CHAPTER 1.2

Findings from the Mobile Financial Services Development Report

JAMES BILODEAU, World Economic Forum USA

WILLIAM HOFFMAN, World Economic Forum USA

SJOERD NIKKELEN, World Economic Forum USA
(seconded from The Boston Consulting Group)

Continued innovation and collaboration are needed to realize all of the potential of mobile financial services to increase financial inclusion for the world's poorest. Countries must build on initial successes and more precisely target weaknesses to achieve scale and expand the portfolio of financial services offered through mobile phones. The Country Profiles in Part 2 of this *Report* are offered as a tool for stakeholders to accomplish these goals. Readers of this *Report* are encouraged to analyze the detailed data in these profiles as they draw conclusions and consider priorities for reform.

The data in the Country Profiles enable comparisons of various aspects of mobile financial services ecosystems both within and across countries. Trade-offs have been made as diverse data sets have been aggregated into standardized metrics (this methodology is described in Appendix A of the previous chapter). In some instances, country-specific variations in data sets may not be captured. In other instances, aspects of the mobile financial services ecosystem such as the regulatory environment may display significant differences between *de jure* and *de facto* policies. Such differences can be difficult to capture using available metrics.

Despite these limitations, the data assembled in this *Report* offer some important high-level findings about the development of mobile financial services. Some of these findings are outlined below.

Access to formal financial services is constrained in the few countries with high adoption of mobile financial services

Deployments of mobile financial services are rapidly expanding throughout the developing world and financial services offered through mobile phones have become a part of everyday life for many individuals. However, the overall adoption of these services on a global basis is still limited, and few of these services have achieved profitability.[1] Figure 1 identifies only four countries with high adoption (> 10% of the adult population). Most countries have low adoption values, indicated by their position at the bottom of Figure 1. Although various sources indicate that growth levels for mobile financial services are high,[2] enthusiasm about this growth should perhaps be tempered.

Time represents one element to consider when assessing the overall adoption of mobile financial services. As indicated by the coloring in Figure 2, countries that have reached higher adoption levels have, on average, been active in mobile financial services for more than four years. The impact of time on the overall adoption levels of deployed mobile financial services is a baseline factor to consider when making cross-country comparisons. Service offerings in some of the larger countries such as India and Pakistan are just now being introduced.

Figure 2 shows how countries score with respect to adoption of mobile financial services and a composite

Figure 1: Adoption of mobile financial services versus composite measure of access to financial services
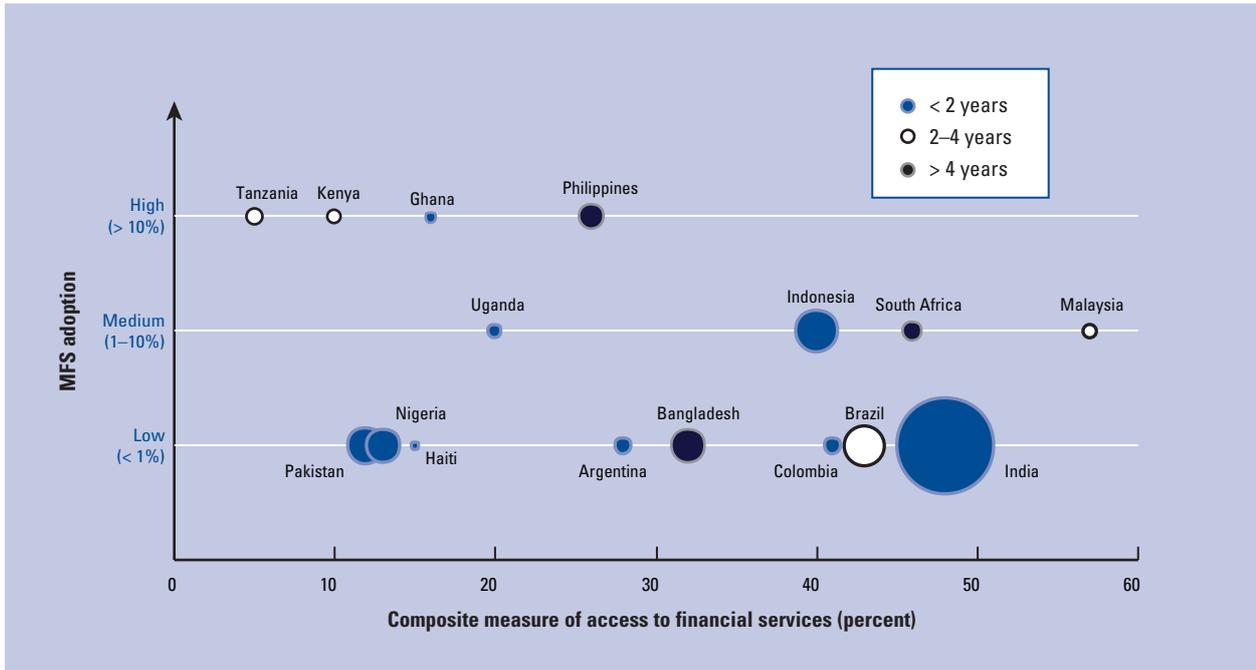
Source: Access to Financial Services data from Honohan (2007): "*Cross Country Variation in Household Access to Financial Services*". Adoption of Mobile Financial Services based on analysis of mobile network operator deployments by the World Economic Forum. Population size data from the World Bank *Indicators Database*, 2011.

