Access to formal financial services has been limited for many, if not most, of the world’s poorest: more than 2.5 billion people do not use formal financial services.\(^1\) Research indicates that the poorer a household is, the stronger its need for financial services such as savings, remittances, credit, and insurance.\(^2\) Yet this has the potential to change soon. In the last few years, new business models have emerged which leverage the increased global penetration of mobile phones to extend the reach and transform the economics of retail financial services. Arriving at a deeper understanding of how to realize the potential of mobile financial services lies at the heart of this Report.

The reasons for individuals having no, or limited, access to financial services are complex and span a wide array of cultural and economic issues. Consumers with no prior experience with formal financial services may not trust institutions with their cash. Access to financial services is hindered by a lack of infrastructure, information, and inadequate customer service. It is expensive for service providers to collect and disburse small amounts of cash using the proprietary physical infrastructure of traditional banking models, especially in remote places. They therefore struggle to offer products and services that suit the needs of the poor.

Mobile financial services enable people and businesses to deposit and withdraw funds and make electronic payments without the need for traditional bank branches. Along with a wireless communications platform that is fast approaching global ubiquity, a vital part of the infrastructure for mobile financial services is a network of retail agents. Agents function as the interface between consumers and providers performing functions such as opening accounts, accepting deposits, and dispensing withdrawals of cash.

The Mobile Financial Services Development Report 2011 assesses the development of the mobile financial services ecosystem in twenty developing countries. It measures the key drivers across the institutional, market, and end-user environments that lead to adoption and scale. It aims to serve as a tool for decision makers to identify relative areas of strength and weakness and prioritize areas for collaborative action to accelerate global adoption.

While many deployments currently focus on payments and peer-to-peer transactions, the platform has broad potential to deliver an array of savings, credit, and insurance products. The Report takes a long-term view of the potential of mobile financial services and includes a broader portfolio of products within its scope.

The Report focuses on the development of services for those excluded due to lack of proximity, opportunity cost, and/or socio-cultural barriers. Accordingly, the features of the mobile financial service
implementations covered by this analysis include the following: 3

- Non-bank retail outlets are used to convert monetary value (cash) into electronic value.

- Mobile phones are used to identify customers, authorize transactions electronically and to enable customers to initiate transactions on their own.

- Transactions can be processed against stored electronic value.

In the Report, no distinction is made between the various entities who deliver these services; traditional banking institutions, mobile network operators, and third-party service providers. Services which provide access to existing traditional bank accounts through mobile phones but do not reach new, previously unserved or underserved customers are not the primary focus of this Report.

It is important to recognize that mobile financial services are not merely a technological phenomenon. In addition to the low-cost and widely distributed networks of local agents that are vital to the sustainable delivery of financial services, other intangibles such as the perceived trust in a service provider’s brand, the personal relationship an individual holds with their local agent and the endorsement from relevant peers all play a role in adoption. As much as the mobile finance opportunity is enabled through ubiquitous technology, it is supported and sustained by end-users, trusted local agents and a consistent end-user experience.

Countries included in the Mobile Financial Services Development Report 2011 were selected based on the total population and the lack of financial alternatives. Data availability and quality were also considered in the selection of countries. See Box 1 for a list of the countries that were selected.

Even for the countries included, the availability of recent and high quality data was a constraint. The data used in this Report do not cover all relevant elements of the mobile financial services ecosystem for all countries. In many cases, trade-offs have been made between availability and relevance. Although research and available data related to mobile financial services are steadily growing, there are limited resources for cross-country comparison across the institutional, market, and end-user environments. Many governments and regulators do not collect information on key elements of the mobile financial services ecosystem, and in particular, there are gaps in data pertaining to the non-bank financial activities. In an effort to help close these gaps, this Report includes data generated from a primary survey of regulators and data collection related to mobile financial services adoption. This work was done in conjunction with the Alliance for Financial Inclusion and the GSM Association respectively. Appendix B highlights some of the most pressing shortcomings of available data and provides suggestions for future data collection efforts.

In this Report, the various aspects of mobile financial services development are expressed in seven “pillars” grouped into three broad categories or environments:

1. The institutional environment: the characteristics related to regulation and consumer protection that support the development of mobile financial services.

2. The market environment: the market competitiveness of the private sector players, degree of innovation, and presence of catalysts for development of mobile financial services.

3. The end-user environment: the robustness of distribution and empowerment of individuals to access and adopt mobile financial services.

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Box 1: Countries included in the Mobile Financial Services Development Report

Population size was the main selection criterion for inclusion. Some adjustments to this list have been made based upon initial estimations of data availability and relevance of recent mobile financial services developments. Countries were selected from three regions:

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<th>Africa and the Middle East</th>
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As there are major differences between the markets selected here and more developed markets around the globe, this Report is mostly relevant to markets characterized by low financial inclusion. However, many of the concepts and insights may also apply to more developed markets. Some of the countries selected here have also seen the rise of mobile applications and services that are linked to traditional banking products, where the mobile phone basically provides a new access channel. Caution is urged when interpreting the data represented here in relation to these services, as these are not in scope of this Report but are also referred to as mobile financial services.
A summary of these environments and constituent pillars can be seen in Figure 1. The adoption and availability of mobile financial services as captured in the seventh pillar can be considered the outcome of strong performance across the preceding pillars. In defining the pillars and the data they contain, an extensive survey of existing research was conducted. The following sections provide further detail on these pillars, constituent subpillars and the variables included within them.

First pillar: Regulatory proportionality
Regulatory proportionality encompasses laws and regulations that allow for the sustainable development of financial services through mobile phones and that balance the cost of regulation (both to the institutions and to the regulator) with its benefits. Policymakers and regulators share a common challenge worldwide: how to formulate regulatory frameworks that provide room for innovation and discovery while safeguarding against identified risks that can arise in decentralized, complex and rapidly changing technology-driven systems such as mobile banking. Banking models that go beyond traditional branches are relevant to financial regulators, given the potential risks to financial stability and consumer protection. However, given their historical background as communications utilities, mobile network operators typically do not fall under the purview of financial regulators.

