an ambitious package that modified more than 30 laws. Its goals included boosting competition by strengthening the financial services consumer-protection agency, which has been empowered to demand greater transparency from financial services providers and operators.

The CNBV, the banking supervisory regulator, was similarly given greater authority to regulate and sanction those that failed to comply with the law.<sup>87</sup> Secondary legislation also allowed non-banking financial institutions to issue cards and receive and make card payments.<sup>88</sup> This has allowed services such as Global Pay to launch in Mexico.

A series of regulatory reforms has supported Brazil's financial inclusion efforts. These include a 2013 law allowing and regulating mobile payments, resulting in existing financial institutions and new operators moving into the market. In 2015 regulatory changes allowed banks to open their accounts remotely. Prior to that, potential customers had to be physically present at financial institutions to submit their documents for account opening or send them via mail, which was time-consuming for both banks and consumers. Customers can now open accounts via electronic methods.<sup>89</sup> Although five banks continue to dominate, greater innovation as new digital banks launch will provide increased competition and greater choice for consumers in the DFS space. Upcoming regulatory changes include more guidelines on public-private partnership (PPP) lending, which are currently being drafted.<sup>90</sup> The challenge is to make the system more flexible so that more firms can improve their customer offerings, while at the same time maintaining confidence in the traditional banking sector. In addition, the central bank is currently carrying out a consultation on a proposed new fintech law, which aims to streamline payment processes and regulate new electronic lending and payment platforms.<sup>91</sup>

Legislation passed in 2012 in Peru has proved to be one of the foundations enabling DFS. This law allows banks and non-banks to issue electronic money, and includes a clear definition of e-money as well as the stated intention to use e-money as a tool for financial inclusion. The Law for Personal Data Protection, which was approved in 2011 and enacted in 2013, specifies the security requirements for the holding of data, applicability to all Peruvian database holders and the use of electronic signatures or biometric technology to validate data transactions. This legislation has allowed DFS providers to launch products without having to wait for the regulatory framework to catch up with innovation in the sector. New legislation is also currently being drafted to cover the uses of new technology and how these should be applied and monitored.<sup>92</sup> This will provide further regulatory support for entrants to the market.

Paraguay's efforts to introduce innovative regulatory policies in order to improve financial inclusion have been drawn from a discussion process with multilateral development banks, after the government approached them in 2012 for ideas on how to address this issue.<sup>93</sup>

The central bank subsequently initiated a learning process with mobile money operators by first allowing over-the-counter money transfers (whereby clients could send and receive cash from other clients of the same mobile operator), which has since evolved into a system in which people can send money to others through e-wallets and store e-money in their own mobile accounts without using cash in these operations.<sup>94</sup> With support from international agencies such as the Inter-American Development Bank (IDB), the regulator has adapted and adopted state-of-the-art regulation to the local context.<sup>95</sup>

Although a published national strategy providing a roadmap to advance financial inclusion is lacking in El Salvador, legislation on the issue exists, in the form of the 2015 Law to Facilitate Financial Inclusion. The law is chiefly an enabling regulatory framework for e money. In December 2015 the Credit History Law was amended to provide consumers with the right to access and correct credit information. The law now requires reporting agencies to have at least one no-cost customer service centre in each of the country's three regions (West, East and Central, comprising 14 departments in all).

In Haiti, following the devastating earthquake of January 2010, the government and international agencies began to focus on improving financial inclusion as a means of addressing poverty. This has encouraged the government's adoption of financial inclusion as a key development goal, in co-operation with international partners such as the World Council of Credit Unions (WOCCU) and the Bill and Melinda Gates Foundation.<sup>96</sup> However, progress has been slow. The government has committed to modernising the law governing credit banking practices, security instruments and collateral.<sup>97</sup> The legal framework is not yet compliant with international norms, particularly with regard to accounting practices (banks are not legally required to comply with internationally recognised standards)<sup>98</sup> which slow the expansion of the digital financial services sector. Another hurdle is the lack of legislation regarding data protection, cybercrime and consumer protection.<sup>99</sup> This has contributed to a lack of trust in online banking and mobile money and banking; in some surveys, consumers comment that they believe that using cash is still safer and more secure than online banking and mobile wallets.

#### **REGULATORY ENVIRONMENT IS CLEAR, AND AGENCIES ARE ENHANCING THEIR INSTITUTIONAL CAPACITIES**

The regulatory environment in Mexico provides clarity of detail about regulators and also about penalties for misuse of financial services, including DFS. The government has made sustained efforts to improve the capacity of the country's law enforcement agencies to counter the risk of misuse of the banking system. Mexico's financial intelligence unit is well funded,

and investigators are regularly trained on using new techniques and investigatory methods to track and dispute financial cases.

Mexico took a major regulatory step forward in December 2017 when it approved a new law on financial technology, which came into force in March 2018.<sup>100</sup> For the first time, this defines digital financial services such as electronic money and crypto-currency and establishes procedures and rules for fintech operations. Given the extent of innovation in the fintech sector, the previous lack of definition left some legal gaps in the regulatory framework that have been filled by the new reform. This is intended to stimulate further innovation in the digital financial services space by providing regulatory certainty for providers, developers and consumers.

Brazil's regulatory environment also provides clarity of detail about regulators and about penalties for misuse of financial services. The Brazilian government has made sustained efforts to improve the capacity of the country's law enforcement agencies to counter the risk of misuse of the banking system. The potential high level of cyber-attacks is a concern for the central bank, and the government will introduce more regulation around cyber security in late 2018.<sup>101</sup> This will require financial institutions to increase security around consumer data. Meanwhile, non-bank providers of DFS are adopting technology that aims to reduce non-authorised digital transactions (including facial recognition technology), but this has not been made compulsory to date, partly reflecting cost concerns.

The comprehensive nature of Peru's regulatory framework means that institutions are aware of their legal requirements regarding DFS. The Superintendencia de Banca (SBS), the Banking and Insurance Superintendency, and other law enforcement institutions are relatively well resourced and capable of policing activity in the digital financial sector. Having already completed nearly all of the 65 actions incorporated in the 2015 national strategy on financial inclusion, the government and regulators will focus on harnessing innovations such as fintech to encourage the provision of high-quality, affordable financial services.<sup>102</sup> The ultimate aim is to create an enabling ecosystem that will encourage private-sector providers to innovate and bring new products to the market. By encouraging non-bank providers to offer credit, as well as developing interoperability of payments systems, the authorities hope to help foster greater financial inclusion.

Paraguay's regulatory environment provides clarity of detail about regulators and also about penalties for misuse of financial services. The central bank is the main regulator for the banking sector, and since 2014 it has also regulated DFS. The Paraguayan approach is

seen as an example of enabling regulation that allows the continuous growth of the industry. The central bank is focused on improving on risk-based bank supervision. In March 2014 it issued regulations relating to electronic payment methods. Since then, companies offering mobile financial services have become licensed e-money issuers or Entidades de Medios de Pago Electrónicos (EMPEs). EMPEs can issue money but are required to deposit an equivalent amount in a trust fund at the central bank. This guarantees liquidity and removes risks related to the issuance of mobile money.<sup>103</sup>

Currently, there are four companies that hold this licence, namely Tigo, Claro, Personal and Bancard.

Electronic-money in El Salvador can be provided legally by Sociedades Proveedores de Dinero Electrónico (SPDEs, e-money suppliers) as well as banks, co-operative banks, and savings and loan partnerships. All providers, including SPDEs, are supervised by the Financial System Superintendency (SSF). The Financial Inclusion Law tightly regulates e-money. The e-money provided by entities is 100% guaranteed by law and is held as a deposit at the central bank. Any single transaction cannot exceed US\$300, with monthly transactions limited to US\$1,200. Importantly, 100% of e-money circulated in El Salvador must be guaranteed by a prior deposit at the central bank. This ensures that the system is fully transparent and guaranteed. However, processes are still subject to onerous requirements by the SSF, and this is stymieing market development, slowing investment and reducing potential interest.<sup>104</sup>

Although institutional capacity in Haiti is being strengthened, the process has been set back by a series of natural disasters, such as the 2010 earthquake and the 2016 hurricane, as well as by other domestic events in 2016-17. Significant “brain drain” and high levels of illiteracy mean that Haiti has a large skills gap. Government institutions are therefore under-resourced, which has limited their ability to formulate and implement policies encouraging DFS without support from international partners. This problem is particularly pronounced with regard to the ability of law enforcement agencies to counter cybercrime. There is no anti-cybercrime unit within the Haitian police service and no specific anti-cybercrime legislation or regulatory frameworks.<sup>105</sup> Haiti’s financial intelligence unit, Unité Centrale de Renseignements Financiers (UCREF), was restructured in May 2017 in line with the recommendations of the Caribbean Financial Action Task Force. However, it is unclear to what extent UCREF focuses on policing DFS, and Haiti still lacks a programme to identify and report the cross border movement of currency and financial instruments.<sup>106</sup>

Regulation is the responsibility of the central bank and the Conseil National de Telecommunications (CONATEL, the main industry regulator), which have

worked with international partners to formulate a national strategy for financial inclusion. The strategy outlines the regulatory and governance framework required to promote financial inclusion, and also discusses the role of private partners in long-term implementation. In line with the strategy, the government has approved the creation of a credit reporting system, the Bureau d’Information sur le Credit, which requires banks and non-bank financial institutions to report borrowing activity.<sup>107</sup>

This system was supported by multilateral development institutions as part of a move towards greater regulation of transactions. However, it does not yet include microfinance institutions, which are an important target market for online and mobile banking. Overall, the regulatory framework for DFS contains large gaps, with electronic and mobile banking and money largely not covered by the current framework.

#### STAKEHOLDER ENGAGEMENT IS HIGH OVERALL

In most cases within the LAC region, the roll-out of DFS provision and accompanying regulation has not been an entirely top-down process. Instead, it has developed as a result of continued interaction between the authorities (including regulators and policymakers) and other stakeholders, including telecommunications firms and banks. Given that mobile devices are one of the primary drivers of DFS in a region with long-standing low levels of banking penetration, the involvement of telecommunications firms in the shaping of DFS regulation is critical in developing a playing field that is conducive to more rapid take-up by end-users. There are some exceptions to this broadly positive picture, with some countries showing greater reluctance to engage with key stakeholders. In other countries, banks have tended to play a more cautious role, perhaps reticent to support policies that indirectly encourage the development of non-bank DFS, which could potentially erode their own market opportunities. Fostering inclusive dialogue that balances the views of main stakeholders, while at the same time preventing main players from defending their own entrenched positions, remains a challenge for many regulators.

Creating an enabling ecosystem for DFS in Mexico has involved sustained stakeholder engagement, generally led and facilitated by the government and particularly by the CNBV. This was especially the case in the run-up to the creation of the fintech law, involving two years of discussion between government ministries and agencies, financial institutions and industry representatives.<sup>108</sup> The discussion of the fintech law and associated financial inclusion policies has also involved close discussion with the telecommunications sector. Innovation in the DFS sector has primarily been led by banks, but the fintech law provides more opportunities for telecoms firms to enter the sector.<sup>109</sup>

The telecoms regulator, the Instituto Federal de Telecomunicaciones (IFT), holds regular discussions with telecoms providers and financial institutions regarding innovations in the sector. In particular, a telecoms reform in 2014 aims to increase competition in the sector, bringing down prices for consumers and encouraging new telecoms providers and products to enter the market. For example, mobile companies have partnered with retail firms (OXXO) and commercial banks to offer the Saldazo simplified account.<sup>110</sup>

The government's financial inclusion strategy also involved stakeholder discussions with financial institutions and telecoms groups, as well as with non-governmental organisations (NGOs) and several multilateral development banks. The government aims to include these entities on an ongoing basis in the development of the strategy and in impact assessments of its implementation. NGOs and charities have been working to promote financial inclusion, often in co-operation with development banks, and this expertise is intended to help inform future strategy formulation, such as in the area of financial literacy initiatives.<sup>111</sup>

In Brazil, the formation of the National Partnership for Financial Inclusion involved a sustained process of engagement with policy and industry stakeholders, which is maintained through regular fora on financial inclusion.<sup>112</sup> The central bank has a policy of releasing new legislative proposals in draft form for consultation with industry stakeholders and more generally, as is the case with current fintech legislation proposals.<sup>113</sup> This allows comments and concerns to be addressed and incorporated into the final version of the legislation that is sent to the legislature. As part of the G20 group, the Brazilian government also engages with other G20 finance ministers and central banks to exchange ideas and experiences. Brazil is a founding member of the Financial Inclusion Experts Group, which established the Access Through Innovation Subgroup and the Small and Medium Enterprise Finance Subgroup. This laid the groundwork for the launch of the G20 Financial Inclusion Action Plan in 2010, with which Brazil's national strategy is aligned.

One area where there has been a lack of engagement in Brazil is with telecoms companies, unlike in other countries in the region, where telecoms operators have been heavily engaged in formulating and rolling out digital financial services such as mobile money wallets. In Brazil, by contrast, digital financial system growth is through new developments in banking, digital banking and payment gateways. The communications companies are infrastructure providers rather than active stakeholders. Telecoms firms in Brazil are generally not interested in providing financial services.<sup>114</sup> They do not believe that the market is lucrative for them, because of the way that the financial system

is organised and the dominance of the leading banks. There are enabling regulations that would permit telecoms firms to enter the DFS market in their own right, rather than as infrastructure providers, but they do not appear to see this as a competitive market for them.<sup>115</sup>

By contrast, while the financial sector and the SBS have played a primary role in formulating policy on financial inclusion and DFS in Peru, this has also involved key stakeholders' engagement with several players, including within the telecoms sector. The competitive market has stimulated innovation as operators strive to find new ways of attracting clients and keeping costs low. The regulator, Organismo Supervisor de la Inversión Privada en Telecomunicaciones (OSIPTTEL), takes a proactive approach in engaging with telecoms firms and holds regular policy discussion groups. OSIPTTEL also contributed to the formation of the national financial inclusion strategy through policy discussions with the SBS and other stakeholders<sup>116</sup>, and it contributes to ongoing updates to the strategy. OSIPTTEL and telecoms operators were heavily involved in formulating the design and roll-out of BiM, the country's first fully operable national mobile money system.<sup>117</sup> Telecoms sector engagement was key to the successful design and roll-out of this service, as its key selling point for consumers is that it can be accessed through nearly all mobile networks and provides access to nearly all financial institutions. The process of engagement around the formation of BiM provides a useful model for the launch of similar products, by demonstrating the business value of a co-ordinated sector approach to harnessing new technology to provide digital financial services. Private- and public-sector engagement has also been supplemented by support from NGOs and multilateral development agencies. In addition, the SBS has been keen to engage NGOs, as well as regional development institutions, in the development of financial inclusion education programmes.

In Paraguay, the role of service providers is important, and their commitment is key to the perceived success of the enabling environment for DFS. Stakeholders share ideas and goals that are implemented and adopted within the framework of National Financial Inclusion Strategies (NFIS). Paraguay's DFS ecosystem is nevertheless facing a continuous struggle in terms of power-playing between traditional banking and non-bank operators.<sup>118</sup> Convening the power of different groups is difficult for the central bank, as it traditionally favours self-regulation rather than an enforcing approach.<sup>119</sup> Regarding this competition, there is clearly a perception of unfairness on the part of banks, which see the mobile money business as a threat to their market and even as dangerous to the whole financial system because of lax regulatory rules.<sup>120</sup>

Relations between key stakeholders and the authorities in El Salvador are mixed. Money service providers Tigo Money and MoMo continue to operate without full and formal authorisation from the financial regulator, despite the fact that the Financial Inclusion Law is specifically designed to regulate and promote DFS and financial inclusion in the country.<sup>121</sup> Central bank interviewees have been keen to stress that the continuing onerous demands and delays on the part of regulatory authorities and banks to provide this approval are having deleterious effects on market development and are acting as a barrier to entry to other potential e-money providers.<sup>122</sup>

Haiti's long history of relationships with international donors means that stakeholder engagement is entrenched within policy formulation and implementation. The main industry regulator is CONATEL, which works with the central bank and the government to discuss issues surrounding DFS and acts as an industry forum for the discussion of financial inclusion objectives with private providers, holding regular round-table talks on topics of interest. The experiences of telecoms providers have helped to shape policy views on how DFS should develop. However, international stakeholder engagement is currently the most effective way of advancing financial inclusion policies because of the high level of financial support and incentives that can be offered, which the Haitian government cannot match. In the past, such engagement has included the Bill and Melinda Gates Foundation and other donors.

## POPULATION READINESS

### FINANCIAL LITERACY REMAINS A KEY CHALLENGE

Despite significant improvements in the regulatory framework, there are still several bottlenecks in terms of expanding financial literacy across the region, stemming from both the infrastructure and the resource sides. Although telecoms and electricity infrastructure is expanding in all countries, those rural areas that do not yet have reliable access to DFS are not strongly incentivised to begin using them, as it takes time to learn about financial tools that are of only limited utility if they cannot be used often. Weak digital literacy also impedes take-up. In addition, a long-standing reliance on cash transactions means that some people do not see the benefit of moving to DFS unless pushed to do so. The high cost of smartphones relative to average incomes in the region is also a structural constraint that hampers population readiness. While the regional incomes are lower than the global average, retail prices for phones are higher. The fact that few low-cost manufacturers operate in most LAC markets means that customers often pay significantly more for smartphones than in developed economies (for example, the price premium for flagship LG ranges from US\$150 to US\$500 over US prices).<sup>123</sup>

Mexico has specified lifting financial literacy as one of the goals of its national financial inclusion strategy.<sup>124</sup> The government launched its financial literacy educational strategy in 2017, and is currently working with ministries to implement these policies.<sup>125</sup> Financial literacy levels are relatively low (below the OECD average), so the main aim is to increase knowledge of financial tools and technology and encourage people to begin using them on a day-to-day basis. This strategy builds on programmes already being carried out by NGOs, multilateral development banks and charities, which have been active in promoting financial literacy programmes for many years. The next step for the financial literacy initiative is to embed financial literacy training into the national curriculum. This has been approved, and dialogue is now ongoing with the Ministry of Education (among other institutions) to roll it out, with the aim of including financial literacy teaching when the new school year starts in August 2018.<sup>126</sup> Other initiatives include the design and creation of a tool-based internet resource for comparing and choosing financial products. The authorities are also in the midst of obtaining more information about financial literacy levels and developments. The CNBV is currently carrying out a national survey on financial inclusion, with the results set to feed back to inform future financial literacy programmes.

The Brazilian authorities view financial literacy as a core pillar of the country's financial inclusion strategy. Brazil established its National Strategy for Financial Education (ENEF) in 2010 by presidential decree.<sup>127</sup> This established ENEF as a state rather than a government policy, ensuring that it will be maintained under future administrations. In order to define plans, programmes and actions and to co-ordinate the execution of ENEF, a National Financial Education Committee (CONEF) was also set up. Four cross-member initiatives have been selected to be prioritised: financial education in public high schools (students aged 14-18), financial education in elementary and middle schools (students aged 6-14), financial education for low-income retired elderly people, and financial education for conditional cash-transfer programmes.

Financial literacy education, coupled with a good base of banked consumers, has contributed to improvements in financial literacy rates. Brazil scored above or close to the average in a financial literacy survey of G20 countries in 2017.<sup>128</sup> One area where the country has faced challenges is in incorporating financial literacy training into the school curriculum. This is now moving forward, and in 2017 stakeholders including the central bank and the Ministry of Education agreed on a new national curriculum for lower and middle schools that includes components focusing on financial literacy. This will now be rolled out across the school system throughout 2018. For the more marginalised parts of society, such as those in remote or inaccessible areas

with limited access to phone coverage or high data speeds, or adults who are outside the formal banking system, other initiatives aim to boost financial literacy. For example, an NGO, the Associação de Educação Financeira do Brasil, was set up to implement the national strategy's objectives and works closely with international and local NGOs as well as other international organisations.

Peru has established financial literacy as one of the goals of its national financial inclusion strategy<sup>129</sup> and will include an update of its financial literacy goals in its strategy.<sup>130</sup> Teaching about the financial sector, including the benefits of bank accounts, how to use them, and their relevance in a business context, has been included in the national curriculum for secondary education since 2009. However, a limiting factor to this educational strategy is the fact that not all teachers have yet been trained in financial literacy.<sup>131</sup> In addition, textbooks have not yet been updated to include new technology supporting DFS.