Note: Diameter of bubbles indicates population size.

Figure 2: Average maturity versus level of adoption
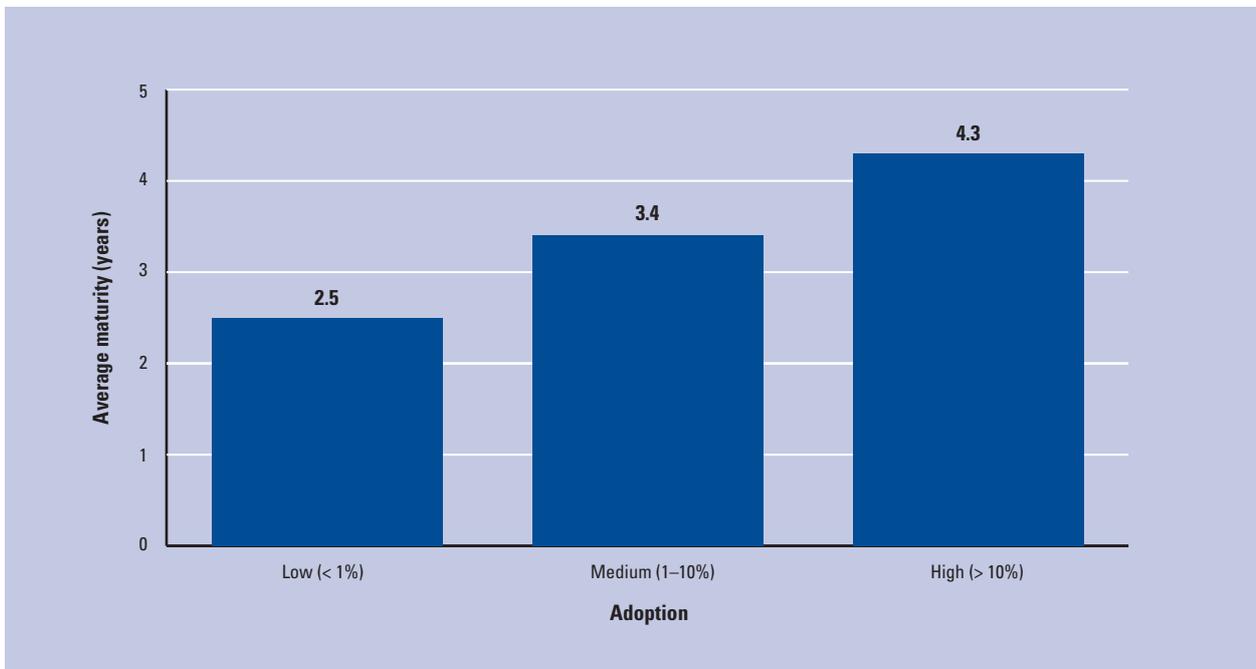
World Economic Forum analysis, based on data from the GSM Association (GSMA) *Wireless Intelligence; Mobile Money for the Unbanked.*

Note: The average maturity for a country is calculated as the average number of years passed since the launch of first mobile financial services deployment in a country, expressed in full years. The numbers shown in this figure represent the unweighted averages of deployment maturity for all countries with the adoption level indicated.

Figure 3: Adoption and availability versus market environment
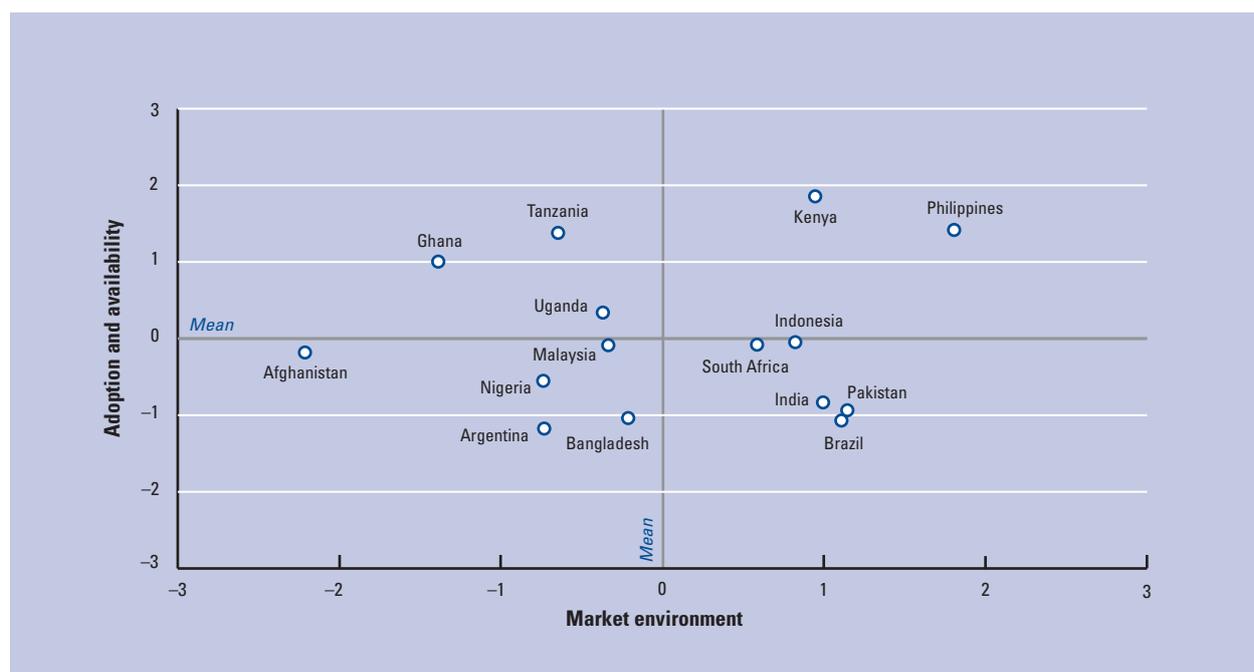
Source: Adoption of Mobile Financial Services based on stock-taking amongst mobile network operators by The World Economic Forum.
Note: Country scores are based on the difference in the unweighted average country results in each of the pillars included in a specific environment and the total sample mean for that environment. The difference is expressed as the number of standard deviations of a country score from the mean. "Adoption and availability" refers to the "Adoption and availability" pillar (pillar 7), which includes measures of adoption of MFS services, the diversity of mobile payments services and the diversity of other mobile financial services. "Market environment" refers to the combination of the "Market competitiveness" and "Market catalysts" pillars (pillars 3 and 4).

