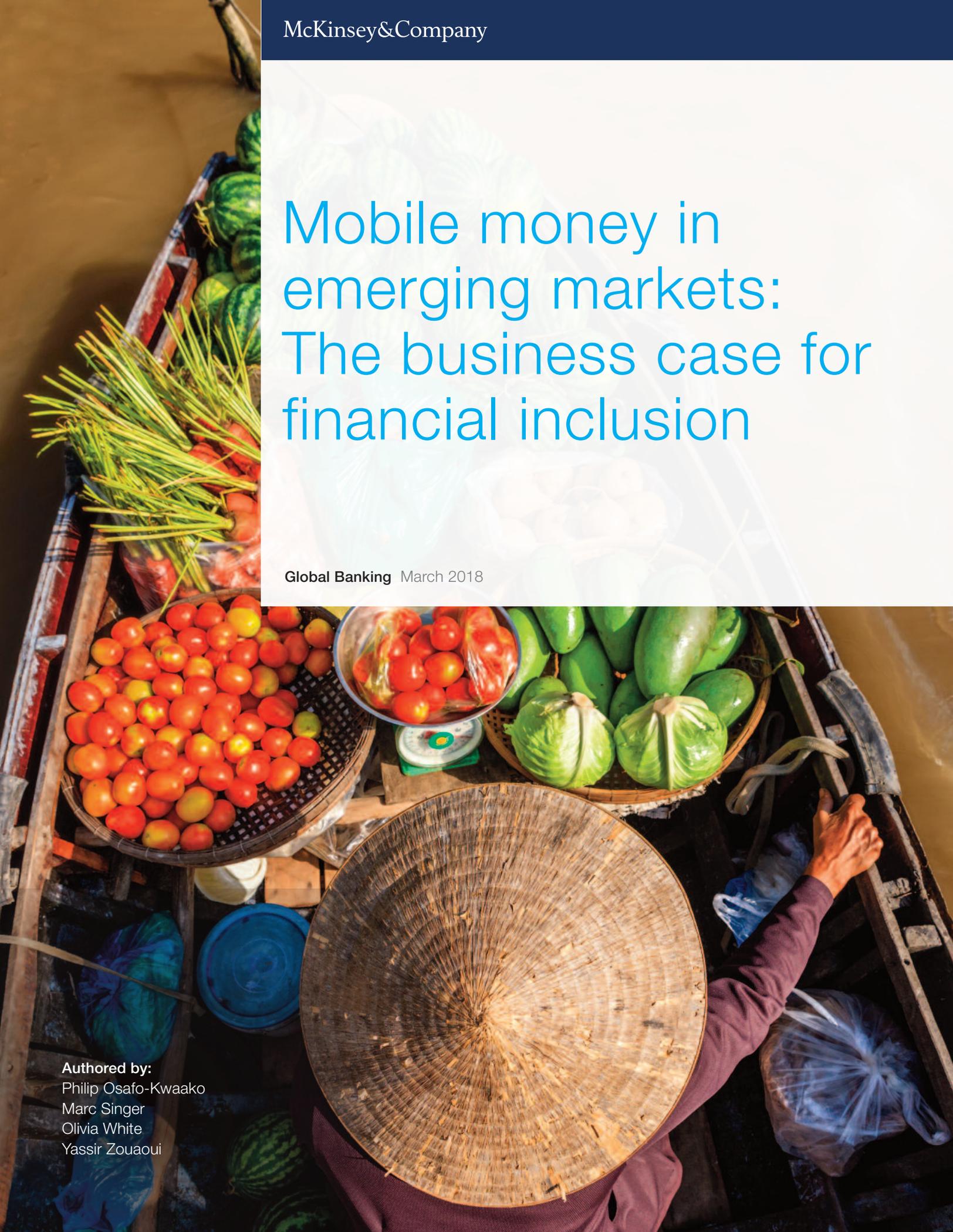


# Mobile money in emerging markets: The business case for financial inclusion

Global Banking March 2018

**Authored by:**  
Philip Osafo-Kwaako  
Marc Singer  
Olivia White  
Yassir Zouaoui





# In brief

Mobile money systems offer a dual promise, as an engine for financial inclusion, and as an emerging markets business opportunity for providers. Two billion individuals and 200 million small businesses in emerging economies today lack access to savings and credit. Success in financial inclusion entails reaching these users with products that go beyond payments and can significantly improve people's financial lives. Providers who can do so profitably can tap into huge and largely untouched markets. To uncover how digital payments providers can capture these opportunities while benefiting people currently without access to financial services, we have examined the actual financial and transaction data of a sample of mobile money providers, all on a blinded basis. The main findings from this research are summarized below:

- **Scale enables ultimate profitability but requires significant up-front spend.**

Payments systems realize significant scale benefits when network effects kick in and fixed costs becomes small on a relative basis—both for individual providers and at the market level. We estimate that above-scale mobile money can be a 35 percent-margin business, but small providers may need to spend over two times what they earn just to maintain their size. To get people to use mobile money, however, providers must invest heavily in marketing to customers, acquiring and training agents, and investing in business and distribution infrastructure. In fact, per-customer spend may need to be as much as two times higher for a small provider than for one that has attained scale.

