



### Box 1. Why are the Tanzania and Ghana experiences unique?

While this analysis could have highlighted the experiences of any number of countries that have succeeded in developing inclusive payment ecosystems, the Tanzanian and Ghanaian experiences hold unique and complementary lessons:

**Tanzania.** Tanzania has experienced explosive growth in the use of mobile money since the service was first introduced in 2008. With several providers competing for market share, a range of new use cases have been introduced, including digital credit, savings, bill payments, and more. In 2017, nearly a decade after the first mobile money deployment launched, 60 percent of Tanzanians had used mobile money in the past 12 months (FSDT 2017).

**Ghana.** The use of mobile money did not have much uptake in Ghana in the early years of the first deployments. But after revising its approach to regulation and passing E-Money Issuer Guidelines in 2015, the country saw dramatic growth in the adoption of DFS. Even before the new regulations were adopted, mobile money had already contributed to a 41 percent increase in financial inclusion (InterMedia 2015). Since then, the Bank of Ghana reports that the number of active mobile money accounts has doubled, and use of these services continues to rise even as new players and products are entering the market.

In the absence of traditional banking infrastructure, mobile money in Sub-Saharan Africa is increasingly becoming the “rails” on which a range of financial services—including those from established providers like banks and MFIs—can ride.

While much has been written about the success of mobile money in Kenya, it is in many ways a unique story given Safaricom’s monopoly. Kenya’s DFS trajectory cannot be replicated in other markets, and most regulators and development partners would not want to replicate it anyway—they likely would prefer a more competitive market. Although there are now several other success stories in Africa, little is understood about the approaches other countries in the region have taken to develop inclusive payment ecosystems. This paper examines two Sub-Saharan African countries, Tanzania and Ghana, for lessons other

countries can use to achieve their own success (see Box 1).

To set the stage for analysis, the paper begins with case studies on the Tanzanian and Ghanaian experiences, recounting their journeys from the introduction of mobile money to today. The stories are told through the lens of five key components of inclusive payment ecosystems identified by CGAP through research in each country: regulatory approach, executive commitment and investment, competitive landscape, interconnected services, and compelling use cases (see Box 2).

The paper concludes with a cross-country comparison that seeks to draw insights from country experiences that may facilitate ongoing attempts to build inclusive payment ecosystems in the rest of Sub-Saharan Africa and in developing markets worldwide.

### Box 2. Key components of inclusive payment ecosystems

**Regulatory Approach.** Financial sector regulators adopt a regulatory approach that fosters innovation, encourages dialogue with the private sector, and evolves as market conditions change.

**Executive Commitment and Investment.** Payments providers have proactive leaders who believe in the business case and are committed to providing the resources necessary to make critical investments in developing a widespread agent network and customer awareness, even in the face of early losses and uncertain returns.

**Competitive Landscape.** A dynamic market exists in which a range of players compete to offer innovative services at affordable prices.

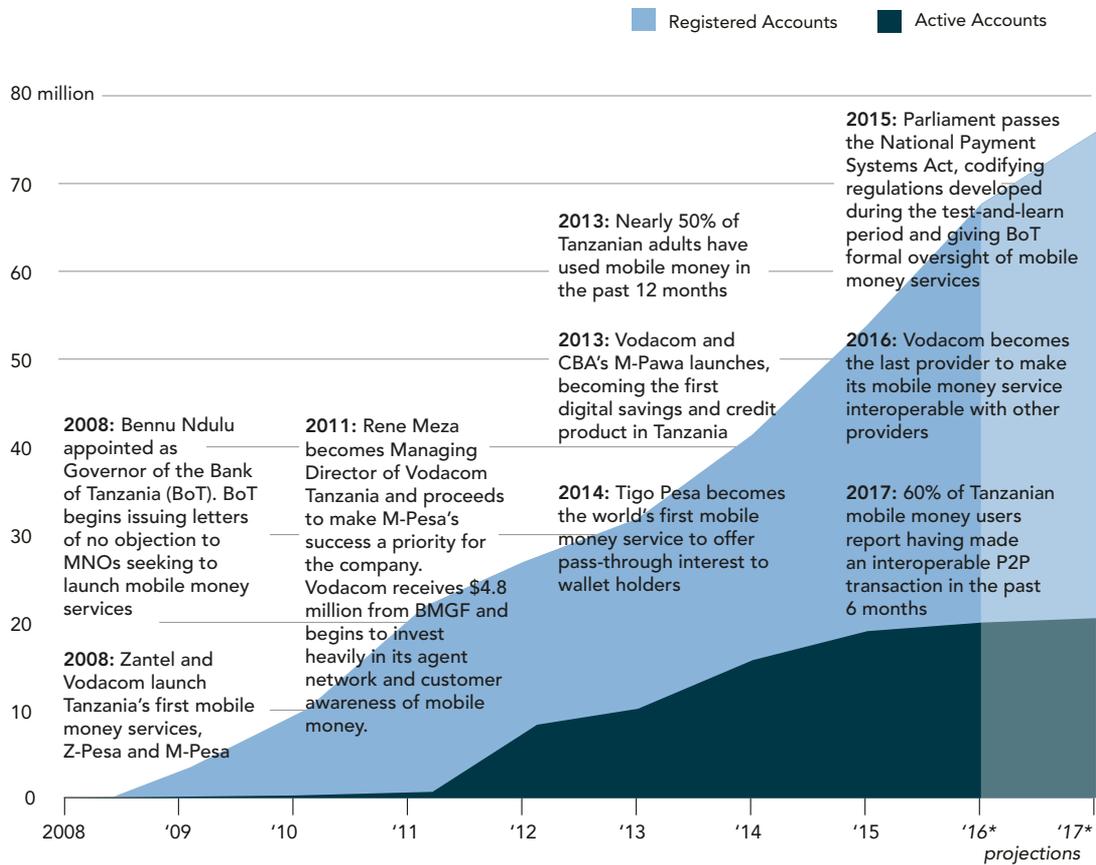
**Interconnected Services.** Customers can use payments accounts to transact with a broad range of individuals, businesses, and government entities, regardless of provider.

**Compelling Use Cases.** The products and services offered via digital channels respond to customer demand and incentivize use.

## Case Study: Tanzania

An at-a-glance overview of Tanzania’s efforts to build an inclusive payments ecosystem is illustrated in Figure 1. A more detailed narrative follows.

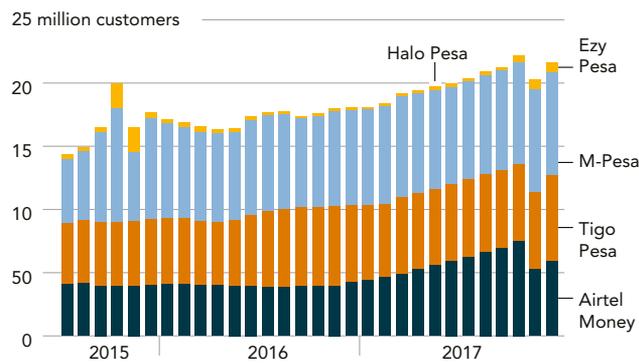
**Figure 1. Registered and Active Mobile Money Accounts in Tanzania**



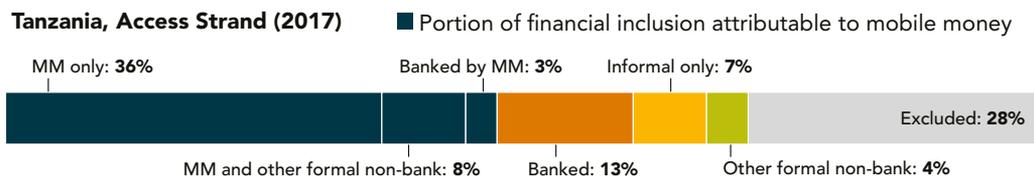
### Percentage of Tanzanian population, 15-years or older, using mobile money†



### Mobile money customers, monthly data‡



### Tanzania, Access Strand (2017)



\*Projections based on historical growth trends. †Data represent use in the preceeding 12 months from year reported.  
‡Individuals may have accounts with multiple providers; TTCL PESA data are included but were negligible  
Sources: GSMA; CGAP; Bank of Tanzania (timeline); FinScope (pct using mobile money)

In late 2005, as the Tanzanian government was preparing to amend the Bank of Tanzania Act, policy makers could hardly have anticipated the financial services revolution on the horizon. But in 2006, just a year before Safaricom M-PESA went live in neighboring Kenya, Tanzania's Central Bank (the Bank of Tanzania [BoT]) made an important decision.

Section 6 of the Bank of Tanzania Act of 2006 stipulates that the Central Bank would “conduct oversight functions on the payment, clearing and settlement systems in any bank, financial institution or *infrastructure service provider or company* [emphasis added].” This would have enormous implications for the provision of financial services in Tanzania. By extending BoT oversight of payments providers to include nonfinancial institutions that were not traditionally under its purview, the new law gave BoT broad powers to directly oversee mobile money providers. This, in turn, led to the emergence of mobile money just two years later—a development that would eventually help the country achieve a more than fivefold increase in financial inclusion, from 12 percent in 2006 to 65 percent in 2017 (FSDT 2006, 2017).

## Regulatory approach

### Betting on innovation

It did not take long for innovators to see the opportunities afforded by BoT's newly expanded regulatory authority. That same year, start-up E-Fulusi Africa Ltd. approached BoT for permission to launch a new mobile-phone-based domestic remittance product. But despite its new mandate to oversee such payments providers, BoT had not yet defined specific rules on how to do so and was unsure of how to approach a nonbank seeking to enter the payments space.

By mid-2007, as rains gave way to the dry season, change was already in the air. The launch of Safaricom's M-PESA in Kenya and growing interest by Tanzanian mobile network operators (MNOs)

to follow in their neighbor's footsteps was placing increasing pressure on BoT to establish guidelines for nonbanks to enter the payments space. BoT responded by creating new rules for electronic payment schemes, codified in the 2007 Electronic Payment Scheme Guidelines. But these rules applied only to banks and similar financial institutions.

The turning point came in January 2008, when Bennu Ndulu was appointed governor of BoT. Ndulu was widely regarded as a believer in the potential of technology to drive financial inclusion, and he was keen to see Tanzania incubate a successful mobile money industry. Working with his colleagues in the National Payments Systems Directorate (NPSD), Ndulu decided on a pathway forward: Like its neighbor Kenya, Tanzania would allow MNOs to launch their own payments services through the issuance of letters of no objection (LNOs). LNOs permitted nonbank providers to legally offer their services under BoT oversight, provided they partner with a licensed bank that would keep customer float in a trust account.<sup>6</sup>

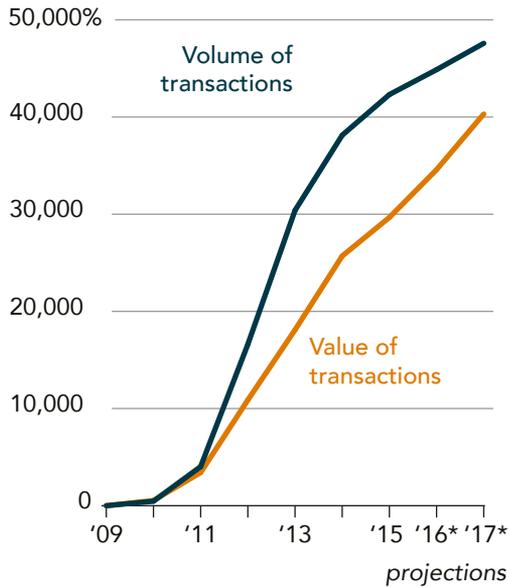
### Test-and-learn approach provides space for innovation

E-Fulusi received an LNO in early 2008 and subsequently sold its service to Zantel, which launched Tanzania's first mobile money offering, Z-Pesa. Shortly thereafter, Vodacom received its own LNO and introduced M-Pesa to the Tanzanian market. In 2009, Bharti Airtel would receive its own LNO for the introduction of its Airtel Money service, and a year later a fourth provider, Tigo, would likewise be allowed to enter the market with Tigo Pesa (di Castri and Gidvani 2014).