25

measure of access to traditional financial services. The larger countries (represented by larger bubble sizes) display low or medium adoption levels (i.e. <10%).

Adoption levels are based on the number of opened mobile financial services accounts in each country (see the Technical Notes section for more detail). This calculation has some limitations, as it does not fully reflect activity and usage, nor does it capture the breadth of services offered and used. The availability of savings, credit and insurance services offered through mobile phones is still quite limited relative to that of payments. Many believe that services such as savings, credit and insurance will be the basis for large gains in socio-economic impact.[3]

Initial adoption appears to be driven by constrained access to formal financial services, as opposed to well-developed institutions and competitive markets

As seen in Figure 1, mobile financial services seem to achieve scale faster in countries where individuals have few alternatives to fulfill their financial services needs: the countries that have achieved high adoption have lower levels of access to financial services (x-axis). Although a deeper understanding of informal financial services and consumer behavior is required to draw more precise conclusions on consumer needs, it would appear that a lack of convenient and safe alternatives

is an important driver of mobile financial services adoption.

Some countries characterized by low access to formal financial services have not yet seen significant adoption of mobile financial services, even when market participants have deployed the latter services. Possible explanations include misalignment of existing services with the specific needs of the poor, a fragmented market that offers multiple alternatives for financial services, and limited trust in the brands of mobile network operators or financial institutions. In Chapter 1.6, Morawczynski and Krepp outline some of the means through which services can better address the needs and customs of individuals.

Competitiveness of the financial services and telecommunication markets does not necessarily assure high adoption rates. As can be seen in Figure 3, countries with high adoption levels (such as Kenya, Tanzania, and Ghana) are not characterized by highly competitive markets. The aggregate market environment scores of these countries (which combines scores in the third and fourth pillars) fall in the middle of the sample. The degree of competitiveness expressed here is an aggregate measure; it takes into account innovation and competition in the traditional financial services and telecommunication markets, while not addressing competition in the mobile financial services market specifically.

Figure 4: Countries' relative strength of the institutional and market environment
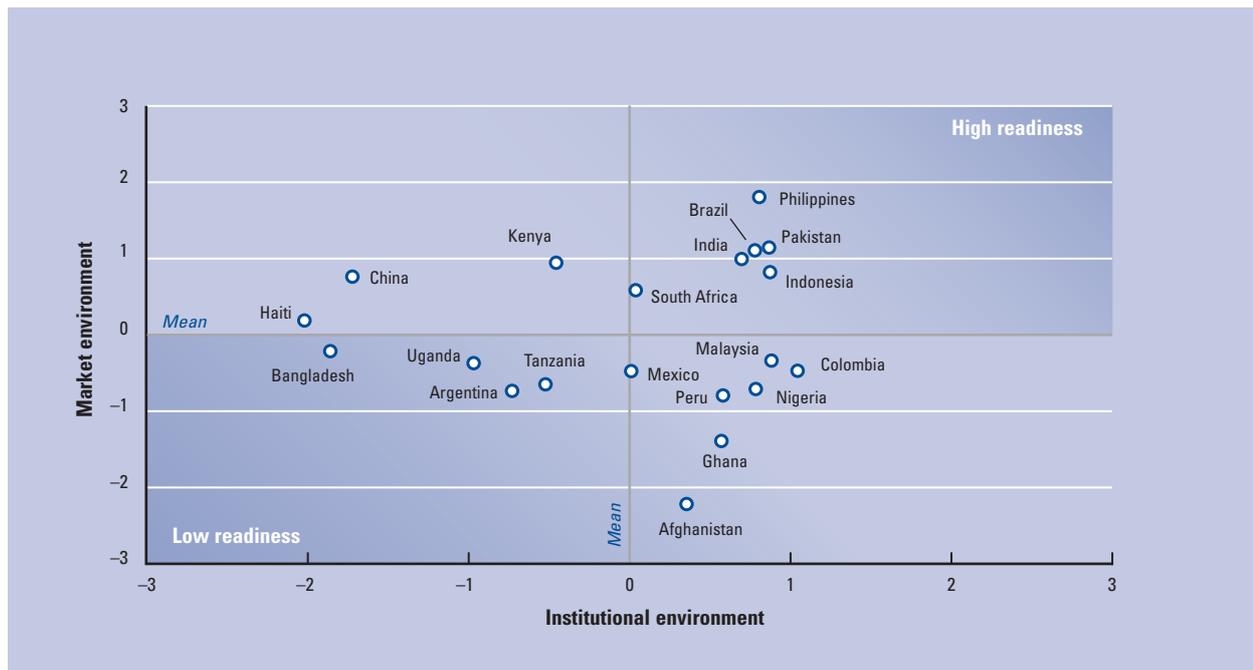
Source: World Economic Forum.
Note: Country scores are based on the difference of the unweighted average country result on each of pillars included in a specific environment and the total sample mean for that environment. The difference is expressed as the number of standard deviations of a country score from the mean. "Institutional Environment" refers to the combination of the "Regulatory proportionality" and "Consumer protection" pillars (pillars 1 and 2). "Market environment" refers to the combination of the "Market competitiveness" and "Market catalysts" pillars (pillars 3 and 4).