When assessing the development of mobile financial services within a country, the proportionality of branchless banking regulation, as related to identified risks, needs to be considered. Additionally, broader regulatory policies for banking services are relevant, as are the regulatory flexibility and coordination that go with it (see also Box 2 on the interplay of formal and informal regulation). Regulators should strive for policies that foster, rather than inhibit, innovation. Policies that are flexible, technology-neutral, and provide for a variety of ways for any stakeholder to meet compliance requirements are essential for the sustainable development of the mobile financial services ecosystem.6
1.1: The Seven Pillars of Mobile Financial Services Development

Box 2: The distinction between de jure and de facto regulation

When addressing a regulatory situation in a country, a complete picture of the effectiveness and impact of regulations cannot be fully captured by a set of discrete variables. In the research and validation stages of this analysis, instances have been found where de facto regulation, or the actual impact or implementation of regulation, differed from de jure regulation or the letter of the law that is “on the books”. It is therefore important to interpret the Country Profiles and analysis in this report with this distinction in mind. Contributors to this Report noted that the approach of regulators is often the most important aspect to creating an enabling environment, rather than the adoption of specific MFS regulation. A “test and learn” approach enables services to launch with appropriate supervision by the regulator, who is then able to develop mobile financial services regulation best suited to its market conditions.

Financial sector regulation

In the financial sector regulation subpillar, a general measure of liberalization is included. Financial liberalization generally permits a more efficient flow of resources and promotes innovation. The sophistication of licensing is measured because it provides easier market entry for non-traditional, and potentially innovative entities.

This subpillar also addresses whether there is a specific electronic money issuance license available. This is important as the delivery of financial services through mobile phones (where the mobile phone is more than a channel to existing traditional bank accounts) involves some form of electronic value issuance. As the entities that deploy mobile financial services are often not traditional banks, it is also relevant if non-banks can be licensed to provide electronic money. This assessment is included within the MFS (mobile financial services) regulation subpillar.

An overall measure of regulatory quality for financial services provides a high-level indicator of the environment in which mobile financial services systems can develop.

Telecommunications sector regulation

As mobile financial services often build upon the telecommunications service delivery infrastructure, the regulations governing this sector are generally more liberal and distinct from financial sector regulations. Platforms for processing prepaid mobile transactions are relatively simple compared with traditional core banking transaction systems and support a lower level of customer or regulatory reporting. By definition however, mobile financial services involve elements that are under the purview of a telecommunications regulator—the existence of such a regulator is thus considered.

The number of consumers with mobile telephone service will determine the size of the mobile financial services market. Especially in poorer rural areas, the uptake of mobile communications is sometimes limited by lack of service coverage. A policy to provide universal service and coverage requirements as a part of licensing conditions is therefore assessed in this subpillar.

As trust and system integrity are essential for consumer adoption of mobile financial services, the quality of the underlying mobile technology is included as an index combining the existence and enforceability of quality of service requirements. A lower quality of service score is associated with more downtime and dropped calls and messages.

The presence of an identification requirement for the registration for mobile phone services is considered as well. Some market participants have used an increase in know-your-customer (KYC) requirements for purchasing baseline voice and data services as a means for simultaneously registering clients for mobile financial services. While this can create lower barriers to entry, it can increase the enrollment of subscribers who are not active users.

The regulator’s appetite for risk and incorporation of financial inclusion in their mandate can influence how they foster an environment of innovation. As these are hard to quantify, the existence of mobile virtual network operators (MVNOs) in the marketplace is used to provide a very general indication of regulatory flexibility and the promotion of innovation in the telecommunications market.

The level of taxation of mobile communications services is included in this subpillar. Taxation can be levied in a variety of forms including value-added taxes. Higher taxes generally result in a lower penetration of mobile communication services.

MFS regulation

Many existing financial services regulations were not developed with the convergence of telecommunications and finance in mind. Proportional regulations that balance the risks of mobile financial services with their benefits and provide a clear framework for private sector participants within which to operate, are often lacking or not specific. In some countries, the private sector did not wait to innovate while policymakers and regulators deliberated over an ideal course of action.

Vast and efficient retail agent distribution networks (often based on those used for the provision of prepaid airtime) are an important component in the development of the mobile financial services ecosystem. They provide an interface to the consumer for registration and for the conversion of cash and electronic value. In its most basic form, a retail outlet serving as an agent...
is a transactional channel permitting customers to deposit and withdraw money into or from their account and perform a range of electronic transactions, including inquiries on account balances and money transfers between accounts.

It is important to distinguish between the applicability of regulation to financial institutions that are licensed for deposit-taking and those that are not licensed, such as mobile network operators. This Report assesses whether both banks and mobile network operators without a traditional banking license can deploy agents for the provision of financial services. Another variable indicates the range of activities that banking agents are allowed to perform. This variable includes broader branchless banking activities within its scope, not just mobile financial services.

A variable that expresses if mobile network operators are allowed to deploy mobile financial systems as a principal operator is also included. This provides a general indication of openness to non-traditional players (see Box 3 for more discussion on the role of non-licensed financial institutions). It is important to recognize that this variable measures only if a mobile network operator can serve as a principal operator and not which services can be deployed or under which conditions. In some countries, the conditions under which mobile network operators can serve as a principal are constrained.

A core feature of regulation that governs the issuing of electronic value is the treatment of value stored on a mobile phone account. In an effort to distinguish mobile financial services from traditional accounts, regulators around the world have treated them as “payment” services, expressly prohibiting deposit insurance for, and the payment of interest on, e-money accounts. The cash-in function is not considered a deposit but simply the equivalent of handing funds to a money-transfer provider for subsequent transfer to another recipient. The analysis addresses this by assessing if value stored in a mobile account, as created by the “cash-in” function of agents, is considered a deposit.

When mobile network operators or other non-bank entities are allowed to deploy an e-money system for financial services, different models are possible but they usually involve a licensed financial institution. Currently all live mobile financial services deployments require 100 percent of customers’ electronic value to be backed by deposits in a regulated bank. A licensed financial institution is always responsible for investment of this so-called float.