- **Regulation can accelerate or hinder ability to grow—or make scale a prize not worth attaining.** Regulations can influence a mobile money provider's ability to grow and maintain a customer base build and sustain an agent

network, develop critical capabilities and infrastructure, and offer products beyond basic payments. For example, caps on fees charged to consumers for cash-out services can make the difference between a profitable and money-losing business; for the business models on which we focused, capping such tariffs at \$0.25 per cash out would shift overall provider margins from 35 percent to roughly -5 percent.

- **Opportunities for providers will increase as mobile money business models evolve.**

Though cash-in-cash-out (CICO) will remain necessary, there is large opportunity to reduce use of cash in favor of digital payments, increasing frequency of electronic transactions. Providers will benefit. We find that digital transactions have margins of 95 percent compared to CICO margins of 30 percent. Beyond standard digital payments, mobile money can help providers enhance existing business models and develop new ones—ranging from micropayments, new forms of data-based financial services, and entirely new digital business models. However, ultimately, providers should tighten their focus on those mobile money services that deliver higher returns than the other opportunities that they have to grow their businesses.

- **To seize current and future opportunities, providers will need to partner or acquire new skills.**

Growing and sustaining a profitable mobile money system requires a set of diverse and hard-to-develop capabilities, including broad marketing and distribution, management of an agent sales force, systems and analytics, rapid product development, and financial intermediation. Today, no single type of provider—banks, mobile network operators (MNOs), or Internet providers—has all of these skills. For example, MNOs can leverage their

existing agent and cash distribution networks to achieve costs for cash-in-cash-out that are roughly 40 percent lower than those of banks, comparing growing but still subscale mobile money services. On the other hand, MNOs have no experience or existing capacity holding deposits as part of financial intermediation. Recipes for overall success could include bank-MNO partnership or an established Internet player acquiring an agent distribution network.



The mobile money opportunity for providers is both significant and attainable, but incremental action will not unlock the potential. Providers will need to invest for the long term and be prepared to work in new ways, including through partnerships with other types of firms. And because success is in everyone's best interest, providers and regulators should consider constructive collaboration.

# Introduction

Mobile money systems offer a dual promise, as an engine for financial inclusion, and as an emerging markets business opportunity for providers. Most people and small businesses in emerging economies today do not fully participate in the formal financial system. Two billion individuals and 200 million small businesses in these regions today lack access to formal savings and credit. They transact exclusively in cash, have no safe way to save and invest their money, and must rely on informal lenders and personal networks for credit. Even those with access can pay dearly for a limited range of products. Success in financial inclusion entails reaching these individuals and small businesses with products that go beyond payments and can significantly improve their financial lives.

For providers of digital financial services, mobile money can be a gateway into huge and largely untouched markets. Digital finance has the potential to reach over 1.6 billion new retail customers in emerging economies and to increase the volume of loans extended to individuals and businesses by \$2.1 trillion. The providers of these products stand to gain by access to potential new revenue streams and to increase their balance sheets by as much as \$4.2 trillion, in aggregate. By building digital finance capabilities, companies will gain the opportunity to develop new business models ranging across new forms of more data-based financial services, micropayments, and entirely new digital businesses. Existing financial services providers also stand to reduce the direct costs of their current businesses by \$400 billion annually.<sup>1</sup>

The scale of the opportunity is clearly understood; however, firms seeking to tap the mobile money opportunity are faced with a landscape of unknowns. How will the mobile money value chain work in practice? What do we know about consumer behavior? Mobile money's underpinning structure, with its combination of financial and telecom industry firms, and a heterogeneous regulatory landscape, is complex and unique. And there are few examples of firms that have achieved scale.

To answer some of these questions, and understand how digital payments providers can capture the opportunities while benefiting those without access to financial services, we have examined the actual financial data of a sample of mobile money providers, all on a blinded basis. This work is the first to our knowledge that attempts to look systematically at the economics of mobile money in this way. We relied on proprietary data from six institutions for detailed benchmarking analysis, and also drew on publicly available data. The benchmarking analysis focused most heavily in East Africa, but also included representative companies from both West Africa and Southeast Asia. It included banks, mobile network operators (MNOs), as well as other third-party providers of mobile money services. Some of the providers we studied were subscale, capturing under 25 percent of their markets and only a small amount of transaction volume; others were operating at scale as the dominant players in their markets. The companies we examined also ranged in degree of maturity, from under five years in operation to over ten years.