“The letters of no objection mimicked the licensing process,” explains Kennedy Komba, an adviser to NPSD at the time. Before offering an LNO to a new provider, BoT would conduct due diligence, which included the inspection of the provider's systems and a mandatory pilot period for services that did not have an existing deployment in another country (e.g., M-PESA in Kenya). Furthermore, each LNO

<sup>6</sup> For more on regulation of nonbank e-money issuers, see Tarazi and Breloff (2010).

**Figure 2. Change in the Volume and Value of Transactions**



\*Projections based on historical growth trends.

Source: Bank of Tanzania

stipulated that the provider must supply statistics on key aspects of the service to BoT; regulators were expected to conduct both scheduled and unscheduled inspections to ensure compliance.

Most importantly, the LNOs gave providers the confidence and space to invest and innovate (see Figure 2), even as BoT tested regulations, learned from the market, and began drafting a payments system law that would enshrine these lessons in a more durable and formal regulatory framework. This approach, referred to as “test-and-learn,” is widely considered to have contributed to Tanzania’s success in developing an inclusive payments ecosystem.<sup>7</sup>

### Lessons become law

Two years after Vodacom M-Pesa and Z-Pesa entered the market, mobile money was beginning to gain traction in Tanzania. But with providers still operating under LNOs, Ndulu worried that BoT’s only recourse in the event of misconduct—rescinding

a provider’s LNO—would soon become a risk in and of itself, given the increasing systemic importance of the country’s mobile money deployments.

“We observed and analyzed the situation on the growth of these services and noted that they have become payment services of wide importance, thus requiring systematic, consistent and predictable risk management processes,” Komba recalls. “So, the only way to manage this thing was to issue a law.”

Fortunately, BoT had been engaging with the industry, gathering data on the performance of mobile money deployments, and learning from the approach of regulators in other markets. NPSD began the process of drafting Electronic Money Issuer (EMI) Guidelines in 2010, after a visit to the Philippines to review that country’s approach to establishing regulations for mobile money. After submitting an initial draft for review by the Alliance for Financial Inclusion (AFI) and GSMA in early 2012, BoT released a revised draft of its EMI Guidelines in May 2014 (di Castri and Gidvani 2014).

While the EMI Guidelines would not ultimately be adopted as regulations until a new National Payment Systems (NPS) Act was passed by Parliament in 2015, the draft signaled to the industry that the Central Bank planned to put in place key regulatory enablers, said Komba (see Box 3). Chief among these was the formalization of the licensing process for nonbank e-money issuers, which promised nonbank providers continued control over their services and gave them the confidence to continue investing.

### Executive commitment and investment

As Jacques Voogt sat down for another strategy meeting with the Vodacom M-Pesa team, the future of the mobile money service remained uncertain. After just over a year at the helm of Vodacom Tanzania’s M-Commerce department, Voogt shook his head as he reviewed the numbers. Despite the hype surrounding the introduction of

<sup>7</sup> For more on why test-and-learn helped Tanzania, see Tarazi (2010). For an opinion that argues the risks of such an approach over the long term, see Mazer (2016).

### Box 3. Tanzania and the four basic regulatory enablers for digital financial services

CGAP has identified four basic regulatory enablers for the success of DFS. The following briefly defines each enabler and compares it to Tanzania's Electronic Money Regulations, which were adopted in 2015:

**1. Nonbank E-Money Issuance.** Regulations include a specialized licensing window for nonbank providers to issue prepaid accounts without being subject to the full range of prudential rules applicable to banks and without being permitted to intermediate funds. Tanzania's EMI Guidelines allow nonbank providers to receive a license as "a separate legal entity for issuance of electronic money."

**2. Use of Agents.** Providers—both banks and nonbanks—are permitted to use third-party agents to deliver financial services. The EMI Guidelines address the use of agents by EMIs, whereas banking agents

are covered under the Guidelines on Agent Banking for Banks and Financial Institutions, 2017.

**3. Risk-Based Customer Due Diligence.** A proportionate anti-money laundering framework allows simplified customer due diligence (CDD) for lower-risk accounts and transactions. The Electronic Money Regulations introduced four "tiers" for CDD, including a lower level for opening individual entry-level accounts that requires (among other things) a registered phone number, voter registration card, or a letter from a ward executive.

**4. Consumer Protection.** Ideally, consumer protection rules should be tailored to the full range of DFS providers and products. In Tanzania, consumer protection rules are included in the Electronic Money Regulations, but the country has no overarching consumer protection framework for financial services.

Source: Staschen and Meagher (2018).

mobile money in Tanzania, by 2010 only about 12 percent of adults had ever used the product (Montez and Goldstein 2010).

"When we started in 2008, the typical beginning of M-Pesa was: Let's put out a value proposition for sending money home," Voogt recalls of the early Vodacom strategy in Tanzania. "Let's put out some advertisements, and let's get ready to onboard millions of customers. But it didn't happen."

Meanwhile, the mobile payments space was rapidly becoming crowded. That year, Tigo launched Tigo Pesa, the fourth mobile money service to go live in the country. Unlike Safaricom in Kenya, Vodacom could not take its position as the country's top mobile money provider for granted.

#### Doubling down on agent network expansion

Faced with fierce competition in the GSM (global cellular network) space, Voogt and his colleagues suspected that a successful mobile money service could be a game changer for attracting and retaining customers. But before customers could begin using the new service, Vodacom needed to invest in building an extensive agent network to facilitate cash-in and cash-out (CICO) transactions.

And despite Vodacom's presence throughout Tanzania, moving cash across the country was quite different from selling airtime and required an entirely new distribution model.

Voogt worried that securing buy-in from Vodacom's management would not be easy. As part of Vodacom's Brand and Marketing unit, M-Pesa still was not treated as a separate business line. Relegated to a category of services that included ringtones, mobile money was simply not seen as a priority by management, who were locked in a battle for dominance in the business they knew best—voice and data. In its early days, mobile money was valued by MNOs (if at all) as a potential source of indirect revenue—a means of reducing churn and increasing brand loyalty for the core business, voice and data. But all of that would change in 2011, when Rene Meza became Vodacom's managing director.

Meza, formerly managing director of Airtel Kenya, was intimately familiar with the potential of mobile money. During his time in Kenya, he had seen Safaricom launch a juggernaut that not only reshaped the financial services industry in the country, but also cemented Safaricom's already dominant position in the GSM space. For Meza, ensuring the success of Vodacom M-Pesa

#### Box 4. How much does it cost to build a mobile money service?

In a 2014 study, GSMA offers insights into the investment required to build a successful mobile money deployment and the time it takes to achieve profitability. Faced with enormous upfront costs associated with building out agent infrastructure and driving customer awareness, providers should expect to incur losses in early years, before eventually achieving profitability 4–5 years after launch. The findings underscore the significant resources—and management commitment—required to achieve success in the mobile money space.

**Start-Up Phase.** In years 1–3, providers should expect to invest six to eight times the revenue generated by a mobile money deployment. Profitability should not be a focus at this stage, because the service will

Source: Almazan and Vonthron (2014).

need time and resources to build the agent network and acquire and educate customers.

**High-Growth Stage.** Once a provider acquires at least 15 percent of its GSM customers as active mobile money users, both operational expenses and revenue begin to increase. At this point, providers should expect to achieve modest, positive net margins even as increased investment is required to educate customers and drive a transition from over-the-counter (OTC) transactions to mobile wallet-based transactions.

**Mature, Ecosystem-Based Deployment.** Beyond Year 5, profit margins begin to exceed 20 percent as the share of OTC transactions declines. At this point, new products and services, such as credit scoring and data analytics, can contribute to overall profitability.

in Tanzania was core to his strategy as managing director, and he quickly set about reshaping how the service fit into Vodacom’s overall business.

Meza’s first move was to restructure the company so that M-Pesa would report its own profits and losses as a separate business line, and more specifically provide a clear focus area for MFS within the company. But he did not stop there. Beyond elevating the profile of M-Pesa within Vodacom, he also unlocked new capital to drive an aggressive investment strategy. The change in leadership “had an awesome effect,” recalls Voogt.<sup>8</sup>

Another key factor in Vodacom’s agent expansion strategy was a shift from a direct recruitment model to a model based on agent aggregators or “super dealers.” Approaching mom-and-pop shops and trying to convince them to become Vodacom M-Pesa agents was costly and time consuming, making it hard for M-Pesa to sustain at scale. So, Vodacom turned to organizations that would recruit and manage individual agents on its behalf. These super dealers could also leverage the country’s banking infrastructure to help manage agent liquidity, by using bank branches to bring cash into hard-to-reach areas.

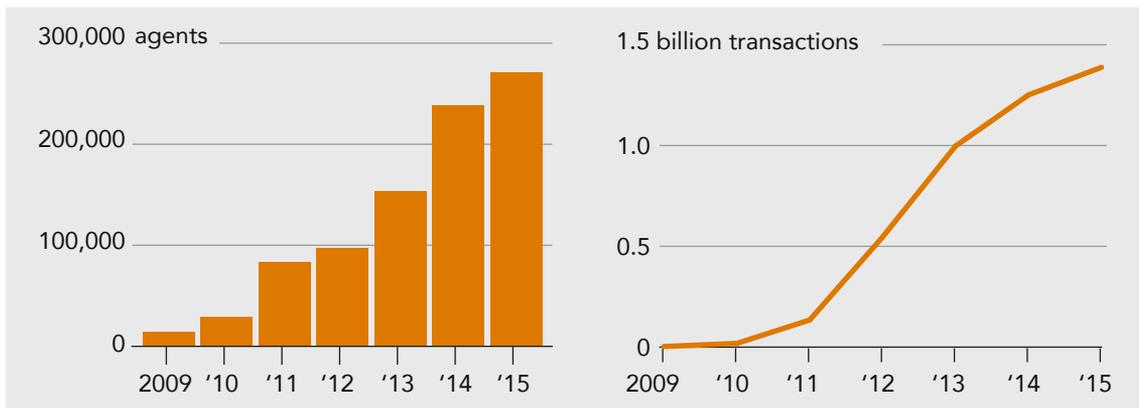
#### Driving customer awareness

In the year following Meza’s appointment, investment in agents surged (see Figure 3). Between 2011 and 2012, the number of mobile money agents in Tanzania grew by 288 percent, with spending on mobile money growing to an estimated 40 percent of the total marketing budget. One member of the M-Pesa team at the time, Innocent Ephraim, remembers how Vodacom would track money sent to customers who were not yet covered by an agent and use that data to determine where to target agent network expansion. “When we saw where this money was going, we would plan to add an agent in the area and then communicate back to the customer to let them know that they were now able to send money to that area and use mobile money.”