Regulation focusing on anti-money laundering (AML) and combating the financing of terrorism (CFT) should strike a delicate balance between ensuring safety while not restricting access. AML/CFT measures can negatively affect access to, and use of, financial services if they are not carefully designed. The ability to perform customer due diligence beyond bank branches can create efficiencies in the case and cost of opening accounts for clients and financial services providers alike.

The existence of AML/CFT regulation and its compliance with FATF (The Financial Action Task Force) standards are considered. Transaction limits are also considered as they can provide a simple means of restricting liabilities in the case of fraud.

International money transfers can be an important catalyst for the adoption of mobile financial services. An indication of the presence of regulation facilitating international money transfers is also included.

Policy and coordination
Informal policy as well as the regulatory attitude and the quality of public-private relationships constitute important drivers of the effectiveness of the regulatory environment. This subpillar provides a directional indicator of these relationships, although they are difficult to empirically capture.

Adoption of a financial-inclusion strategy by the financial regulator is viewed as an indicator of the will to provide private stakeholders with incentives and a stable framework to explore financial inclusion opportunities and innovation. When resources are committed to financial inclusion strategies, it is more likely that results will be achieved. Both the adoption and commitment of resources to a financial inclusion strategy are therefore considered here. Another indicator of the commitment to a financial inclusion strategy is the requirement that traditional banks provide basic, low frills accounts catering to the needs of low-income consumers through existing banking channels.

Activities that concern the stability and integrity of the financial system, including the development of mobile financial services, should be primarily under the purview of the relevant financial regulator. Alignment of the policies set by the financial and
telecommunications regulators, however, is considered an important element of a sustainable regulatory environment. The existence of structural alignment between the two entities is included in this subpillar.

Little research is available on the different forms of taxation of financial services through mobile phones. There are indications that a tax on financial transactions, including withdrawals from and deposits to bank accounts mires activity to the informal financial services sector. Applying a tax to mobile financial services that is different than that applied to traditional banking transactions can be a potential roadblock for adoption and this is reflected in the analysis.

Box 4: Putting the Banking in Branchless Banking: The Case for Interest-Bearing and Insured E-Money Savings Accounts*

* Please see Chapter 1.4 by Tilman Ehrbeck and Michael Tarazi for a full discussion of this topic.

Regulation is often the primary obstacle to using mobile financial services to provide full savings products. This is particularly the case when the mobile financial services are offered in the form of e-money by non-banks. Regulators around the world have regulated e-money services as "payments services", thereby denying two key benefits reserved for bank accounts: interest payments and deposit insurance. In some countries even e-money accounts offered by licensed financial institutions do not receive these benefits.

The payment of interest encourages savings and would therefore be beneficial to both consumers and regulators alike. Yet, despite the fact that pooled e-money accounts often accrue interest, such interest is not passed on to the end-user. Passing on such interest would not only benefit customers but bring more money into the traceable formal economy. In addition, deposit insurance often applies to pooled e-money accounts held in licensed financial institutions and insured amounts are typically much lower than the overall balance. Regulators should extend deposit insurance to each end-user whose money has been pooled. The United States permits such pass through deposit insurance, allowing each individual customer to benefit from the full insured amount.

Banking regulators are understandably uncomfortable with non-banks offering traditional banking services. Regulators, however, might miss out on an opportunity to make great progress in financial inclusion. The extension of benefits such as interest payment and deposit insurance can be done with relative ease and at minimal risk. E-money products from non-banks should not be seen as interlopers in the banking domain, but rather as a much needed stepping stone across which the benefits of high-quality savings instruments can be passed through to the millions who lack access to them.

Second pillar: Consumer protection

Consumer protection can reduce information asymmetries and ensure that the interests of end-users of financial services are protected. It can contribute to improved efficiency, transparency, competition, and access to retail financial markets. Consumer protection is of particular importance in developing economies where education levels are generally lower and information flows constrained.

When customers are better informed about financial services, they can shop around—which promotes competition. Informed clients can also choose products that best fit their needs and encourage competing entities to design better products. Knowing that their rights are protected may strengthen the confidence of individuals to try new services where historically there has not been a great deal of trust.

Regulation

Low-income consumers may be more vulnerable to the misconduct of providers and less able to protect themselves. The consequences of their financial missteps may be severe, resulting in lost income, assets, and consumption. Consumers have a responsibility to inform themselves, protect their interests, and choose products wisely. However, this can be difficult for low-income customers due to limited awareness, knowledge, and skills to assess products’ appropriateness, costs and risks. This means that policymakers and regulators should ensure that consumer protection measures adequately meet the needs of poor or inexperienced customers.

The relationship between the consumer and the agent is central to consumer protection issues. These issues include fraud, the exploitation of customer confusion, pricing transparency, loss or theft of authentication information, customer errors, switching barriers in mobile banking (including if the customer is dissatisfied with the mobile telephony service), inadequate/ineffective grievance procedures, and data privacy and security.

Consumer protection regulation specific to mobile financial services is included in the analysis. This includes whether a consumer protection policy for mobile financial services is in place and the extent to which consumer protection laws cover areas such as consumer education, disclosure of fees and charges, the existence of a redress mechanism and the monitoring of suspicious transactions. General indicators of consumer protection in financial services are also included.

There is a fine line between constructive consumer protection rules that support the emergence of mobile financial services and onerous ones that deter it. While a variable that adequately captures this is not included, a proportional approach and constant dialogue with market participants can ensure a balance is achieved between the commercial viability of business models and the protection of end users.
Enforcement and administration

While basic consumer protection requirements are on the books in most countries, recent work by the Consultative Group to Assist the Poor (CGAP) suggests that the lack of enforcement and compliance mechanisms is a significant concern.20 The existence of a dedicated consumer protection team as part of a country’s primary regulatory body is considered in the enforcement and administration subpillar.

When consumer complaints are not addressed effectively, consumers may become distrustful and shy away from using financial services.21 The existence of a regulatory requirement for providers of financial services to provide complaint statistics is included in the analysis.