---

<sup>1</sup> All figures in the paragraph from *Digital finance for all: Powering inclusive growth in emerging economies*, McKinsey Global Institute, September 2016.

Our analysis of mobile money economics, case studies, and observation of industry trends indicate that while the opportunity for providers is both significant and attainable, some providers will need to shift their mindsets to succeed. They will need to invest for the long term and be prepared to work in new ways, including through partnerships with other types of firms. Providers will not be able to unlock the

mobile money opportunity through incremental action or by doing more of what they have always done. Regulation can serve as either help or hindrance. Because success is in everyone's best interest, providers and regulators should consider constructive collaboration. The remainder of this paper outlines our conclusions in greater detail.

# Scale enables profitability but requires significant up-front spend

Payments systems realize significant benefits of scale when fixed costs become small on a relative basis and when network effects kick in—both for individual providers and at the market level. We estimate that above scale, mobile money can be a 35 percent-margin business; but small providers may need to spend over two times what they earn just to maintain their size. Providers will break even once they see sufficient value flowing through their systems. For the providers we observed, the break-even point occurred at \$2 billion to \$3 billion in annual transaction value and

corresponded to total system revenue of roughly \$20 million to \$30 million (Exhibit 1).<sup>2</sup>

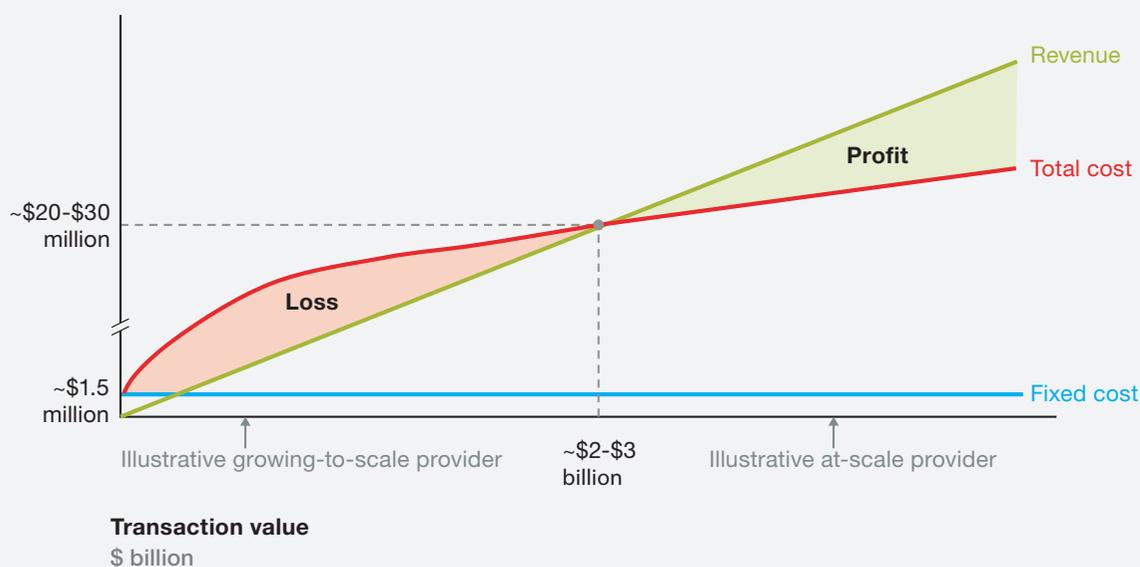
Since mobile money requires fixed investment, unit costs decrease as more value flows through the system. The most significant fixed-cost component is the IT backbone required for transactions processing, which can include software licensing fees. Overall, our benchmarking indicates that IT represents roughly \$1.5 million in annual cost—significant for a smaller provider but relatively minimal once a system has more than

Exhibit 1

## Mobile money providers must achieve scale to be profitable.

### Provider cost and revenue with scale

Cost/revenue  
\$ million



<sup>1</sup> Transactions include both CICO + digital counterparty transactions.  
Source: Aggregated provider data; McKinsey analysis

<sup>2</sup> Based on analysis of providers in countries with populations ranging between 50 million and 100 million. The break-even point may be larger in more populous countries.

several hundred million dollars of annual flow, generating well in excess of \$1 million dollars in annual revenues.<sup>3</sup> Personnel and real-estate costs also contribute to the fixed-cost base of companies exclusively devoted to mobile money. On the other hand, providers who support many lines of business—like MNOs and banks—leverage existing staff and buildings as they grow their mobile money offering, effectively marginalizing these spend components.