But sitting at his desk and reviewing the latest M-Pesa numbers, Voogt knew that building agent networks was only one piece of the puzzle. A 2013 InterMedia study showed that 36 percent of nonusers said that not knowing how to use the service was the main reason for not having tried mobile money. This raised questions around whether Vodacom was doing enough to educate

<sup>8</sup> In 2011, there was little information on the cost of building a mobile money service or the time required to reach profitability, making Meza’s decision to invest all the more significant.

**Figure 3. Mobile Money Agents and Volume of Transactions**



Source: Bank of Tanzania

potential customers. Moreover, even among customers who were aware of the service, negative perceptions had begun to take hold. Focus group discussions revealed that some customers had heard rumors of unreliable networks, lack of security, and high costs (InterMedia 2013). “We got caught in that proverbial chicken and egg [situation] where customers weren’t coming, and agents weren’t educating customers because they weren’t coming,” he remembers.

Voogt knew that driving customer awareness of mobile money would be expensive. He estimated that it took at least 30 minutes of personal interaction (with an agent, field agent, friend, or family member familiar with M-Pesa) to teach a new customer how to use a mobile money service. But fortunately for Voogt and his colleagues, the M-Pesa team’s commitment to building mobile money in Tanzania had caught the attention of an important donor. Recognizing the opportunity offered by Vodacom’s progressive leadership, the Bill & Melinda Gates Foundation (BMGF) offered to help Vodacom with an aggressive customer-awareness campaign focused on accelerating adoption, especially in rural Tanzania. By the end of 2011, Vodacom received \$4.8 million from BMGF and prepared to push forward with an aggressive above-the-line (ATL) campaign and a dramatic increase in resource allocation for a

below-the-line (BTL) campaign to push customers to M-Pesa agents.<sup>9</sup> The BMGF grant provided vital support at a time of uncertainty for mobile money providers by facilitating important investments in customer awareness and education.

The impact of Vodacom’s three-pronged investment strategy (ATL, BTL, and agent training) was clear. Just over 4 years after the first mobile money services launched, DFS use had skyrocketed, with nearly 50 percent of Tanzanian adults in 2013 reporting that they had used one of the services in the past 12 months (FSDT 2013).

Clearly, the market had turned a corner, but as Meza and his team celebrated their success, they knew that the battle was far from won. Despite their early mover advantage, competitors had also benefited from Vodacom’s investment. With the providers locked in a struggle to become the nation’s preferred payments provider, the M-Pesa team turned its attention to the next big innovation that would give it a leg up over the competition.

## Competitive landscape

### Competition heats up

As Andrew Hodgson and his team at Tigo prepared to relaunch their MFS offering, they were not unduly

<sup>9</sup> ATL advertising refers to the use of mass media to promote products and services. BTL refers to in-person promotion such as providing information to the customer at the point-of-sale, distributing brochures, or conducting product demos.

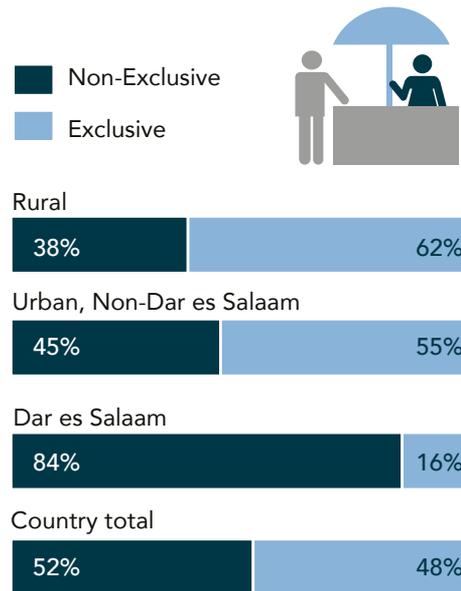
concerned with Vodacom's moves to ramp up investment in customer awareness and education. Despite Vodacom's first mover advantage, the head of Mobile Financial Services for Tigo Tanzania suspected that increased customer familiarity with mobile money would ultimately benefit all MFS providers.

Reacting to Vodacom's investment, Hodgson and his team began to develop a strategy for gaining a foothold in the emerging mobile payments space. "We recognized an opportunity to benefit from our competitor's investments in agent recruitment and customer awareness," explains Hodgson. "Even though there was no cooperation, I believe that both parties benefitted from a shared agent network and investment in education and awareness."

Far from ceding the market to M-Pesa, Tigo moved ahead with their own investment strategy aimed at taking advantage of the business opportunities afforded by mobile money. With support from both the OpCo and Millicom Group,<sup>10</sup> Tigo leveraged its position as the country's number two voice network to muscle its way to mobile money dominance in Tanzania's big cities. Because agent nonexclusivity was mandated in the draft EMI guidelines,<sup>11</sup> Tigo was able to exploit Vodacom's investment in agents by recruiting those same agents to provide CICO services for Tigo Pesa (see Figure 4). The strategy centered on offering competitive commission rates to M-Pesa agents who opened a Tigo Pesa till,<sup>12</sup> even as they offered promotions that would drive customers to these newly recruited agents. Tigo's agent acquisition strategy, which focused largely on Dar es Salaam and other big cities, is borne out in statistics on the increasing number of nonexclusive agents found in urban areas (see Figure 4).

Even as its competitors stepped up their investments, Airtel Money struggled to gain traction after its early stumbles following its launch in 2009. The former m-commerce manager of Airtel Tanzania, John Ndunguru, describes the challenges he faced in convincing Airtel to invest in the new product: "It was still a unit within the

**Figure 4. Agent Exclusivity, 2012**



Source: Helix Institute 2013

marketing department and wasn't seen as an important product at the time."

But by 2012, Airtel's chief commercial officer, Chiruyi Walingo, was ready to turn things around. Walingo himself was a veteran of the early mobile money days in Kenya, where he worked as head of sales at Safaricom. And he pushed the Airtel Money team to make its own play for greater market share. His strategy included leveraging Airtel's already substantial presence in rural areas to recruit new agents, as well as introducing promotions to encourage new customers to try the service. But with Airtel still behind its competitors, Walingo made a dramatic move: In 2012, Airtel Money temporarily waived mobile money transfer fees, which gave its customers the ability to send money free of charge to other Airtel Money customers.

In the end, the Tigo and Airtel strategies were a success. By January 2016, the two competitors had begun to chip away at M-Pesa's market share, together representing over 50 percent of registered subscribers in the country.

<sup>10</sup> Tigo Tanzania is a subsidiary of Millicom Group.

<sup>11</sup> Agent nonexclusivity refers to the prohibition on providers mandating that their agents cannot also serve as agents for a competing provider. For more information, see Tarazi and Kumar (2012).

<sup>12</sup> A till refers to the cash kept by mobile money agents to manage CICO transactions for a provider.

### Box 5. Competition drives innovations in pass-through interest

As BoT was drafting its EMI Guidelines in 2012–2013, it included a provision that requires mobile money providers to use the interest earned on customer float held in bank trust accounts for the “benefit of these customers.” The language was left deliberately vague, and BoT’s intention was to have providers submit proposals and compete to see who could come up with the best ideas. Most providers were either not in a rush to develop approaches to satisfy this requirement or had their proposals (e.g., to develop a foundation that would donate to charitable causes) rejected. However, Hodgson at Tigo Pesa sensed an opportunity to differentiate his service from those of his competitors.

What Hodgson eventually introduced would shock the financial services industry in Tanzania and draw loud protests from mobile money providers and banks alike. In 2014, Tigo Pesa became the world’s first mobile money provider to distribute profits earned from accrued interest on customer mobile wallet balances held in bank trust accounts. “We took a lot of heat from the banks and other mobile money providers,” Hodgson recalls. “The banks accepted that they would need to pay a competitive interest

rate to attract operator trust fund deposits, but were not happy when we passed this benefit through to the consumer. They felt it undermined the value proposition of their savings products.”

Tigo was not actually paying the interest themselves, rather the banks were paying it to them as trustees of customer float, and they were passing this benefit on to their customers. This was a groundbreaking development for mobile money, and one that put Tigo in direct competition with banks that had so far shown little interest in serving low-income customers.

“Due to the size and nature of the funds held in trust, we were able to negotiate a competitive rate approaching the T-Bill rate. The benefits of this return were passed directly through to the customer. The net result could be likened to receiving a long-term, fixed deposit rate on current account balances as low as 1,000 tsh (about US\$0.50). That was probably our most meaningful contribution to banking the unbanked at that time,” says Hodgson.

Today, all MNOs in Tanzania offer pass-through interest to their customers.

Reflecting on how competition affected M-Pesa, especially given the moves by Tigo and Airtel to benefit from the significant early investments that Vodacom made in building its agent networks, Voogt sounds an optimistic tone. Competition from the other providers had helped to increase customer awareness of mobile money, he explains, as competitors poured resources into their own advertising campaigns. Moreover, he claims that the ability of M-Pesa agents to work with other providers was making their businesses more sustainable.

### The impact of a competitive market

Despite the benefits cited by Voogt, his successor, Sitoyo Lopokoiyit, faced a vastly different market landscape when he took over as head of M-Pesa in 2016. While M-Pesa remained the market leader, especially in the rural areas where Vodacom had invested so heavily early on, he and his team could no longer count on their first-mover advantage to guarantee continued dominance. With Tigo Pesa and Airtel Money nipping at his heels, he reflected on how competition had changed the dynamics of mobile money in Tanzania.

“We’re smarter in what we do,” Lopokoiyit says. “Competition has made us much more careful about how we pursue new products.” It had also forced further integration between Vodacom’s mobile money and GSM businesses: “The businesses are intrinsically linked. I don’t see a GSM and a mobile money customer, they’re the same.”

But at the same time, he acknowledges that competition may have had more of an impact on the GSM business than on mobile money—especially when it comes to pricing.<sup>13</sup> As of 2016, Tanzania had the lowest prices for mobile data on the continent (Lyomo 2016); the cost per minute for calls also remains low relative to that of other countries (Corporate Digest 2014). Yet, competition has not had a similar impact on pricing for mobile money: “On the GSM side, it’s competitive,” acknowledges Lopokoiyit, referring to prices offered to customers. “On the financial services side, it’s competitive but not as much. Part of this is agent commissions. There’s a natural floor because you can’t reduce prices too low since you need to cover commissions.”

<sup>13</sup> For more information on mobile money pricing, see Cook (2017).

### Box 6. Is competition making mobile money more inclusive? The case of Halotel

One surprising development in the saga of Tanzania's competition among MNOs has been the entry of the Vietnamese telco Halotel into Tanzania's crowded mobile space. After launching in 2015, Halotel has pursued an aggressive expansion strategy that explicitly focuses on serving poor, rural communities.

By 2017, Halotel had managed to capture 9 percent of the country's mobile subscriptions, outpacing Zantel to take the number four spot behind Vodacom, Tigo, and Airtel. Already, the company has invested \$700 million of a planned \$1.7 billion investment in mobile network connectivity and/or agent networks, and has managed to cover 95 percent of the country—including 3,000 villages that had not previously had mobile network coverage.

Source: *The Citizen* (2017).

But perhaps most interesting is Halotel's recent launch of its own mobile money service, Halopesa. "We have a comprehensive strategy with our Halopesa strategy which goes in line with the government's wider financial inclusion scheme," Managing Director Li Van Dai said. He added that Halopesa is also partnering with financial institutions to offer loans to its customers through the Halopesa platform.