A range of tools important for consumer protection is combined into an index labeled “consumer protection administration”. It includes the availability of a financial services ombudsman for dispute resolution, a call center for consumer complaints, and other outlets for resolution. Efforts by the telecommunications regulatory authority to publicize dispute outcomes—as an indirect measure of consumer protection—are also assessed.

Third pillar: Market competitiveness

The degree of competition in both the traditional retail banking sector and the mobile communications market are important factors in the development of mobile financial services. Although there is no evidence of a direct relationship between competition in the banking and telecommunications sectors and the likelihood of a successful introduction of a mobile financial services system, it is assumed that increased competition can drive consumer value in terms of long term innovation and affordable pricing for all segments of the market.22

Financial sector competitiveness

Market concentration is an indirect measure of competition. Analysis of the market concentration of financial services firms incorporates an approach which looks at the difference in market share between the largest and second largest financial services firms. A lower difference (more equally sized players) infers a higher degree of competition.

A range of indirect variables relating to competitiveness is also included in this subpillar, including an aggregate profitability indicator for the banking sector. It is assumed that lower profitability indicates a higher degree of competition. Broader availability and affordability of financial services are also considered indicators of increased competition.

Other indirect measures of competition include service quality, breadth of payment channels, the quality and interoperability of the payment network, and the ease of opening a standard account. A higher score in these areas is assumed to indicate a stronger focus on adding value for the consumer and therefore increased competition.

Telecommunications sector competitiveness

Competitiveness within the telecommunications sector is assumed to promote the development of mobile financial services. However, in the short run, competitiveness could lead to reduced incentives for interoperability and reduced margins for experimentation and investment.

Box 5: The Next Challenge: Channeling Savings Through Mobile Money Schemes*

* Please see Chapter 1.5 by Salah Goss, Ignacio Mas, Dan Radcliffe and Evelyn Stark for a full discussion of this topic.

The provision of savings to poor people has the potential to materially impact their lives. Rather than storing value in inefficient assets, people could manage their cash flow more easily and reliably with access to a safe, convenient savings account.

Access to a basic bank account, however, remains limited in the developing world, particularly Africa. Formal savings banks and financial cooperatives have been serving poor people for decades and so have informal community-based structures such as savings-led groups (SLGs), village savings and loan associations (VSLAs) or rotating savings and credit associations (ROSCAs). However, these groups lack the products and flexibility to adequately address individual’s needs. The cost of putting small amounts of savings in far away bank accounts is too high to make sense for poor people. At the same time, formal savings banks have struggled to find cost effective models to expand their physical reach into poor and rural areas or handle large volumes of low-value cash transactions. More recently, a third savings model has been offered through mobile financial services.

Mobile financial services have the potential to deliver the required level of proximity and cost efficiency. So far, however, they largely offer only transfer and payments services that, while useful, fall short of the broad range of financial services poor people want and need.

None of the available models perfectly addresses the three factors supporting the extension of savings services to the poor individual: convenience, trustworthiness and affordability, and the right balance of liquidity and discipline. By forming partnerships, however, there is an opportunity to leverage the strengths of each of the individual models to create an environment where formal savings products are within reach of most of the world’s poor.

These partnerships would combine the security, product development and marketing capabilities of formal financial institutions (as well as their ability to intermediate funds) with the distribution network and ability to provide low-cost transactions through mobile phones of mobile financial services providers. Informal savings groups would support these partnerships by aggregating financial transactions for those in remote areas.
In markets with limited competition, profit-maximizing firms typically offer a limited portfolio of services. Studies by the GSM Association (GSMA) indicate "average international calling prices in countries which have liberalized regulatory environments decreased by 31 percent with partial liberalization and by as much as 90 percent with full liberalization".21

As with financial services firms, market concentration is used to provide an indirect measure of competitiveness. The Herfindahl-Hirschman Index is used which measures the size of firms in relation to the industry and is defined as the sum of the squares of the market shares of the firms. A lower score indicates a higher level of competition.

The effective price-per-minute of mobile phone usage and the level of churn in the mobile communications market are included as indirect indicators of telecom sector competition. Lower price-per-minute rates and higher levels of churn are interpreted as indicators of more competitive environments. Average revenue per user (ARPU) is also included as an indicator of demand for mobile communication services.

To achieve scale, mobile financial services deployments must be accompanied by heavy investment in consumer marketing to generate sufficient awareness levels.24 As operators have learned, marketing financial services differs strongly from marketing airtime.25 Due to limited data availability, an indicator that captures this distinction in marketing spend was not included in the analysis (see Appendix B).

Innovation
Innovation is considered an important second-order effect of competition that can support the development of mobile financial services. A broad measure of the overall degree of innovation within a country is included. Annual telecommunications infrastructure capital expenditure is also included as an approximation of innovation in the telecommunications market. No information on the degree of innovation specific to mobile financial services was available.

Fourth pillar: Market catalysts
Beyond regulation and market competitiveness, there are a number of “catalysts” that can promote uptake and penetration of mobile financial services. Government usage of mobile payment networks, robust data collection and monitoring, and international remittances are among these.

Government leadership
Governments and other large organizations can become active users of mobile financial services. When these large organizations use mobile financial services for the distribution of salaries or social benefits or the collection of taxes, they can stimulate enrollment and foster sustained usage over time. They provide certainty to the private-sector parties that invest in MFS deployments and serve as a means to gain the trust of the unbanked population.

There are increasingly strong arguments that government disbursement programs (G2P) can play a vital role for sustaining economic growth.26 CGAP estimates that 170 million poor people receive regular payments from their governments, far more than the 99 million or so with an active micro-loan worldwide. G2P payments encompass not only conditional cash transfers, well-known for their poverty reduction effects, but other social benefits, payouts, pensions, and wages.27

For governments, NGOs, and other international organizations, distributing disbursements in cash is extremely costly. To address these problems, a number of payroll disbursement solutions have been introduced, but to date none have been able to effectively tackle both remote salary/commission disbursement and cash elimination.28 The increased transparency achieved by distribution using the mobile platform could reduce fraud in government transactions. Such use in Argentina curtailed the bribes paid by recipients before adoption.29 Tax payments through mobile can offer similar advantages.