Financial literacy levels are low in Paraguay, but the government has specified doubling financial literacy levels as one of the goals of its national financial inclusion strategy.<sup>132</sup> NFIS launched its financial literacy educational strategy in 2014 and is currently working with ministries, donors, and public and private organisations to implement these policies. Financial education and economics has been incorporated into the national curriculum for students in the third year of high school since 2014.<sup>133</sup> This strategy builds on programmes already being carried out by NGOs, other international bodies and charities, which have been active in promoting financial literacy programmes for many years. The strategy reached another milestone thanks to the implementation of the “Mas vale saber” (“It is better to know”) financial education campaign, which had reached over 2m Paraguayans by March 2017.<sup>134</sup> As part of NFIS efforts, the third week of March is now designated Financial Education Week, with nationwide events and activities organised in a bid to raise public awareness.<sup>135</sup>

Although it is improving, financial illiteracy remains very high in El Salvador. Most adults have a mobile phone, but over one-third feel that mobiles should not be used for financial transactions, underlining a lack of trust and knowledge about available services. A central bank survey conducted in 2016 was designed to be a platform to promote a national strategy for financial inclusion, including an emphasis on DFS as a gateway to inclusion. However, central bank interviewees expressed frustration at the slow rate of progress since then, with pilot projects delayed or reduced in number (elections in the country have interfered with this work), and expressed a wish for faster decision-making at the government level in order to roll out a financial inclusion strategy.<sup>136</sup> In January 2018 the financial

regulator launched a new financial education initiative to promote financial inclusion.<sup>137</sup>

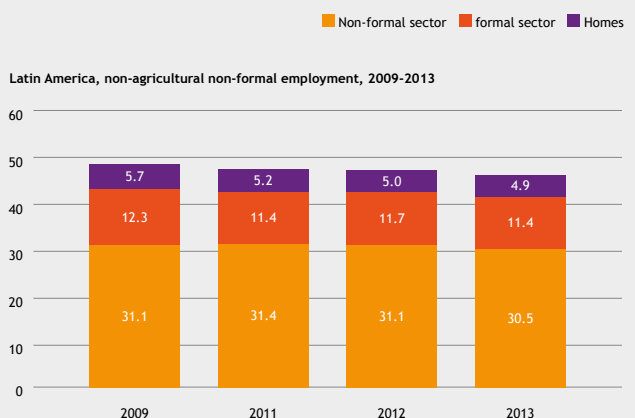
Financial literacy has historically been weak in Haiti, in line with low levels of overall literacy. Half the adult population is illiterate,<sup>138</sup> and establishing basic education provision and boosting child enrolment rates are the main educational priorities.<sup>139</sup> However, the government's five-pillar financial inclusion strategy includes the spread of financial literacy as a foundational aim for expanding financial services across the country.<sup>140</sup> Financial literacy education is not provided as standard in Haitian schools, because there is a broad disparity of curricula available depending on a school's funding status. Instead, international agencies and NGOs are the main promoters of financial literacy education in Haiti, often as a pillar of broader financial inclusion programmes.

For example, a local microfinance institution, Fonkonze, includes financial literacy training as part of its Staircase Out Of Poverty programme, in partnership with its US charity branch.<sup>141</sup> The central bank is currently working on a policy to include financial literacy training in all primary education.<sup>142</sup>

#### LOW LEVELS OF FORMAL LABOUR MARKET PARTICIPATION PRESENT A MAJOR BARRIER

Widespread low levels of formal markets present one of the most significant challenges to the spread of DFS in the region, and it is in this area that countries score relatively poorly in our framework. Large numbers of people work outside the formal economy and are therefore wary of becoming registered in the financial sector, with the proportion ranging from 73% in Peru<sup>143</sup> to nearly 60% in Mexico<sup>144</sup> and El Salvador<sup>145</sup>, nearly 50% in Haiti<sup>146</sup>, 40% in Paraguay<sup>147</sup> and just under 40% in Brazil<sup>148</sup>.

FIGURE 11: NON-AGRICULTURAL NON-FORMAL EMPLOYMENT IN LATIN AMERICA, %



Source: ILO, based on country home surveys

Many small businesses operate outside the formal economy for various reasons, including lack of knowledge about how to register a company formally, unwillingness to enter the tax system and concerns about the labour implications of formally registering workers. The non-formal sector is primarily cash-based. Interaction with the formal banking sector often involves simple withdrawals, such as withdrawal of social benefits from cash machines, and small family-owned businesses often rely on a cash float or savings rather than any type of financial product. Most micro-enterprises in the region are not formal, which constrains their access to the financial sector and results in only a tiny percentage of them obtaining formal credit. This perpetuates the cash economy by limiting financial access.

Government initiatives are beginning to bring non-formal workers into the banked sector, such as through pro-poor subsidy programmes. Nonetheless, although these workers have recently become banked, their tendency to withdraw all benefits at once in cash undermines the effectiveness of such initiatives in terms of lifting financial inclusion. The growth of mobile money products is helping to familiarise consumers with the uses and benefits of DFS across the region, providing a graduated process for entering the banking sector, with the aim of then transitioning them into the formal sector.

The hurdle for this final step is the lack of incentives to encourage non-formal workers to expand their use of DFS. The lack of supporting infrastructure, such as PoS terminals and adequate internet coverage, also remains a structural barrier. Expanding DFS to the non-formal sector could bring considerable benefits across Latin America and the Caribbean. Workers would be able to receive and make payments quickly and cheaply, without the time-consuming process of cashing credits or travelling to bank branches or banking agents to pay in or take out money. However, some workers may be unwilling to use digital financial services even if they are available, since they may prefer to continue using cash because they are wary of entering the financial system and potentially becoming liable for tax payments.

Mexico's large non-formal economy provides challenges to the spread of financial inclusion, as some actors involved in the non-formal economy are wary of becoming registered in the financial sector. Such non-formal firms are very limited in their ability to access credit, as their lack of proof of income can make it difficult to complete credit applications or open bank accounts if they want to move into the formal banking sector. Government projects are beginning to bring these workers into the banked sector, for example through account-creation programmes such as Prospera.

One mechanism under discussion is to provide incentives for the use of e-money for individual workers or small businesses. Mexico currently does not offer any such incentives - unlike, for example, Uruguay, which offers a reduced value-added tax rate when debit cards or e-money are used. The introduction of such incentives in Mexico is unlikely in the short term as it would reduce government tax revenue, but it could be a future tool for promoting financial inclusion and reducing non-formality.

In Brazil, although much of the non-formal economy is cash-based, workers are not necessarily excluded from the formal financial system. Running a cash-based business is common practice in Brazil, and thus a high volume of transactions are conducted in cash. However, the increased use of cards by non-formal workers indicate that they effectively make use of financial services to make payments. These may include transferring cash through prepaid cards, utilising the bank accounts created by electronic payment by the government of conditional cash transfers such as Bolsa Familia<sup>149</sup>, or using mechanisms such as the Boletão Bancário.<sup>150</sup> This means that some non-formal workers are still able to access credit through credit unions or microfinance institutions, allowing them to move further into the formal banking sector.

In Peru, non-formal sector representatives have not yet played a major role in discussion of the national financial inclusion strategy, but the government's financial literacy campaign in particular is targeted towards encouraging non-formal workers to use digital financial services where possible.<sup>151</sup> The SBS is discussing the possibility of bringing local co-operatives under its regulation, which could bring more workers into the regulator's remit. However, some workers may be unwilling to use digital financial services even if they are available, since they may prefer to continue using cash because they are wary of entering the financial system and potentially becoming liable for tax payments. While it is ultimately the government's goal to increase formal employment and reduce the size of the unbanked sector, and thus to increase tax revenue, in the medium term the policy challenge will be to encourage non-formal workers to utilise digital financial services.

Paraguay's large non-formal economy provides challenges to the spread of financial inclusion. Most small businesses operate in the non-formal sector, for various reasons including the burden of bureaucracy in the existing system, lack of knowledge about how to register a company formally, unwillingness to enter the tax system and concerns about the labour implications of formally registering workers. Government initiatives are creating an improved ecosystem for micro and small enterprises that can reduce costs and bureaucracy thanks to initiatives such as one-stop shops for

registration of businesses and support ID card for preferential services including financial access at government owned financial institutions. The growth of mobile money products is helping to familiarise consumers with the uses and benefits of DFS, providing a graduated process for entering the banking sector, with the aim of then transitioning them into the formal sector. There is broad consensus among the authorities that further expanding DFS to the non-formal sector would bring considerable benefits. One mechanism under discussion at the Estrategia Nacional de Inclusión Financiera (ENIF) payments working group is the provision of incentives for the use of e money by individual workers or small businesses.

Similarly, in El Salvador high levels of non-formality complicate efforts to lift financial inclusion. The Financial Inclusion Law specifically sought to promote easy access for the non-formal sector to e-money by significantly reducing bureaucracy for providers and users and designing new “simple savings accounts”. However, central bank interviewees reported problems and delays emanating from the financial regulatory side, as well as from banks, in authorising the (already operating) e-money providers and in launching the new simplified saving accounts, thereby hindering the effort to promote e-money. The central bank has indicated that, for banks, these are just another product and that they have no real incentive to promote something that in effect means more competition (from e-money providers). Central bank interviewees also accepted that one of the main challenges with regard to e money is that users tend to want to cash in funds arriving into their e-wallets (such as remittances and transfers) immediately, and noted that unless small shops and corner stores are able to accept e-wallets (and to do so cheaply) the use of e-money will remain limited.<sup>152</sup>

In Haiti, the need to increase formal employment is connected to a certain extent to the need to respond more proactively to natural disasters, as people would be able to receive benefits or funds from aid agencies more quickly if they had access to DFS, meaning that targeted aid could reach the poorest sector of society with only limited delays. For this reason, representatives of the non-formal sector - such as the Association Nationale des Institutions de Microfinance d’Haïti (ANIMH) and the Association Nationale des Caisses Populaires Haïtiennes (ANACAPH), which helped to formulate the central bank’s national strategy on financial inclusion - have engaged in discussions about financial inclusion.

#### **SIGNS OF GREATER INNOVATION BY PROVIDERS**

In most countries, innovation in the DFS space is facilitated by a good relationship between government and the business sector, with the authorities providing a solid enabling ecosystem through the approval

of legislation targeted at the financial services and telecoms sectors. This is allowing financial institutions and telecoms companies to launch new digital financial services together. Telecoms firms are willing to let banks take the lead on introducing new products in many markets. However, a challenge for the expansion of such products relates to the provision of access to remote communities where unbanked potential users live. The focus on the more lucrative market of smartphone-using consumers, who are tech-savvy and are prepared to buy several mobile products, means that entry-level consumers risk being overlooked because they offer less profit. Governments are rolling out e-transactions across their various benefits programmes, but there is still considerable room to expand use of innovative products and welfare payments to other digital financial services.

In Mexico, banks have moved quickly to introduce online banking for current-account holders and support this through mobile banking apps, which function largely as an extension of online banking rather than as a separate product.<sup>153</sup> Mobile providers also support banks in offering a variety of services, targeted both at those who use smartphones and are formal bank clients, and also at those who may not have a formal bank account and require a text-message-based service. The potential that exists in the Mexican mobile money market is demonstrated by the presence of international firms, with new payment solutions launched in Mexico in February 2018.<sup>154</sup> In March 2018, Amazon.com Inc, a major e-commerce global company, introduced its first ever debit card in Mexico. The approval of the fintech law in March 2018 should herald a new wave of innovation in DFS, as increased regulatory clarity surrounding digital products encourages new products and new tie-ups between financial and telecoms firms.

The potential in the Brazilian market is also demonstrated by the presence of international firms. In November 2017 a mobile payment service was launched. Brazil is the first Latin American market where this application has been made available.<sup>155</sup> The ongoing expansion of mobile services and the banked population, as well as sheer market size, will support greater uptake in the DFS space. A continued trend towards formalisation of businesses and the labour force will support financial deepening. Rising incomes will lift demand for financial services, even if Brazil’s labour market dynamics are less favourable than they were in the previous decade. The rise in smartphone use in particular will encourage innovation in DFS.

This will be complemented by the upcoming fintech law, which should encourage the development of new products and new partnerships between financial institutions and start-ups. For example, in April 2018 the central bank authorised peer-to-peer lending for



the first time, allowing credit fintech firms to operate with minimum capital of US\$288,000, in a move that will increase competition in the sector and benefit consumers through lower prices.<sup>156</sup>

In Peru, the government has been a major proponent of innovation in the DFS space and has also encouraged private providers to seek out new solutions. The most successful initiative has been the cross-sector development and launch of BiM, the country's first fully operable national mobile money system. As well as transactions, in late 2017 BiM added the facility to pay utility bills as well as to access micro-credit and micro-insurance. This initiative is one of the most advanced in LAC and provides a pattern for future innovation. The main challenge is reaching critical mass in which a sufficient number of people are making effective use of the solution to allow the market to continue expanding organically. New incentives are still required to encourage users to adopt BiM.<sup>157</sup> While BiM is an interoperable platform, individual providers can offer different incentives to users. BiM offers a loyalty programme in which increased usage allows users to benefit from upgrades, unlocking exclusive offers and cheaper tariffs.<sup>158</sup> Adding more connectivity with other channels would help BiM to reach critical mass. Another challenge in terms of encouraging uptake of DFS through BiM and other services is that providers must target the most lucrative markets.

This business-led approach may at times conflict with the aims of the government's national financial inclusion strategy, and particularly with the objective of providing DFS to the unbanked. For example, BiM's pilot programme tested its services in rural areas but found it too costly and too time-consuming to launch initial services, and therefore focused instead on peri-urban areas.<sup>159</sup> It was only after its first year of operation and after proof of concept had been established that BiM began testing services in more rural areas and setting up a network of rural agents to support BiM with cash-in and cash-out services.<sup>160</sup> The government cannot afford to provide these services without private-sector buy-in.

#### **PUBLIC PERCEPTIONS OF DFS REMAIN WEAK, LIMITING TAKE-UP**

Popular perceptions around DFS in the region are generally relatively weak, taking into account the disconnect between systems and connectivity on the one hand and limited take-up on the other. In many markets, there is a general lack of knowledge around the products and benefits of DFS; this is particularly so in more isolated areas where such products are only just beginning to be marketed.

This reflects several issues. First, fewer products have been made available in rural areas, because existing providers have struggled with profitability in these locations (a challenge that relates to lower

rates of mobile and internet penetration). Reduced provision has, in turn, reinforced pre-existing low rates of financial literacy - a problem that is only now starting to be addressed through national financial literacy programmes. Among users who already have bank accounts, there is also a perception that they do not need DFS as they are content with their existing account provision.

In Mexico, a survey of account holders found that 31% believed they did not need internet banking, 15% did not know where to access it, 12% believed that it was too complicated and 11% lacked trust in online banking.<sup>161</sup> In addition, there is a lack of understanding of the technology behind online banking and mobile money services, and a perception that this could be insecure and might lead to a loss of money held either in a formal account or in a mobile wallet. Very few people use encryption technology for their internet transactions, indicating either a lack of understanding of the process or inability to pay for internet security services.

Financial literacy programmes are addressing the lack of knowledge about financial products. However, the lack of trust in financial institutions is more difficult to overcome and is exacerbated by the perceptions of its potential users.

In Brazil, concerns about security are more firmly linked to cybersecurity, such as hacking and data and identity theft.<sup>162</sup> To counter these perceptions, marketing strategies focus on emphasising the security of DFS, as well as the convenience and time-efficiency advantages of using these services. In addition, financial institutions are investing heavily in technological developments to ensure the security of software and hardware, with overall technological investment totalling R18.6bn (US\$5.7bn) in 2016.<sup>163</sup> For example, 65% of banks are considering investing in blockchain technology to harness the security of a digitally distributed ledger.

In Peru, a survey found that 37% of respondents cited lack of trust in financial institutions as an obstacle to their entering the banking system.<sup>164</sup> Additionally, 55% cited the high cost of financial services as a barrier. These obstacles have contributed to a preference for cash transactions and a frequent unwillingness to trial new technology that could be difficult to understand. Language barriers may also provide challenges for users in adopting DFS, as there are 47 official indigenous languages in Peru, many of them spoken in the poorest and most remote regions. For example, 60% of Peruvians without access to health services are Quechua speakers.<sup>165</sup> Although Spanish is taught in schools, some users may find it difficult to navigate Spanish-language digital financial services. BiM survey groups ahead of roll-out found that language and navigation posed challenges for potential users, leading providers to simplify language and navigation.<sup>166</sup>

Overall in the region, marketing strategies focus on emphasising the security of DFS, as well as the convenience and time-efficiency advantages of using these services. These strategies also offer users incentives to adopt these services. For example, some banks offer loyalty programmes or benefits for users registering for their online banking and mobile banking services. In addition, some entry-level services can unlock access to new services, helping to familiarise users with financial services and to gain trust in them. For example, Mexico's development bank is using the government G2P programme to offer micro-credit loans, with the loan repaid on a monthly basis through deductions from government transfers. Such programmes help to build trust in services such as e-payments and prepare the ground for users to upgrade to other digital financial services.

However, one problem with marketing across the region is that most providers of DFS are targeting people who are already familiar with the financial system and make use of its services. Financial service providers are good at communicating the benefits of digital banking to these people. However, such providers are not adequately focusing on expanding financial inclusion to unbanked target populations consisting of women, the poorest 40%, people living in rural communities and those outside the labour force. Thus, the challenge remains how to foster financial inclusion through the use of DFS, especially by those who are not currently making use of such services because of either a lack of infrastructure or a self-imposed restriction.

## POLICY CONSIDERATIONS

Our research programme yielded that there are four broad policy consideration areas for regulators across Latin America and the Caribbean seeking to develop and implement effective interventions aimed at strengthening their national DFS ecosystem/s.

### 1 TARGETED SOLUTIONS FOR THE INFORMAL SECTOR

Given the prevalence of the informal economy (including both informal SMEs and informal labour markets), providers should focus on crafting products and services designed to target this market. Regulators should ensure that risk assessments and oversight are appropriately tailored to these individuals. In particular, policy discussions should consider how to deepen the informal sector's experiences with DFS, in order to prevent a simple "cashing in" of digitally-transferred benefits, where individuals only use DFS as a means of withdrawing one-off sums of cash. The policy backdrop should then look at methods of using DFS as a springboard to bring people into the formal economy. One potential way of bringing informal workers into the DFS space could be by incentivising individual workers or small businesses to use e-money (similar to Uruguay's offer of reduced VAT when debit cards or e-money are used).

### 2 INFRASTRUCTURE INVESTMENT TO OVERCOME PROBLEMS ASSOCIATED WITH THE URBAN-RURAL DIVIDE

Patchy electricity provision and weak telecommunications provision in rural areas represent structural constraints to the expansion of DFS in non-urban areas. Policy-makers should focus on lifting capital expenditure to invest in infrastructure upgrades in these areas and on ensuring that national legislation is conducive to PPPs, which would facilitate greater private-sector involvement in infrastructure investment. Given that capital investment projects often have a lengthy time-line, particularly when public-sector tendering processes are involved, regulators could focus on ways of boosting the network of banking agents in the meantime. Policymakers will also need to devise near-term solutions that facilitate individual agents' ability to provide a range of financial services given that banking agents will also face constraints relating to weak underlying infrastructure. Encouraging agents to be more flexible and represent larger numbers of service providers could help lift financial inclusion until a time when infrastructure provision in rural areas is more developed.

### 3 ACCELERATING SPECTRUM AUCTIONS OF LTE SERVICES

This is a key requisite for improving both the coverage and speed of 4G services in LAC. Many countries have put in place plans to auction off spectrum in a bid to boost investment, but in some countries, the auction process began comparatively late and has been subject to delays. This has led to reduced quality and lower take-up of mobile broadband services, as well as higher retail prices for mobile broadband data. Improving 4G coverage would help facilitate e-commerce and m-commerce, which although growing rapidly, still only accounts for a small share of retail sales. Greater demand for e-commerce and m-commerce could facilitate use of mobile money wallets, which in turn could increase competition between mobile money providers. In order to lay the foundation for successful spectrum auctions, authorities should ensure that they provide sufficient incentives to attract investors. These include reasonably-set licence fees; assurances about the timeline of allocation and indications about future availability; and a transparent auction process with comparatively low reserve prices.

### 4 TIMELY ADOPTION AND IMPLEMENTATION OF FINTECH LEGISLATION

Many countries have either started consultation on fintech bills, or are part way through the discussion and approval process. Mexico remains the only major country to have introduced this legislation, which is critical to filling gaps in countries' existing regulatory framework, which has tended to focus on traditional financial service providers and non-digital services. Legislation is necessary to define and regulate DFS such as e-money and crypto-currency, as well as establish procedures and rules for fintech operations. In turn, this will stimulate innovation in DFS by providers, by enabling greater regulatory clarity. Authorities should prioritise this legislation, incorporating a wide variety of stakeholders into the discussion process, and using other countries' experiences to inform debate and the drafting of regulations.