It remains to be seen whether Halotel's focus on the rural poor will carry over to its mobile money and broader mobile financial services offerings. But what is clear is that intense competition in the mobile space is driving a greater focus on those customers who have thus far been excluded from Tanzania's rapidly expanding array of mobile services.

### A future of "coopetition"

In its early years, mobile financial services (MFS) were synonymous with mobile money. It follows that much of the focus on competition in MFS was discussed in the context of a fight for market share among mobile money providers. But as MFS has matured, the competitive dynamic has evolved.

When Roland Coulon became CEO of Access Bank Tanzania in 2011, he was unsure of how to view the rise of mobile money. "We come from a very traditional microfinance model," Coulon explains. "Digital finance, especially in Africa, didn't come to us as an obvious turn that we needed to take."

Like most banks and MFIs in Tanzania, Access Bank did not see a role for agency banking in the early days of MFS. Moreover, even as many financial institutions, including Access Bank, became involved in the mobile payments ecosystem by serving as super dealers, they saw the mobile money providers as competing with them for customer deposits.

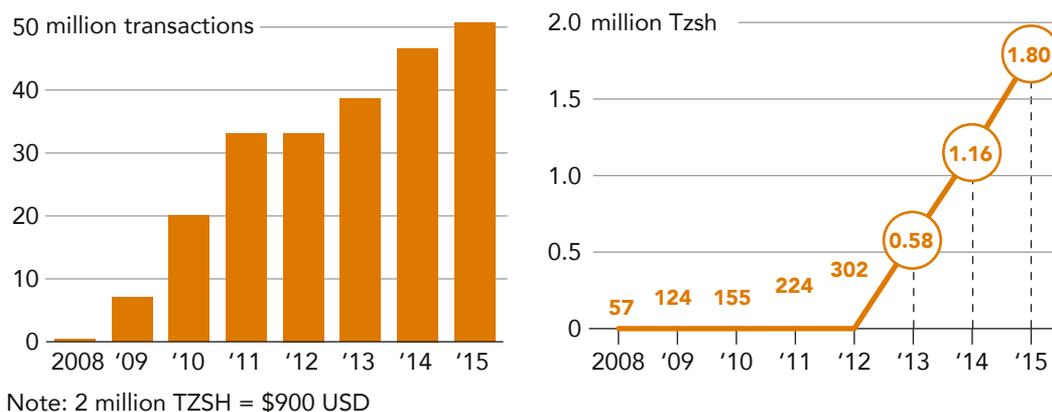
But as mobile money use continued to grow, Coulon saw an opportunity where he had once seen only threats. He and his colleagues realized that mobile money networks could reduce costs by removing pressure to build new branches and send loan officers to service customers in hard-to-reach areas. Access Bank began by introducing loan repayments

through M-Pesa, before upgrading to a full-fledged digital product offering in 2015. Today, Access Bank customers can open a free current account and move money in and out of the account using their mobile money wallets. The bank's strategy is now largely focused on offering digital channels and digital products, with efforts underway to build its own agent network to serve higher balance small and medium enterprise customers.

Access Bank is not alone in embracing mobile money as a means for reaching greater numbers of customers at a lower cost. Several banks have already partnered with mobile money providers to offer customers a wider range of financial services. For example, Commercial Bank of Africa (CBA) has partnered with Vodacom to create a digital savings and credit product called M-Pawa; credit provider Jumo has joined with Airtel to offer its Timiza digital credit product; and FINCA Microfinance Bank and Halotel now provide customers the option to save with their HaloYako offering (see Figure 5).

"Increasingly what we're seeing is that there is more complementarity than competition," says Coulon.

Voogt, the former head of M-Pesa, agrees: "On partnerships, the big guys—like the big banks—will be crucial in building out use cases like savings and loan products and expanding the e-money ecosystem, thus reducing the need to cash out."

**Figure 5. Volume of Mobile Banking Transactions Compared with their Value**

Source: Bank of Tanzania

Despite their newfound appetite for collaboration, neither the banks nor the MNOs are resting easy. As Voogt's successor at M-Pesa, Lopokoiyit, warns, "Ali Pay, Facebook, WhatsApp, and others are coming into the market. Competition isn't local anymore, it's international." While no one can predict what digital finance in Tanzania will look like 10 or even five years down the road, Vodacom and others are racing to prepare for the future.

## Interconnected services

### Providers forge ahead with industry-led interoperability

While financial institutions and MNOs sought to put their past enmity behind them, Hodgson of Tigo Pesa wondered whether this new idea of "cooperation" might also work to benefit mobile money services. Although Tigo Pesa had come a long way since its late entry into the market, M-Pesa's early mover advantage had proven more durable than he expected.

"I think that the regulators have a responsibility to ensure that one player is not able to exploit their monopolistic position," insists Hodgson. In his opinion, the best way to level the playing field would be to ensure that customers who use any mobile money service are able to transact with customers of any other mobile money service—a principle known as interoperability.<sup>14</sup>

Fortunately for Hodgson, the draft EMI Guidelines already stipulated that mobile payments services needed to "be able to provide" interoperable services with other mobile payments services providers (di Castri and Gidvani 2014). This meant that a framework for creating interoperability was already in place, pending an agreement among the providers.<sup>15</sup>

Hodgson had been advocating the principle of interoperability to his market counterparts since early 2012, but he faced resistance (Koblanc 2015). "We were at loggerheads with our competitors over many things, and had many philosophical debates – mostly centered around interchange pricing," remembers Hodgson of conversations with his fellow mobile money heads. "Obviously, from a market share perspective, some operators are going to try to keep the opposition from benefiting from a cooperative model for as long as possible."

In September 2013, the International Finance Corporation (IFC) convened industry leaders to discuss mobile money interoperability. The IFC convening was part of a year-long BMGF-funded effort to facilitate agreement around an approach to connecting Tanzania's mobile money networks. This effort resulted in a set of governance and operating rules to govern mobile money interoperability. By September 2014, the providers had decided on participation criteria, clearing and settlement principles, and approaches to dispute resolution.

<sup>14</sup> This paper refers specifically to P2P interoperability in which a customer of one service provider can send money *directly* into the wallet of a customer of a different service. There are many workarounds for interoperability (including aggregators and OTC), some of which will be explored later in the paper.

<sup>15</sup> For more on interoperability and ways it can be achieved in mobile money, see Arabéhéty et al. (2016).

To begin, they agreed to connect and negotiate pricing bilaterally with the other providers, in line with guidance from the Fair Competition Commission of Tanzania (Koblanc 2015).

Despite concerns that interoperability would lead to fundamental shifts in providers’ market power, both Airtel Money and Zantel’s Ezy Pesa recognized the opportunities presented by connecting with their competitors. By the end of 2014, both MNOs joined Tigo Pesa in being the first to establish interoperability agreements. Despite initial hesitation, the combined market shares of these three providers created pressure for Vodacom to follow suit. And in February 2016, Vodacom’s M-Pesa announced that it would also be joining its competitors in establishing interoperability (Koblanc 2015).

**The impact of interoperability**

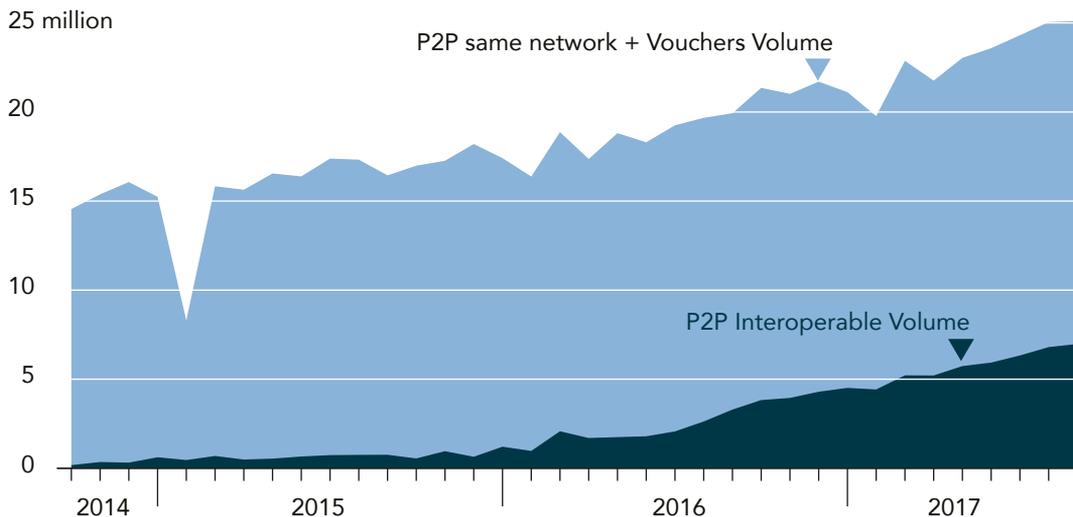
In the end, interoperability did not turn out to be the threat that Vodacom had imagined. As the head of M-Pesa at the time, Voogt, remembers:

Interoperability was one of my most interesting journeys, because we were really anxious about what this would do to us. We thought that we were going to lose the urban areas, because now people in the rural areas could

send to any wallet in urban areas. But none of this really happened. Customers benefited from being able to send money “off-net” and the receiver had the option to cash out or continue to spend through the e-money ecosystem. Right now, I’m a big supporter of interoperability, as it reduces the time taken to return to cash and this always benefits the mobile money ecosystem for all.

Although Tanzania was not the first interoperable DFS scheme globally,<sup>16</sup> it was unique in the extent to which industry participants led the process of determining governance and business rules. Interoperability in other markets had not resulted in significant volumes at this point, and there was great interest in seeing whether the Tanzania story would be any different. Between October 2014 and September 2017, interoperable person-to-person (P2P) transactions grew steadily at an average rate of 16 percent per month (see Figure 6). Moreover, as demonstrated in Figure 6, almost all net new growth in P2P transactions during this time were from interoperable transactions. An October 2017 CGAP survey of Tanzanian adults found that 60 percent of mobile money users had made an interoperable P2P transaction in the past 12 months (see Figure 7). Interestingly, 25 percent of respondents who had not conducted

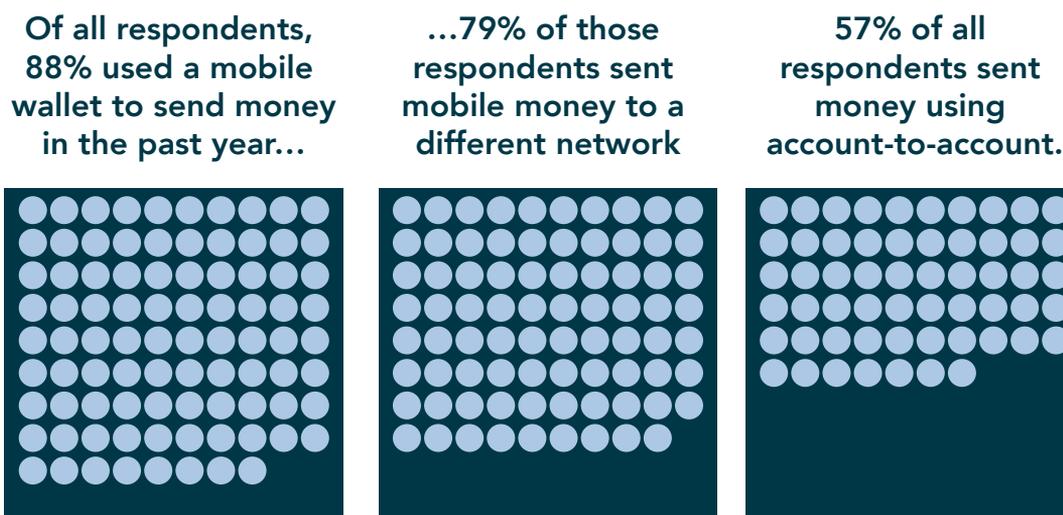
**Figure 6. Volume of P2P and Interoperable P2P Transactions**



Source: Bank of Tanzania

<sup>16</sup> For example, Indonesian mobile money services announced they were interoperable in 2013 (Camner 2013).