The presence and size of government disbursement schemes are included in this subpillar. The ability of governments to receive tax payments through the mobile platform is also considered.

Governments can also have a catalytic role by introducing programs to promote the availability of identification documents. A well-known example is the Indian government’s ambitious introduction of a unique identification number for each of its citizens.30 This could reduce fraud related to the opening of accounts and financial transactions. The ability of other large institutions such as utilities and non-governmental organizations to offer bill payment and disbursements over mobile phones could also be a catalyst. Due to a lack of available data, these aspects are not included.

Data collection and monitoring
Increasingly, policymakers and regulators recognize the need to develop evidence-based approaches to identify and promote drivers for financial inclusion. Creating appropriate datasets that accurately measure the state of financial inclusion can serve to “focus the attention of policymakers and allow them to track and evaluate efforts to broaden access”.31

There is also a strong need for regulators and the private sector to better understand the needs and behaviors of individuals. The current lack of available subscriber data is a concern. Due in part to the early stages of mobile financial services development, consensus on which metrics to monitor and manage has not yet been achieved. Metrics suggested by a variety of institutions and experts include the aggregate number of subscribers,
aggregate transaction volumes, average balances, and other indicators of agent and client engagement. As no data were found that capture the robustness of data collection and sharing in a country, or the existence of government or industry entities with these responsibilities, this subpillar provides indirect indicators of data availability. It uses the completeness of data for the variables captured in this Report as a proxy for general data availability and collection efforts. See Box 6 for more information on the role of the G20 in improving the collection and dissemination of data.

Other market catalysts
International remittances can also serve to drive the adoption of mobile financial services. In 2010, formal (non-mobile) remittance flows to developing countries were estimated at US$325 billion. In some countries these flows surpass overseas development aid and constitute a sizable portion of the economy. Domestic remittances have been a driving force for the uptake of mobile financial services systems in various countries. International remittances could potentially be an even bigger force.

This Report also assesses whether international remittances are primarily cash based or non-cash based. Non-cash based channels are assumed to allow for easier transition to mobile-based remittances. The transaction price of remittances for a country’s most relevant corridors is also included.

Fifth pillar: End-user empowerment and access
For consumers to realize the full value of mobile financial services, they must have a basic understanding of financial issues and no cultural or structural impediments to financial access. Issues related to end user empowerment and access are captured across three subpillars: financial literacy, financial empowerment, and mobile penetration.

Financial literacy
There is little consistency in the literature on the relevance and exact definition of financial literacy and on the effectiveness of efforts to increase it. Some research points to the concept of “proximate literacy” in which consumers receive help and education from more literate consumers. For the purposes of this Report, financial literacy encompasses a broad awareness of financial issues, an understanding of how financial services can be used for real-life needs, and a technical understanding of how to use mobile financial services.

Research shows that introducing new mobile financial products can be complicated for both the banked and the unbanked. Consumers may initially limit their transactions to airtime purchase, bill payments, and money transfers, as other products are unfamiliar and often not understood.

Box 6: The evidence gap

The G-20 has identified financial inclusion for households and enterprises as a key driver of economic growth, reduced economic vulnerability, poverty alleviation, and improved quality of life. With this commitment, the G-20 is uniquely positioned “to initiate and promote a more integrated global effort” in financial inclusion.

The G-20 recognizes data and measurement as essential foundations for improving financial inclusion. Good quality data are the backbone of good policymaking. As the importance of financial inclusion policies has taken hold, so has interest in better data at both the global and national level. A handful of countries have developed high-quality statistics at the national level. However, more progress can and must be made. Increasing the availability and quality of data, harmonizing definitions and approaches for data collection, expanding the scope of collection to include all dimensions of inclusion, resolving aggregation challenges, and ensuring better comparability of data should be priorities.

While setting global numeric targets has been identified as a key action item for the future work of the G-20 in financial inclusion, the G-20 agreed that under the current circumstances this is difficult given a lack of harmonization and comparability in existing data sources. Consistency in methodologies and definitions is required to calculate a sound and credible numeric target. At its meeting last year in Seoul, the G-20 agreed that its immediate next step is to focus on consolidating and harmonizing data collection activities, developing a common understanding on measurement frameworks and methodologies, determining the key top-line indicators to track at the country and global level, supporting the development of new indicators, and supporting countries’ national data collection and target-setting activities.

To bridge the data gaps, the G-20 has created a Financial Inclusion Data and Measurement Sub-Group within its Global Partnership for Financial Inclusion structure. The overall goal of the Sub-Group is to lay the necessary foundations to establish and later monitor progress toward a realistic global target for financial inclusion, which will require more data coverage with even better quality (particularly country-led measurement), greater consistency in definitions and methodologies, and improved coordination of all relevant stakeholders.

There is a distinct lack of financial literacy data that is comparable across countries. Only a very general proxy, based on general literacy, the quality of science and mathematics education, and the regulatory requirements that providers of financial services provide all documentation in local languages is included here. This is an imperfect measure of financial literacy and should be interpreted prudently.

Technology can pose a barrier to adoption but also play an important role in overcoming literacy challenges (or augmenting them if not appropriately applied).
Financial empowerment

Beyond literacy, there are other factors that help empower consumers to adopt mobile financial services. One of the main impediments to the provision of credit is a lack of information to judge creditworthiness, for instance. The depth of credit information available in a country is therefore included here (one of the potential transformational aspects of using a mobile phone for financial services is the ability to use historical transaction data for assessing creditworthiness).

Women play an important role in the financial lives of households around the world but especially in developing markets. Improved gender equality and female empowerment are often discussed as potential benefits of mobile financial services. However, there are still 300 million fewer females than males subscribing to mobile phone services. Women’s access to financial services also still lags that of men. Providing greater financial access can strengthen women’s role as producers and widen the economic opportunities available to them. Accordingly, an estimate of women’s access to bank accounts has been included as a variable. Corruption can be viewed as having a corrosive effect on the financial empowerment of end users. A measure of the public’s perception of corruption is also included.