Given the above, policy makers may with to look beyond the promotion of competition to other measures that will prompt market participants to design and offer products that meet the unique and often complex needs of the financially excluded. Market competition, however, may become increasingly important as mobile financial services ecosystems mature.

Countries with significant adoption today may not be the best prepared for future leadership

Figure 4 presents country performance in the areas of market environment (third and fourth pillars) and institutional environment (first and second pillars). A strong performance with respect to the institutional environment indicates that proportional regulation and sound consumer protection are in place. Market environment performance reflects market competitiveness as well as the presence of measures like robust data collection that reduce market frictions. Solid country performance in both of these environments indicates a high level of future "readiness" for mobile financial services; this may be the case even if widespread adoption of these services has not yet been achieved.

The Philippines scores relatively well in this measure of "readiness" and can be found in the top right quadrant of Figure 4. This score may be partly due to the fairly mature nature of the country's mobile

financial services deployments. Brazil also scores well here, possibly in part because of its extensive retail agent network, which may have had virtuous effects in areas such as consumer protection and credit information, even though it is still limited to "wired" point-of-sale (POS) devices. Other countries, including those that have reached relatively high levels of adoption, are not as well-positioned. Well-developed institutional and market environments will likely be needed in all countries, regardless of initial adoption success, to enable the provision of a broader portfolio of services, including savings and credit products.

The development of savings as well as simple credit and insurance services will require cooperation and co-ordination between market participants and regulators. This may include the elimination of obstacles to the provision of services that better meet the needs of the poor and the removal of restrictions on the provision of mobile financial services by private sector players.

In addition to enhanced coordination between public and private stakeholders, the interoperability of mobile financial services deployments represents another area for improved cooperation. Data on interoperability (variable 7.09) indicate that service interoperability has not yet been broadly embraced. While "closed" systems, in which interoperability is limited, can be attractive to commercial entities that boast a large client base,

Figure 5: Adoption versus agent network development
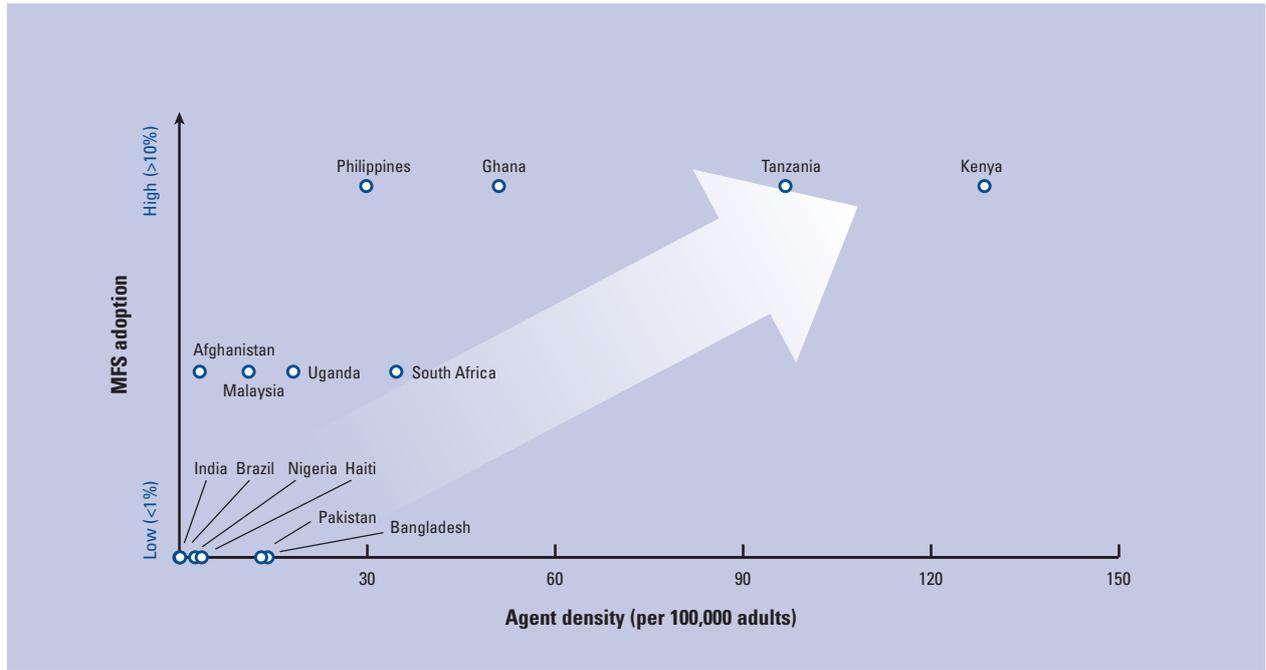
Source: Household Access to Financial Services data from Honohan (2007): "*Cross country variation in household access to Financial Services*". Adoption of Mobile Financial Services based on assessment of mobile network deployments by the World Economic Forum done in conjunction with the GSMA. Population size data from the World Bank, *Indicators Database*, 2011.
Note: The percentages included on the "MFS adoption" axis refer to the total number of wallets that have been opened for any mobile financial services system in a country and are expressed as a percentage of the adult population. Agent density is calculated as the number of mobile financial services agents per 100,000 adults. Traditional banking agents that are not part of any mobile financial services deployment have not been included here. This explains the low number of agents for Brazil for example. For more information, see Box 8.