### 5 FOSTERING INNOVATION AND STAKEHOLDER ENGAGEMENT

Policymakers and regulators should support the growth of an open ecosystem for DFS that promotes innovation and ensures robust competition. There have been stakeholder consultations in some countries, but ensuring that discussions involve a large number of industry players rather than just a limited number of participants would improve regulatory outcomes. More open policies and regulations that allow MNOs and fintech operations to offer tailored products should be pursued. This would foster innovation in products and services that target the population currently unserved by DFS. The

authorities should seek to allay any fear/s on the part of traditional banks, for example, around the notion that co-operating to promote inter-operability might see them lose market share to newly-emerging non-bank providers of DFS. Encouraging dialogue between all market players would help create consensus and encourage co-operation in order to lift overall levels of financial inclusion.

### 6 AWARENESS AND FINANCIAL LITERACY EFFORTS TO PROMOTE THE BENEFITS OF DFS

Take-up of DFS in the region is being hampered by poor perception and a lack of trust. Specific awareness campaigns led by the authorities should be implemented in order to promote financial and digital literacy and buy-in. Given that a large share of the population is young (according to the World Bank, between 22% and 33% of the population in the six countries in scope is aged 0-14), embedding financial literacy education into the national curriculum would help increase awareness and promote take-up of DFS in the medium-term as these targeted individuals enter the labour force. Financial authorities would benefit from identifying examples of successful campaigns within the region, for example Brazil (where state authorities have rolled out tailored education programs targeted at various age groups, ranging from 6-18 year olds, which builds upon existing knowledge). In order to facilitate uptake of DFS among adults, authorities could also consider deploying regular national surveys on financial inclusion, in order to better understand and address the factors that currently deter use of DFS. The results should subsequently feed back into both reform efforts, as well as marketing campaigns targeted at specific sectors of society. Banking agents could provide a useful channel through which the authorities could communicate with those in rural and/or poorer areas.

## CONCLUSION

The provision and use of digital financial services in Latin America and the Caribbean (LAC) has advanced notably in recent years. In most countries, levels of traditional banking sector penetration are rising; coupled with sharp increases in investment in their digital platforms by banks and rising smartphone use, more people in the region are embracing DFS.

Virtually all of the main providers of banking services now provide online banking services and the facility to make and receive payments electronically. Even in those countries where bank penetration levels remain low, other DFS providers - including firms specialising in money transfer services - have entered the market to tap the unbanked market and lift financial inclusion. Offerings in this sector are often targeted at low-income sectors of the population that until now have not participated in the formal financial sector.

Infrastructure readiness is generally sound across the region. Identification and authentication systems have improved, with many countries rolling out biometric technology to ensure the security of internet banking. Better co-ordination between DFS providers and the respective authorities is facilitating cross-checking of identity, helping to prevent fraud. Meanwhile, most providers adhere to KYC processes which ensure that authentication systems are aligned with the level of risk associated with transactions. High-value transfers generally require much more extensive checks than low-value transactions, helping to foster financial inclusion.

Technical supporting infrastructure is somewhat weaker. Electricity provision in LAC is mixed: generally, provision in urban areas is reasonably good, but coverage in rural areas is often patchy. Reliance on hydropower makes many countries in the region vulnerable to power shortages and/or rationing. In addition, the quality of mobile and internet networks varies. Mobile penetration levels are almost without exception high, but progress on auctioning 4G capacity has not been particularly rapid by global comparison. Latin America is catching up, with the number of 4G connections rising twice as quickly as the global average in 2016, but this is from a relatively low base, with much of the region still dependent on 2G and 3G connectivity.

Overall, the regulatory environment is strengthening. Most of the countries covered have national strategies for financial inclusion in place, or have passed

legislation pertaining to these issues, and have also partnered with various international agencies and private-sector companies to boost these efforts. Financial sector reforms in recent years have been largely focused on fostering the digital environment and stimulating innovation and competition in the sector.

Despite the fact that the regulatory framework is solid in most countries, implementation should be strengthened and should include more monitoring mechanisms that guarantee the integrity of the financial system while at the same time fostering higher and sustainable levels of financial inclusion. At the institutional level, regulators are enhancing their capabilities and updating their frameworks to include a broader range of digital financial models that respond to market needs.

One of the greatest challenges facing efforts to promote DFS in LAC in the coming years is the need to overcome weak public perceptions of the benefits of digital finance. While there is widespread acknowledgement among governments in the region that making DFS widely available can be a strong contributor to poverty reduction and a means to achieve the benefits of financial inclusion, this has not translated into broad-based public enthusiasm, which has hampered take-up. Significant obstacles include low levels of financial literacy, the large size of the non-formal economy and high levels of poverty. The fact that some of the investments that have been made in promoting mobile financial services for the previously unbanked sectors have not yet proved profitable - prompting some players to leave the market - might reflect this possible reticence among consumers. It also increases the risk that new products may be marketed towards those who already have bank accounts, meaning that the future expansion of DFS may not necessarily go hand in hand with an increase in financial inclusion if the unbanked are not included in these solutions.

Some of the key challenges in terms of improving public perceptions of DFS are therefore to target women, people living in rural areas and the young. Financial literacy programmes have an awareness impact but need to be combined with adoption and regular use in order to embed DFS as a regular tool for individuals and businesses. In the case of young adults, this implies engaging them in the design of new digital financial services. However, the main challenge relates to segments of the population that can make use of financial services but choose not to do so because of the convenience of using cash and the lack of infrastructure to use digital means of payment.

Looking ahead, there are several areas that governments and regulators can focus on in order to address these challenges and, in doing so, to improve financial inclusion. Better infrastructure provision is a clear need, as without the underpinning physical

investment it will be difficult to overcome long-running problems that have traditionally hampered financial inclusion. Improving interoperability and rolling out more innovative KYC systems are crucial. With regard to regulation, as the DFS ecosystem becomes more varied - with different providers (particularly non-banks) supplying services traditionally associated with bricks-and-mortar banking institutions - regulators can stay ahead of the game by tailoring legislation to these non-bank providers. Understanding risk in specific subsectors, and crafting legislation that minimises this risk but at the same time incentivises investment on the part of providers, will be crucial.

Communication here is vital, in terms of both learning from others' experiences via peer reviews and engaging with providers in order to ascertain their needs. Finally, tackling weak popular perceptions of the benefits of DFS is clearly critically important in terms of lifting financial inclusion in the region. Without sufficient public appetite, take-up of DFS will remain limited, regardless of improvements in infrastructure and regulation. Changing public attitudes and reducing non-formal economic activity are arguably the biggest challenges faced by governments and regulators in the region, but they are goals that can be achieved over time if efforts to target education in financial services are sustained.

## ANNEX 1: DFS ECOSYSTEM ASSESSMENT MODEL

In drawing up a framework to assess the digital financial services (DFS) ecosystem in Latin America and the Caribbean (LAC), literature surrounding the theme was initially reviewed and various academic sources consulted. The results indicated the presence of two main pillars of support for a country's DFS ecosystem: infrastructure readiness, and the enabling regulatory environment.

However, it emerged from the research that in LAC another key component of the ecosystem is particularly relevant for the region: the population's readiness for DFS. A 2016 study by the Latin American Federation of Banks (FELABAN) on financial inclusion found that in most member countries the major obstacles were related not to government initiatives but rather to issues like financial literacy, the size of the non-formal economy and poverty. Accordingly, the assessment model that we drew up gives equal importance to issues of population readiness. The three pillars of support identified formed the basis for the development of a comprehensive framework and interview questionnaire to gauge the overall readiness of the DFS ecosystem in six selected markets (Brazil, El Salvador, Haiti, Paraguay, Peru and Mexico).

The first pillar, on infrastructure readiness, is geared towards developing an understanding of whether or not supporting technical infrastructure facilitating the provision and uptake of DFS in the region is adequately advanced. The second pillar, on the enabling environment, aims to capture the current state of the regulatory environment, regulatory supervision in the region and the standard-setting enabling environment. It seeks to evaluate whether or not the existing regulatory interventions or frameworks deployed in these countries, and in the region more broadly, are conducive to the uptake of DFS. Finally, the third supporting pillar, on population readiness, analyses whether or not the population sample in each of the countries, and the region more broadly, has sufficient use-cases surrounding the uptake of DFS, and whether there are other demographic or income-related barriers impacting the uptake of DFS.

Infrastructure readiness consists of:

- > Payment systems required to facilitate transaction between and among end users including consumers, merchants, businesses and governments. These payment systems may be purely public, semi-public or solely private. Based on the configuration of the service, these payment services may be "closed-loop" or "open-loop". Two necessary components ensuring infrastructure readiness in terms of payment services are high security and a certain degree of system interoperability among payment participants.
- > Voice and data communication networks required to support essential financial messaging among providers and end users of products and services. Accordingly, communication network quality and security/privacy are central to this area of infrastructure readiness.
- > Energy availability must be sufficient to support the needs of the users and service providers within the DFS ecosystem.
- > Identity systems must be capable of identifying end users and their product/service providers, and authentication systems should be capable of recognising and validating these identities. Some national IDs, in particular, are biometrically enabled - this is expected to become a significant part of the DFS ecosystem.

Regulatory readiness consists of:

- > Laws and regulations - These include basic permissions given to financial institutions in the countries; the authority of financial regulators; and regulation and permissions given to non-bank financial service providers. By the same token, law and regulation around the role of ICT providers and the authority of telecoms regulators may be relevant in a country/region, especially if mobile devices are one of the primary drivers of DFS. Law and regulation in the area of competition and consumer protectionism would also impact the development of the DFS ecosystem.
- > National policies, particularly those in the area of financial inclusion, impact the enabling environment.
- > Standard-setting bodies and their standards - these bodies may be specific to one industry group (for example, Europay, MasterCard, Visa) or may be more broadly applicable (for example, International Telecommunication Union, International Organization for Standardization, American National Standards Institute).
- > Industry groups that act on behalf of a large number of individual providers - these are typically industry-specific (for example, Groupe Spéciale Mobile Association, Mobey Forum).
- > Non-governmental organisations and developmental organisations working to implement and develop DFS ecosystems in a country/region (for example, World Bank, Consultative Group to Assist the Poor, the Bill and Melinda Gates Foundation).

Population readiness includes:

- > Financial literacy - Financial literacy and related investment in financial products is of great concern in emerging-market economies that are seeking to develop their financial institutions and markets further. Countries must develop financial literacy programmes to ensure that people can make sound financial decisions, select the financial products that best fit their needs and know how to use related channels, such as ATMs or mobile banking.
- > Size of non-formal economy - Non-formal economies are a significant part of developing countries around the world and according to some estimates can account for around 60% of countries' official GDP. International Finance Corporation estimates in 2014 suggest that approximately 80% of micro, small and medium-sized enterprises in emerging markets and developing countries are non-formal. Countries with large non-formal economies that are making the transition to DFS should consider the costs and benefits for non-formal actors.
- > Poverty - six of the 17 member countries in FELABAN cited poverty as one of the main obstacles to financial inclusion. The analysis of DFS ecosystems will therefore look at poverty as a separate consideration.

Finally, after analysing specific areas under each of the supporting pillars of DFS, we developed a DFS readiness indicator framework (Figure 12) to support the targeted country-level review exercise undertaken as part of this research programme. This report's overall objective is to gauge the sophistication of the DFS ecosystem at the country level for six selected countries (Brazil, El Salvador, Haiti, Mexico, Paraguay and Peru).

The evaluation framework utilised for the country-level analysis is broadly structured on three major domains:

- 1 infrastructure readiness,
- 2 regulatory readiness and
- 3 population readiness.

Each domain consists of four main indicators to evaluate country-specific DFS sophistication or performance across major constituent areas. In turn, each main indicator is informed by four guidance pointers (see Figure 12) to assess the comparative level of development in each area. In order to assess country readiness across each of the aforementioned areas, we carried out extensive primary and secondary research, speaking with key stakeholders in each country from both the public and private sectors. This process was geared towards ascertaining the progress that authorities have made in each country in developing DFS provision, as well as identifying key drivers and constraints that are affecting the development of the sector.

Our findings have helped to inform the report's conclusions about the appropriate steps that regulators and private-sector participants can take to further financial inclusion through the spread of DFS in the region.

FIGURE 12: INDICATOR FRAMEWORK: DIGITAL FINANCIAL SERVICES IN LAC

Domain 1 Infrastructure readiness		Domain 2 Regulatory readiness		Domain 3 Population readiness	
<b>1.1</b>	<b>Maturity of identification and authentication systems</b>	<b>2.1</b>	<b>Coverage of overall DFS-related regulation</b>	<b>3.1</b>	<b>Financial literacy and the market for financial products</b>
Questionnaire guidance	<ul style="list-style-type: none"> <li>- Online identification and authentication mechanism/s; national/sectorial/private-sector electronic IDs</li> <li>- Innovation in identification and authentication specific to online transactions</li> <li>- Issues around transparency/traceability/security in transacting digitally</li> <li>- Provisions for, and implementation of E-KYC or KYC requirements/ processes at the merchant level</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Innovative policies for financial inclusion and DFS at the country-level</li> <li>- DFS legal approach: Command and control vs. incentivisation-based</li> <li>- Fiscal/tax environment and the business case for moving to DFS</li> <li>- Data protection and consumer protection legal framework: development, safety, transparency</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- National financial literacy initiatives-existence, examples, reach, success, limitations</li> <li>- Inclusion in the national curriculum; consumer protection laws and DFS comparability</li> <li>- Access to digital financial products/services (limitations around income, geography)</li> <li>- Digital literacy: population-level smart/feature-phone penetration vs. utilisation/availability of DFS</li> </ul>
<b>1.2</b>	<b>Adequacy of technical infrastructure</b>	<b>2.2</b>	<b>Law enforcement and institutional capacity</b>	<b>3.2</b>	<b>Incorporation of the informal economy</b>
Questionnaire guidance	<ul style="list-style-type: none"> <li>- Energy availability and coverage (% of units with access) to support needs of the DFS ecosystem</li> <li>- Quality, security and sophistication of voice and data communication networks</li> <li>- 3G and 4G coverage, across the nation's rural-urban/geographic divide</li> <li>- Issues across agent/telecommunication networks; cash-in cash-out burden</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Strength of national policies/action plans (especially financial inclusion)</li> <li>- Mandating users and the creation of use-cases for DFS</li> <li>- Institutions: strength, remit, autonomy, efficiency, coordination, budget</li> <li>- Regulation across DFS ecosystem stakeholder groups; e-money issuers</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Size and significance of the informal economy (% of labour force, % of businesses)</li> <li>- Transaction systems generally used in the informal economy, and extending DFS to the sector</li> <li>- Informal sector incorporation in national financial inclusion strategies/action plans</li> <li>- Cost vs. benefits of adopting DFS for the informal sector (e.g. new tax implications vs. safety)</li> </ul>
<b>1.3</b>	<b>Reach of information and communications technology (ICT) sector</b>	<b>2.3</b>	<b>Level of stakeholder engagement and past experiences</b>	<b>3.3</b>	<b>Innovation and uptake in the DFS space</b>
Questionnaire guidance	<ul style="list-style-type: none"> <li>- Trends in mobile vs. bank account penetration (data, growth rates and their sustainability)</li> <li>- Smartphone/feature-phone penetration vs. m-commerce availability</li> <li>- Role and reporting requirements for credit bureaus; maturity of systems evaluating credit-worthiness</li> <li>- ICT, DFS as drivers of financial inclusion: e.g. informal sector access; links to microfinancing</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Role of ICT providers and telecom regulators in the DFS ecosystem</li> <li>- Convening power of industry groups representing DFS providers</li> <li>- Engaging the private sector and NGOs in financial inclusion strategies</li> <li>- Competition: pricing; barriers to entry (e.g. bank vs. non-bank DFS providers); product/service quality</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Major country-specific examples of DFS/initiatives: success and barrier analysis</li> <li>- Trends around DFS in the traditional banking and non-bank products/providers market space</li> <li>- Analysis of key DFS providers in the country: bank vs. non-bank providers; user targeting</li> <li>- Innovation around DFS commercial models for wider uptake</li> </ul>
<b>1.4</b>	<b>Electronic transactions, settlement and interconnectedness</b>	<b>2.4</b>	<b>Overall success of enabling regulation</b>	<b>3.4</b>	<b>Population perceptions around DFS</b>
Questionnaire guidance	<ul style="list-style-type: none"> <li>- Nature (stakeholders, open vs. closed loop) of payment systems; transaction fees for DFS services</li> <li>- Degree of interoperability among different DFS solutions and providers, and related issues</li> <li>- Country-specific examples of innovation/s in the digital payment platforms space</li> <li>- Average cost of payments—domestic or cross-border (including remittances)</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Regulations and implications enabling or constraining widespread adoption</li> <li>- Country-specific effectiveness of enabling regulation in the DFS ecosystem</li> <li>- Analysis of traditional and innovative DFS commercial/business models, driven by regulation</li> <li>- Acceptance of e-money by merchants, market volumes, number and types of DFS products available</li> </ul>	Questionnaire guidance	<ul style="list-style-type: none"> <li>- Perceptions around reliability/security in the DFS ecosystem; gender neutrality of DFS technology and regulation</li> <li>- Country-specific individual incentives available through the adoption of DFS</li> <li>- Key reasons for/deterrents against individual adoption of DFS; preference for cash</li> <li>- Impact of country-specific banking/corruption scandals on DFS uptake-discuss example/s</li> </ul>



## ANNEX 2: COUNTRY-LEVEL FRAMEWORK ASSESSMENTS

Each of the following country-level assessments (six countries in scope: Brazil, El Salvador, Haiti, Mexico, Paraguay and Peru) shed light on the background research that informed the development of this trend analysis report on the digital financial services ecosystem in Latin America and the Caribbean.

The research framework has been explained in Annex 1: DFS ecosystem assessment model (see Figure 12).

### BRAZIL: COUNTRY ANALYSIS

#### Maturity of identification and authentication systems

Brazil has a well-developed financial system for those who can access it and all main financial institutions offer digital financial services (DFS), such as online banking and electronic payment facilities. Banco do Brasil, Brazil's largest bank, provides online and mobile banking services and even allows prospective customers to begin the account-opening process through its app. Applicants will need to input an ID, such as their passport number, national ID card or national tax ID number (CID) or link to a partner agency that can confirm ID. All five main banks have smartphone apps and these banks comprise nearly 90% of the banking sector; the majority of customers, therefore, have access to banking apps. Biometric technology is expanding in Brazil and is set to become increasingly prevalent.

Banks in Brazil are legally required to adhere to Know Your Customer (KYC) processes in order to verify the identity of the account holder on registration. However, Brazil has altered its regulations requiring face-to-face account opening and new customers can now send "selfies" of themselves and photos of their documents. The flexibility provided by this new regulation is designed to increase financial inclusion by removing cumbersome administrative processes both during account opening and ongoing account activity. For example, existing Banco do Brasil clients now have a variety of options for accessing DFS. They can log in online using a password or use various methods to access the banking app, including biometric fingerprint technology. These technologies are also intended to provide assurance to banks that another person is not illegally using the client's bank account, potentially to make illegal transactions, as PINs can be illegally shared or hacked. Tighter banking security for clients is in line with increased compliance requirements for financial institutions following revisions to the anti-money-laundering (AML) law in 2012.

#### Adequacy of technical infrastructure

Brazil's large geographical size means that it suffers from a pronounced rural/urban divide in terms of technical infrastructure, which has curbed the expansion of DFS in certain areas. Brazil is the world's fourth-largest mobile telephony market by subscribers (behind China, the US and India). The country's economic recession, combined with the move by operators to disconnect inactive SIM cards, has led to a fall in subscriptions since 2014 to 236.2m by January 2018, according to data from the regulator, Anatel - a penetration rate of 113%.

The number of 4G subscriptions alone totalled 105.5m in January 2018, up from 25.4m at end-2015, and is set to continue to rise. Operators continue to roll out LTE technology across the country. According to Teleco, a Brazilian consultancy, about 93% of the Brazilian population had 4G coverage as of February 2018. 2G and 3G services are present in 90% of municipalities and are growing rapidly. 4G is in around 50% of municipalities. In terms of people connected to 4G, this is around 36% of connections and should grow to 57% by 2020. In February 2017 representatives of the industry, government and research institutions launched the Projeto 5G (5G project) initiative, aiming to drive 5G forward. Brazil now forms part of a group of countries that will set 5G standards along with the EU, the US, South Korea, Japan and China. However, operators are concentrating on the deployment of 4G and it will be several years before 5G is rolled out.

#### Reach of information and communications technology sector

Mobile phone penetration stands at 119%, while around three-quarters of the population have a bank account. Use of DFS is slightly higher than the regional average. This relatively high level of banking use indicates that there is broad access to financial services. The high level of mobile phone penetration indicates that there is considerable room for expansion of the mobile banking and mobile money sector, which may also allow the unbanked population to enter the DFS space.