As providers grow, they also can reap network effects that lower their marginal costs, particularly in sales and marketing, agent acquisition and management, and cash distribution. Once the system is established, at least some new customers will join based on word of mouth or to transact with others already on the system. Similarly, agents may sign up because they directly observe the business opportunity and how it works. Active cash distribution requirements can also become less intense as individual agents are more likely to collect and disperse cash in equal measure on any given day. For example, our analysis indicates that subscale

providers spend roughly 40 percent more on above-the-line marketing compared to at-scale providers and that overall smaller providers can spend up to two times more per customer.

To gain the benefits of scale, however, providers must invest heavily and with long time horizons. This holds true across the world for Internet players in network businesses—firms such as Alibaba and Google have invested significantly in long-term growth and market capture, even when this means immediate losses. Since a rosy end-state business model means little without the ability and appetite to foot the initial bill, successful providers will draw on their own reserves, find long-term investors, or look to partner. International plays may be required. For example, MNOs may look to group-level mobile money strategies and resource sharing for their country-level businesses to succeed. Individual providers or partnerships that already have the capabilities needed to grow will have an easier time attracting investment than those that need to build competencies.

---

<sup>3</sup> In our benchmarking average transaction fees were roughly [1%] of value, though fees charged by mobile money providers for individual transactions typically are defined by bands of transaction value rather than as a straight percentage of amount transacted.

# Regulation can accelerate or hinder ability to scale

Regulatory decisions can impact mobile money provider profitability and ability to scale. Regulation has potential to influence the ability to grow and maintain a customer base, build and sustain a high-quality agent network, develop critical capabilities and infrastructure, and offer products beyond basic payments (Exhibit 2). Since large-scale digital finance both promotes financial inclusion and boosts GDP, financial regulators should consider the impact of regulation on mobile money provider economics as part of the balance among multiple factors including financial system stability, customer interests, broader policy aims, and macroeconomic considerations.

A few examples demonstrate how regulation can impact the economics of mobile money providers. First, tariff caps intended to make services affordable to poorer users can hinder profitability and make growing the customer base more difficult. Caps on fees reduce how much a provider earns from an individual transaction or cash withdrawal and, in some cases, can make the difference between a profitable business and a money-losing one. For the business models we studied, for instance, capping cash-out tariffs at \$0.25 each would shift overall provider margins from 35 percent to roughly -5 percent. Even when tariff caps do not make a type of transaction unprofitable, they

Exhibit 2

## Regulation can impact provider profitability and ability to scale.

Success factors	Example types of regulation	Potential to...	
		Reduce profitability	Slow growth
Grow and maintain customer base	Tariff caps on cash-out transactions	✓	
	Arduous KYC requirements or process	✓	✓
	Transaction and account balance limits		✓
Build and sustain agent network	Agent fees	✓	
	Onerous agent registry requirements	✓	✓
	Restrictions on who can be an agent		✓
Develop basic infrastructure and products beyond payments	Requirements that deposit funds be held in trust, escrow, or similarly restricted manner		✓
	Required firewalling of mobile money and other business IT systems	✓	✓
	Specific and complex licensing for each product	✓	

Source: McKinsey interviews and analysis

increase the transaction value required through the system for a provider to be profitable overall. They may also make some customer segments unappealing for providers to serve, if the expense to reach them outweighs the benefit from gaining more users.

As another example, restrictions on who can serve as an agent can hinder providers from growing widespread CICO networks. For instance, when providers can only sign up agents who are already registered legal entities they cannot work with airtime distributors or small informal shops. Motivating factors behind this sort of restriction can include controlling illicit financial activity and easing the burden on limited staffs of supervisors by having fewer types of agents providing financial services. However, such restrictions can block providers from signing

up those agents that might make most business sense—for example, airtime distributors for MNOs—or are most likely to be located where currently underserved people live.

Finally, required firewalling of mobile money and other business IT systems can discourage growth and add cost, thereby reducing profitability. Several countries require such a firewall to protect mobile money customers against control failures outside of the mobile money business—in the voice and data business of an MNO, for example—where financial services regulators typically do not have oversight. Controls might fail to protect against risk events including cyber breaches, external identity theft, or illicit activity on the part of employees. However, such IT requirements can be costly to implement overall and contribute to fixed costs that are hard for small providers to shoulder.