Figure 6: Distribution of subpillar scores per country
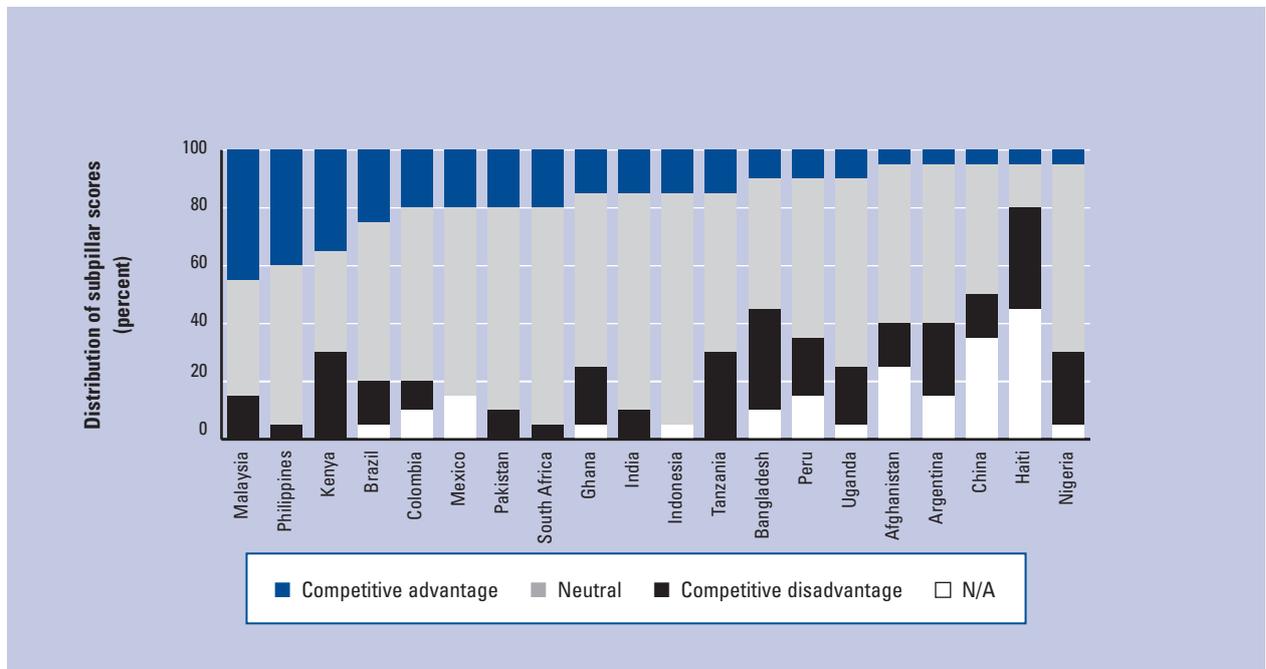
Source: World Economic Forum.
Notes: Scores refer to country results on each of the 20 subpillars included in the Country Profiles. Countries are sorted by the number of "advantage" scores. No ranking is implied.

individuals will trust and benefit more in the long-term from service providers that allow transactions to flow across providers at any time.[4]

A well-developed agent network is a threshold requirement for achieving scale

Although innovative technology is often viewed as the key asset underlying mobile financial services, retail distribution is in fact a vital factor for success. The widespread availability of retail agents serves to reduce difficulty and end-user risk associated with accessing financial services.

As seen in Figure 5, a well-developed agent network appears to be a threshold requirement for achieving scale (see Box 8 in Chapter 1.1 for more background on the types of agents considered in this *Report*). To date, those countries with higher adoption rates, such as Kenya and Tanzania, have generally had more developed agent networks. The importance of an agent network is not surprising, as overcoming physical constraints to financial services access and fostering trust in these services are critical.

To develop agent networks, regulators and market participants can consider leveraging existing (retail) infrastructure and promoting commercial interoperability—allowing a single agent to provide services for multiple service providers. As a wider portfolio of available services emerges over time, more sophisticated business models will require greater capacity building and oversight of agent networks. Business models that provide agents with appropriate incentives, training and operational flexibility will become a priority. Additionally, the ability of agents to self-organize and collectively express their needs to operators (and others in the value chain) could increasingly become a trend.