E-commerce sales fared better during Brazil's recession than other sales. According to E-bit, a local consultancy, e-commerce sales (excluding sales of airline and bus tickets) amounted to US\$14.9bn in 2017, a rise of 17.4% year on year in US dollar terms (but only 7.5% in local currency). Online purchases made through a mobile device accounted for 27% of total e-commerce transactions, according to E-bit. Mobile commerce is increasing sharply as consumers take advantage of broad mobile phone coverage. A study by the Instituto Brasileiro de Geografia e Estatística (IBGE) found that 26% of Brazilians are m-commerce users, as opposed to 45% for overall e-commerce. In 2017 m-commerce use rose by 42%, with mobile phones responsible for 31% of all e-commerce transactions. This trend indicates that increasing mobile phone coverage will continue to attract new users, although uptake of these services may be limited by lack of access to a bank account or pre-paid card for those in the unbanked sector.

## BRAZIL: COUNTRY ANALYSIS (CONTINUED)

**Electronic transactions, settlement and interconnectedness**

Brazil offers a broad variety of DFS, encouraged by support from the government and an enabling regulatory framework. The government encourages electronic payments, including through mobile services, and these are regulated by the central bank (Banco Central do Brasil). The government has led the way by mandating government departments to adopt centralised electronic payments (government-to-government) and then roll this out to government-to-person (G2P) payments on a gradual basis. In particular, the government has transitioned its main social security payment programme, Bolsa Familia, to electronic payments, saving an estimated 75% in administrative costs. Caixa, Brazil's second-largest bank, facilitates the payments through an electronic benefit card and funds can be withdrawn within 90 days from a linked ATM. This has the added benefit of providing recipients with a de facto banking facility, as a means of introducing the unbanked into the formal banking sector and encouraging them to increase use of DFS.

A supportive legal environment has encouraged other stakeholders to adopt electronic transactions and innovate with new DFS. Regulations encourage inter-operability of systems and all major banking institutions in Brazil connect to each other, allowing consumers to make open loop transactions through online banking. Until 2013, the central bank did not have a mandate for regulating payments, but the 2013 regulations are encouraging innovative new start-ups that promote inter-operability. Now there are several start-ups and fintechs like new banks, and several others are in the process of being authorised. One problem is friction between traditional and new financial institutions, which require new regulations to make these sectors interoperable. One good example is the new salary regulation. Until 2018, it was only possible for customers to transfer salaries from one bank to the other, but now they can use new payment gateways.

**Coverage of overall DFS-related regulation**

Since 2010, promoting financial inclusion has been one of the central bank's strategic objectives and the bank launched its Financial Inclusion Strategy in 2011. Known as the National Partnership for Financial Inclusion, this aims to promote financial inclusion through creating an enabling institutional environment and improving financial literacy. The main pillars of this strategy are: expanding and strengthening distribution channels for financial services; developing instruments to better adapt financial services to the needs of lower-income segments of the population; and guaranteeing the quality of financial services provision. This formal strategy has complemented Brazil's ongoing poverty reduction programme and allowed the development of long-term planning through fora such as the Forum on Financial Inclusion, which brings together policy and industry stakeholders.

A series of regulatory reforms have supported financial inclusion efforts. These include 2013 regulation allowing and regulating mobile payments, allowing existing financial institutions and new operators to move into the market. In 2015 regulation allowed banks to open their accounts remotely. Before that, potential customers had to be present at financial institutions to submit their documents for account opening or send them via mail. This was time consuming for both banks and customers. From 2015, the central bank allowed banks and financial institutions to open accounts for people via electronic methods. The banks have to ensure the documents are authentic. They can use new technologies to ensure KYC requirements, including facial recognition.

**Law enforcement and institutional capacity**

Brazil's regulatory environment provides clear details about regulators and penalties for misuse of financial services. The central bank is the primary regulator of financial services and regularly updates its regulatory and operational guidelines to improve clarity for financial institutions and consumers. The central bank has been the regulator of payment providers since 2013, when providers such as Visa and Mastercard came within its regulatory remit. Previously, they were unregulated as the central bank was focused only on the Brazilian payments system.

The Brazilian government has made sustained efforts to improve the capacity of the country's law enforcement agencies to counter the risk of misuse of the banking system. Brazil's comprehensive AML and KYC legislation, which was last updated in 2012, includes criminal penalties for money laundering and tighter reporting requirements. Ongoing financial regulation is extending AML requirements to new sectors, such as the 2015 regulation governing credit unions. As the proposed fintech law indicates that fintech sector operators will be regulated by the central bank, these are set to be governed by the same AML requirements.

**Level of stakeholder engagement and past experiences**

The formation of the National Partnership for Financial Inclusion involved a sustained process of engagement with policy and industry stakeholders, which is maintained through regular fora on financial inclusion. The central bank has a policy of releasing new legislative proposals in draft form for consultation with industry stakeholders and more generally, as is the case with current fintech legislation proposals. This allows comments and concerns to be addressed and incorporated into the final version of the legislation sent to the legislature. As part of the G20, the Brazilian government also engages with other G20 finance ministers and central banks to exchange ideas and experiences. Brazil is a founding member of the Financial Inclusion Experts Group (FIEG), which established the Access Through Innovation Subgroup (ATISG) and the Small and Medium Enterprise (SME) Finance Subgroup. This laid the groundwork for the launch of the G20 Financial Inclusion Action Plan in 2010, with which Brazil's national strategy is aligned.

One area where there has been a lack of engagement is with telecoms operators, unlike in other countries in the region where telecoms operators have been highly engaged in formulating and rolling out DFS, such as mobile money wallets. Instead, digital financial system growth is through new developments in banking, digital banking and payment gateways. The communication companies are infrastructure providers rather than active stakeholders. Telecoms firms in Brazil are not generally interested in providing financial services. They do not believe the market is lucrative for them because of how the financial systems is organised and the dominance and innovation of the leading banks. There is enabling regulation that would permit telecoms firms to enter the DFS market themselves rather than as infrastructure providers, but they do not appear to see this as a competitive market for them.

## BRAZIL: COUNTRY ANALYSIS (CONTINUED)

**Overall success of enabling regulation**

Brazil currently has a positive enabling regulatory environment for encouraging the expansion of DFS, with ongoing reforms, such as in the fintech space, helping to encourage innovation and new product offerings. Brazil has benefited particularly from a strong and extensive agent network across the country, even in rural areas, which means that its level of unbanked people is relatively low as a proportion of the population compared with other countries in the region. There is physical access to an ATM or other form of cash withdrawal in every municipality in the country and so most consumers are connected to the banking system in some form and have some understanding of the financial services it can provide. DFS providers have therefore been able to use the agent and ATM networks as a springboard from which to transition users towards more innovative services.

Enabling regulation supporting e-payments and fintech is also encouraging the growth of new banks and financial institutions, opening up the traditional financial system. For example, start-up bank Neon launched in July 2016 using only biometric identification and authentication, in partnership with US tech firm Daon. This uses facial recognition technology to open and access accounts and authorise transactions. Other banks are following Neon's lead, increasing the ease and speed of opening accounts and making electronic transactions. These include Original Bank (launched March 2016), Intermedium (April 2016) and BTG Pactual (September 2016), all of which used the opportunities provided by the March 2016 reform allowing consumers to open accounts digitally. This trend appears set to continue, supported by other innovations transitioning consumers into the digital space, such as services that allow the Boleto Bancario systems, previously paper invoice-based, to be used as a card to make electronic payments. One challenge created by this transformation of the banking system is that increased digitisation may lead financial institutions to close some physical access points, such as ATMs, as demand lessens. If these started to shut, some consumers could be marginalised within the financial system, such as the 10% without 3G access and older people who may be less willing or able to adopt digital services.

**Financial literacy and the market for financial products**

The Brazilian authorities view financial literacy as a core pillar of its financial inclusion strategy. Brazil established its National Strategy for Financial Education (ENEF) in 2010 through Presidential Decree 7397. This established ENEF as a state policy rather than a government one, ensuring that it will be maintained throughout successive governments. Overall, the strategy aims to promote financial education and contribute to the strengthening of citizenship, the efficiency and soundness of the national financial system, and enable well-informed decision-making by consumers. In order to define plans, programmes, actions, and co-ordinate the execution of ENEF, a National Financial Education Committee (CONEF) was set up, comprising the four financial system regulators, three ministries (Education, Finance, and Justice) and up to six civil society representatives chosen by the seven governmental members. Four cross-member initiatives have been elected as priority: financial education in public high schools (students aged 14-18), financial education in elementary and middle schools (students aged 6-14), financial education for low-income retired elderly, and financial education for conditional cash transfer programmes.

Financial literacy education, coupled with a good base of banked consumers, has contributed to positive financial literacy rates. Brazil scored above or close to the average on a financial literacy survey of G20 countries in 2017. One area where the country has faced challenges is in incorporating financial literacy training into the school curriculum. This is now moving forward and in 2017 stakeholders, including the central bank and ministry of education, agreed on a new national curriculum for lower and middle schools that includes components focusing on financial literacy. This followed a public consultation process with stakeholders and public interest groups. This will now be rolled out across the school system. This aims to build on a high internet and mobile phone usage rate among young people, which has familiarised them with using apps on a regular basis. This is designed to transition them towards using mobile banking and similar products on a regular basis.

**Incorporation of the informal economy**

The informal sector in Brazil is relatively large, contributing approximately 16% of GDP in 2017. This provides a challenge to the spread of financial inclusion as some actors involved in the informal economy are wary of becoming registered in the financial sector. Many small businesses operate in the informal sector for various reasons, which include lack of knowledge on how to register a company formally, unwillingness to enter the tax system and concerns about the labour implications of formally registering workers. After several years of decline, the informal sector is beginning to increase again, as a result of Brazil's economic downturn, rigid labour laws and a complicated tax burden. This risks more people leaving the formal banking sector or deterring some from transitioning from card-based payments to other digital financial solutions.

Although much of the informal economy is cash-based, this does not mean that informal workers are necessarily outside the formal financial system. Given Brazil's relatively high crime rates in many areas, running a cash-based business poses many security risks. Although more transactions are likely to be in cash, the entrenched use of cards and relatively high proportion of banked workers indicates that informal workers continue to use financial services, if not a formal bank account. These may include transferring cash through prepaid cards, utilising the bank accounts created by electronic payment by the government for conditional cash transfers such as the Bolsa Familia, or through mechanisms such as the Boleto Bancario. This means that some informal workers are still able to access credit through credit unions or microfinance institutions, allowing them to move further into the formal banking sector. Nonetheless, although some of these informal workers now technically count as banked, the tendency to withdraw all benefits at once in cash undermines some of the effectiveness of such financial inclusion programmes.

## BRAZIL: COUNTRY ANALYSIS (CONTINUED)

**Population perceptions around DFS**

Brazil's relatively good level of financial literacy means that many consumers have at least a basic knowledge of DFS and some are practised users. The highest use tends to be in the wealthier and more urbanised south of the country, where the level of smartphone penetration is higher. In addition, more young people tend to use smartphones and are comfortable with the concept of using multiple DFS such as banking apps or online banking. Indeed, young people seem to prefer using DFS and preferably through their phones. This makes the youth market a key demographic for marketing DFS. According to research, more than 80% of people would be open to using more DFS, indicating considerable opportunities for more product offerings in this space.

However, one problem with marketing is that most providers of DFS are targeting people who are already well versed with the financial system and use it. They are good at communicating the benefits of digital banking to these people. However, they are not focusing on financial inclusion and so do not primarily target people that do not use the financial system, such as older people or those who live in remote or rural areas. This risks perpetuating financial exclusion by fostering the perception that those not currently enrolled in the financial system cannot use DFS.

A major challenge to uptake of DFS is perceptions of insecurity, particularly linked to cybersecurity, such as hacking and data and identity theft. To counter these perceptions, marketing strategies focus on emphasising the security of DFS, as well as the convenience and time-efficient advantages of using these services. In addition, financial institutions are investing heavily in technological developments to ensure security of software and hardware, with overall technological investment totalling BRL18.6bn in 2016. 65% of banks are considering investing in blockchain technology in order to harness the security of a digitally distributed ledger.

**Innovation and uptake in the DFS space**

Innovation in the DFS space is currently maintained by a good balance between the government and the business sector. The government is providing an enabling ecosystem through the passage of legislation targeted at the financial services sector and providing multiple fora in which business and policy stakeholders can exchange ideas. This is allowing financial institutions to launch new DFS; telcos have to date appeared willing to let banks take the lead on introducing new products. Banks have moved quickly to introduce online banking for current account holders and support this through mobile banking apps, which function largely as an extension of online banking rather than a separate product.

The rise in smartphone usage in particular will encourage innovation in the DFS space. This will be complemented by the upcoming fintech law, which should encourage the development of new products and new partnerships between financial institutions and start-ups. For example, in April 2018 the central bank authorised peer-to-peer lending for the first time, allowing credit fintechs to operate with a minimum capital of US\$288,000, which will increase competition in the sector and benefit consumers through lower prices. However, a challenge is that the focus on the more lucrative market of smartphone-using consumers, who are tech-savvy and prepared to buy several mobile products, means that entry-level consumers risk being overlooked because they offer less profit.

## EL SALVADOR: COUNTRY ANALYSIS

**Maturity of identification and authentication systems**

El Salvador is still in the early stages of developing e-commerce, and there are no official government statistics on the volume of electronic trade. According to the International Telecommunication Union (ITU), internet penetration is growing steadily, reaching 38% in 2017, up by 78% from 2015. The ITU previously reported that 26.9% of Salvadorans used the internet regularly in 2015, up from 24.8% in 2014. Global Findex data indicate that just 3-4% of the population had used the internet to buy items online or pay bills in 2017, however, this is low (compared with an average of 11% in the Latin America and the Caribbean region), reflecting the country's still-low internet penetration rate, high household poverty, very low banking penetration and concerns about security. Yet, at the same time, the penetration rate of mobile phone financial services was 4.6%, compared with a regional average of 1.7% in Latin America, underlining rapid uptake in recent years, notwithstanding still-low overall financial services use.

Although El Salvador lacks a regulatory framework for e-commerce, the Legislative Assembly passed the Law of Electronic Signatures (Ley de Firma Electrónica, Decree 133/2015). The measure allows the Ministry of Economy (Ministerio de Economía - MINEC) to regulate electronic signatures and requires users to register to obtain a private key. Know-your-customer (KYC) covered entities include banks, agricultural credit institutions, pension funds, insurance companies, money exchanges, auditors, accountants, notaries, gaming centres, auto dealers, and securities dealers.

In May 2017, the daily La Prensa Grafica reported that MINEC would introduce a new draft law to the Legislative Assembly specifically addressing e-commerce and identifying relevant rights and responsibilities of both merchants and consumers. Both parties to a transaction would need to confirm their identities by providing data such as email and physical addresses. The reforms remain under deliberation.

Aerocasillas, which features an online shopping platform, reported that internet sales in El Salvador increased by 25% year on year in 2015. The company reported that 90% of its clients ordered their services online, while only 10% went to a physical store to order items. Citing data from Kantar Worldpanel, a global consumer research company based in Spain, a June 2016 article in local newspaper El Diario de Hoy indicated that only 7% of El Salvador's internet users make purchases online, the same as the regional average. Most purchases are of entertainment or lifestyle goods, such as cinema tickets or vacation packages. Although the Salvadoran population remains apprehensive about the security of purchasing goods and services online, such as risks from revealing credit or debit card information, Kantar believes that the general lack of security in the Central American countries will actually generate growth in e-commerce, as consumers gradually turn towards online stores and away from physical brick-and-mortar ones. According to Aerocasillas and Trans Express, US-based logistics companies, the e-commerce market in El Salvador has shown promising growth as Salvadorans increasingly go online to purchase goods from the US. State regulators expect that increased competition will further improve prices and services and extend this into the e-commerce sector.

## EL SALVADOR: COUNTRY ANALYSIS (CONTINUED)

**Adequacy  
of technical  
infrastructure**

In recent years, mobile penetration and mobile internet use have increased steadily. The ITU reported that mobile telephone subscribers numbered 9.3m in 2015, compared with 9.2m in 2014 and 8.9m in 2011. The ITU reported a mobile penetration rate of 112 subscriptions per 100 inhabitants in 2017, with a mobile broadband penetration rate of 29.1 per 100 population. Mobile penetration is considered high given El Salvador's economic indicators, at around one-third higher than the average for Latin America and the Caribbean. Of the estimated total number of telephones in the country, 10% are fixed and 90% are mobile. The country was one of the last in the region to provide LTE services, due mainly to the inadequate provision of a suitable spectrum. The country's leadership role in privatising telecoms has given it an edge over its neighbours in the development of new technologies. América Móvil (Mexico), Grupo IBW (local), Telefónica de El Salvador (Spain) and Tigo El Salvador (Millicom International Cellular of Luxembourg) all offer high-speed data and internet service through cable systems, as well as dial-up internet access.

With the support of the Inter-American Development Bank and the Regional Technical Commission for Telecommunications (Comisión Técnica Regional de Telecomunicaciones), public-private partnerships funded a regional fibre-optic broadband network through Central America and Mexico that takes advantage of the construction of a regional electricity grid from Mexico to Colombia. The project, known as the Mesoamerican Information Highway (Autopista Mesoamericana de la Información), officially launched in 2015 with a fibre-optic network capacity of 4,622 towers. In June 2017, the Central American Bank for Economic Integration (Banco Centroamericano de Integración Económica) signed a Memorandum of Understanding with the Central American Telecommunications Network (Red Centroamericana de Telecomunicaciones - REDCA) to co-operate on the further development of telecoms technologies in the region. The objective is to help the governments finance integrated broadband networks within the context of the Mesoamerican Information Highway, which REDCA is in charge of implementing.

**Reach of information  
and communications  
technology sector**

Based on the latest Global Findex report (2017), which drew on the BCR's 2016 Financial Inclusion Survey, the level of financial inclusion in El Salvador may be at risk of deteriorating, amid continued weak economic growth and a failure to tackle both informality and gender inequity. The data showed that 36.7% of individuals had access to an account in 2014, of which just 4.6% were mobile-access accounts and 34.6% financial-institution accounts. In rural areas, the equivalent figures were: 31.5%, 5.5% and 28.1%, showing that mobile accounts had more uptake in rural areas. In the 2017 data, just 30% reported having access to an account. It is unclear whether financial inclusion has fallen or whether the nationwide BCR survey was more accurate than previous estimates. In terms of digital financial services (DFS), 16% reported having used a mobile for the transfer or funds.

According to BCR interviewees, the goal is for e-money to become a gateway, especially for those in rural areas, to receive salaries, send remittances and pay for basic services through a mobile phone without having to travel long distances. Initiatives such as the 'Aceso' programme between Tigo Money and the Clinton Foundation are helping to promote DFS to women in rural areas, with Tigo Money aiming to transform lives through technology, and support those who historically have not used financial services.

El Salvador's banking system is sound and generally well-managed and supervised. The banking system's total assets as of February 2016 totalled US\$15bn. The Financial System Supervisor (Superintendencia del Sistema Financiero, SSF), an independent regulatory agency, authorises and supervises all financial institutions in El Salvador. In August 2011, the SSF was merged with the Stock Market and the Pension Supervisor in order to create a single, independent regulatory agency which is headed by a Directive Council. The central bank regulates the financial system, administers international reserves and manages the payment system and financial services, and provides services to exporters and importers (Centro de Trámites de Importaciones y Exportaciones - CLEX El Salvador).

By law, all transactions carried out in Salvadoran banks must be denominated in US dollars. Interest rates and fees are set by market conditions. Private banks, branches of foreign banks, state-owned banks and credit unions are authorised to collect funds from the public. The banking industry is competitive due to the presence of foreign banks and the openness of the banking law.

Commercial banking services in El Salvador are provided by 12 institutions: ten private banks and two state-owned banks. The leading private banks, Banco Agrícola S.A. (acquired by Bancolombia), Banco Cuscatlán (former Citibank de El Salvador S.A.), Banco Davivienda Salvadoreño, S.A. (formerly HSBC), Scotiabank El Salvador S.A., and Banco de América Central S.A., account for approximately 95% of the Salvadoran banking sector. Banco Hipotecario and Banco de Fomento Agropecuario are government-owned and account for about 4%. In addition, there are other financial institutions authorised to capture savings from the public, including seven co-operatives and savings and loans.

## EL SALVADOR: COUNTRY ANALYSIS (CONTINUED)

**Electronic transactions, settlement and interconnectedness**

The Law to Facilitate Financial Inclusion does not require inter-operability from the beginning, but it does indicate that the BCR will define it by regulation based on market development. It was felt that imposing inter-operability at the outset could generate high costs or create barriers to entry. There currently are no agreements between e-money providers to create inter-operability. This lack of inter-operability would require development of a complete ecosystem to address providers' technical issues and include agreements between the different players. It would also involve affiliated merchants and existing agents between providers, which would require resources and time to develop.