Figure 7.



an interoperable transaction were unaware that such transactions were even possible, pointing to an ongoing need to educate customers and raise awareness (Cook 2018).

## Compelling use cases

### Trying to move beyond P2P

With the increasing diversity of providers involved in MFS, a growing list of service offerings, and the ability to transact across networks, providers had an opportunity to make their services more relevant to users. For years, they had been trying to attract new customers and drive up activity rates among their customers by offering new and innovative ways to use mobile wallets.<sup>17</sup> And by 2017, a mobile money user in Tanzania could access just about any type of financial service with just a few clicks of her phone keyboard.

Reflecting on the evolution of mobile money from a simple remittance product to the underpinning of a digital financial ecosystem, Lopokoiyit looked over the latest numbers on active M-Pesa users and tried to guess where the market would be in the next five years. P2P transactions still dominated (see Figure 8), and because such payments were easy to conduct OTC or via a friend or relative's

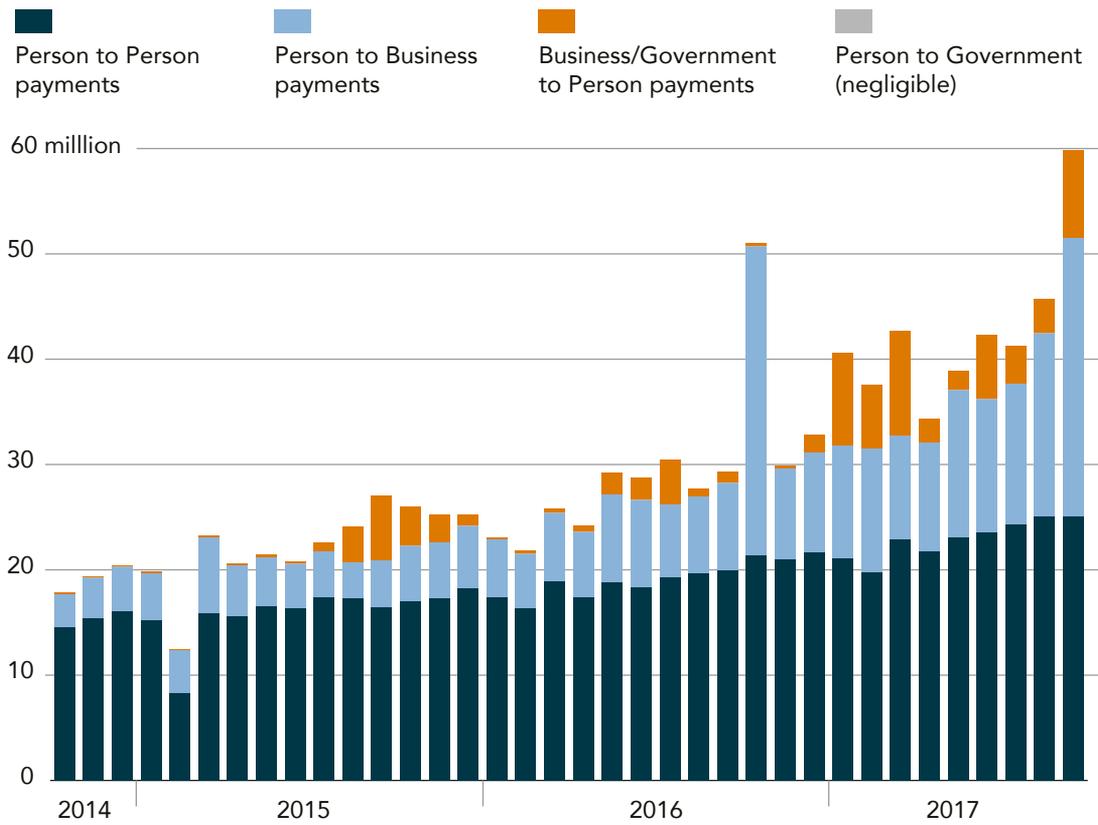
phone, account ownership continued to fall behind overall use. According to Findex (2018), 39 percent of Tanzanian adults used a registered mobile money account to perform transactions in 2017, significantly lower than FinScope results from the same year indicating that 60 percent of adults had used mobile money (FSDT 2017). But how customers used services like M-Pesa was changing rapidly, and Lokopoiyit hoped that use cases beyond P2P would increase the value of owning an account.

Diversifying the use of mobile money was a centerpiece of Lokopoiyit's strategy, and he says that there were indications that this approach was beginning to bear fruit: Vodacom's M-Pawa savings and lending product offered in partnership with CBA had driven a significant increase in the number of active M-Pesa customers. According to Lokopoiyit, by 2017, Vodacom had an estimated 6 million customers using M-Pawa, 50 percent of whom had received a loan through the service. The impact of the savings component was also pronounced: 35 percent of Tanzanians who save reported doing so using their mobile phone, representing an increase of 14 percentage points over 2013—a year before the launch of M-Pawa (FSDT 2013, 2017).

Person-to-business (P2B) and bill payment for services like electricity were another bright spot,

<sup>17</sup> Globally, just three out of 10 mobile money customers have transacted in the past 90 days—a number that has remained steady for the past few years (GSMA 2017).

**Figure 8. Volume of Mobile Money Transactions, by Type**



Source: Bank of Tanzania

with a growing number of Tanzanians using their mobile wallets to pay for goods and services. The rise of pay-as-you-go (PAYGo) solar companies allowed even those who were excluded from the country’s electricity grid to use their phones to pay for inexpensive off-grid energy. Moreover, an increasing number of banks and MFIs offered the ability to receive and repay loans using mobile money and to transfer funds between mobile wallets and deposit accounts. Data also showed that government was becoming a bigger force in the mobile payments space, especially following a decision in 2016 to pilot mobile money payments to the nearly 1.2 million beneficiaries of the Tanzania Social Action Fund (TASAF) cash transfer program (Nkwame 2016).

**Understanding the P2P use case**

As Lokopoyit debated which of these new use cases would be the next big thing, he thought back

to the early years of mobile money and how his colleagues at Vodacom had seized on the business opportunities presented by digitizing remittances. He remembered that before mobile money use became widespread, many customers were using airtime transfers to send money to friends and family in other parts of the country. Upon receiving an airtime voucher, the recipient would convert the voucher to cash by selling it to someone in need of airtime—often at a discount of 10–40 percent (Koblanc 2015).

“MNOs had data on people sending airtime from one person to another,” explains Ndunguru, former head of M-Commerce for Airtel, adding that the numbers were “quite substantial.” The thinking at the time was that if airtime was already being sent from one person to another, there would likely be demand for a mobile money service that facilitated P2P payments. They would turn out to be right.

### Box 7. The role of aggregators in offering new use cases for mobile money

CGAP describes aggregators as “the glue that helps many parts of the digital financial services ecosystem to work together.” Working behind the scenes, these companies provide a valuable service to organizations that do not have the resources or in-house IT capacity to connect directly to mobile money network application programming interfaces (APIs). For example, most electricity payments in Tanzania are now processed by aggregator Selcom.

Without aggregators, many of the services available to mobile money customers in Tanzania may never have made it to market. “If it weren’t for the aggregators, the smaller banks wouldn’t even be there [offering bank-wallet transfers for their customers],” says former M-Pesa Head Lopokoiyit. “Who else is going

to provide the service that these guys do? Who is going to take the API from Tigo or Vodacom and bring it together?”

The importance of aggregators is underscored by the time and resources involved in connecting third parties to mobile money services. Individual integrations between a mobile money service and a third party like a bank or utility company are estimated to cost anywhere between \$15,000 to \$30,000 and take 4–6 months to complete. Using aggregators not only helps to avoid these upfront investments, but also allows mobile money services to outsource the onerous tasks of managing reconciliations, payment disputes, and customer support.

Source: McKay and Pillai (2016).

### Merchant payments: The next big use case?

Turning his attention back to the present, Lopokoiyit began to contemplate his next move. “Business-to-business [B2B] and retail payments may not make a big dent in financial inclusion, but it does bring volume,” he thought. “We have over 450,000 customers using Lipa na M-Pesa [M-Pesa’s merchant payment service], and if you look at the amount of money that they keep in their wallets, it’s more than doubled.”

At the end of the day, what kept Lopokoiyit and his competitors up at night was activity rates, and merchant payments were demonstrating the potential to change how customers use their mobile wallets. “You tend to do more transactions because you already have the money in your wallet,” he reasoned. “The majority of customers who use Lipa na M-Pesa make more transactions than the average customer.”

Vodacom’s competitors were already actively exploring the merchant payments space. Tigo launched a campaign to promote merchant

payments, while aggregator Selcom was trying to make a play for a share of the payments market with new NFC (near-field communications) cards linked to a Selcom wallet. As Vodacom moved ahead with its strategy to acquire merchants and promote its Lipa na M-Pesa product, Lopokoiyit suspected that the first provider to solve merchant payments would control the future of mobile money in Tanzania.

### Looking ahead

By 2017, mobile money’s spectacular early successes in Tanzania had given way to the long, hard work of driving deeper customer use of DFS. Findex numbers for 2017 showed only modest gains in active mobile money account ownership, from 32 percent in 2014 to 39 percent in 2017.<sup>18</sup> This despite the country boasting a competitive market, a range of compelling use cases, and interoperability between provider networks.

Clearly, questions remain around whether and how Tanzania will be able to sustain its successes in the months and years to come. But most signs are pointing in the right direction. Significant

<sup>18</sup> Findex numbers measure only adults who have used a mobile money account registered in their name in the past 12 months. On the other hand, Finscope measures *any* mobile money use in the past 12 months and arrives at a higher number, 60 percent, in 2017. But in Finscope, the increase from 50 percent in 2013 to 60 percent in 2017 falls behind growth in the early years of Tanzanian mobile money.