Disciplined collection and dissemination of data is imperative

Arriving at a fact-based understanding of the key enablers and macro-economic benefits of mobile financial services—as well as the second order benefits in health, education, and agriculture—will be an invaluable resource for decision makers. Exercising leadership in sharing insights globally may yield immense social and economic returns.

As recognized by the G-20, high-quality data are the backbone of sound policymaking and market development.[5] As the importance of financial inclusion policies has been embraced, interest in collecting and sharing data more effectively at the global and national level has increased. The absence of reliable and accurate data creates an "evidence gap" that hinders informed and actionable decision-making.

The need to collect and share higher quality data has been widely recognized as a challenge for all stakeholders. Countries, donors and private sector entities all need to recognize the collective value in creating a data commons for improved decision making. Information on the enforcement of regulations, the degree to which regulations are implemented, and the effectiveness of regulation is often lacking. Among private sector players, a lack of data standardization and sensitivity to disclosing proprietary information prevent the constructive sharing of data. The complete lack of insight into active subscribers of mobile services (distinct from reported subscription numbers) is a striking example of these shortcomings.

The findings within this *Report* confirm the importance of data collection and sharing. As shown in Figure 6, those countries that possessed the highest degree of unavailable data also appeared to have the lowest number of "advantages" within their mobile financial services ecosystem.

Regional analysis

While some high-level trends were highlighted in the previous section, it is at the country level where some of the most useful insights can be discovered. A regional summary of highlights drawn from the Country Profiles in Part 2 is presented below. Readers are encouraged to reference the Country Profiles to understand better the data underlying the regional analysis that follows.

AFRICA AND THE MIDDLE EAST

Despite a challenging business environment, **Afghanistan** has seen some initial adoption of mobile financial services. While the regulatory environment in Afghanistan appears mixed, the country demonstrates some selective strengths in areas such as consumer protection. While data on the market environment appears limited, the indicators that were available seem to show high competitiveness of the telecom sector contrasting low competitiveness of the financial services sector. Performance within the market catalysts pillar appears to be a disadvantage indicating an opportunity for the government to foster adoption of mobile financial services by embracing them as a user. Low penetration of traditional financial services distribution channels as well as the fact that a significant share of its population lives in its largest city could create a need for individuals to access an efficient alternative for local remittances and a safe place to save money. This parallels the early situation in Kenya. This lack of a supporting traditional infrastructure might also pose a challenge for future development, however, as it could limit options for liquidity management within the distribution network in remote areas.

Ghana has achieved high levels of adoption (greater than 10% of the population). Some elements of its regulatory environment related to mobile financial services appear either unclear (such as its banking agent

regulation) or not yet developed (such as proportional transaction limits). It scores a disadvantage for the market competitiveness pillar, which assesses elements of competitiveness and innovation. The relatively high number of active mobile financial services deployments (4) makes interoperability an important goal. End-users may find the overall value proposition of mobile finance services diminished and not immediately apparent in fragmented markets with competing services.

With one of the world's fastest growing and most observed mobile financial services markets, **Kenya** serves as a role model to other countries in many aspects. It has realized service adoption levels that are higher than that in any other country and has created a vast distribution network. Accordingly, its performance within the adoption and availability pillar and agent network development pillar indicate key advantages. It has created an enabling regulatory environment for the provision of mobile financial services and the relatively high availability of decision-making data further catalyzes its development. Increasing its "readiness" for future development to build on its current leadership may require further improvement of its institutional and market environments. As an example, by further developing consumer protection provisions, Kenya could build on its initial success in mobile payments to accelerate adoption of other emerging services such as mobile savings accounts.

Nigeria has taken recent steps to create more enabling regulations including the award of licenses to non-bank entities for the provision of mobile financial services. A relative advantage for Nigeria thus appears to be its institutional environment. Competitiveness and innovation within its market environment appear to be areas for improvement. Additionally, aspects of Nigeria's end-user environment seem to be disadvantages particularly in areas such as mobile phone penetration, depth of credit information, and corruption. New market participants will need to design their services to accommodate the customs and low financial literacy levels of the population.

With a relatively high degree of access to traditional financial services and a sophisticated financial services industry, **South Africa** shows consistency over the pillars in the Country Profiles. This consistent performance extends across regulation and consumer protection. South Africa differentiates itself in terms of the competitiveness of its telecom sector and the robustness of its data collection and monitoring—an important enabler as mobile financial services develop. Financial empowerment of individuals (as captured in measures such as depth of credit information and women's access to bank loans) and the penetration of mobile phones are also particular strengths relative to other countries within this study. The relative maturity of mobile financial services deployments within the country has not yet led to high adoption. This may be related to the

high levels of access to alternatives to mobile financial services.

A very low level of access to traditional financial services can be seen in **Tanzania** which has recently seen increased adoption of mobile financial services. Commercial interest from the private sector has helped it score among the top quintile on the adoption subpillar. While there are high levels of adoption in terms of initial account activation, sustained usage over time is a concern given exceptionally high rates of inactivity.[6] Particular disadvantages for Tanzania include undeveloped consumer protection and low levels of empowerment of end users as seen in the lack of credit information and relatively high corruption. The government could strengthen its role as a catalyst by using mobile financial services for some of its payment disbursements.

Uganda has seen some promising uptake of mobile financial services and scores "neutral" on most of the pillars of the *Report*. Regulatory proportionality is an area that may require greater focus when compared to other countries in this study. To accelerate adoption, the government could increase its role as a potential market catalyst by using mobile financial services for distribution of social benefit payments. Uganda's relatively high volumes of incoming international remittances could be another potential driver to achieve further scale.