According to the BCR, the provider Mobile Money (MoMo) does have de facto inter-operability with certain banks, however. The BCR also noted that there has been discussion of a Mobile Payments System Administrator, which would be responsible for clearing and settling transactions between e-money providers. This, therefore, would be a way to facilitate inter-operability. For now, however, and given the limited number of e-money providers (just two in the market), this remains a proposal only.

Tigo Money makes a point of not charging for most e-money transactions. This represents an effort to attract customers and promote financial inclusion. However, the BCR has noted that the country's Financial Transactions Law acts as a deterrent to e-money providers, as it will be applicable to them (it does not affect customers, whose transactions are small). The BCR interviewees also noted that the demands being made by the regulator may also increase the cost of e-money - to the detriment of market development.

In the UN's E-Government Survey 2016, El Salvador ranked 104th out of 193 countries for e-government development, down from 88th position in 2014. The biennial study ranked El Salvador 76th out of 193 countries for e-participation, measuring use of e-government services, down from 45th position in 2014. The Ministry of Finance accepts payment of taxes (both value-added tax and income tax) for businesses and individuals through electronic transfers from certain banks. Both HSBC and Scotiabank (Canada) offer this service. E-government initiatives will probably continue to have only a limited effect on citizen participation given the relatively low internet-penetration level in El Salvador.

**Coverage of overall DFS-related regulation**

With the support of the UN, the US Treasury Office of Technical Assistance (OTA), the AFI and others, El Salvador's central bank is taking a novel approach towards DFS, which draws upon aspects of both the banking and the telco models to create a comprehensive new model for financial inclusion. Several years of work, starting from 2011, resulted in the September 2015 Law to Facilitate Financial Inclusion. Although micro-insurance and other services are future targets for the local authorities, the main focus for now is on e-money (mobile money). The Financial Inclusion Law is chiefly an enabling regulatory framework for e-money. The AFI describes the law as explicitly regulating the characteristics of e-money, the minimum requirements for entities providing e-money, and the authorisation process to offer these services.

In December 2015 the Law on Credit History was amended to provide consumers with the right to access and correct credit information. The law now requires reporting agencies to have at least one no-cost customer service centre in each of the country's three regions (West, East and Central, comprising 14 departments in all).

**Law enforcement and institutional capacity**

The Financial Inclusion Law created new legal figures of e-money suppliers, *Sociedades Proveedores de Dinero Electronico* (SPDEs), allowing for simplified requirements for e-money, including new 'simple savings accounts', as well as enhanced regulation of SPDEs, and reduced costs for the suppliers of e-money. SPDEs, banks, co-operative banks and savings and loan partnerships can all legally provide e-money. Notably, SPDEs do not function as financial institutions, but simply as intermediaries or administrators of mobile payment systems. All providers, including SPDEs, are supervised by the SSF.

The Financial Inclusion Law tightly regulates e-money. The e-money provided by entities is 100% guaranteed by law and held as a deposit in the BCR. Any single transaction cannot exceed US\$300, with monthly transactions limited to US\$1,200. Importantly, 100% of e-money circulated in El Salvador must be guaranteed by a prior deposit in the BCR, and the bank is responsible for controlling e-money in real time. This ensures that the system is fully transparent and guaranteed.

E-money has some advantages over other financial products in the Salvadoran market, one of which is that it does not require a Tax Identification Number (NIT). Industry players had indicated the need to eliminate this requirement since many people did not have the document and were being financially excluded. In addition, an expedited process has been introduced to facilitate the acquisition of an e-money register. However, the process is still subject to onerous requirements by the SSF, which is hampering market development, slowing investment and reducing potential interest.

In El Salvador, the e-money provided by entities is 100% guaranteed by law and held as a deposit in the BCR. This guarantee can only be used to cover the e-money register (100% of the float). This guarantee is crucial to build consumer confidence in the product and drive e-wallet usage across different providers. However, under the financial inclusion law, financial institutions can also offer simplified accounts, an equivalent product to the e-money register, but since it is a deposit these institutions are allowed to intermediate the funds of their clients. The purpose of this is to balance both products (e-money and simplified accounts) in a market where there is no exclusivity to promote retail payments, and therefore facilitate financial inclusion.

To acquire an e-money register: Individuals must only present an original Unique Identity Document (DUI). Non-citizens must present a passport or temporary or permanent resident alien certificate. They then complete a Customer Profile Format, a form that includes the name of the holder, identity document number, address, economic activity, source of income, and name and address of beneficiaries. Finally, the entity must verify that the person does not have another e-money register with them. Once the person has completed this process, the e-money register is ready for use.

## EL SALVADOR: COUNTRY ANALYSIS (CONTINUED)

<b>Level of stakeholder engagement and past experiences</b>	Tigo Money and MoMo are very engaged in the DFS process, yet continue to operate without full and formal authorisation from the financial regulator, despite approval of the Financial Inclusion Law specifically designed to regulate and promote DFS and financial inclusion in the country. The continuing onerous demands and delays on the part of regulatory authorities and banks in order to provide this approval is having deleterious effects on market development, and is acting as a barrier to entry to other potential e-money providers. Another important barrier to entry is the financial transaction tax, which will not affect e-money users themselves (as their transactions are small), but does impact e-money providers.
<b>Overall success of enabling regulation</b>	Although the enabling regulation under the Financial Inclusion Law is considered a novel hybrid approach between the banking and telco models, developed with considerable input from external experts, the development of the market has been slow, amid rather onerous additional regulatory demands by the financial supervisors. Nonetheless, the use of e-money continues to grow among customers of the two existing providers (Tigo Money and MoMo) and the market continues to operate in a 'de facto' manner without yet having received formal authorisation. To date, authorisation for the simple savings accounts contemplated under the Financial Inclusion Law has been given to two public and two private banks, however, the products have yet to be rolled out. Given the continued cultural preference for cash, the AFT and BCR note the need to develop a complete ecosystem to reduce the use of cash, which among other things would allow end users to make purchases at affiliated merchants, receive salaries, make P2P transfers and other transactions. This will require promoting and facilitating retail payments. The other challenge for now is largely centred on financial education, to which end the BCR is continuing with its pilot projects in local municipalities.
<b>Financial literacy and the market for financial products</b>	Although improving, financial illiteracy remains very high in El Salvador, according to the BCR's 2016 national financial inclusion survey, with over half of adults (55%) not using any financial channel in the previous year. With international remittances and local transfers a critical source of income for at least a third of adults, money agencies and ATMs are the most-used financial institutions. In marked contrast to the weak financial penetration, four-fifths of adults (79%) have a mobile phone, meaning that mobile literacy/acceptance is high. However, 35% of adults in that BCR survey felt that mobiles should not be used for financial transactions, underlining lack of trust and/or knowledge about available services.  The BCR's comprehensive 2016 survey was designed to be a platform to promote the national strategy for financial inclusion, including an emphasis on DFS (e-money) as a gateway towards inclusion. However, there has been slow progress since then, with pilot projects delayed or reduced in number (elections in the country interfered with this work). In the absence of broader actions at the official level, financial inclusion is also being prompted by NGOs and the local telecommunication sector operators, already leading the way in DFS. Examples included the partnership between the Clinton Foundation and Tigo to promote women's access to financial services.
<b>Incorporation of the informal economy</b>	With an estimated poverty rate of 35-40%, over half of El Salvador's labour force (57%) is employed in the informal economy, according to the ILO. Only just over a third (35%) of people have any sort of social security coverage (public or private), falling to 17% in rural areas (from a higher 42% in urban areas). Cash dominates in the large informal economy, making financial inclusion, including the use of DFS, challenging. A main challenge with e-money is that users tend to want to immediately cash in funds arriving into their e-wallets (remittances or transfers), meaning that unless small shops and corner stores are able to accept e-wallets (and cheaply), usage of e-money will remain limited.  The Financial Inclusion Law specifically sought to promote easy access for the informal sector to e-money by significantly reducing bureaucracy for providers and users and designing new 'simple savings accounts'. However, there have been problems and delays emanating from the financial regulatory side, as well as from banks, in authorising the (already-operating) e-money providers and in launching the new simplified savings accounts, which is hindering the effort to promote e-money. For banks, these are just another product, and they have no real incentive to promote something that effectively means more competition (from e-money providers).
<b>Innovation and uptake in the DFS space</b>	There are two main e-money companies functionally operating in the market: Tigo Money and MoMo. Combined, Tigo and Momo have over 3,000 agents and 1m users, covering approximately 90% and 16% of the country's municipalities and adult population, respectively. Users can pay invoices, make local money transfers, buy airtime, receive international remittances and perform other transactions (each limited to US\$300 at a time). Tigo Money, which has been operating its service since 2011, reported transactions valued at US\$500m in 2017, including US\$645m in family remittances and 25% of electricity bills paid in the country. Of the remittances, 90% came from the US. Importantly, most transactions on Tigo Money are free - including payments and transfers, as is the e-wallet.
<b>Population perceptions around DFS</b>	Although four-fifths of adults (79%) have a mobile phone, in the BCR's 2016 financial inclusion survey, 35% felt that mobiles should not be used for financial transactions, underlining lack of trust and/or knowledge, and 25% cited security concerns as an issue not to use mobiles for financial transactions. As of 2017, a not-insignificant 16% of adults had actually used the e-money service and, despite initial concerns about the intangibility of e-money, and the security of the mobile platform, users overall were happy with the service, the speed of transactions and the attention received, and would use it again. Remittances and domestic transfers between families are driving use of e-money services. According to Global Findex data, 19% of the population had sent or received domestic remittances through a mobile phone in 2017, up from 13% in 2014.  Public concerns about e-money remain a barrier to broader take-up, underlining the urgent need for more socialisation and an expansion of services to include more pilot financial education projects in local municipalities, as well as a driving need for small 'mom and pop' stores across the country to be able to take e-wallets. Otherwise, the preference of users will remain to 'cash out' their e-wallets upon receipt of a transfer. As in some other countries in the region, to date, digital wallets in El Salvador have been used primarily as a channel to disburse cash.

## HAITI: COUNTRY ANALYSIS

**Maturity of identification and authentication systems**

Low levels of branch penetration in Haiti mean that banks and other providers are looking to innovate through online and mobile banking. This has led to the implementation of new identification and authentication systems for online technology. Banks have adopted globally recognised authentication systems, such as the use of a mobile phone to generate a One-Time PIN code for accessing online accounts and making online transactions. As with opening a bank account in person, applicants for online bank accounts must provide proof of identification, such as passport number, national identity card (CIN) or fiscal identity card (NIF). This is a Know Your Customer (KYC) requirement stipulated by government regulations.

The development of mobile banking has stimulated further innovation, largely led by the private sector rather than the government regulatory framework. Unibank Haiti has introduced fingerprint biometric technology that can be used in conjunction with a smartphone and bank card, which facilitates the spread of branchless banking and allows more Haitians in remote areas to access bank services. Mobile money services are on the increase, with providers such as Digicel's MonCash marketing themselves to both banked and unbanked customers. Haitian regulation requires that mobile money providers must have a bank partner, which means that traditional identification can be used to open an account, coupled with PIN generators and biometric/voice recognition technology once the account is active. Using national identification cards to open accounts provides basic KYC for providers, as registration for identity cards is compulsory in Haiti.

Challenges to identification and authentication system development include a relatively slow uptake of mobile banking and mobile money services in Haiti, which is unusual given a high level of mobile phone penetration. Slow take-up has reduced available investment into the sector, which is preventing the development of new start-ups and greater competition for consumers. In part, this is because of some lingering distrust among consumers regarding the security of mobile phone banking and money services, as well as a lack of knowledge about the services on offer.

**Adequacy of technical infrastructure**

Digital financial services (DFS) in Haiti suffer from a lack of sufficient infrastructure, which is hindering the expansion of DFS across the country and weighing on potential investment into the sector. This stems from long-term economic weakness, which has prevented government investment in infrastructure and left infrastructure development largely dependent on foreign aid and private investment. Haiti has installed capacity of 313 MW but only 60% of this installed capacity is reliable owing to degraded infrastructure and lack of maintenance. This severely curtails the ability of financial institutions to provide reliable online banking services and has driven the sector towards greater use of mobile banking and mobile money to compensate.

Mobile phone penetration is higher, covering 65% of the population. Coverage is highest in the capital and other major cities but coverage in rural areas means that mobile phones are more reliable than online banking services, encouraging the spread of mobile banking. Banks are keen to encourage mobile banking because it is not cost effective to open branches in remote areas. The low level of branch penetration (fewer than two branches per 100,000 population) encourages mobile banking because of the time and labour cost of transporting money to pay into branches and take out money. This move to mobile banking is supported by 2G and 3G services, with Natcom and Digicel also supporting the expansion of 4G. Five of Haiti's ten departments have access to 4G services and all have 2G, while 4G services are largely focused around urban areas. Many Haitians use apps such as Skype, WhatsApp and Viber on their phones to communicate, rather than land-based phone lines, because their reliability is perceived to be greater.

The two main challenges to expanding infrastructure are investment and vulnerability of physical infrastructure. Haiti has experienced major recent natural disasters, such as the earthquake in January 2010 and Hurricane Matthew in October 2016. This caused significant disruption to telecoms networks and external providers were forced to fill the shortfall. The government is reliant on aid and private investment to repair the telecoms network, particularly in the heavily damaged area around Grand Anse. For example, China will provide US\$4.71bn in financing for a data centre in Port-au-Prince that will support internet bandwidth provision. The cost of repair and expansion has deterred some entrants to the market, limiting the potential for infrastructure expansion.

**Reach of information and communications technology sector**

The mobile phone sector in Haiti looks set to continue growing. With a penetration rate of only 65%, there is considerable scope for market expansion. This is higher than the take-up of traditional bank accounts, with 18.9% of adults having a bank account. Only 14.5% of the poorest 40% of Haitian adults have a bank account, meaning that mobile money providers may provide the unbanked with a means of entering the banking system.

The key role of DFS in promoting financial inclusion is recognised by the government and external agencies and is a stated policy goal. A 2009-15 programme funded by USAID and facilitated by the World Council of Credit Unions (WOCCU) aimed to increase financial inclusion by increasing financial service provision to small companies and entrepreneurs in rural and semi-urban parts of Haiti. WOCCU partnered with the Bill and Melinda Gates Foundation to launch the Haiti Mobile Money Initiative (HMMI), registering 85,139 active users by 2015. The regulatory requirement that all mobile money services must be backed by a financial institution as a partner is also a way of bringing the unbanked into the financial system, even if at one remove. However, initiatives such as HMMI have not yet had a transformative effect on the mobile money and banking sector. Public awareness of the services has increased but ongoing hurdles remain in the form of ICT infrastructure constraints and non-mature mobile phone market penetration.



## HAITI: COUNTRY ANALYSIS (CONTINUED)

**Electronic transactions, settlement and interconnectedness**

The key stakeholders in the DFS sector are the country's financial institutions and mobile phone providers, along with the government/regulatory bodies and international agencies, the latter of which often provide policy advice and funding for development of the DFS space. The Conseil National de Telecommunications (CONATEL) and the central bank have played important roles in developing national policy, particularly regarding mobile money and digital transactions. The government has supported this policy development through introducing new regulations, such as a new initiative from 2015 that allows nationals to pay taxes and renew car insurance online. In practice, however, only a small minority of payments are made online or by phone. Online payments are generally free for consumers although merchants may pay a standard transaction fee depending on which provider they use for payment services. The exception is a US\$1.50 charge on international wire transfers introduced in 2011 and generally viewed as a tax on remittances.

The main area of innovation is mobile money, which avoids some of the infrastructure problems facing online payment providers, such as lack of wired internet access. The two main providers are Digicel and Natcom, backed by the central bank's directive that they must partner with a bank to offer mobile money services. Two products offered are Lajan Cash (Natcom) and MonCash (Digicel), which are closed loop payment systems. However, a lack of widespread adoption of mobile money solution means that providers have not been spurred to develop broad inter-operability. Merchants seem to prefer mobile money services offered by financial institutions, as they view them as more trustworthy and like the open loop nature of such transactions provided. A study found that mobile money payments are initially 35% more expensive than traditional cash payments but that this cost is associated with the set-up process and, after this one-off cost, mobile money use is 15% less expensive than the cost of organising cash payments in and out of traditional financial institutions.

**Coverage of overall DFS-related regulation**

Prior to 2010 there was not a strong institutional focus on addressing financial inclusion and encouraging digital financial services in the country. However, following the devastating earthquake of January 2010 the government and international agencies began to focus on improving financial inclusion as a means of addressing poverty and reducing the informal employment sector by reducing the level of unbanked people. This has encouraged the government's adoption of financial inclusion as a key development goal, in co-operation with international partners such as the World Council of Credit Unions (WOCCU).

In practice, more incentives to adopt digital services comes from the private and aid sector. For example, the Bill and Melinda Gates Foundation and the US Agency for International Development (USAID) offered a US\$3.2m award to encourage mobile money providers to reach 5m transactions as part of an overall US\$10m incentive fund. The government continues to make regulatory changes, albeit at a slow pace. The government has committed to modernising the law governing credit banking practices, security instruments and laws on collateral, although the political turmoil of 2016-17 has delayed implementation. The legal framework is not yet compliant with international norms, which slows the expansion of the digital financial services sector. Another hurdle is the lack of legislation regarding data protection, cybercrime and consumer protection. This has contributed to a lack of trust in online banking and mobile money and banking; in some surveys, consumers say that they believe using cash is still safer and more secure than online banking and mobile wallets. In practice, many private companies adhere to international standards of data and consumer protection, especially if they are subsidiaries of multinational companies or partner with international agencies. New regulations currently being drafted aim to increase the reporting requirements for institutions offering mobile banking facilities and require them to provide information to the central bank as the regulator.

**Law enforcement and institutional capacity**

Institutional capacity in Haiti has traditionally been weak, owing to long periods of political turmoil and weak fiscal revenues that complicate long-term training and development. This tendency has been exacerbated by a series of natural disasters such as the 2010 earthquake and the 2016 hurricane, as well as a year-long political crisis in 2016-17. Pronounced 'brain drain' means that Haiti has a large skills gap. Half the adult population is illiterate. There is no specific anti-cybercrime unit within the Haitian police service and no specific anti-cybercrime legislation or regulatory frameworks. Haiti's financial intelligence unit, the UCREF, was restructured in May 2017 in line with the recommendations of the Caribbean Financial Action Task Force (CFATF). However, it is unclear how much the UCREF focuses on policing digital financial services and Haiti still lacks a programme to identify and report the cross-border movement of currency and financial instruments.

As such, regulation falls under the central bank and CONATEL, which have worked with international partners to formulate a national strategy for financial inclusion. The strategy outlines the regulatory and governance framework required to promote and also discusses the role of private partners in long-term implementation. In line with the strategy, the government approved the creation of a credit reporting system, the Bureau d'Information sur le Credit which requires banks and non-bank financial institutions to report borrowing activity. This system was supported by the World Bank as part of a move towards greater regulation of transactions. However, this does not as yet include microfinance institutions, which are an important target market for online and mobile banking. Overall, the regulatory framework for DFS has large gaps, with electronic and mobile banking and money largely uncovered by the current framework. Institutional capacity may start to improve slowly over the medium term as improved political stability has encouraged more international partners to begin working with the government again.

## HAITI: COUNTRY ANALYSIS (CONTINUED)

**Level of stakeholder engagement and past experiences**

Haiti's long history of relationships with international donors means that stakeholder engagement is entrenched within policy formulation and implementation. The central bank formulated the national strategy on financial inclusion in partnership with the World Bank and in consultation with various donors and industry groups. This included discussion with other domestic and international banks and credit unions, as well as with the main telecoms providers, Natcom and Digicel. The main industry regulator is CONATEL, which works with the central bank and government to discuss issues surrounding digital financial services and the extent to which existing telecoms infrastructure can support policy objectives. CONATEL acts as an industry forum for discussion of financial inclusion objectives with private providers and holds regular round-table discussions on topics of interest.

The experiences of telecoms providers have helped shape policy views on how digital financial services should develop. A survey of financial institutions found that they believed that bank-led models would be the best way to develop mobile banking services, rather than being telecoms-led. In addition, they believed that telecoms firms should not offer financial services but work with financial institutions as third-party mobile providers. Although this survey result shows some industry bias on the part of financial institutions, it also reflects some concern within the population about the security of purely telecoms-led models. This has influenced regulatory policy in the sense that mobile money providers must have a financial institution as a partner. This could put limitations on innovation in the DFS sector in the medium term, by closing off avenues for expansion. This also creates a barrier to entry in the sector as a financial institution must approve the mobile partner and confirm that it accepts all regulatory responsibility for the product. In practice, there are only two main providers in Haiti as yet, Lajan Cash (Natcom) and MonCash (Digicel), and these well-established providers are able to secure banking partnerships. In the medium term, this could deter other smaller providers from entering the sector and discourage competition, therefore potentially deterring the development of lower-cost products for consumers.