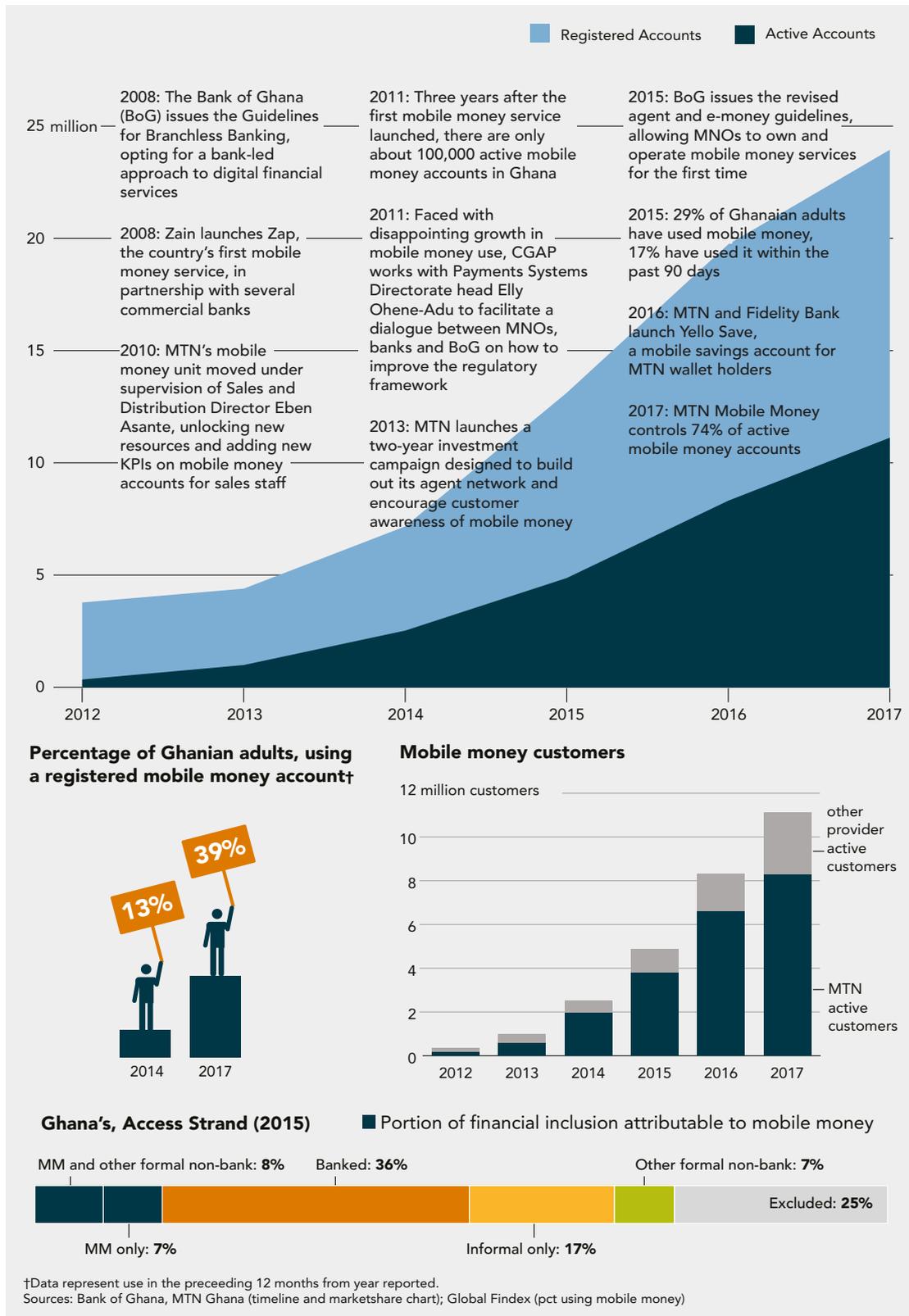
early investments in customer awareness and agent networks, along with a favorable regulatory environment, have set the stage for a range of new players to enter the market. Meanwhile, interoperability is increasingly responsible for growth in P2P payments, and there are indications that the ability to transact across mobile money networks holds important implications for the

viability of merchant payments. And finally, Tanzania's already competitive landscape is leading new entrants like Halotel to push into rural areas that thus far have been left behind in Tanzania's DFS revolution, even as aggregators and FinTechs continue to roll out new use cases, MNOs race to figure out merchant payments, and the specter of BigTech lingers on the horizon.

## Case Study: Ghana

An at-a glance overview of Ghana’s efforts to build an inclusive payments ecosystem is illustrated in Figure 9. A more detailed narrative follows.

**Figure 9. Registered and Active Mobile Money Accounts in Ghana**



By the mid-2000s, the Ghanaian government had renewed its commitment to extend the reach of financial services to the country's poor (Staschen 2016). But sitting in his office at the Bank of Ghana (BoG), Deputy Governor Madamudu Bawumia knew that the same old approaches to providing financial services would not be enough to achieve the government's ambitious financial inclusion goals. Instead, Bawumia turned his attention to the digitization of cash-based payments, which he viewed as an opportunity to connect citizens to the formal financial system for the first time. Betting on the potential of digital payments, Bawumia decided to make new technologies a centerpiece of the Central Bank's financial inclusion strategy.

However, the mid-2000s were also a time of great uncertainty for the world's central bankers. With mobile money still in its infancy, it remained to be seen how this radically new approach to payments would fit alongside existing card-based and bank-led payments solutions. Seeking to better understand how other countries were promoting payments digitization, Bawumia and his colleagues organized a visit to Kenya in 2007 to observe the Safaricom M-PESA phenomenon and see what lessons the Kenyan experience might hold for Ghana's approach to digital payments.

The delegation from BoG returned to Ghana convinced that Kenya's regulatory approach was more cautionary tale than inspiration. Allowing nonbanks to participate directly in the provision of payments services struck the regulators as a high-risk gamble that would have potentially negative implications for the stability of Ghana's banking sector. And Kenya's reliance on one dominant private company (i.e., Safaricom) was considered risky, especially given the government's commitment to extend the reach of financial services to the most difficult-to-serve customers, such as the poor and those living in rural areas. These takeaways, and the decisions that they would influence, would turn out to have enormous implications for Ghana's trajectory to an inclusive payments ecosystem.

## Regulatory approach

### Betting on the banks

Seeking to get out ahead of new developments in the payments space, BoG released Guidelines for Branchless Banking in August 2008. The Guidelines reflected BoG leadership's preference for a bank-led and bank-based approach to payments services, with only banks permitted to issue electronic money and establish agent networks (CGAP 2017). While many other countries outside of Sub-Saharan Africa have opted for bank-led electronic payments, Ghana's decision differed sharply from the approaches taken by countries like Kenya and Tanzania, each of which had allowed nonbank actors like MNOs to issue e-money and establish their own service offerings and agent networks.

"Mobile money was viewed, at best, as a channel for use only by banks and deposit-taking financial institutions to reach unbanked segments of the population," recalls Elly Ohene-Adu, director of Banking Services and Payment Systems Oversight at BoG from 2010 to 2016. "MNOs were seen as agents making their platforms available to banks to use" (Muthiora 2015).

At the same time, BoG was pushing ahead with its own digital payments solution—a biometric card that it had released through its subsidiary, the Ghana Interbank Payment and Settlement Systems Ltd (GhIPSS). The e-Zwich Smart Card was designed to be an interoperable digital payments solution that could be used by customers of any financial institution. "We thought, let's do something that even the rural banks could participate in, something that didn't need a contract with Visa or MasterCard," explains Yoku Korsah, COO of GhIPSS at the time (see Box 11).

The bank's vision of digital payments interoperability also influenced its approach to crafting the Guidelines for Branchless Banking. In addition to limiting participation to banks, BoG regulations mandated a "many-to-many" service model that aimed at preventing exclusive partnerships between

MNOs and a single financial institution. This model required any new mobile money service offering to be introduced by a consortium of at least three regulated banks (BoG 2008).

The intention behind these guidelines was to provide greater access and higher value for consumers through an open and interoperable system driven by banks. But much to the chagrin of the Central Bank, the new rules did not spur banks to rush to invest in new mobile money services.

### Early mobile money services struggle to gain traction

As he walked out of a meeting in Accra, Carl Ashie, the head of M-Commerce at Ghanaian MNO Zain, looked to the launch of the country's first mobile money service with some trepidation. Under the 2008 Guidelines, Zain was forced to introduce its Zap mobile money product in partnership with several banks, including United Bank of Africa, Standard Chartered Bank, and Ecobank. Because the banks owned the new service, Zain depended on them to ensure Zap's success. "The banks were supposed to recruit the agents, they were supposed to promote the product," explains Ashie. But the banks would prove uninterested in making such investments.

Ashie was not alone in his struggles. At MTN, the general manager of Mobile Money, Bruno Akpaka, was facing his own problems as he attempted to build the MTN Mobile Money service that had been launched in July 2009. Akpaka had secured the partnership of nine separate banks. But as his successor Eli Hini would later say, "Most of the banks sat back and did nothing."

Worse still, because the MNOs were considered agents of the banks under the Branchless Banking Guidelines, they were unable to approach BoG directly to voice concerns or obtain approval for the introduction of new products. According to Hini, "Anything you needed to do, you had to speak to the nine banks, who then needed to speak with the Central Bank."

Two years later, despite the entrance of the country's third mobile money service, Tigo Cash, use of mobile money among Ghanaians remained low. By 2011, there were only about 100,000 active mobile money accounts in Ghana (CGAP 2017), and the MNOs were becoming concerned that Ghana would never catch up to markets like Kenya and Tanzania that were seeing explosive growth in the use of mobile money. "We were operating," Ashie recalls. "But we were not operating fully."

#### Box 8. Unintentional effects of the 2008 Guidelines for Branchless Banking in Ghana

Despite good intentions and a desire to promote a more inclusive financial services industry, Ghana's 2008 Guidelines for Branchless Banking inadvertently created obstacles to the success of mobile money deployments. By limiting the ownership of mobile money services to licensed banks, while also forcing these banks to partner with their competitors, several issues emerged:

- **Free Rider Problem.** There was little incentive for banks to make significant investments in the branchless banking market if their competitors would reap the benefits equally without making their own investments.
- **Passive Partner.** The banks generally declined to assume any of the roles the regulations envisaged, such as registering and serving customers; conducting agent due diligence and

managing agent networks; and developing, offering, and marketing products. They were primarily focused on holding customer float in a pooled account and providing passive support in liquidity management to agents through their branches.

- **Cost to MNOs.** Although MNOs shouldered most of investments and made key decisions, legally, they had few rights. According to the regulations, the products, customers, and agent networks were owned by partner banks.
- **Communications Gap.** Since MNOs were not recognized financial services providers, they had no direct relationships with BoG and needed to go through their partner banks for every interaction with the regulator. As a result, BoG was out of touch with the needs and challenges of MNOs, who were driving the market.

Source: CGAP (2017).

## A new beginning for mobile money

Ohene-Adu knew that she needed to act. As it became apparent that uptake of mobile money in Ghana was falling well below expectations, the head of Banking Services and Payment Systems Oversight at BoG was determined to turn things around. “There were complaints, there were frictions in the market place,” Ohene-Adu remembers. So when CGAP approached her in 2011 with ideas for how the Central Bank could revise its regulatory approach, she was eager to hear its suggestions.

While CGAP presented proposals for specific regulatory changes, its first recommendation was that Ohene-Adu and her colleagues meet directly with the MNOs to get their input on how the Central Bank could be more responsive to their needs. “We thought that it would be useful for the Central Bank to take a second look at the regulations and maybe engage with the telcos and be able to understand what their issues are so that we could all sit down and address it,” says Ohene-Adu.

With Ohene-Adu’s approval, CGAP organized a workshop in December 2011 that included the MNOs and Fidelity Bank and Ecobank—two banks that had demonstrated a particularly high level of interest in and commitment to developing DFS. Ohene-Adu recalls that the MNOs were clear about what regulatory reforms would be needed to change the course of mobile money in Ghana. They asked that BoG eliminate the bank-led requirement and allow them to own and operate the payments services. To make the BoG aware of their demands, the MNOs drafted a white paper, “The Joint Position of the Telcos to the Bank of Ghana,” and sent it to the Central Bank governors.