Mobile penetration

The double-digit growth of demand for mobile phones in developing countries has led to penetration of almost 100 percent in some countries and of over 50 percent on average for the developing world. Given shared usage of mobile phones, the number of people with access to mobile phones is even larger. Ideally adoption of mobile phones would be expressed as the number of active users of mobile phone services. However, an estimate of active connections, split between prepaid and post-paid is only available for this analysis. To arrive at an estimate of active users, one would have to account for the effects of multiple SIM ownership, unused active connections, and shared usage.

An estimate of growth in mobile phone penetration is included too. This is based on the annualized net growth in the second quarter of 2010.

Sixth pillar: Distribution and agent network

The development of mobile financial services is as much enabled by efficient usage of vast distribution networks as it is by increased mobile phone adoption. This pillar addresses aspects of retail distribution and agent networks in more detail.

Supporting infrastructure

Financial services offered through mobile phones leverage both the technology and a low-cost, widespread distribution network. This non-traditional financial services infrastructure can consist of retail outlets, airtime...
sellers, point of sale (POS) machines, and any other outlet that allows for a conversion of monetary value into electronic money.

Traditional bank branches often still play a fundamental role in providing liquidity to mobile financial services networks and helping agents manage their float and cash levels. End users can use automated teller machines (ATMs) and POS terminals to deposit and withdraw cash. This subpillar addresses those supporting elements by assessing the penetration of traditional bank branches and the number of ATMs and POS terminals per capita.

Agent network development

An estimate of agent density expressed as the number of agents per 100,000 adults is included in this subpillar. This estimate is based on a survey of operators of mobile financial services systems and may be conservative for some countries. When interpreting this estimate, it is important to realize that the deployments covered include only mobile-enabled financial services. Agents for “non-mobile” branchless banking systems are not included (See also Box 8).

The ease of customer enrollment is also included as a measure of sophistication of the agent networks. Various other attributes of agent networks would also have been included, such as information on how agents are incentivized and how they are supported to perform their role in areas such as risk and liquidity management. The prevalence of so-called aggregator agents that manage liquidity for large groups of retail agents would also be a useful measure. Adequate cross-country data were not available in these areas.

As there is evidence of market discipline between stores based on the quality of the service they offer. Other useful metrics would have been the number of transactions per-agent-per-day, the number of active customers and the average float per customer.

Seventh pillar: Adoption and availability

The degree to which the underserved population has access to and actually uses mobile financial services within a country can be considered the most important outcome of the development of the mobile financial services ecosystem. Both of these aspects are captured within this pillar.

Adoption

Data regarding subscriptions and usage are not available on a consistent basis. Ideally, this pillar would include data on adoption and usage levels per product or service, as well as details on frequency and average size of transactions. To include an output variable that estimates adoption, estimates of the active number of mobile financial services users were made, based on an analysis of deployments done in collaboration with the GSMA. These high level estimates represent the number of opened mobile financial services accounts or “wallets” and do not express usage. A wallet is defined as a store of digital value that is uniquely tied to and accessible by an individual customer. The number of wallets is expressed as a range of the percentage of the total population.

Some mobile payments services (such as bill payment) do not require accounts and thus are not included. However, these are considered mobile financial services, and thus the adoption levels included here should be interpreted with this caveat in mind. Another element that might distort the reported adoption levels is the opening of accounts by operators at the time of SIM registration. As described previously, some mobile operators use the SIM registration process as an opportunity to automatically enroll an individual into a mobile financial service account. These accounts are included in the total, but do not reflect actual usage.

Future data collection efforts by public and private stakeholders should focus on establishing a more robust fact base on the adoption of mobile financial services at both the service/product level and the transaction level. The GSMA offers useful guidance on how this could be achieved.

Mobile payments diversity

The first generation of mobile financial services has focused primarily on providing payment functionality, but
it is widely held that substantial socio-economic benefits can be achieved through the delivery of a wider and more balanced portfolio of services.\(^{51}\) This pillar, therefore, assesses the breadth of services offered including payment, savings, credit, and insurance.

The ability to buy airtime from a mobile account, make national and international transfers, pay bills (for example, to utility companies), pay merchants, and repay MFI loans are also included. Availability is assessed at the country level and does not imply that a given service is available to all people. A variable that indicates how many deployments are active in a country is also included.

The majority of mobile financial services deployments include an entity from both the telecommunications and banking sectors. Service interoperability across various institutional domains is an important aspect for both. Mobile operators have a tradition of interconnecting their voice and data services, as their customers are best served if they can send and receive messages to/from anyone, even if they are on different networks.\(^{52}\) Banks, too, have historically interconnected their different payment networks. Interoperability can also include commercial aspects, such as having retail distribution outlets affiliated with multiple service providers.\(^{53}\)

Providers of mobile financial services will need to balance the short-term incentives for a lack of cooperation with the long-term value creation of interoperability. A variable which assesses the technical interoperability of mobile financial services systems in different countries has been incorporated into the analysis.

**Mobile financial services diversity**

As most mobile financial services are structured around e-money licenses, limited opportunities exist for offering interest bearing and deposit insured savings accounts. However, solutions involving the coupling of mobile financial services systems with traditional savings products of regulated financial institutions have been developed. A variable that assesses the existence of these coupled accounts is included in this subpillar. The coupled accounts are not necessarily interest bearing and deposits are not necessarily insured.

The mobile provision of credit can potentially address a wider consumer need but is constrained by an inability to cost-effectively assess credit risk and establish collateral for loans. However, as mobile financial services may facilitate a better assessment of individuals’ financial and transaction history, future opportunities for credit provision on a large scale might materialize. The availability of obtaining a simple and small form of credit—known as emergency credit—is included in this subpillar.

Mobile financial services have the potential to serve as an effective channel for the increased distribution of focused insurance products, such as crop or personal accident insurance. Many small-scale initiatives are being rolled out and tested. The availability of any form of insurance through mobile financial services is included here.

The availability of savings tools is especially important for the unbanked, as noted by Salah Goss, Ignacio Mas, Dan Radcliffe and Evelyn Stark in Chapter 1.6. Mobile financial services can effectively address consumer requirements of affordability, safety, and easy access to promote savings by poor households. Evidence shows that people already use mobile financial services accounts to store value safely. However, deposit insurance and interest are generally not yet available for these accounts, often because of the chosen regulatory approach (see Ehrbeck and Tarazi in Chapter 1.4).