# Opportunities for providers will increase as mobile money business models evolve

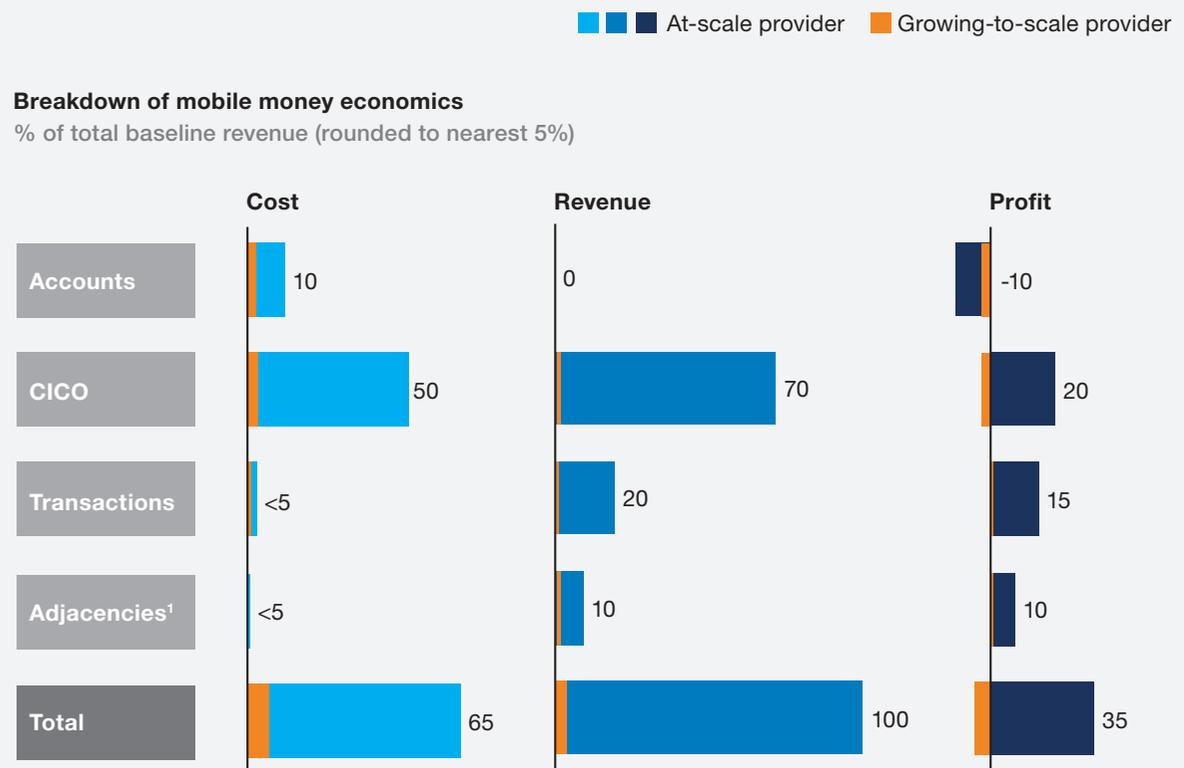
Mobile money providers make money by charging customers for some combination of four types of activities: those associated with opening and maintaining the account, CICO services, transactions between two accounts, and adjacent activities tied to the mobile money wallet or services (see sidebar, “The ACTA framework”). A provider is profitable as long as total revenues from the underlying activities exceed total associated costs. Looking ahead, even more significant opportunities await; increases in digital

transactions will boost the bottom line and new business models will give payments providers access to entirely new revenue streams.

In today’s mobile money business models, CICO drives provider economics (Exhibit 3). For at-scale providers, it represents roughly 60 percent of profits and accounts for the largest share of both revenues (70 percent) and costs (80 percent). Since margins on CICO are relatively slim, at 20 to 30 percent, even small cost

Exhibit 3

## Cash-in-cash-out dominates the economics as providers grow to scale.



<sup>1</sup> Costs includes those associated with deposit insurance; revenues includes those associated with net interest margin.  
 Source: Aggregated provider data; McKinsey analysis

reductions can impact overall economics and cost increases can make players unprofitable. While innovation on CICO cost structure could be game-changing, caution is critical; since agents play a central role in acquiring and maintaining customers, changes in CICO structure could require meaningful increases to customer acquisition costs.

Account-related activities are the second-largest contributor to mobile money system costs, at roughly 15 percent of the total outlay (or 10 percent of total revenues). These costs are associated with opening and maintaining accounts and stem primarily from marketing. They are a small contributor in models where MNOs run the agent network, totaling between \$2 to \$5 annually per customer. MNO marketing spend, which would occur anyway, can indirectly contribute to customer acquisition but is not counted in economic models. Regardless of model, marketing costs may need to be higher than this average for acquiring down-market customers who are more difficult to reach and who may be less prone to switching behavior quickly.