BoG governors (the governor and deputy governors) initially hesitated to embrace the recommendations in the White Paper. Like all central bankers, they were primarily concerned with ensuring financial sector stability, and the interests of nonfinancial institutions like MNOs were simply not high on their list of priorities. But when Ohene-Adu approached the Governor in 2012 with statistics on the value of money that was passing through the new services under *de facto* control of the MNOs, he quickly

realized that BoG needed to act. “I marched up to the Governor and said, ‘This is the level of money out there that we are not regulating,’” Ohene-Adu says, because MNOs had, in practice, taken over day-to-day operation of the mobile money services that were nominally under bank control. “And the moment I said that I got his attention, because I said, ‘If anything happens, Bank of Ghana will be faulted.’”

With the approval of the governor, Ohene-Adu and her colleagues embarked on an ambitious effort to rewrite BoG’s regulations on electronic money. The Bank’s internal drafting committee began work on the new regulations in 2013, with CGAP providing support through several rounds of drafting, stakeholder feedback, and revisions (CGAP 2017).

After more than a year of consulting and engaging with market participants, and convinced that they had finally found a way to address the concerns of all stakeholders, Ohene-Adu and her team prepared to issue the new regulations in 2014. By November of that year, the new rules had been approved by the Board of Governors, and Ohene-Adu looked forward to celebrating her hard-fought victory. The regulations, which refrained from dictating a specific partnership model and permitted nonbanks to be directly licensed by BoG, were already being hailed as a best practice policy framework for DFS (CGAP 2017). But as it turned out, one last fight stood between Ohene-Adu and the implementation of her vision.

In December 2014, some banks decided to push back against the pending regulations with a public campaign and private pressure on the Central Bank Governor. The head of one major commercial bank was quoted in the media as warning that mobile money would lead to chaos in the country’s financial system: “Digital money is different. The minute you allow it to go independent, who controls it? Which central bank is responsible for it?” he asked pointedly (Klutse 2014).

Privately, the banks were also lobbying the governors to quash the regulations. Bowing under the pressure, the governors decided to delay implementation—much to the chagrin of Ohene-Adu and her supporters, who had already

published the new regulations on the BoG website. But shortly thereafter, at a meeting between the Central Bank and the heads of Ghana's banks's, Ohene-Adu decided to take a stand. "Look, if you had read the regulations and seen its contents, you would be speaking differently," Ohene-Adu told the heads of the country's largest banks.

For months, the two sides continued to spar over the regulatory changes. But Ohene-Adu would eventually prevail. On 6 July 2015, the new agent and e-money guidelines were finally issued by the Central Bank, opening a new chapter in Ghana's efforts to extend financial services to the country's financially excluded people.

"This was what the telcos were waiting for," Ohene-Adu explains. "So, they just spread their wings."

## Executive commitment and investment

In 2013, with discussions underway to revise the 2008 Guidelines on Branchless Banking, Eli Hini at MTN Mobile Money sensed an opportunity. If Ohene-Adu got her way at the Central Bank and the proposed changes to the regulations were adopted, Hini expected that the new framework would unlock new opportunities for MTN to grow its mobile money user base. Still, he knew that his team's success would depend on securing significant investment capital from his operating company.

Hini sought to leverage a 2010 reorganization at MTN that had already increased the profile of the mobile money unit within the organization. Recognizing that the fledgling mobile money service was struggling to gain traction, management placed the mobile money team under the supervision of Sales and Distribution Director Eben Asante. The reorganization completely changed how mobile money was managed at MTN. New resources were made available to expand the agent network and advertising, and sales staff were able to access clear key performance indicators on new accounts opened.

Asante was a big believer in the potential of mobile money, and he made it his mission to build MTN

Mobile Money into one of Africa's most successful digital payments services. Drawing on his marketing expertise, Asante began by approving a massive new advertising campaign called "MTN Mobile Money Month," which included messaging designed to educate Ghanaians on what mobile money was and the opportunities it presented for users (Modern Ghana 2013).

The campaign did not go unnoticed by MTN's competitors. "The ad campaign was huge. It gave everyone the idea that you could receive money on your phone," says Kwame Opong, the former head of Tigo Cash. But he also acknowledges that a marketing campaign was only part of the battle: "When you had people going out explaining it, you saw people trying to slip money into their phones."

Realizing that advertising would not be enough to drive awareness of mobile money, Asante and Hini looked to agents as an important channel for educating customers and driving greater use (see Box 9). "The agents who were initially doing the acquisition weren't educating customers, but they were earning commission on opening an account," Hini says.

To encourage agents to spend more time on customer education, MTN revised its commission structure to place greater weight on customer transactions rather than account openings. "If customers cashed in, agents would get a commission. If customers used their wallet to make a transaction, the agent would get more. And if customers continued to transact, the agent would receive something further, up to the 4<sup>th</sup> transaction," Hini explains.

The new commission structure, coupled with an aggressive campaign to recruit new agents, was supported by a massive infusion of investment capital. Behind the scenes, Asante had been working hard to convince the MTN Group to approve the capital to underwrite his ambitious strategy. Beginning in 2013, Asante secured an additional \$2 million for investments in mobile money. Funding doubled to \$4 million the following year. According to Hini, this infusion of capital supported a two-fold increase in spending

**Box 9. How MTN used OTC as a gateway to mobile money use**

When MTN set out to drive greater use of its mobile money service, most providers in Ghana had an intense aversion to OTC transactions. “For a long time, OTC was [considered] the devil,” recalls Kwame Oppong, former head of Tigo Cash Ghana.

But, in fact, OTC was perhaps the easiest way for customers to become familiar with mobile money. “We are in a market where there was already remittance behavior. People were predisposed to understanding an OTC environment. But the idea of a wallet was not well understood,” says Oppong.

Faced with the challenge of getting customers to understand how to transact using their phones, MTN’s leadership made a risky decision. Even as other providers were trying to discourage OTC transactions, for which they were forced to pay high commissions to agents, MTN embrace these transactions as an opportunity to get customers to use its service. “We didn’t shy away from OTC,” Hini says. “People went

out for it, people used it, and it helped them to understand the service better.”

If customers were visiting agents to conduct OTC transactions, MTN realized that it could also incentivize agents to educate these customers on how to use their wallets to transact. So MTN began giving new customers GHC 5 (about \$1.50) in their mobile wallets, and agent commissions were restructured to reward customer transactions rather than just account openings. With guidance from agents, many new customers would use the GHC 5 they received to purchase airtime, which in turn became an important first step along the customer journey to using a mobile wallet. Agents, who were now rewarded for wallet-based transactions made by new customers, further discouraged customer OTC transactions by explaining that wallet transactions were significantly less expensive. And over time, as customer behavior began to shift, MTN began to change its pricing structure to discourage OTC transactions.

on market activation and agent commissions aimed at motivating agents to educate customers.

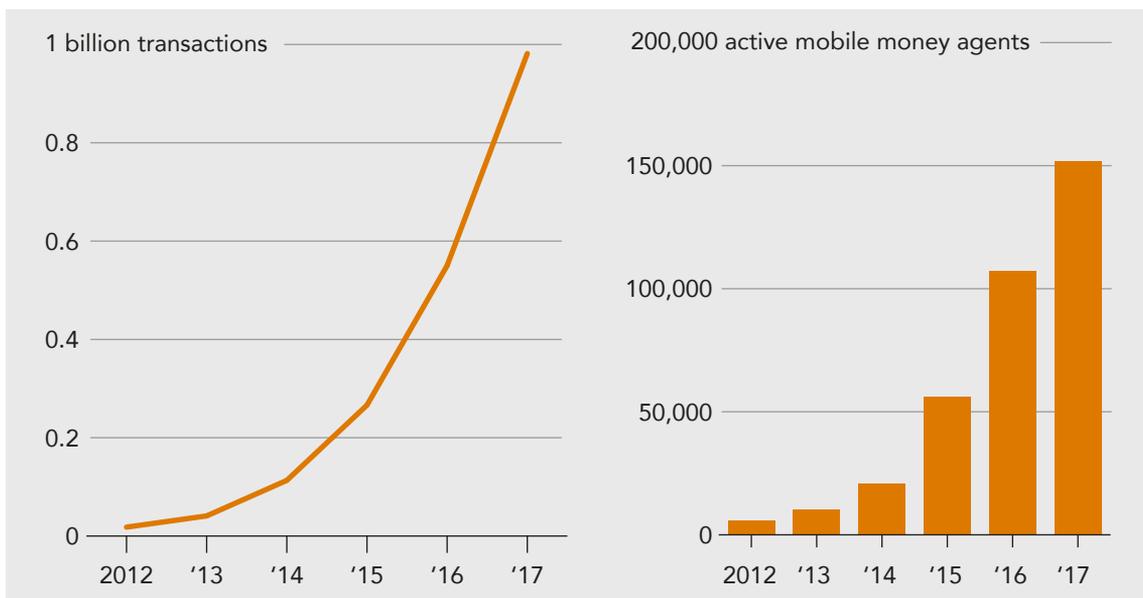
MTN’s investment paid off. Statistics showed that beginning in 2013—two years before the new e-money issuer and agent banking regulations went into effect—mobile money in Ghana had already begun to turn a corner. Between 2013 and 2014, the number of active agents would double to over

20,000, while the volume of transactions performed using mobile money went from 41 million to an astounding 113 million over the same period (see Figure 10) (BoG 2018).

**Competitive landscape**

While MTN was moving full-steam ahead with investments in mobile money, Tigo Cash and Airtel

**Figure 10. Transaction Volume and Active Mobile Agents, in Ghana**



Source: Bank of Ghana

Money (formerly Zap) held off on critical investments that were needed to drive growth of their mobile money efforts. Indian company Bharti Airtel had purchased Zain's Ghana operations in 2011, and the change in ownership was accompanied by declining investment in the mobile money business.

Meanwhile, Oppong had taken over as head of Tigo Cash and was facing similar challenges. With regulatory changes pending and evidence of an uptick in mobile money use among Ghanaians, Tigo management decided against abandoning their offering altogether. However, rather than pursue investment and expansion, Tigo's leadership focused on demonstrating profitability.

As both Tigo and Airtel reduced investment and reoriented their efforts toward achieving profitability, MTN continued to consolidate market share. But by 2015, the market was also beginning to evolve. In 2015, after years of debating whether to introduce a mobile money product, Vodafone finally launched its Vodafone Cash service. At the same time, Fidelity Bank and Ecobank began introducing their own products after years of working primarily through MNOs (see Box 10).

MTN remains the dominant player in Ghana with an estimated 75 percent market share in 2017. But there are conflicting opinions about the impact of its dominance—and whether it will be

able to sustain their position in the years to come. "MTN has invested a lot. They've been very, very consistent and no one can take that away from them," concedes Carl Ashie, now M-Commerce manager at Vodafone. But he adds, "There's still a lot of opportunity in the market for all of us."

For Oppong, MTN's market share is only part of the story. He argues that having multiple players in the market has been good for customers, even if market shares are lopsided: "Competition allowed us to deliver value to the customer. There was so much testing in the market, Tigo would try something, MTN would replicate it, and vice versa."

He adds that MTN's example has inspired other providers to redouble their own mobile money efforts, citing the influence of Eben Asante, who would become CEO of MTN Ghana in 2015 and was later promoted to vice president at MTN Group: "When Eben spoke about mobile money, you could have sworn that he was a mobile money head."