**Overall success of enabling regulation**

Haiti has introduced some regulation to support the adoption of DFS but is at the very early stages of doing so. There is political will to advance the policy, backed by international support, but very little financial ability to provide the necessary infrastructure. Moreover, the ongoing post-natural disaster reconstruction programme is absorbing most political capacity and budget. Effective regulation includes the publication of the national strategy on financial inclusion, which has facilitated further projects such as a USAID-backed programme to expand innovation in the area of financial access. This includes the FinInc project, which aims to develop a private-sector financial-inclusion platform and include institutions targeting low-income Haitians, such as the Association Nationale des Institutions de Microfinance d'Haiti (ANIMH) and the Association Nationale des Caisses Populaires Haïtiennes (ANACAPH). Other initiatives include the creation in 2017 of a specific unit within the central bank focused on financial inclusion and DFS.

Other regulation targets the development of DFS in the commercial space. The government has legalised electronic payments and electronic signatures and now allows Haitians to pay taxes and renew car insurance online. However, Haiti's legal system has not yet been updated to allow the widespread deployment of electronic payments, which is hindering development of the sector. In the absence of formal regulation, private providers are taking the lead in developing the sector, with international firms such as VISA providing information and assistance. These models are developing in line with international norms but the lack of enabling regulation means that e-payments are being adopted slowly, with some merchants wary of their unclear legal status.

**Financial literacy and the market for financial products**

Financial literacy has historically been weak in Haiti, in line with low levels of overall literacy. Half the adult population is illiterate and establishing basic education provision and boosting child enrolment rates is the main educational priority. However, the government's five-pillar financial inclusion strategy includes the spread of financial literacy as a foundational aim for expanding financial services across the country. Financial literacy education is not provided as standard in Haitian schools, because there is a broad disparity of curricula available depending on a school's funding status. Instead, international agencies and NGOs are the main proponents of financial literacy in Haiti, often as a pillar of broader financial inclusion programmes. For example, local microfinance institute Fonkonze includes financial literacy training as part of its Staircase Out Of Poverty programme, in partnership with its US charity branch. The central bank is currently working on a policy to include financial literacy training in all primary education.

Mobile phone coverage is more reliable than landline or wired internet access in remote rural areas, which encourages a divide in the provision of DFS. In Port-au-Prince, online banking and e-commerce in general are more readily available and so more widely used, whereas mobile money services have greater popularity in rural areas. A survey found that 72% of mobile phone users have a smart phone, which reflects the thriving second-hand phone market in Haiti and also donations from charities and diaspora groups. Mobile money is relatively cheap to use so users without access to the internet can access services such as MonCash through text messages. For MonCash there is no service charge but users must have a Digicel mobile contract. However, many Haitians remain suspicious of non-cash methods of payments, partly because of a lack of knowledge about electronic payment security. The lack of a comprehensive consumer protection law also adds uncertainty to the use of mobile money and banking products, undermining provider efforts to market such products as safe and reliable. New efforts to overcome this challenge include the ongoing development of a financial literacy app for mobile phones, primarily targeted at women, which will guide users through the DFS on offer and help them determine the best one for their requirements. The central bank also provided financial literacy training for journalists in 2017 to enable them to write about and promote DFS.

## HAITI: COUNTRY ANALYSIS (CONTINUED)

**Incorporation of the informal economy**

Haiti has a large informal economy comprising approximately 47% of employment in the adult population. The formal economy largely comprises agriculture (39%), administration (3%) and NGOs (1.2%). Many small businesses operate in the informal sector for various reasons, which include lack of knowledge on how to register a company formally, unwillingness to enter the tax system and concerns about the labour implications of formally registering workers. A side-effect of the high level of informality is a persistently high use of cash transactions, which still make up the majority of transactions. This is connected to a high level of unbanked workers in Haiti. It has also contributed to a poor knowledge of banking services, including online banking, since workers are not familiar with the registration requirements or benefits of entering the formal banking system.

The government is keen to expand DFS to the informal sector because it sees this as a means of slowly bringing workers into the formal sector. By registering for mobile money or banking accounts workers will become indirectly registered with a financial institution, helping the government to build up a profile of informal sector banking usage. For example, mobile money services may accustom users to using DFS, encouraging them to use these in more instances, as well as opening a formal bank account. However, these government benefits may also deter some users, who fear the tax implications of becoming registered for financial services. Some may prefer to use cash in order to remain off government systems, which will remain a deterrent to adoption of some DFS.

**Innovation and uptake in the DFS space**

The main examples of innovation in terms of DFS come from the private sector and the international donor sector. The government is supportive and is slowly amending the regulatory framework to encourage greater uptake of DFS. However, the government does not have the financial resources to launch or sponsor innovation in this sector and so the onus remains on private companies. Innovation has also been sponsored by international groups. Although mobile money providers were preparing to come to market before the 2010 earthquake, the devastation caused by this event meant that international aid offered the best opportunity for expansion. For example, the Bill and Melinda Gates Foundation and USAID offered a US\$3.2m award to encourage mobile money providers to reach 5m transactions as part of an overall US\$10m incentive fund. However, a slowdown in expansion after this target was achieved indicates that the market has not yet reached a transformative point where companies and users will continue to innovate in the sector without external assistance.

International aid agencies also support innovation in the sector, as they seek to find ways to pay staff on the ground and provide transfers to recipients through a cashless system. Lessons learnt in other countries will therefore be applied to Haiti, helping to spread new methods of promoting DFS. The use of microfinance institutions as partners for mobile money or cash out providers will also help to foster acceptance of DFS, as these institutions are generally well-respected within the country. The business sector is also becoming increasingly interested in the possibilities of fintech in the financial inclusion sector, with a two-day summit on fintech in April 2018 including discussions on potential new products that could be rolled out over the medium term.

**Population perceptions around DFS**

Despite the launch of several new DFS over the last decade and injections of donor funding, popular knowledge of the scale and opportunities of DFS remains limited. A survey found that users prefer cash to DFS, even several years after banks began to offer online transactions and mobile money providers MonCash and Lajan Cash launched operations. Informal workers did not seem to find storing cash insecure and in some cases responded that they believed using formal accounts or mobile wallets would be too difficult to be worthwhile. In addition, there is a lack of understanding about the technology behind online banking and mobile money services and a perception that this could be insecure, and lead to a loss of money held either in a formal account or a mobile wallet. Only 2% of Haitians use encryption technology for their internet transactions, indicating either a lack of understanding of the process or inability to pay for internet security services.

Marketing efforts around DFS emphasise the ease and speed of making payments and this is the main positive perception of such services. In particular, emphasis on the ease of receiving government benefits, such as through the Ti Manman Cheri programme, is improving perceptions of their utility in daily life. Another improving perception is their use for receiving remittances from abroad, which has often involved a time-consuming process of visiting a bank branch or money service business to withdraw cash. The international compatibility of DFS providers in Haiti is an important marketing point for improving take-up of their products.

## MEXICO: COUNTRY ANALYSIS

**Maturity of identification and authentication systems**

Mexico has a well-developed financial system for those who can access it and all main financial institutions offer digital financial services, such as online banking and electronic payment facilities. Banamex, one of Mexico's largest domestic banks, allows existing clients to register for BancaNet online banking by quoting their Banamex customer number and then inputting a registration key, which is either their branch code or a securely-generated PIN. Once registered, clients can use their client number and online password to log in securely and carry out electronic transactions.

In August 2017 the Comisión Nacional Bancaria y Valores (CNBV) issued new regulations mandating all banks to introduce fingerprint scanners for customers within the next 12 months in order to strengthen identification and authentication systems. Regulated financial institutions will have to scan fingerprints during the account creation process and for loan and credit card applications. This data can then be electronically compared with data held by the Instituto Nacional Electoral (INE), which maintains an electronic database of all registered citizens with photographic ID, date of birth and address. This new regulation will lead to an immediate improvement in identification and authentication processes, although it is unclear whether all banks are on track to implement the new biometric requirements by the set deadline. Under the new regulation banks will also be allowed to introduce voice and facial recognition technology to improve security of online banking. This is not yet mandatory for all banks given the cost of the technology involved.

Banks in Mexico are legally required to adhere to Know Your Customer (KYC) processes in order to verify the identity of the account holder on registration. On the regulatory side, Mexico has adopted a tiered KYC process, which facilitates access for individuals outside or at the margins of the formal financial system to secure and affordable deposit accounts by simplifying documentation requirements proportionate to the perceived level of risk posed by the customer. At the lowest level, low-risk accounts, in which maximum transactions are capped, can be opened with no ID and without a face-to-face application process. At the highest level, which includes large-scale transactions and loans, face-to-face account opening must be carried out along with multiple identification and authentication documents. The flexibility provided by this tiered system is designed to increase financial inclusion by removing cumbersome administration processes for low-value, entry-level accounts characteristic of those entering the formal banking system for the first time.

**Adequacy of technical infrastructure**

Mexico's large geographical size means that it suffers from a pronounced rural/urban divide in terms of technical infrastructure which has curbed the expansion of digital financial services in certain areas. Approximately 99.2% of the population has access to electricity, although some of this coverage can be patchy and unreliable. The mountainous and southern regions have historically experienced less reliable electricity service than urban areas, such as Mexico City, which enjoy reliable and efficient energy supplies. Despite being the third-largest mobile market in Latin America, the mobile penetration rate in Mexico is among the lowest in the region. 4G connectivity is expanding rapidly, accounting for 50% of mobile connections, but almost all remaining connections are still supported through 3G. Supported by declining handset and access costs, Mexico is expected to achieve universal mobile coverage (above 100%) by 2020; it will be among the last countries to do so globally. This rising mobile penetration rate will support the expansion of digital financial services, particularly in isolated areas.

Mexico has a relatively small banking branch infrastructure, supporting the introduction of innovative financial services. At end-2016 around 81% of rural municipalities did not have a local bank branch, 91% had no ATM, and 78% lacked any establishment with a PoS terminal. The number of PoS terminals has doubled since the banking reform of 2014 encouraged more competition in the sector, but some municipalities still have very limited coverage. This has led to the development of an extensive banking agent network, in which agents offer the services of one or several financial institutions in lieu of a formal branch presence. Although this provides a means of accessing financial services, it is limited, since agents often affiliate to only one institution and do not offer inter-operability. In addition, the use of agents is heavily cash-based, with users withdrawing payments, whether state benefits or remittances, all at once. This retains the problems of a largely cash-based economy, such as vulnerability to theft or loss of cash savings.

**Reach of information and communications technology sector**

Use of digital financial services is also slightly lower than the regional average and very few people use the internet to pay bills or make purchases. The low level of banking use indicates that there is considerable room for expansion of the mobile banking and mobile money sector, which may also allow the unbanked population to enter the digital financial services space. Mobile commerce use is relatively low at present, with considerable scope for expansion, as part of a broader expansion of e-commerce.

The government supports the use of ICT and particularly mobile money services as a means of promoting financial inclusion and in the long term, expanding formal banking services to the currently unbanked. Regulatory changes have encouraged the growth of digital financial services through providing legal certainty surrounding the use of electronic money. In addition, the government launched its national financial inclusion strategy in 2016, specifically targeting an increased use of financial services such as mobile banking, mobile money wallets and digital remittances as a way of encouraging people to move out of a cash-based economy and enter the financial system. Government support therefore encourages the development of products specifically designed to enhance financial inclusion, such as targeting rural and isolated users and particularly the large unbanked sector of the population.

## MEXICO: COUNTRY ANALYSIS (CONTINUED)

**Electronic transactions, settlement and interconnectedness**

Mexico offers a broad variety of digital financial services, encouraged by support from the government and an enabling regulatory framework. The government passed legislation enabling mobile and online banking services in order to encourage the adoption of electronic transactions by financial institutions and businesses. The government has led the way by mandating from 2010 that government departments begin to adopt centralised electronic payments (government-to-government) and then roll this out to government-to-person (G2P) payments on a gradual basis. This is part of the government's Mexico Digital strategy, launched in 2013. This aims to provide electronic banking for G2P services through the government's one-stop e-service portal and promote the use of e-payments and digital financial services in the non-government sector.

A supportive legal environment has encouraged other stakeholders to adopt electronic transactions and innovate with new digital financial services. Regulations encourage inter-operability of systems and all major banking institutions in Mexico connect to each other, allowing consumers to make open loop transactions through online banking. Most banking apps also provide inter-operability as part of an expected level of service: a competitive banking sector means that users are discerning about their choices of bank and keen to utilise inter-operable services. This level of competition has also exerted downwards pressure on costs for digital financial services. Within Mexico, online transactions are usually free or included in standard bank account charges. Card payment fees have also fallen for consumers and merchants as a result of increased competition since the 2014 banking reform. Most banks charge fees for foreign remittance transactions, such as from the US into Mexican bank accounts, although this cost is charged to the sender in the US rather than to the recipient in Mexico.

**Coverage of overall DFS-related regulation**

Mexico published its national strategy on financial inclusion in June 2016 after several years of consultation with stakeholders, including government ministries, international bodies such as the World Bank, businesses and financial institutions and NGOs. This comprises several pillars: the development of financial infrastructure in under-served areas; increased access to and usage of formal financial services among marginalised populations; the advancement of financial education; the use of technology to improve financial inclusion; and the generation of data and measurements to evaluate financial inclusion. A formal government-led strategy will give a necessary structure to Mexico's aim of full financial inclusion and is likely to accelerate the pace of progress. This initiative complements the government's 2013 Digital Mexico strategy to develop a digital economy, including a mobile financial services ecosystem.

The financial inclusion strategy is backed by a series of regulatory reforms undertaken over the past decade in order to provide an enabling ecosystem for digital financial services. A major banking-sector reform was signed into law in January 2014. The reform was an ambitious package that modified more than 30 laws. Its goals included boosting competition through strengthening the Comisión Nacional para la Protección y Defensa de los Usuarios de Servicios Financieros (Condusef, the financial services consumer-protection agency), which was empowered to demand greater transparency from financial services providers and operators. The Comisión Nacional Bancaria y de Valores (CNBV, the regulator) was similarly given greater authority to regulate and sanction those that failed to comply with the law. Secondary legislation in 2014 also allowed non-banking financial institutions to issue cards and receive and make card payments.

Mexico took a major regulatory step forward in December 2017 when it approved a new law on financial technology, which came into force in March 2018. For the first time, this defines digital financial services such as electronic money and crypto-currency and establishes procedures and rules for fintech operations. Previously, Mexico had relied on existing legislation to state that all financial services, including digital and mobile, fell under existing financial service legislation and regulation. Given the extent of innovation in the fintech sector, a lack of definition left some legal gaps in the regulatory framework that have been filled by the new reform. This will stimulate further innovation in the digital financial services space by providing regulatory certainty for providers, developers and consumers.

**Law enforcement and institutional capacity**

Mexico's regulatory environment provides clarity of detail about regulators and also about penalties for misuse of financial services. The CNBV is the main regulator for the banking sector, supported by CONDUSEF, Comisión Nacional del Sistema de Ahorro para el Retiro (CONSAR, the pensions regulator) and the Comisión Nacional de Seguros y Fianzas (CNSF, the insurance regulator). The Instituto Federal de Telecomunicaciones (IFT) is the telecoms regulator and works closely with the government and the CNBV to formulate cross-sector policy, particularly with regard to the Mexico Digital and national financial inclusion strategies. Electronic money issuers fall under the new fintech legislation of December 2017, reducing operational risk for companies or consumers in the sector. As specified by the 2017 fintech law and the 2014 banking reform, all financial services (including digital) are subject to Mexico's anti-money laundering (AML) and counter-terrorist financing (CTF) legislation.

The Mexican government has made sustained efforts to improve the capacity of the country's law enforcement agencies to counter the risk of misuse of the banking system. Mexico's financial intelligence unit (FIU) is well-funded and investigators are regularly trained on using new techniques and investigatory methods to track and dispute financial crimes. In addition, the FIU and other law enforcement teams regularly share information with foreign agencies, particularly the US, and co-operate closely with the US OFAC.

## MEXICO: COUNTRY ANALYSIS (CONTINUED)

**Level of stakeholder engagement and past experiences**

Creating an enabling ecosystem for digital financial services in Mexico has involved sustained stakeholder engaged, generally led and facilitated by the government and particularly the CNBV. This was especially the case in the run-up to the creation of the fintech law, involving two years of discussion between government ministries and agencies, financial institutions and industry representatives. The draft law was circulated around stakeholders for comment before being presented to the legislature and some amendments were made following feedback from industry groups. The level of stakeholder buy-in ensures that financial sector institutions are aware of their requirements under the new regulation and also aware of what opportunities it provides, helping to encourage development of new digital financial services. The fintech law also created the Financial Innovation Group, which is designed to be a forum for the fintech sector and ministries to discuss sector changes on an ongoing basis. An initial task for this forum will be to discuss the secondary supporting legislation for the fintech law. This is currently being drafted and will include specific legislation on the regulation and KYC requirements of e-money issuers.

The discussion of the fintech law and associated financial inclusion policies has also involved close discussion with the telecommunications sector. Innovation in the digital financial services sector has primarily been led by banks but the fintech law provides more opportunities for telecoms firms to enter the sector. The telecoms regulator Instituto Federal de Telecomunicaciones (IFT) holds regular discussions with telecoms providers and financial institutions to discuss innovations in the sector. The government's financial inclusion strategy also involved stakeholder discussions with financial institutions and telecoms groups as well as with NGOs and international bodies such as the World Bank and the Inter-American Development Bank. The government aims to include these entities on an ongoing basis for the development of the strategy and in impact assessments of its implementation. NGOs and charities have been working to promote financial inclusion, often in co-operation with development banks, and this expertise is intended to help inform future strategy formulation, such as in the area of financial literacy initiatives.

**Overall success of enabling regulation**

Mexico currently has a positive enabling regulatory environment for encouraging the expansion of digital financial services, with the recent fintech reform representing a major step forward in terms of providing investor and operator certainty within the sector. Coupled with the telecoms reform of 2014 and the financial sector reform of 2014, digital financial services are now firmly regulated, while increased competition in the telecoms and financial sectors is allowing new entrants to enter the market and offer new products in the digital financial services space. These products are not always directly aimed at boosting financial inclusion, as many target those already with some access to a bank account, such as mobile banking apps. However, some products aim to tap the unbanked or underbanked market, which supports the government's strategy of promoting financial inclusion. Other strategies are being led by the government. For example, regulations encouraging government institutions to use e-payments for G2G and G2P have allowed the government to begin making benefit transfers electronically. A good example is the 'Prospera' conditional cash transfer system, which has 7m beneficiaries. Beneficiaries of this programme automatically have a bank account set up to receive their payments, with a card linked to this that can be used at other outlets. This automatically brings beneficiaries into the banking system using the incentive of benefit payments and also acts to familiarise them with financial tools.

Current bottlenecks for enabling digital financial services remain weak infrastructure in poor and remote areas that hinder efforts to implement new regulation. For example, only 1.2m Prospera accounts are open loop. The other beneficiaries must rely on the ministry of social development to organise mobile ATMs to visit their localities on a regular basis so they can withdraw their benefits. This undermines the impact of having a formal account and does not encourage beneficiaries to use other financial tools or digital financial services. This is a challenge also being experienced by business providers, since mobile money and wallet take-up has been relatively low so far, despite an enabling regulatory environment. Take-up is higher in urban and highly-populated areas where there is supporting infrastructure in terms of mobile phone coverage and reliable internet access. The challenge in expanding product usage in other areas is partly a matter of marketing to potential new users and educating them about the possible use-cases for digital financial services.

**Financial literacy and the market for financial products**

Mexico has specified increasing financial literacy as one of the goals of its national financial inclusion strategy. The government launched its financial literacy educational strategy in 2017 and is currently working with ministries in order to implement these policies. Financial literacy levels are relatively low, below the OECD average, so the main aim is to increase knowledge of financial tools and technology and encourage people to begin using them on a day-to-day basis.

The main bottlenecks in expanding financial literacy come from both the infrastructure and the resource side. Although telecoms and electricity infrastructure is expanding fast, those areas that do not yet have reliable access to digital financial services are not strongly incentivised to begin using them, as it takes time to learn about financial tools for a limited utility if they cannot be used often. In addition, a long-standing reliance on cash transactions means that some people do not see the benefit of moving to digital financial services unless pushed to do so, for example through programmes such as the government's Prospera social benefits scheme. In addition, educators need to be trained in order to promote the financial literacy curriculum, and the government may consult with NGOs and charities that have experience in the sector in order to implement this.