**Notes**

3. See Mas 2009 for a structural explanation of different branchless banking models.
4. For a structural overview of different business models, see United States Agency for International Development 2010.
5. Ivtury et al. 2006.
10. For example, Montez and Goldstein 2010, on Tanzania.
15. Isenm and de Koket 2009.
27. Pickens, Porteous and Rotman 2009.
CGAP. 2010. ‘Updated Notes On Regulating Branchless Banking in India.’


See a blog post on the GSMA’s Mobile Money for the Unbanked blog by Leishman 2010.

Bold 2010.

See Camner, Pulver and Sjoblom 2009 and Jansen 2010.

Cohen 2010.


MobileActive.org for many pilots cases: http://www.mobileactive.org/mobile-interactive-voice

Mass and Radcliffe 2010 on how building critical mass quickly is important to build trust.

Chipchase 2009.

Davidson and McCarty 2011.

Porteous 2010.

Jack and Suri 2010.

the GSM Association in cooperation with the Cherrie Blair Foundation for Women 2010

Fletschner and Kenney, 2011.

Chipchase 2009.

Mas and Sledek 2008.

Eijkman et al. 2010.

For example, Montez and Goldstein 2010, on Tanzania.

Blog post on the GSMA’s Mobile Money for the Unbanked blog by Leishman 2010.


Blog post on CGAP’s Technology blog by Mas 2011.

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Celent / Oliver Wyman. 2010. ‘Mobile B2X The Next Mobile Payment Wave in International Markets’. Boston, MA.


1.1: The Seven Pillars of Mobile Financial Services Development


Aggregation to subpillars and pillars

The main goal of the Country Profiles is to provide policymakers and industry stakeholders with the understanding of each country’s mobile banking ecosystem necessary to facilitate its development. To that purpose, the information in the profiles is aggregated into subpillar and pillar scores, based on comparison to other countries covered. As the Report’s intention is not to rank countries, the pillar scores have not been aggregated into an overall MFS development score.

The subpillar scoring is based on the numeric average of normalized variable scores within a subpillar. This average score is then compared to other countries’ scores and assigned a subpillar classification. A similar approach is applied to aggregating subpillar scores into pillar scores, using the average numeric subpillar scores.

Given the evolving nature of mobile financial services and the lack of comprehensive qualitative and quantitative cross-country data, there is a limit to the level of accuracy that can be achieved in assessing a country’s performance on the subpillar and pillar levels. To accommodate this limitation, three discrete “score” classifications have been created: “advantage”, “neutral” and “disadvantage”. When a country ranks within the top quintile for a particular variable, its stage of development is considered an “advantage” to scale mobile financial services successfully and sustainably. Likewise, having a score in the bottom quintile results in a “disadvantage” assessment. A score in the second, third or fourth quintile is classified as “neutral”.

The numeric subpillar scores, and not the qualitative score groupings, are used to calculate the pillar score. Therefore, two pillars composed of the same subpillar score groupings (for example, two “neutral” subpillars and one “advantage” subpillar) can potentially have different pillar scores (for example, “neutral” for one pillar and “advantage” for the other), based on differences in the underlying numeric values of the subpillars.

### Weighting and scaling of variables

The structure of the profiles is such that it can serve as a framework for analysis. Consequently, a very conservative approach has been taken to weighting different variables. The weighting of each variable and subpillar is shown starting on the next page.

A dynamic weighting regime removes individual variables from the subpillar calculations when no data are present. In instances of data unavailability for a particular variable, the weight normally allocated to that variable will be spread among variables for which data are present. Therefore, the actual weight for each variable by country may not be exactly as noted. When less than 50 percent of country data is available for variables within one subpillar, that country is not assigned a score for the subpillar.

As noted, subpillar and pillar scores are calculated using a numeric average of all variables within scope. These scores are translated into an index. For qualitative data points, this translation is done by converting the data to numeric values: “no” is converted to 0, while “yes” is converted to 1. In some instances, a third possible answer is converted to 0.5. For example, for variable 1.09 (the existence of an identification requirement for pre-paid services), the answer “considered” is converted to 0.5.

Source data are normalized to a 0–1 range based on the distribution of values for each variable. The exception to this rule is when the variable represents an index (ranging between 0 and 1); in this case, no normalization is applied. Normalization is done using the following formula:

\[
\text{normalized score} = \frac{\text{country score} - \text{sample minimum}}{\text{sample maximum} - \text{sample minimum}}
\]

Outliers within a data range are excluded from this calculation. A value is considered an outlier when it falls outside of the 5th to 95th percentile range of the total sample.

The percentage denoted next to each category in the list below represents the category’s weight within its immediate parent category.
Appendix A: Structure of the Country Profiles