Transactions are currently the second-largest contributor to mobile money revenue but hold significantly greater promise. Today, transactions represent roughly 20 percent of total revenues. Appealingly, margins on transactions can exceed 75 percent thanks to fees that are large compared to the low costs to the provider, due to automated systems and digital user interfaces. As a result, providers stand to improve profitability meaningfully by increasing the number of digital transactions for every time cash is put into the system (Exhibit 4). That said, all evidence indicates that cash and thus CICO will

not disappear anytime soon. Even in Norway, for example, the country with the largest share of digital payments globally, 17 percent of all payments are transacted in cash.<sup>3</sup> Thus, to improve profits, providers should look to grow digital transactions even if it means also increasing the number of CICO transactions.

Finally, adjacencies remain a largely untapped opportunity, contributing no more than 10 percent to both total revenue and total profit at most providers. New economic models that leverage payments offer huge potential. Mobile money offers providers the opportunity to enhance existing business models and to develop new ones beyond standard digital payments—including new forms of more data-based financial services, micropayments, and entirely new digital business models.

As the network of mobile payments grows, new types of financial services are emerging. Companies are developing innovative products and services by using risk datasets engendered by digital payments. When people conduct financial transactions with a mobile phone, they leave a digital data trail that can transform providers' understanding of customer needs and inform assessment of credit risk, allowing for extension of credit to individuals and businesses whose past transactions suggest they are low risk. Providers also can use mobile technologies to issue, monitor, and collect payments on the loans they extend, reducing costs and thus enabling extension of smaller loans. A common example for consumers is peer-to-peer lending, which is growing across many markets from players like WePay, Lufax, and Yirendai in China to Kubo Financiero in Mexico. Business models

---

<sup>3</sup> McKinsey Global Payments Map.

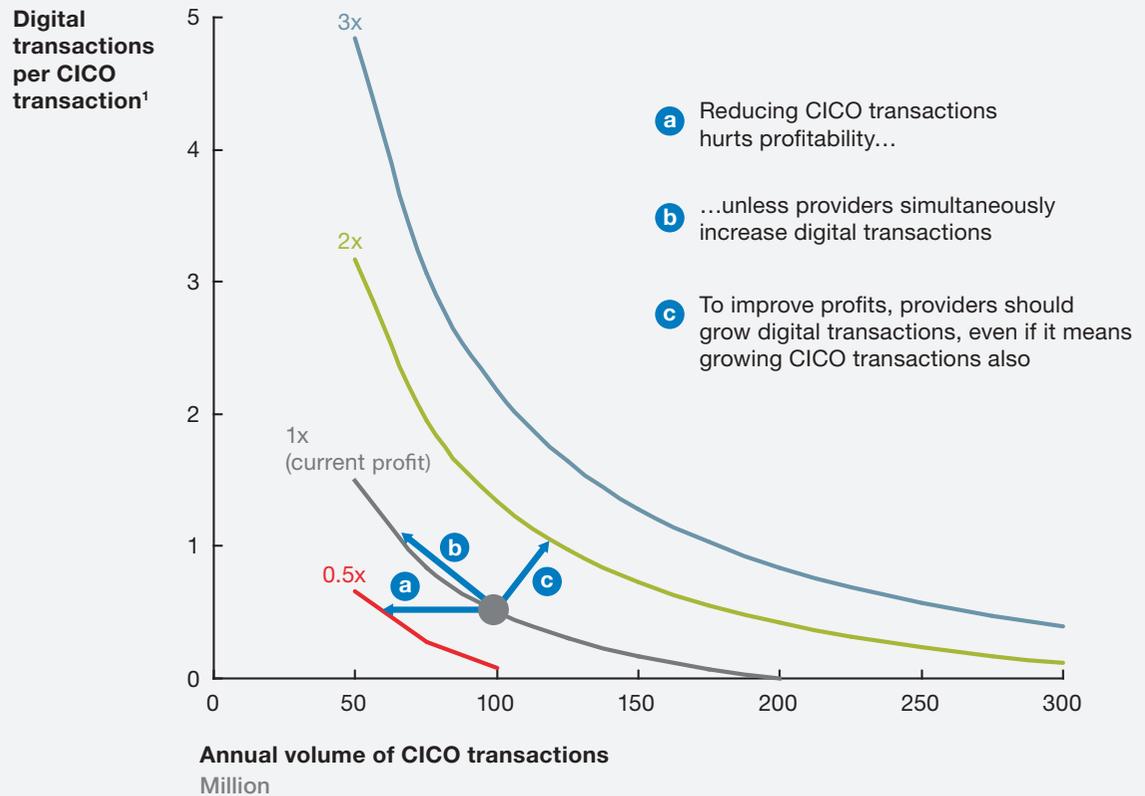
Exhibit 4

## Providers can improve profitability by increasing the number of digital transactions, but decreasing CICO transactions will not help.