The next step for the financial literacy initiative is to embed financial literacy training into the national curriculum. Other initiatives include the design and creation of a tool-based internet resource for comparing and choosing financial products. This will provide consistent comparison criteria for financial tools and be targeted to all types of users, young or old, financially literate or just entering the market. This is a collaborative project involving the CNVB and the consumer protection agency. In addition, the project will create an e-hub where all financial literacy tools, training and information will be gathered in one place for consumers to access. An ongoing project is to gain more information about financial literacy levels and developments. The CNVB will carry out a national survey on financial inclusion and the results will feed back to inform future financial literacy programmes.

## MEXICO: COUNTRY ANALYSIS (CONTINUED)

**Incorporation of the informal economy**

Mexico's large informal economy provides challenges to the spread of financial inclusion as some actors involved in the informal economy are wary of becoming registered in the financial sector. Around 60% of Mexicans work in the informal sector. Many small businesses operate in the informal sector for various reasons, which include lack of knowledge on how to register a company formally, unwillingness to enter the tax system and concerns about the labour implications of formally registering workers. The informal sector is primarily cash-based. Interaction with the formal banking sector often involves simple withdrawals, such as withdrawal of social benefits from cash machines, and small family-owned businesses often rely on a cash float or savings rather than any type of financial product. Nearly three-quarters of all microenterprises are informal, which constrains their access to the financial sector and results in only around 5% obtaining formal credit. Such informal firms are very limited in their access to credit, as lack of proof of income can make it difficult to complete credit applications or open bank accounts. Informality can therefore perpetuate the cash economy by limiting financial access.

Government initiatives are beginning to bring informal workers into the banked sector, such as through Prospera and other account-creation programmes. Nonetheless, although these informal workers now technically count as banked, the tendency to withdraw all benefits at once in cash undermines the effectiveness of such financial inclusion programmes. The growth of mobile money products is helping to familiarise consumers with the uses and benefits of digital financial services, providing a graduated process for entering the banking sector, with the aim of then transitioning them into the formal sector. The hurdle for this final step is the lack of incentives to encourage informal workers to expand their use of digital financial services.

**Innovation and uptake in the DFS space**

Innovation in the digital financial services space is currently maintained by a good balance between the government and the business sector. The government is providing an enabling ecosystem through the passage of legislation targeted at the financial services and telecoms sectors. This is allowing financial institutions and telecoms companies to launch new digital financial services together, although telcos have so far appeared willing to let banks take the lead on introducing new products. Banks have moved quickly to introduce online banking for current-account holders and support this through mobile banking apps, which function largely as an extension of online banking rather than a separate product. Mobile providers also support banks to offer a variety of services, targeted both at those who use smartphones and are formal bank clients, and also at those who may not have a formal bank account and require a text-message-based service. The potential in the Mexican mobile money market is demonstrated by the presence of international firms, with Samsung Pay launching in Mexico in February 2018. In March 2018 e-commerce giant Amazon (US) introduced its first-ever debit card in Mexico, named Amazon Rechargeable.

The approval of the fintech law in March 2018 should herald a new wave of innovation in digital financial services, as increased regulation surrounding digital products encourages new products and new tie-ups between financial and telecoms firms. Mexico is one of the largest fintech markets, with around 240 start-ups active in early 2018, compared with 158 in August 2016. These focus on payment and remittances, lending, enterprise financial management, and crowdfunding. Targeted customers include SMEs, millennials and low-income workers, as well as entrepreneurs (including in the large informal sector); one priority is to enable customers to receive credit-card payments on their smartphones. The fintech law also permits non-bank financial institutions (NBFIs) to use e-money transactions. The aim is that this will allow the use of e-money to spread through the country's network of an estimated 40,000 banking agents. This will increase security for the agents, which will store less physical cash, and also encourage the uptake of more digital financial services, especially if agents are able to represent more than one type of provider.

**Population perceptions around DFS**

There is a general lack of knowledge around the products and benefits of digital financial services, particularly in the more isolated areas where such products are only just beginning to be marketed. In part this is a reflection of relatively low rates of financial literacy, which is being addressed through the national financial literacy programme. For users who already have a bank account at levels 1-5, there is also a perception that they do not need digital financial services as they are content with their current account provision. A survey of account holders found that 31% believed that they did not need internet banking, 15% that they did not know where to access it, 12% that it is too complicated and 11% lacked trust in online banking. With regard to mobile banking, 34% believed they did not need it, 13% lacked trust in mobile banking and 12% found it too complicated. In addition, it can be difficult to encourage small businesses and merchants to increase use of card payments because they have to pay a small fee.

Marketing strategies focus on emphasising the security of digital financial services, as well as the convenience and time-efficient advantages of using these services. These strategies also offer users incentives to adopt these services. For example, some banks offer loyalty programmes or benefits for users registering for their online banking and mobile banking services. In addition, some entry-level services can unlock access to new services, helping to familiarise users with financial services and gain trust in them. For example, Mexico's development bank is using the government G2P programme to offer micro-credit loans, with the loan repaid on a monthly basis through deductions from government transfers. Such programmes help to build trust in services such as e-payments and prepare the ground for users to upgrade to other digital financial services.

## PARAGUAY: COUNTRY ANALYSIS

### Maturity of identification and authentication systems

Paraguay has a vibrant financial system, with international players such as Itau, BBVA and Sudameris leading on innovation and local ones catching up and offering improved services as a result. For those with a bank account, smartphone and internet access, all main financial institutions offer digital financial services, such as online banking, with most of them operating apps and offering the facility to make and receive payments electronically. In November 2013, Paraguay launched the Sistema de Pagos de Paraguay (SIPAP), an electronic payment system that offers real-time settlements and an automated clearing house for customers that make payments to any other client with an account at local banks or financial institutions. In order to access this service, clients must register for online banking by quoting their account number and inputting a registration key. Once registered, clients can use their client number and online password to log in securely and carry out electronic transactions. Some improvements regarding regulation of e-commerce, digital signature and customer protection have been achieved in recent years.

However, security issues have been encountered, including those relating to education and basic self-protection of personal data. In Paraguay, over 90% of fraud-related incidents in digital services come from clients failing to protect or sharing their own data. Authentication systems and PIN numbers are secure and the protective ecosystem is in place to protect electronic transactions, with the Unit for Security and Technology at the central bank overseeing potential cybersecurity fraud operations.

Banks in Paraguay are legally required to adhere to Know Your Customer (KYC) processes in order to verify the identity of the account holder on registration. On the regulatory side, in November 2013, Paraguay approved a new law to prevent money-laundering and combat terrorist financing. The law took effect in February 2014 and strengthens the rules for reporting on financial transactions. Individuals and financial institutions must now provide significantly more information about their financial transactions and identities. At the lowest level, low-risk operations, in which maximum transactions are capped to US\$10,000, there is no need to provide documentation of related operations. By the highest level, which includes large-scale transactions, multiple identification and authentication documents are needed and clients must fill in a form explaining the origin of funds to the Secretaría de Prevención de Lavado de Dinero o Bienes (SEPRELAD, the Paraguayan anti-money-laundering agency).

### Adequacy of technical infrastructure

Paraguay's population is highly concentrated. This means that other areas suffer from worse access to financial services infrastructure. For instance, Central and Asunción account for 51% of financial institutions and 39% of the adult population in the country, while Alto Paraná and Itapúa account for 11% and 8% of financial institutions respectively, compared with 11% and 8% of the adult population, respectively. Progress has been achieved in recent years and now only 11.8% of districts have no financial services infrastructure, down from 28% in 2013. Paraguay has on average 17 points of access for financial services per 10,000 adults. Electronic payment companies cover 243 out of 245 districts in the country. More than 98% of the population has access to electricity, although some of this coverage can be patchy and unreliable. Nonetheless, this is a good foundation for the expansion of digital financial services as much of the infrastructure is already in place, but needs capacity upgrades.

The mobile penetration rate in Paraguay is high, at 96% in 2016. Advanced fourth-generation (4G) mobile connectivity is being installed in Paraguay and expanding rapidly. Tigo LTG 4G is committed to investing US\$11m in the coming years in a bid to expand coverage to 66% of the population. This rising quality, connectivity and penetration rate will support the continuous expansion of digital financial services.

Currently, there are 11,250 access points for digital payments and three electronic payment companies: Tigo, Personal and Claro. All of these companies are mobile phone operators. Even though the commission for money transfers from physical points can be considered high, at 5%, Tigo Money offers several services at no costs, including payments of bills, purchase of mobile phone credits and e-wallet payments.

### Reach of information and communications technology sector

In Paraguay, the mobile phone sector reaches nearly 100% of the adult population and is a key driver for financial inclusion. More than a decade of constant growth and adequate regulation has led to Paraguay's mobile money sector being considered as one of the leaders in the region and a mature and stable sector that is an example for other countries to follow. Regarding banking, Paraguay lags behind in most of the traditional metrics for points of access to ATMs, branches and non-financial correspondents. However, penetration is rising, with 49% of adults holding a bank account in 2017, up from 22% in 2011.

The government supports the use of ICT and particularly mobile money services as a means of promoting financial inclusion and, in the long term, expanding formal banking services to the currently unbanked. Regulatory changes have encouraged the growth of digital financial services through providing legal certainty surrounding the use of electronic money. In addition, the government launched its national financial inclusion strategy in 2014 that specifically targets increasing access and use of financial services such as current accounts, mobile banking, mobile money wallets and digital payments as a way of encouraging people to move out of a cash-based economy and enter the financial system. Government policies encourage the development of products specifically designed to enhance financial inclusion among the unbanked sectors of the population.



## PARAGUAY: COUNTRY ANALYSIS (CONTINUED)

**Electronic transactions, settlement and interconnectedness**

Paraguay offers a broad variety of digital financial services, encouraged by support from the government and an enabling regulatory framework. The government passed legislation enabling mobile and online banking services in order to encourage the adoption of electronic transactions by financial institutions and businesses. The SIPAP, a system that allows bank account holders to transfer money to bank accounts free of charge, in real time and securely with no physical documents required, was launched in 2013.

A supportive regulatory environment has encouraged stakeholders to adopt electronic transactions and innovate with new digital financial services. Inter-operability of systems is in place for banks that connect to each other, allowing consumers to make open-loop transactions through online banking and apps. A bank account holder can also make payments to mobile money wallets, although what is missing is the inter-operability to allow mobile phone money account holders to transfer money to bank accounts. The central bank is currently working on a full inter-operability system that would allow such operations and expects to have it in place within a year. This represents an opportunity for growth in Paraguay, allowing people to send remittances and payments regardless of which network one belongs to or the destination.

In terms of costs, competition had led to transactions costs being stable or lower year on year. Currently, average transaction costs for debit, mobile transfers and credit card payments stand at 3%, 4% and 5% respectively.

**Coverage of overall DFS-related regulation**

Paraguay was well aware of the need to improve financial inclusion back in August 2012, when it first approached the World Bank for support and ideas on how to address this issue. It was clear from the beginning that a non-traditional approach was needed as the geography and economic environment prohibited a significant expansion of traditional banking services. The central bank initiated a learning process with mobile money operators by first allowing for over-the-counter money transfers, in which clients could send and receive cash from other clients from the same mobile operator. This ecosystem evolved into one in which people could send money to one another through e-wallets and store e-money in their own mobile accounts. The regulator understood the potential from the outset and with support from international agencies, such as the IDB, adapted and adopted state-of-the-art regulation to the local context. To date, there is still some opposition from traditional banking about the involvement of EMPE's in the creation of e-money, but the central bank has been able to continue supporting the system while providing adequate supervision and risk-mitigating regulation.

Paraguay launched its national strategy on financial inclusion in 2014 after broad consultation with stakeholders, including government ministries, international bodies such as the World Bank, businesses and financial institutions and NGOs. The plan established a roadmap for financial inclusion in the country, stating clear indicators and targets in seven thematic areas. Moreover, the government also defined the governance mechanism for ENIF by establishing a National Committee for Financial Inclusion, with representatives of the Ministry of Finance, the central bank, the Technical Secretariat for Planning and the Co-operative regulator.

**Law enforcement and institutional capacity**

Financial inclusion is a national policy endorsed by presidential decree in 2014. ENIF launched its strategy and supported improvements in regulation and rules promoting and enhancing adaptation of financial services to vulnerable populations. ENIF is composed of public and private stakeholders including banks, EMPES, financial institutions, government agencies and NGOs. There are seven working groups that hold monthly meetings to advance financial inclusion in the country. Some key milestones reached are: increased coverage of financial services, which are now present in 98% of municipalities in Paraguay; changes in regulation of basic bank accounts that helped lift the share of adults holding a bank account; and the launch of the financial education campaign called "Mas vale saber" ("it's better to know") that reached 3m people in Paraguay in March 2017.

The central bank is constantly improving risk-based bank supervision. Paraguay's regulatory environment provides clear details about regulators and penalties for misuse of financial services. The BCP is the main regulator for the banking sector, and since 2014 it has also regulated digital financial services. The Paraguayan approach is seen as an example of enabling regulation that allows the continuous growth of the industry.

In March 2014, the central bank issued a regulation relating to electronic payment methods, the purpose of which was to manage the issuance of non-banking electronic money and electronic transfers. Since then, companies offering mobile financial services have to become licensed e-money issuers or Entidades de Medios de Pago Electrónicos (EMPE). The main objective of the central bank is to support EMPES' initiatives and grant them the necessary legal security. EMPES can issue money but are required to deposit an equivalent amount in a trust fund at the central bank. Currently, there are four companies that hold this licence: Tigo, Claro, Personal and Bancard.

## PARAGUAY: COUNTRY ANALYSIS (CONTINUED)

**Level of stakeholder engagement and past experiences**

One of the working groups at ENIF is the payment group that is represented and headed by mobile-phone provider representatives. The role of service providers is highly important and relevant and their commitment is key to the perceived success of the enabling environment for digital financial services in Paraguay. Stakeholders share ideas and goals that are implemented and adopted within the framework of ENIF. Moreover, overall regulation is based on the principle of enabling businesses to innovate and pilot new ideas so that the regulator can learn and then regulate the new product introduced in the market.

Paraguay's digital financial services ecosystem is nevertheless facing a continuous struggle in terms of power-play between traditional banking and mobile money operators serving increased numbers of clients. Balancing the views of different groups is difficult for the central bank because it traditionally looks for self-regulation rather than an enforcing approach. For instance, on inter-operability, banks are reluctant to offer their networks that are based on traditional banking networks, branches and points of access by investing huge amounts of capital. Banks see inter-operability as a reward rather than an opportunity; as a result, the regulator has so far decided not to force operators into inter-operability after evaluating potential costs and benefits.

Regarding competition between banks and EMPEs in Paraguay, there is clearly a perception of unfairness from banks that see the mobile money business as a threat to their market. For instance, countries such as Bolivia, Colombia, Mexico and Peru establish minimum capital requirements for registering new EMPEs, but Paraguay has not put these requirements in place. Conversely, the treatment of interest on funds that are transferred electronically is different for banks and financial institutions and EMPEs; EMPEs cannot earn interest on funds as their transactions are not based on actual accounts.

**Overall success of enabling regulation**

Paraguay currently has a positive enabling regulatory environment for encouraging the expansion of digital financial services, with regulation adapted and improved to provide certainty within the sector. The increase in the number and volume of transactions is impressive.

Products are not always directly aimed at boosting financial inclusion, as many target those already with some access to a bank account. However, indirect results have often facilitated an increase in financial inclusion. A good example is the improvement of payment systems for the conditional cash transfer programmes Tekopora and Abrazo. Currently, over 70% of all payments reaching approximately 152,000 beneficiaries are based on digital services.

Weak infrastructure, especially internet access in poor and remote areas hinders efforts to widen and broaden the expansion of digital financial services. There is clearly a need to improve financial education and bolster small businesses in rural areas that can support the adoption of innovation and new products. The challenge of expanding product usage in other areas is partly a matter of marketing to potential new users and educating them about the possible benefits of digital financial services.

**Financial literacy and the market for financial products**

Financial literacy levels are low. Only 10% of adults reported some training on financial issues in 2013, leading the government to specify a doubling of financial literacy levels as one of the goals of its national financial inclusion strategy. ENIF launched its financial literacy educational strategy in 2014 and is currently working with ministries, donors, and public and private organisations in order to implement these policies; particularly through the Ministry of Education and Sciences, which in 2014, thanks to the co-ordination and work of the financial education working group at ENIF, had incorporated Financial Education and Economics into the national curricula for students in their third year of high school. This strategy builds on programmes already being carried out by NGOs, international bodies such as the World Bank and charities, which have been active in promoting financial literacy programmes for many years. This strategy had reached another milestone thanks to the implementation of the "Mas vale saber" financial education campaign in 2017. As part of ENIF efforts, the third week of March has been designated as 'financial education week'.

The main impediments to expanding financial literacy in the past came from a lack of co-ordinating policies and investment, coupled with a failure to educate people about the benefits of participation in the financial sector. Financial literacy initiatives have, however, gained momentum in Paraguay in recent years, with greater awareness of the benefits of the adoption of financial services. However, there has been criticism that there is still inadequate investment in this respect. In addition, considerable efforts need to be implemented in the area of consumer protection (most complaints about consumer protection relate to alleged breaches involving financial services related products).

## PARAGUAY: COUNTRY ANALYSIS (CONTINUED)

**Incorporation of the informal economy**

Paraguay's large informal economy provides challenges to the spread of financial inclusion. Nearly 40% of the Paraguayan economy is informal and the estimated value of the informal sector is US\$11bn. Most small businesses operate in the informal sector for various reasons, including the burden of bureaucracy of existing system, lack of knowledge on how to register a company formally, unwillingness to enter the tax system and concerns about the labour implications of formally registering workers. The informal sector is primarily cash-based. The size of the informal sector is a clear deterrent for the expansion and adoption of financial services, as potential users who rely on the informal sector economy do not have financial records to complete credit applications or access other financial services of quality. Informality can potentially perpetuate the cash economy by limiting financial access.

The government is creating an improved ecosystem for micro and small enterprises that can reduce costs and bureaucracy, thanks to initiatives such as one-stop shops for registration of businesses and supporting use of ID cards for preferential services, including financial access at government-owned financial institutions. The growth of mobile money products is helping to familiarise consumers with the uses and benefits of digital financial services, providing a graduated process for entering the banking sector, with the aim of then transitioning them into the formal sector.

Further expanding digital financial services to the informal sector would bring considerable benefits. One mechanism under discussion at ENIF payments working group is to provide incentives for the use of e-money for individual workers or small businesses. Paraguay currently does not offer any such incentives unlike, for example, Uruguay, which offers a reduced Value-Added Tax (VAT) rate when debit cards or e-money are used. The introduction of such incentives is unlikely in the short term, as it would reduce government tax revenues that are already considered low in the country, but it could be a future tool for promoting financial inclusion and reducing informality.

**Innovation and uptake in the DFS space**

Innovation in the digital financial services space is facilitated by a broadly co-operative relationship between the government and the business sector. The government is providing an enabling ecosystem through the passage of legislation targeted at the financial services and telecoms sectors. This is allowing partnerships that have led to new digital financial services, such as programmed savings and micro insurance products to serve currently excluded populations. Banks offer online banking for current-account holders and support this through mobile banking apps, which function largely as an extension of online banking rather than a separate product. Mobile providers also offer a variety of services, targeted both at those who use smartphones and middle-class clients, and also at those who may not have a formal bank account.

A challenge for the expansion of such products is to increase financial literacy that can boost take-up of savings, insurance and other key financial products among prospective customers. The focus on the more lucrative market of smartphone-using consumers implies that vulnerable populations would be overlooked. Some initiatives, such as Pago Movil from Bancard, who is the main issuer of debit and credit cards in the country, target those consumers that already have credit and debit cards. Other initiatives, such as the Tigo Money card, from the main mobile phone operator in the country, target those who currently do not have cards by offering a debit card for ATMs and payments through POS services that is linked to their e-wallets.

The size and growth of the digital financial services industry in Paraguay is considerable. The focus should now be on enhancing the range of services and improving regulation, such as inter-operability of services, so payment and remittances can be shared across mobile money and banking systems. There is clearly an opportunity for further developing digital financial services in the country.

**Population perceptions around DFS**

There is room for improvement regarding knowledge of the products and benefits of digital financial services, particularly in terms of the potential to facilitate a broader range of services to vulnerable sectors of society. This situation reflects relatively low rates of financial literacy, which is being addressed through initiatives at ENIF and particularly by including financial literacy on the national curriculum. Innovative products that serve both middle-class and vulnerable populations have the potential to offer practical solutions that can be broadly adopted. Examples of these services are Tigo money card (Tigo) and Pago Movil from Bancard.