1st pillar: Regulatory proportionality .......... 14.29%
   A. Financial sector regulation ............... 16.67%
      1.01 Domestic financial sector liberalization (2-1 scale)
      1.02 Proportional licensing scheme
      1.03 E-money licensing
      1.04 Regulatory quality for banking and investment (0-1 scale)
   B. Telecom sector regulation ................. 16.67%
      1.05 Telecommunication regulatory authority
      1.06 Existence of universal service policy
      1.07 Coverage rate requirement
      1.08 Quality of service regulation index (0-1 scale)
      1.09 Identification requirement for pre-paid services
      1.10 Existence of MVNO’s
      1.11 Taxation of mobile communication services (%)
   C. MFS regulation ................................ 50.00%
      1.12 Banking agent regulation
      1.13 MNO role as banking agent
      1.14 Non-bank agent deployment
      1.15 Permitted agent activities (0-1 scale)
      1.16 Non-bank MFS licensing
      1.17 Value in mobile wallet considered deposit
      1.18 Existence of AML/CFT regulation
      1.19 Compliance with AML/CFT standards
      1.20 Proportional transaction limits
      1.21 Proportional KYC requirements
      1.22 International mobile money transfer regulation
   D. Policy and coordination ........................ 16.67%
      1.23 Publicly-defined financial inclusion strategy
      1.24 Designation of financial access authority
      1.25 Basic account provision
      1.26 Telecom and FS regulatory alignment
      1.27 Institution-agnostic tax regime
2nd pillar: Consumer protection .............. 14.29%
   A. Regulation .................................... 75.00%
      2.01 Existence of MFS consumer protection policy
      2.02 Breadth of MFS consumer protection (0-1 scale)
      2.03 Transparency and consumer protection index (0-1 scale)
      2.04 Regulatory mandate for consumer protection (0-1 scale)
   B. Enforcement and administration ............ 25.00%
      2.05 Consumer protection enforcement
      2.06 Consumer complaint statistics reported
      2.07 Consumer protection administration (0-1 scale)
3rd pillar: Market competitiveness .......... 14.29%
   A. Financial sector competitiveness ......... 25.00%
      3.01 Financial services market competition (%)
      3.02 Aggregate profitability indicator (%)
      3.03 Availability of financial services perception (1-7 scale)
      3.04 Affordability of financial services perception (1-7 scale)
      3.05 Breadth of retail payment channels (0-1 scale)
      3.06 Payment network quality and interoperability (0-1 scale)
      3.07 Ease of opening traditional account (0-1 scale)
   B. Telecom sector competitiveness .......... 50.00%
      3.08 Mobile network operator market competition
      3.09 Effective price for mobile phone services (US$ PPP cent/min)
      3.10 Churn of mobile subscriptions (%)
      3.11 Average revenue per user (US$ PPP)
   C. Innovation .................................. 25.00%
      3.12 Capacity for innovation (1-7 scale)
      3.13 Investment in telecom (%)
4th pillar: Market catalysts .................. 14.29%
   A. Government leadership ..................... 40.00%
      4.01 Government disbursement scheme
      4.02 Government disbursement reach (%)
      4.03 Mobile G2P payments
      4.04 Mobile tax payments
   B. Data collection and monitoring .......... 20.00%
      4.05 Availability of decision-making data: regulatory
      4.06 Availability of decision-making data: market
      4.07 Availability of decision-making data: end-user
      4.08 Availability of decision-making data: adoption
   C. Other market catalysts ..................... 40.00%
      4.09 Inbound international remittances to GDP (%)
      4.10 Main method of international remittances
      4.11 Cost of receiving international remittances (%)
5th pillar: End-user empowerment and access .............................................. 14.29%
   A. Financial literacy ............................ 25.00%
      5.01 Financial literacy indicator (0-1 scale)
   B. Financial empowerment ...................... 25.00%
      5.02 Depth of credit information (0-6 scale)
      5.03 Women’s access to bank loans (0-1 scale)
      5.04 Corruption Perceptions Index (0-10 scale)
   C. Mobile penetration .......................... 50.00%
      5.05 Population covered by mobile phone services (%)
      5.06 Mobile phone services penetration (%)
      5.07 Post-paid connections (%)
      5.08 Mobile connection growth rate (%)
6th pillar: Distribution and agent network ...... 14.29%
   A. Supporting infrastructure .................. 40.00%
      6.01 Bank branch penetration (per 100,000 adults)
      6.02 ATM penetration (per 100,000 adults)
      6.03 POS penetration (per 100,000 adults)
   B. Agent network development ............... 60.00%
      6.04 Agent density (per 100,000 adults)
      6.05 Ease of enrollment for MFS agents (0-1 scale)
Appendix A: Structure of the Country Profiles

7th pillar: Adoption and availability ................. 14.29%

A. Adoption .............................................................. 50.00%
  7.01 Adoption of MFS services

B. Mobile payments diversity .............................. 25.00%
  7.02 Number of active MFS deployments
  7.03 Ability to buy airtime from account
  7.04 Availability of domestic money transfer
  7.05 Availability of international money transfer
  7.06 Availability of bill payment
  7.07 Availability of merchant payment
  7.08 Availability of MFI loan repayment
  7.09 Interoperability of MFS payment systems

C. Mobile financial services diversity .............. 25.00%
  7.10 Availability of coupled accounts
  7.11 Availability of (emergency) credit
  7.12 Availability of insurance
There is a clear need to improve the quality and availability of financial access data, both by improving and extending cross-country indicators as well as employing country-specific diagnostics. To be useful, indicators must be collected on a continuous basis so that policymakers can set priorities, track progress and learn from one another (see Kendall et al. 2009 for more discussion on this topic). The G-20 has acknowledged that this lack of data might be a roadblock for future development and has established a “data and measurement” subgroup under its Global Partnership for Financial Inclusion (GPFI), which is tasked with filling the existing “evidence gap.”

Various private-sector initiatives are being started to create a shared taxonomy and capture and distribute data, but only a minority of banks and mobile network operators report data on such basics as the aggregate number of registered customers, retail agents, and transaction values. A useful overview of data and insights to date is given by Dermish et al. 2011, in their survey of existing materials.

The variables in this Report are based on three categories of data. First, relevant elements of existing public sources have been collected and combined. Second, proprietary data from partnering institutions have been included. Third, surveys and interviews were conducted to capture some of the missing elements.

Cooperation is desirable across markets and stakeholders to increase data richness over time and for aggregation in the future. In particular, more data for the following topics are needed:

• First pillar (regulatory proportionality): allowed agent entities, flexibility of regulation of non-licensed financial institutions, regulatory openness to innovation, and quality of public-private relationships.

• Third pillar (market competitiveness): insights into the operations of mobile financial services, including aggregated market information on total investments, gross margins, marketing expenditures, and customer acquisition costs.

• Fifth pillar (end-user empowerment and access): levels of financial literacy and consumer trust in financial services providers and mobile operators, access characteristics of the informal financial sector, and technological development of users and existing mobile services.

• Sixth pillar (distribution and agent network development): aggregate market views of the number of agents, functional capabilities of different types of agents, existence and importance of aggregator agents.

• Seventh pillar (adoption and availability): aggregate counts of active users per service type, average transaction size and frequency, and average balances.