### Provider profit

Multiple of current at-scale provider profit

● Volumes observed for at-scale provider



<sup>1</sup> Includes only revenue-generating transactions.

Source: Aggregated provider data; McKinsey analysis

directed toward micro, small, and medium enterprises include supply-chain financing, cash management, and digital salary payments.

Because digital payments allow people to transact in small amounts, they create new opportunities based on micropayments. These

include consumer payments for services such as school fees and health care, as well as the potential for business salary payments, made as frequently as daily. Digital payments also enable pay-per-service, or pay-as-you-go, models. For example, low-cost private schools like Bridge International Academies in Kenya, Uganda,

# The ACTA framework

The four-part “ACTA framework” is a simple way to understand payments system activities and the underlying market dynamics and economics.

The first ‘A’ stands for accounts, and the associated activities cover the primary relationship that a customer has with a provider, including opening new accounts and maintaining existing ones. Accounts provide a secure, accessible store of value. Mobile money accounts are an example, as are standard current accounts (also known as checking accounts).

The ‘C’ stands for cash-in-cash-out (CICO). To use the payments system, customers must be able to deposit and withdraw cash into and from their payments accounts. For mobile money, most CICO activities occur at individual agents. This is the activity in which mobile money most differs from traditional banking, for

which CICO occurs at more costly ATM and branch channels.

‘T’ signifies transactions, or direct transfers of funds between accounts, including those initiated by mobile phone as well as over-the-counter transfers initiated at individual agents.

The final ‘A’ stands for adjacencies, which are activities, both financial and nonfinancial, that generate nonpayments revenue for payments system providers. Financial adjacencies include interest earned on balances held, and the spread between the interest that the institution pays on savings accounts versus what it charges for loans. Nonfinancial adjacencies include strategies to help companies acquire new customers, reduce customer attrition, cross-sell services, improve collections, or power other businesses with consumer insights. These revenue streams are vital for overall payments systems economics.

Nigeria, and India rely on receiving school fees and paying teacher salaries digitally as part of their cost-efficient business models. M-Kopa Solar in East Africa enables consumers to pay a small deposit on a solar panel and then pay per use with mobile money.

Digital payments also enable e-commerce and new “sharing economy” models, including ridesharing and employment matching. Such business models are increasingly appearing and

scaling quickly in the developing world. Online marketplaces like Alibaba, the world’s largest retailer by gross merchandise value, aggregate large numbers of sellers to improve customer choice and reduce prices. Ridesharing platforms like Didi Chuxing in China and Go-Jek in Indonesia match passengers with drivers of cars or motor bikes in real time. Didi Chuxing is now the world’s largest mobile transportation platform, supporting more than 20 million rides a day in over 400 cities.

# To seize current and future opportunities, providers will need to partner or acquire new skills

While a range of value chain models are possible, not all are equally well suited to foster profitable growth or to take advantage of evolving mobile money business models. While models differ, there are typically five main roles across the value chain: deposit holder, e-money issuer, payments service provider, agent network manager, and telecommunications channel provider.<sup>4</sup> Which entity—bank, MNO, or other third-party provider—plays each of the five main roles varies by country, and sometimes even within a single country. In all value chains of which we are aware, a bank or other depository institution plays the role of deposit holder and an MNO plays the role of telecom provider. Banks, MNOs, or third-party providers can play each of the remaining three roles (Exhibit 5).

Growing and sustaining a profitable and dynamic mobile money system requires a set of diverse and hard-to-develop capabilities. Success requires broad marketing and distribution, management of an agent sales force, systems and analytics, rapid product development, and financial intermediation. For example, the ability to reduce costs by leveraging existing customer bases and distribution networks will help promote growth. Driving transaction volumes through existing or emerging use cases, such as ecommerce, will also help scale usage. Capabilities and experience in offering adjacent products that build on mobile wallets will generate additional long-term revenue streams. Such products could include both financial products—including

savings accounts, lending products, and insurance—or nonfinancial products (e.g., e-commerce).