ASIA AND THE PACIFIC

The development of mobile financial services in **Bangladesh** appears to be characterized by some challenges. The country performed in the bottom quintile on those regulatory dimensions where data are available. Its market environment is characterized by disadvantages in the competitiveness of its financial services sector and overall measures of innovation. Despite these challenges, it has seen private sector activity in the roll out of mobile financial services. Its relatively low levels of reported adoption may mask the actual usage of mobile financial services, as some of the most popular services do not require the opening of an account and are thus not included in this analysis. The government acts as an important driver for adoption by distributing payments through mobile financial services, which contributes to Bangladesh's advantageous performance in the market catalyst pillar. When a more enabling regulatory environment can be created, the high number of microfinance institutions (MFIs) might provide a way to rapidly build the distribution networks that are fundamental to achieving scale.

The results for **China** offered in this Report should be interpreted against a backdrop of significant limitations in available data. The country has a wide variety of mobile financial services positioned as extensions of existing retail banking services which are outside the

scope of this analysis. Current adoption levels of mobile financial services for the financially excluded that are within scope are unclear. China's general performance in the market competitiveness pillar appears as an advantage although its specific performance in financial sector competitiveness is disadvantageous. Although Chinese individuals seem relatively sophisticated regarding financial services, consumer protection appears to be a development area as the country builds out a broad portfolio of mobile financial services.

India has made significant adjustments to its regulatory environment which appears to be reflected in consistent performance across the regulation and consumer protection pillars. Policies and coordination related to financial inclusion appear as particular strengths as seen in the country's publicly defined financial inclusion strategy, a designated financial access authority, and requirements for financial institutions to offer basic low-cost accounts. However, as mentioned in the discussion of the regulatory proportionality pillar in the previous section, there can be a difference between *de facto* and *de jure* regulation; it remains unclear to what extent recent regulatory changes will allow all industry sectors to fully leverage their unique skills, cost structures and brand awareness to drive adoption of a broader portfolio of financial services. If high growth rates in its telecommunications markets continue, this will make mobile phones available to many more Indians in the near future. Given the importance of robust agent (alternatively called business correspondent) networks, India may need to address what appears to be a current disadvantage in the development and coordination of these networks. Leveraging the relatively developed networks of MNOs, banks and micro-finance institutions may prove critical in this respect.

A key advantage within **Indonesia's** mobile financial services ecosystem is the development and proportionality of its regulations. Its banking agent regulation and licensing of non-banks seem to be particularly positive attributes. The country delivers consistent results along most of the other pillars. This may indicate a high degree of readiness to accelerate the building of scale in mobile financial services even though it currently only has moderate levels of adoption. Growth in its number of mobile subscriptions is among the highest of the countries included in the *Report*, which makes it possible to expand mobile financial services to ever more people; this combined with a high degree of financial empowerment of end-users bodes well for future adoption. As the government places great importance on increasing financial inclusion, it could catalyze adoption of mobile financial services by becoming an active user itself.

Malaysia shows distinct development advantages in the regulatory and end-user empowerment pillars. Most of the regulatory elements specific to mobile financial services appear to be in place, as well as a comprehensive financial inclusion policy. End-users are financially literate, have ready access to mobile phones, and benefit from a depth of credit information. These factors combined with a highly competitive market environment have contributed to a degree of initial success in the adoption of mobile financial services. The development of its traditional financial services sector is reflected in the highest access to financial services of the countries in this sample. The role and development of mobile financial services in Malaysia might therefore deviate from other countries, as good alternatives seem to be available and there might be a less clear consumer need. The country shows some room for improvement in the market catalyst pillar, as the government's use of mobile financial services is limited. Efforts could be made to increase the capture and dissemination of decision-making data.

Although **Pakistan** lacks some regulatory elements within the MFS regulation subpillar, its institutional environment (which includes elements of regulatory proportionality and consumer protection) scores within the top quintile of the country sample included in this study. This, combined with the presence of market catalysts such as government disbursements through mobile and robust data collection and monitoring bode well for the increased adoption of mobile financial services in the country. Access to traditional banking services is relatively low, which could further strengthen the need for a trusted and efficient alternative. To bring mobile financial services within reach of more people, further development of its end-user environment seems vital; individuals appear less literate and empowered to adopt these new services. Agent networks have room to develop as they are characterized by low density and difficulty in the enrollment of new agents.

The **Philippines** has explored the implementation of mobile financial services for a relatively long time and has realized high levels of adoption and a wide array of available services. An important role is played by the government, which has shown leadership by using mobile financial services to distribute social payments and collect taxes. Its robust performance in the other pillars within the institutional and market environment seem to indicate a high level of "readiness" to continue this leadership. The Philippines has managed to build a dense agent network which may be a key asset for the provision of an even broader range of services in the future. The relatively large volume of incoming remittances that are sent home by Philippinos abroad can potentially be a driver to achieve further scale.