Financial literacy programmes are addressing the lack of knowledge about financial products, but there is still a need for serious commitment to and investment in financial education campaigns that can reach a broad audience and impact their financial decisions on the adoption of digital financial services. The high penetration of mobile phone services allows operators to explore a wide range of innovative products and services, including digital financial services. However, most operations remain basic, as customers mostly use digital financial services for transfers and remittances, therefore limiting the potential scope as a tool for development. The main incentives offered by mobile phone operators consist of providing mobile phone credits on customers' calls.

## PERU: COUNTRY ANALYSIS

### Maturity of identification and authentication systems

Peru has one of the best enabling environments for financial inclusion in the world and this has allowed digital service providers to offer secure and sophisticated identification and authentication systems. All major banks offer online banking with the facility to make and receive payments electronically. Banco de Credito de Peru, one of the country's largest domestic banks, allows existing bank holders to register for online banking using their existing credit or debit card details. Users can then set an online passcode and generate a separate passcode for telephone banking. CAPTCHA technology is used as standard for each login to prevent hacking. Most banks also offer mobile phone banking through apps, which allow users to make payments in soles or dollars using their pre-set passcode.

Banks in Peru are legally required to adhere to Know Your Customer (KYC) processes in order to verify the identity of the account holder on registration. Applicants for an account must come to the branch to sign documents and present identification to prevent online identity theft, although application forms can be downloaded online. The key documentation is the national identity card (DNI), which cannot be substituted with other documentation by Peruvian nationals. Having one standardised piece of identification makes it easier to prevent fraud. The DNI card includes a cryptographic chip to prevent forgery and the government maintains a centralised electronic DNI registry so that banks and other institutions can check the validity of DNI documentation. The government has promoted the use of e-ID as part of its national financial inclusion strategy, approved in 2015, and is encouraging financial and mobile institutions to promote e-IDs as part of their identification process.

### Adequacy of technical infrastructure

Digital financial services in Peru suffer from a rural/urban divide, which means that consumers in urban areas are far more likely to take up mobile banking and mobile money services. This is linked to the country's geographic divide. The coastal urban areas benefit from greater infrastructure development and maintenance while Peru's remote Andean and Amazon areas are extremely limited in terms of infrastructure provision. Approximately 92.9% of the population has access to some electricity. However, this falls to 74.5% in rural areas, compared with 98.9% in urban areas. In addition, electricity services in remote areas can be unreliable and prone to blackouts, often providing only a few hours of electricity per day. This has curtailed the expansion of digital financial services in remote areas, despite Peru's generally supportive electricity coverage. The government is investing in electricity expansion projects with the stated aim of reaching 100% electrification in rural areas by 2021. Although it is unclear whether the government will meet this goal, sustained efforts to expand rural electrification will support the medium-term expansion of digital financial services in these areas.

Mobile phone penetration in Peru is high, at 71% in 2016, and this is forecast to rise to 84% by 2020. Smartphone adoption is also rising, from 31% penetration in 2016 to 56% by 2020. The expanding availability of 3G and 4G services supports the expansion of mobile banking and mobile money services. In 2016 2G, 3G and 4G market share stood at 45%, 28% and 16% respectively. By 2020 these proportions are set to change to 25%, 38% and 36% respectively. Mobile and 3G/4G coverage is highest in the capital and other major cities but coverage in rural areas means that mobile phones are more reliable than online banking services, encouraging the spread of mobile banking. Banks are keen to encourage mobile banking because it is not cost effective to open branches in remote areas. The low level of branch penetration (at 13.71 per 100,000 inhabitants) encourages mobile banking because of the time and labour cost of transporting money to pay into branches and take out money. The potential for expansion of digital financial services is indicated by the positive uptake of voice messaging services such as Skype, Whatsapp and Viber, which are frequently used instead of landlines because of perceived greater reliability and their ease of use.

### Reach of information and communications technology sector

The reach of the mobile phone sector is larger than the reach of the banking sector, supporting greater take-up of mobile banking and mobile money services. Mobile phone penetration is at 71% but banking-sector penetration is much lower. Moreover, use of digital financial services was also low on a regional comparative basis. A tiny fraction of the adult population uses the internet to pay bills or make purchases. This low level of banking use indicates that there is considerable room for expansion of the mobile banking and mobile money sector, which may also allow the unbanked population to enter the digital financial services space.

The government supports the use of ICT and particularly mobile money services as a means of promoting financial inclusion and, in the long term, expanding formal banking services to the currently unbanked. The government has led innovation in this space, for example by partnering with financial institutions, telecoms companies, microfinance institutions and other providers to offer BiM, the country's first fully-operable national mobile money system. Strong government support for the expansion of digital financial services will encourage other providers to enter the market, increasing competition and providing a broad choice for consumers.

## PERU: COUNTRY ANALYSIS (CONTINUED)

**Electronic transactions, settlement and interconnectedness**

Peru offers a broad variety of digital financial services, encouraged by support from the government and an enabling regulatory framework. Electronic payments and signatures are legal in Peru and the government offers a number of electronic payment services for government services. Peru has a digital government taskforce managed by the president of the council of ministers. This is responsible for formulating and promoting government to citizens (G2C) and government to government (G2G) electronic payments. For example, Peruvians are able to pay their taxes electronically and the government heavily promotes the electronic identification services provided by registering the national identity card electronically.

Government-led innovation in the digital financial services space has encouraged other stakeholders to promote their own services. Several banks launched their own mobile payment systems, although these were closed-loop, which restricted payments to accounts at other banks and did not have inter-operability with other banks. This closed-loop service led to limited take-up of offerings such as Billeteria Movil and Wanda, encouraging stakeholders to explore other service options. In 2015 telecoms provider Movistar partnered with MasterCard to launch Tu Dinero Movil, a service designed to function on old phone handsets as well as smartphones. Although this only operated on the Movistar network, the size of this network (16m users) and its affiliation with MasterCard outlets indicated the broad use potential of interoperable services.

The government led a project to create and launch a fully inter-operable mobile money service with financial institutions, telecoms companies, microfinance institutions and other providers. Rival banks and telecoms operators were incentivised to join by the prospect of a linked digital financial services platform and the prospect that they might see a fall in their customer base if they were not involved. As BiM operated only on mobile phone networks for the first year, this was a low-cost solution for consumers, who only needed to pay the cost of a text message for each transaction. The government caps the transaction fee so it is lower than the fees charged by agents at money service businesses. This aims to incentivise users to switch to BiM and gradually become incorporated into the formal banking sector. There are 26 financial entities offering inter-operable services within BiM and money can also be sent to designated agents for individuals without accounts to withdraw the funds. The broad-service and low-cost model of BiM is proving successful, and aims to reach 2m users by 2020. The initial success of BiM may have the negative impact of reducing competition in the sector, as smaller services become affiliated to BiM or lose customer share. Nonetheless, the collaborative effort behind BiM (known as Modelo Peru) looks set to encourage further innovation as BiM expands its services to include interaction with government electronic payment systems.

**Coverage of overall DFS-related regulation**

Peru published its national strategy on financial inclusion in 2015, which encompassed 65 actions to be taken, including the expansion of regulation covering digital financial services. These 65 actions are nearly all completed and are currently under review. In 2012 Peru approved law 29985 on e-money, which has proven to be one of the foundational pieces of legislation enabling digital financial services. This law allows banks and non-banks to issue electronic money and includes a clear definition of e-money, as well as a stated intention to use e-money as a tool for financial inclusion. Supplementary regulations added in late 2013 allowed e-money providers to use a streamlined account opening process, with the aim of making it easier for the unbanked and rural and poor users to access the service. The legislation does not mandate that e-money must be used for particular transactions, given the infrastructure constraints in some geographic areas. Instead, the regulation is designed to create an enabling ecosystem that will encourage private-sector providers to innovate and bring new products to the market.

The 2012-13 law also supplements Peru's existing consumer protection laws to ensure that e-money is covered, providing reassurance for users and also legal certainty for investors in the sector. All e-money issuers are required by law to keep the equivalent of all account holder deposits in a trust account to ensure that all withdrawals can be covered. The creation of a trust account also provides reassurance to users that their funds will not be misused or embezzled, therefore overcoming one of the popular misconceptions about the potential cyber-vulnerability of e-money technology. The governance around digital financial services is further supported by Peru's comprehensive Law for Personal Data Protection 29733, which was approved in 2011 and enacted in 2013. This specifies the security requirements for the holding of data, applicability to all Peruvian database holders and the use of electronic signatures or biometric technology to validate data transactions. This legislation has allowed digital financial service providers to go ahead in launching products without having to wait for the regulatory framework to catch up with innovation in the sector.

New legislation is currently being drafted to cover the uses of new technology and how these should be applied and monitored. This will provide further regulatory support for entrants into the market. The government is also emphasising the business advantages of using digital financial services. In particular, using these services is cheaper and more efficient than cash transactions, which can involve time-consuming travel to bank branches to pay in or out. Moreover, the government supports this migration by allowing businesses to file and pay taxes online, streamlining the process. However, although the tax and fiscal side provides sufficient incentives for many businesses to expand their use of digital financial services, the time efficiency provides more of an incentive for individual users, particularly those in rural or remote locations.

## PERU: COUNTRY ANALYSIS (CONTINUED)

<b>Law enforcement and institutional capacity</b>	<p>The comprehensive nature of Peru's regulatory framework means that institutions are aware of their legal requirements regarding digital financial services. The financial sector is regulated by the Superintendence of Banks, Insurance and Pension Funds Administrators (SBS). The SBS assesses that it covers approximately 98% of the financial sector through its regulatory capacity. SBS policy is closely in line with international standards, specifically the Bank for International Settlements and the International Financial Reporting Standards. The SBS works closely with the Peruvian central bank, which has oversight of monetary policy, in order to formulate policy on financial inclusion and digital financial services. The SBS is constitutionally independent and so is not the subject of political interference that could undermine its policy objectivity.</p> <p>The SBS's role as regulator means that it engages closely with public- and private-sector stakeholders in order to formulate new policy and regulation. For example, the SBS provided supplementary regulation to its 2012 law on electronic money following feedback from e-money providers that lengthy account opening processes were acting as a disincentive to take-up among poorer and rural consumers. The SBS forms part of a commission that also includes the central bank and ministries of finance and the economy in order to ensure policy coherence across the sector. As a regulator of e-money issuers as well, the SBS holds regular meetings with these stakeholders, as well as with bodies such as the Association of Peruvian Banks (ASBANC).</p>
<b>Level of stakeholder engagement and past experiences</b>	<p>Although the financial sector and the SBS have played a primary role in formulating policy on financial inclusion and digital financial services, this has involved sustained stakeholder engagement with the telecoms sector. The main telecoms companies operating in the country are Claro, Movistar and Entel, as well as the smaller Viettel, Inkacel and Bitel. The competitive market has stimulated innovation as operators strive to find new ways of attracting clients and keeping costs low. The regulator is OSPITEL, the Supervisory Agency for Private Investment in Telecoms. OSPITEL takes a proactive approach in engaging with telecoms firms and holds regular policy discussion groups. OSPITEL has produced new regulation to increase inter-operability and competition between networks, which facilitates the growth of inter-operable mobile money products.</p> <p>OSPITEL also contributed to the formation of the national financial inclusion strategy through policy discussions with the SBS and other stakeholders and contributes to ongoing updates to the strategy. OSPITEL and telecoms operators were heavily involved in formulating the design and roll-out of BiM, the country's first fully-operable national mobile money system. BiM is operated by Peruvian Digital Payments (PDP) and the technology is provided by Ericsson. PDP partners with 37 financial institutions and its stated aim is to promote the use of digital financial services, spearheaded by BiM, and develop an attractive ecosystem for new products. Telecoms engagement was key to the successful design and roll-out of this service, as its key selling point for consumers is that it can be accessed through nearly all mobile networks and provide access to nearly all financial institutions. Without buy-in from telecoms operators, it would not be such an attractive service. Networks that offer BiM advertise it as part of their services, as well as participating financial institutions.</p>
<b>Overall success of enabling regulation</b>	<p>Peru's regulatory framework is supportive of the expansion of digital financial services and provides legal certainty and guidelines for entrants into the market. Key pieces of legislation, such as law 29985 on e-money and the comprehensive Law for Personal Data Protection 29733, have largely enabled the regulatory framework to keep up with new advances in the digital financial services space and ensure that new services are adequately regulated. This has provided the framework for widespread adoption of digital financial services and the government has demonstrated its commitment to the initiative by promoting electronic payments for government services through its e-portal. The government will continue adding e-payment services, such as transfers of benefits to recipients, as a means of developing the ecosystem of digital financial services and familiarising users with its benefits and usability.</p> <p>This enabling regulation has incentivised private-sector operators to bring new products to market, either through individual operators or as a collaborative effort such as BiM. Some products have proved largely unsuccessful, often because of product and technological design that did not fit users. For example, some early mobile money wallet products did not gain widespread usage because they could not be used on some of the older handsets still in use among their target poorer and rural markets. Newer product offerings focus on interoperability, both between networks and banks and between types of handsets, therefore expanding the potential customer base. Peru now offers a broad variety of digital financial services, ranging from straightforward online banking and transactions to a variety of mobile money and banking services. Competition between providers has led to low transaction costs, benefiting consumers and increasing uptake of the services. For example, many of BiM's services are free, with others costing a maximum of 1% transaction fee.</p>
<b>Financial literacy and the market for financial products</b>	<p>Peru has specified increasing financial literacy as one of the goals of its national financial inclusion strategy and will include updated financial literacy goals in its pending update to the national strategy. Education on the financial sector, including the benefits of bank accounts, how to use them, and how these can be applied in a business context, has been included in the national curriculum for secondary education since 2009. However, an impact assessment carried out by the SBS in 2016 found that, although financial literacy was improving as a result of education in schools, it would have a greater impact if included at an earlier age. The secondary school enrolment rate in Peru is 77.7%, with lower enrolment rates in poorer and rural areas. This means that financial inclusion education is failing to reach its key target demographic, in the areas where communities are already likely to have a low banked rate and limited access to digital financial services. As a result, since 2017 financial literacy initiatives are included in primary school curricula as well. This includes education about new financial technology such as mobile money wallets and how these can be used in daily life. The primary enrolment rate is much higher than secondary, at 94.1%, meaning that the new financial literacy programme will have greater reach and impact.</p> <p>However, a limiting factor to this new educational strategy is that not all teachers have yet been trained in financial literacy themselves. In addition, textbooks have not yet been updated to include the new technology supporting digital financial services. The key challenge to improving national financial literacy rates in Peru is to target the youth population and get them accustomed to using and discussing digital financial services from an early age. Financial literacy programmes have an awareness impact but need to be combined with adoption and regular use in order to embed digital financial services as a regular tool for individuals and businesses. Engaging young adults in the design of new digital financial services will therefore have an educational effect as well as allowing service providers to target their services more effectively and ensure greater take-up.</p>

## PERU: COUNTRY ANALYSIS (CONTINUED)

**Incorporation of the informal economy**

Peru's large informal economy provides challenges to the spread of financial inclusion as some actors involved in the informal economy are wary of becoming registered in the financial sector. A high 73.2% of Peruvians work in the informal sector. Many small businesses operate in the informal sector for various reasons, including lack of knowledge on how to register a company formally, unwillingness to enter the tax system and concerns about the labour implications of formally registering workers. Those most likely to be employed informally are women (76%), workers under 30 (80%), low-income workers (99%) and agricultural workers (97%). The regions with the highest rates of informality are Huancavelica (91%), Ayacucho (89%), Puno (89%), Cajamarca (88%) and Amazonas (88%). These regions are also geographically remote, meaning that informal workers are likely to have limited access to digital financial services. Peru's informality rate is set to halve by 2050, although this still leaves nearly 40% of workers outside the formal sector. This therefore provides a long-term challenge of how to expand financial inclusion to the informal sector and encourage adoption of digital financial services.

One result of the high level of informality is a persistently high use of cash transactions, which still make up the majority of transactions in the informal and poorer sectors of society. Cash payments comprise approximately 84% of household and small business payments, with about 95% of their savings also being in cash. This is connected to a high level of unbanked workers in Peru. This has contributed to a poor knowledge of banking services, including online banking, since workers are not familiar with the registration requirements or benefits of entering the formal banking system.

**Innovation and uptake in the DFS space**

The government has been a major proponent of innovation in the digital financial services space and has encouraged private providers to also seek out new solutions. The most successful initiative has been the cross-sector development and launch of BiM, the country's first fully-operable national mobile money system. This was the result of co-operation between financial institutions, telecoms and technology firms, as well as government ministries and the regulator SBS. The outcome is a service that is broadly available to a variety of users, both banked and unbanked, using handsets ranging from smartphones to very old models. A major selling point of BiM is its inter-operability, with users able to make and receive transactions from other banks or agents as well as keeping payments entirely within the mobile money wallet system. As well as transactions, in late 2017 BiM added the facility to pay utility bills as well as access micro-credit and micro-insurance. The BiM initiative is one of the most advanced in Latin America and provides a pattern for future innovation.

A challenge to BiM is the problem of reaching a critical mass in which sufficient people are using BiM to allow its market to continue expanding organically. New incentives are still required to encourage users to adopt BiM. Although BiM is an inter-operable platform, individual providers can offer different incentives to users, which provide the revenue incentive for providers to continue offering BiM. BiM itself offers a loyalty programme in which increased use upgrades users to super-users, unlocking exclusive offers and cheaper tariffs. Methods to increase connectivity with other channels, such as improving links with formal banks, more facilities to use BiM with ATMs and encouraging more agents to offer e-top-ups, would help BiM reach critical mass.

An additional challenge is that providers must target the most lucrative markets. This business-led approach may at times conflict with the aims of the government's national financial inclusion strategy, particularly to provide digital financial services to the unbanked. For example, BiM's pilot-programme trialled providing services in rural areas but found it too costly and too time-consuming to launch initial services there, focusing instead on peri-urban areas. It was only after its first year of operation, and after proof of concept had been established, that BiM began trialling services in more rural areas and setting up a network of rural agents with cash-in and cash-out services. The government cannot afford to provide these services without private sector buy-in. Instead, the government's approach is to create an enabling ecosystem through new legislation and to maintain stakeholder engagement with the main business providers of digital financial services in order to foster innovation and encourage as much compatibility as possible with national financial inclusion goals.

**Population perceptions around DFS**

One of the current bottlenecks hindering expansion of digital financial services in Peru is the lack of a culture of trust in financial institutions. This stems partly from the limited bank branching network outside the main urban areas, which has led to the development of a cash-intensive economy. This is also connected to low levels of financial literacy, as many unbanked workers have little knowledge of how the financial sector works and the benefits and services it could provide. A survey found that 37% of respondents cited lack of trust in financial institutions as an obstacle to entering the banking system. Additionally, 55% cited the high cost of financial services as a barrier. This has contributed to a preference for cash transactions and often unwillingness to trial new technology that could be difficult to understand. Language barriers may also provide some challenges for users, as there are 47 official indigenous languages in Peru, often in the poorest and most remote regions. For example, 60% of Peruvians without access to health services are Quechua-speakers. Although Spanish is taught in schools, some users might find it difficult to navigate Spanish-language digital financial services. BiM survey groups ahead of roll-out found that language and navigation provided challenges for potential users, leading providers to simplify these areas.

Marketing strategies focus on emphasising the security of digital financial services, as well as convenience and time-efficient advantages. These strategies also offer users incentives to adopt these services. For example, some banks offer loyalty programmes for users registering for their online banking and mobile banking services. In addition, financial literacy programmes aim to build trust in financial institutions and educate consumers about the benefits and uses. For example, as well as financial literacy training in schools, the government and NGOs sponsor financial trust workshops across the country to provide information on financial services.

## GLOSSARY

### DIGITAL FINANCIAL SERVICES (DFS)

The range of financial services accessed and delivered through digital channels, including payments, credit, savings, remittances and insurance. DFS includes mobile financial services (MFS).

### FINANCIAL INCLUSION

Whereby individuals and businesses have access to affordable financial products and services that meet their needs. These include transactions services, payment systems, savings, loans and insurance products.

### FINANCIAL TECHNOLOGY (FINTECH)

The use of new technology by non-bank providers to provide new financial services.

### MOBILE MONEY

Electronic money that is transferred digitally, usually by mobile phone. There are a range of providers, depending on the particular country, and these range from traditional banking institutions to telecommunications firms and third-party providers.

### NON-BANK PROVIDERS

A catch-all term that includes all providers of financial services other than traditional banking institutions.

### MOBILE/BANKING/INTERNET PENETRATION

The share of the population that uses a mobile telephone/ has a bank account/ uses the internet.

### KNOW YOUR CUSTOMER (KYC)

A protocol that service providers use to vet prospective and current customers in order to verify their identities.

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