Today, no single type of provider—banks, MNOs, or Internet providers—has all of these skills (Exhibit 6). For example, MNOs can leverage their existing agent and cash distribution networks to achieve costs for CICO that are roughly 40 percent lower than those of banks, comparing growing but still subscale mobile money services. On the other hand, MNOs have no experience or existing capacity holding deposits as part of financial intermediation. Recipes for overall success could include a bank-MNO partnership or an established Internet player acquiring an agent distribution network. Example include Equity Bank's partnership with Airtel and Standard Bank's partnership with MTN.<sup>5</sup>

Ultimately, providers' eagerness to provide mobile money and adjacent products will depend on the benefits and tradeoffs doing so presents to their core businesses. Companies will look to participate in mobile money only in those ways that provide higher returns than the other opportunities that they have to grow their businesses.



For people in developed markets, mobile money is a convenience, one of the many digital advances that have made our lives easier. For billions of people, and millions of small businesses, in emerging markets, mobile money

---

<sup>4</sup> The deposit holder holds funds safe and, in most markets, runs the back-end of the cash-handling network. The e-money issuer guarantees e-money value. The payments service provider provides transaction processing and, in some markets, clearing and settlement. The agent network manager oversees agents responsible for opening accounts and providing CICO services. In some markets, agents also provide over-the-counter transactions. Finally, the channel provider provides network access. Historically, this has been over telecom networks but in the future could equally well occur over Internet networks.

<sup>5</sup> "Mobile financial services in Africa: Winning the battle for the customer," McKinsey on Payments, September, 2017.

Exhibit 5

A range of mobile money value-chain models exist.

	Most commonly observed models							Potential emerging model
	1	2	3	4	5	6	7	8 <sup>1</sup>
Deposit holder	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
E-money issuer					3rd party	3rd party	MNO	Internet player
Payments service provider			3rd party	MNO				
Agent network manager						MNO		
Channel provider	MNO	MNO	MNO		MNO			
Example markets	Indonesia Nigeria Kenya	Nigeria Brazil Bangladesh	India	Uganda	Uganda Indonesia Nigeria	Pakistan	Indonesia Kenya Tanzania	

<sup>1</sup> Bank might be a bank subsidiary; channel provision may be shared with MNO depending on data vs wireless usage; agent network manager might be outsourced to either an MNO or a third party.

Source: "Assessing risk in digital payments," Bill & Melinda Gates Foundation, Financial Services for the Poor, February 2015; provider interviews

is much more than a "use case." It is—or can be—a lifeline, bringing the benefits of financial services to those who currently lack access, and thus enabling them to take initial steps toward healthier financial lives.

To understand how mobile money providers can tap into this opportunity in a sustainable way, we analyzed mobile money economics and

proprietary real-world data from mobile money providers, and conducted a study of industry trends. The resulting conclusions led to several salient points for existing or aspiring mobile money providers. Firstly, the up-front investment is significant; there is no avoiding the fact that scale is the key determinant of ultimate profitability. Second, few current providers possess the capabilities they need to fully seize current and

Exhibit 6

## At scale, different mobile money provider types have different advantages.

■ Relative disadvantage ■ Relative advantage

		Key activities	Bank	MNO	Internet <sup>1</sup>	
Cost	Accounts	Customer acquisition and servicing	Relative disadvantage	Relative advantage	Relative advantage	} Distribution is the outstanding challenge for Internet players
	CICO	Agent acquisition and commissions; cash management	Relative disadvantage	Relative advantage	Relative disadvantage	
	Transactions	Transaction processing	Relative disadvantage	Relative advantage	Relative advantage	
	Adjacencies	Product development and deployment	Relative advantage	Relative disadvantage	Relative advantage	
Revenue	CICO/ transactions	Driving and charging for transactions	Relative disadvantage	Relative advantage	Relative advantage	
	Adjacencies	Deposit deployment <sup>2</sup>	Relative advantage	Relative disadvantage	Relative disadvantage	
		Financial product deployment	Relative advantage	Relative disadvantage	Relative disadvantage	
		Nonfinancial product deployment	Relative disadvantage	Relative disadvantage	Relative advantage	
			} Banks and MNOs are natural complements			

<sup>1</sup> We assume large Internet players may be most relevant in the future.

<sup>2</sup> Net interest margin, encompassing the difference between net interest income and net interest expense.

Source: Aggregated provider data; McKinsey analysis

future opportunities—they will need develop those capabilities—quickly—or partner and acquire firms that have those skills. Finally, successful providers will maintain a dual focus: a clear view on what

drives mobile money economics today, and a forward-looking perspective on the potential for new, innovative financial services and products and adjacent revenue streams.

**Philip Osafo-Kwaako** is an associate partner in McKinsey's Lagos office, **Marc Singer** is a senior partner and **Olivia White** is partner, both in the San Francisco office, and **Yassir Zouaoui** is a partner in the Dubai office.