LATIN AMERICA

The lack of a proportional and enabling regulatory environment in **Argentina** appears to be a major constraint in its development of mobile financial services

according to the data that are available. Regulations concerning the licensing of non-bank entities to provide mobile financial services, the ability of both banks and MNOs to use agents for mobile financial services, and international mobile money transfer do not appear to be fully in place. Consumer protection regulation also appears to be a development area. AML/CFT (anti money laundering and counter financing of terror) and KYC (know your customer) provisions are in place. The country scores a disadvantage in the market catalysts pillar due to low levels of data collection and sharing - a critical activity for the development of new mobile financial services. In light of the above disadvantages, it appears consistent that there is not yet significant adoption of mobile financial services. Argentina does, however, score well in terms of its end-user environment on the basis of high mobile phone penetration, depth of credit information, and women's access to bank loans.

Brazil has an impressive history of using branchless banking models to bring financial services to its population. However no significant scale in deployments that leverage the country's high penetration of mobile phones can be observed. A lack of clarity regarding some key regulatory elements for mobile financial services seems to have reduced innovation to date. However, once measures are in place to leverage the existing agent networks, it could achieve scale in mobile financial services rapidly.[7] This existing (non-mobile) branchless banking network may have also led to second order benefits such as a depth of credit data and developed consumer protection that could be important facilitators of the development of mobile financial services. The country scores well in other areas of end user empowerment including financial literacy and mobile penetration.

Colombia's institutional environment scores among the highest of the sample, as both regulatory proportionality and consumer protection appear to be relative advantages. Its government also shows leadership by driving a G2P program of disbursements through mobile to increase adoption of mobile financial services. Mobile financial services deployments in Columbia are relatively new which may account for the fact that significant scale has not yet been achieved. However, some key elements that could contribute to accelerated adoption are in place. The presence of a number of non-mobile alternatives to access financial services will raise the bar for private sector participants as they design mobile financial services that are closely aligned with unmet client needs and that deliver a consistent, and convenient consumer experience. Commercial interoperability will be a key element of this. The country may have to improve the competitiveness of its market environment (which appears to be a disadvantage) if it is to achieve the levels of innovation needed to accomplish this.

Despite **Haiti's** challenging institutional environment, mobile financial services have become available on a small scale. Given the country's lack of alternative access to financial services—its score is among the lowest of the sample—it seems that building agent networks that allow for achieving scale in mobile financial services should be a priority. In trying to realize higher adoption levels, Haiti will have to make sure its relatively financially illiterate population is protected by effective consumer protection regulation that is currently lacking. Low levels of financial literacy and mobile penetration are also development areas. A potential driver for adoption could be the country's relatively high inflow of foreign remittances that require efficient and cost effective ways to reach recipients. There is the potential for the government, perhaps working in concert with multilateral institutions, to promote uptake of mobile financial services both through the provision of payments through mobile and the promotion of better data collection and monitoring.

Mexico, with the highest penetration of traditional bank branches of the countries in this sample, has not yet seen adoption of mobile financial services. It shows a consistent "neutral" scoring across most pillars, which might be explained by the focus on, and experience with, branchless banking models that do not use a mobile platform. Its high penetration of bank branches and ATM's that can provide support for agents and cash-in cash-out capabilities results in an "advantage" score on the supporting infrastructure subpillar. Its government shows leadership by using innovative methods for the distribution of social payments through mobile. To catalyze the adoption of mobile financial services, Mexico could potentially leverage the significant volume of incoming international remittances.

While it has achieved success with other branchless banking models, **Peru** has not yet seen mobile financial services adoption. Its experience with non-mobile branchless banking may contribute to the advantages it demonstrates in areas such as consumer protection and the depth of credit information. A high penetration of mobile phones also appears to be a key strength. While significant unavailability of data appears to be a key constraint to effective decision-making, most of the critical elements needed for the scaled deployment of mobile financial services appear to be in place.

Notes

1   Leishman 2010.

2   See, for example, Berg Insight 2010. Mobile Banking and Payments—2nd Edition.

3   See, for example, Collins at al. 2009, Dercon 2007 and Conning and Udy 2005.

4   See Ivatury and Mas 2008.

5   See the G-20's Financial inclusion Expert Group Draft Financial Inclusion Action Plan, September 4, 2010.

6   See Montez and Goldstein 2010. These findings were confirmed by Working Group members.

7   See CGAP's 2010 Country Note. These findings were confirmed by Working Group members.

References

Berg Insight. 2010. '*Mobile Banking and Payments—2nd Edition'*. Gothenburg, Sweden.

CGAP. 2010. 'Updated Notes On Regulating Branchless Banking in Brazil'. Working paper. Washington, DC: Consultative Group to Assist the Poor (CGAP).

Colins, Daryl et al. 2005. *Portfolios of the Poor*. Princeton, NJ: Princeton University Press.

Connig, J. and C. Udy. 2005. 'Rural Financial Markets in Developing Countries'. *Discussion Paper No. 914*. New Haven, CT: Yale University Economic Growth Center.

Dercon, S. 2007. 'Designing Insurance for the Poor'. *2020 Vision Briefs number BB40*. Washington, DC: International Food Policy Research Institute.

Ivatury, G. and I. Mas. 2008. 'The Early Experience with Branchless Banking'. CGAP Focus Note 46. Washington, DC: Consultative Group to Assist the Poor (CGAP).

Leishman, P. 2010. "*Is There Really Any Money In Mobile Money?*" London, UK: GSM Association (GSMA).

Montez, D. and P. Goldstein. 2010. '*Mobile Money for the Unbanked: Lessons from Tanzania*'. Africa Development Research Brief. New York, NY: AudienceScapes.