Regardless, MTN will continue to face challenges to its dominance in the mobile money space. In October 2017, Airtel and Tigo Ghana merged to create Airtel Tigo, the second largest MNO in the country (Reuters 2017). At the same time, BoG was in the process of connecting mobile money networks to its interbank switch, with the hope of enabling full cross-platform interoperability for the first time.

### Box 10. Banks get into the mobile business

While some banks actively resisted the entry of MNOs into the financial services space, Ecobank realized early on that mobile would be the wave of the future. "This is going to be the channel for the consumer to access banking services," Owureku Asare, regional head, Consumer Distribution remembers of the mindset of Ecobank leadership at the time.

In 2010, Ecobank partnered with Airtel Money to pilot a mobile savings product called mSave, and built on that experience with a new mobile savings product called Express Account, which is accessible from any mobile wallet and currently has over 100,000 account holders. It also partnered with mVisa to allow customers to pay for goods and services using their mobile phones and funds from their Ecobank accounts. And in a first, Ecobank is allowing MTN

Mobile Money customers to invest in Ghanaian treasury bills through its TBill4All service.

For its part, Fidelity Bank introduced a card-based agent-banking product, and has partnered with MTN to introduce the Y'ello Save mobile savings product. "Banks are now challenging MNOs in the provision of innovative digital products," explains Will Derban, director of Strategic Partnerships and E-Banking at Fidelity.

Have the banks begun to change their approach to MFS? Asare thinks so. "The banks that had concerns about the proposed guidelines, gradually you see them now playing significant roles within the MFS ecosystem," says Asare. "So clearly, sleeping banks have woken up. So, there is keen competition within the banks as well."

## Interconnected services

Efforts to create payments interoperability in Ghana date back to 2007, when the Central Bank made the ability to transact with customers of various financial institutions a centerpiece of its vision for DFS in the country. That year, BoG established GhIPSS, an independent entity that would “migrate Ghana into an electronic payment community as part of efforts to modernise the country’s payment system” (GhIPSS 2017). In addition to establishing a national switch for ATMs called GhLink, GhIPSS was tasked with implementing a new biometric card-based payments solution, called e-Zwich Smartcard, that could be connected to any bank account and used to make payments (see Box 11).

The government’s commitment to interoperability was also evident in its decision to include a “many-to-many” requirement in the 2008 Guidelines on Branchless Banking, which prevented exclusive partnerships between banks and MNOs and

required any new service to include at least three banks (and in the case of MTN Mobile Money, a total of nine). At the time, the Central Bank argued that “this model offers maximum connectivity and hence maximum outreach and is closer to the desired situation where all banks and all telcos should be able to entertain each other’s customers” (McKay 2011). But as Ohene-Adu argues, this approach belied a poor understanding of what interoperability really meant: “[N]ow we know that [interoperability] involves much more than even association. At the time, it was all about being associated, being in a group—many-to-many.”

Even as the Central Bank introduced a new mandate to interconnect, some in Ghana argue that the country had already achieved functional interoperability with the help of aggregators like Nsano, which facilitates wallet-to-wallet transactions across networks (see Box 12). “Today, people can actually send money across networks,” says Ashie from Vodafone, citing emerging third-party payments services.

### Box 11. The e-Zwich smart card signals a focus on payments interoperability

At a time when few central banks were contemplating true payments system interoperability, BoG wanted to ensure that the country’s electronic payments systems were ready for the future. In 2007, before the full scope of the mobile payments revolution had come into focus, BoG decided to bet on interoperable, card-based payments with its e-Zwich Smart Card.

“In 2007, the Bank of Ghana had determined that electronic was the way to go,” Yoku Korsah, COO of GhIPSS at the time, recalls. “What was the best way to promote electronic payments? To promote alternatives to cash, you needed a solution that was easy to use across the country.”

e-Zwich is a “load and spend” card that functions as a wallet, allowing users to deposit cash at bank branches in exchange for e-money stored on the card. Users can also transfer funds to or from their linked bank accounts using a POS terminal or ATM. Once users have a balance on their card, they can use the card to pay for goods or services at merchants who have an e-Zwich-compatible POS device. The card uses biometrics to verify identity—users scan their fingerprint to authorize transactions.

To prepare for the card’s launch, BoG mandated that all deposit-taking institutions issue e-Zwich cards to

their customers and deploy e-Zwich POS devices to all branches and outlets. All existing ATMs and POS devices had to be upgraded or replaced to be eZwich compatible. This required a hefty investment by banks and some complained that the business model did not work in their favor. Most banks complied with only the bare minimum of the requirements or chose to ignore them altogether and pay a fine. Over time, as mobile payments became more prevalent and GhIPSS struggled to convince participating banks to acquire merchants, e-Zwich card use remained flat. In the first quarter of 2013, there was an estimated GHC 14 million per month being transacted using e-Zwich—an amount that increased to only about GHC 17 million by the third quarter of 2015.

There also have been concerns that e-Zwich is creating friction in the market by competing with private actors that would like to introduce their own payments solutions. Moreover, the government could be viewed as having a conflict of interest in its role as both a regulator and provider of payments services. “What it signaled was that the Bank of Ghana was getting into an area where a lot of independents would have liked to play,” Korsah posits. “That was probably the biggest resistance factor that I could identify.”

Source: GhIPSS (2017).

### Box 12. Nsano facilitates mobile money interoperability in Ghana

In 2016, payments aggregator Nsano introduced a product called MOVE, which allows Ghanaians to send money from their mobile wallets to a wallet-holder on any network. By simply dialing a shortcode, customers of any mobile network can initiate cross-network transactions for a small fee.

"Interoperability is not complex. We've already achieved it," asserts Nsano CEO Kofi Owusu-Nhyira.

To achieve this, Nsano has negotiated pricing with individual mobile money providers. It charges customers anywhere from 1.5 percent to 2.5 percent per transaction, depending on their provider, and the MNOs are paid a portion of this. Owusu-Nhyira hopes that he eventually can bring the price down to just 1 percent for each transaction.

Looking forward, Owusu-Nhyira is cautiously optimistic. He notes that MOVE recently reached a milestone of over GHC 1 million in transactions processed using the service, and to the company recently introduced the ability to transfer between mobile wallets and bank accounts.

"It's already happening," adds Korsah, former COO of GhIPSS. But Korsah also wonders if interoperability—whether achieved through a government switch and mandate or through third-party providers—will be enough to chip away at MTN's dominance of the digital payments space: "MTN is dominant. Will the interoperability game change that? It's a big question."

### Compelling use cases

In reviewing the impact of DFS in Ghana, mobile money leaders noticed that use of the services was evolving. P2P transactions were still driving

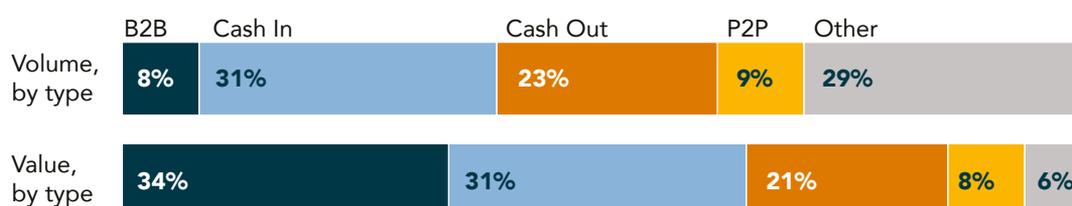
customer use of the services, but there were indications that businesses were also increasingly using mobile money services to facilitate payments (see Figure 11). The big question was where the market would move next.

"The first stage was really fighting for legitimacy and for a foothold," Oppong, former head of Tigo Cash, explains. "Now we're at a stage where the focus has to be on the quality of access that we're creating."

Already, a range of new products were being rolled out to customers, from mobile-wallet-connected savings accounts like Y'ello Save, to investment products such as TBill4All. PAYGo solar providers like PEG Africa offered customers the ability to pay for solar energy using their mobile wallets (see Box 13). And the current head of BoG's Payments Systems Department, Settor Kwabla Amediku, says that the BoG's recent decision to relax restrictions on the use of airtime and mobile money for payment of insurance premiums has led to increased interest in the development of microinsurance products. "The next three years are going to be amazing!" exclaims Amediku.

Today, Ghanaian payments providers see a major opportunity to expand the use of mobile money for payments beyond P2P. Hini says that MTN Mobile Money is increasingly focusing on driving the use of mobile money for merchant payments. "Investment in technology to enhance experience and merchant acquisition, that's the phase that we're in now," says Hini. "My CEO says, 'Make it as close as possible, or actually better than cash.'"

Figure 11. E-money Transactions in Ghana, by Type (2015)



Source: Bank of Ghana

### Box 13. PEG Africa uses mobile money to deliver off-grid energy

As mobile money adoption has increased in Ghana, a new class of provider is leveraging payments services to deliver energy to Ghanaians who are excluded from the country's electricity grid. PEG Africa, Ghana's largest PAYGo energy provider offers customers solar power kits on credit, which customers pay off in small installments using their mobile wallets.

The solar kits sold by PEG Africa allow customers to power a few lightbulbs, charge their phones, and listen to the radio. Customers make a modest down payment before receiving the solar kit, and then continue to pay each month over the course of the year. Once customers have finished paying back the loan, they own the kit. Providers face little risk in making the loans because they can shut off power if a customer is late with a payment or defaults.

In 2016, PEG Africa, which has a licensing partnership with East African PAYGO solar company M-KOPA, had 29 service centers, 200-plus employees, and 14,000 customers in Ghana. Sales of the home energy product are growing at approximately 20 percent per month.

Source: Fleming (2016).

Hini sees a big opportunity in the digitization of government payments. "E-governance and the digitization of payments for government services will be key," he says. "Government is a big spender, so if payments can be digitized, it brings along the customer and helps everyone to have a role to play."

## Looking ahead

With mobile money use having tripled between 2014 and 2017 (Demirgüç-Kunt et al. 2018), the future of DFS in Ghana looks bright. Still, several challenges remain, including ongoing efforts to implement payments interoperability, struggles to shift account use beyond P2P payments, and the implications of MTN's dominance of the mobile money space.

As of May 2018, Ghana implemented mobile money interoperability, with each of the country's providers connecting to the GHLink switch currently used to connect the country's ATMs. Whether the decision on the part of BoG to

impose interoperability will lead to more value for consumers remains to be seen. But Ohene-Adu thinks that the development bodes well for the future of digital payments in Ghana: "I think that it's turning out well, and if market actors engage properly it should go smoothly."

Meanwhile, hints of a transformation in Ghanaian DFS belie MTN's commanding share of active mobile money accounts. From aggregators to FinTechs, there are increasing signs that the next wave of product innovation will be driven by new players riding on the payments rails built by mobile money providers like MTN. Additionally, the Airtel and Tigo merger and aggressive moves by recent entrant Vodafone to capture market share indicate that the future may hold more and different types of competition. It is unknown if this will drive greater value for customers.

Another open question is, what will become the next big use case after P2P, and who is best positioned to lead the market into a cash-lite future? For some Ghanaians, such a future may be about more than just mobile money. As Ohene-Adu says, innovation driven by tech-savvy young Ghanaians will be what ultimately transitions the country from cash to digital payments:

I see a lot of young Ghanaians who are really interested in making these payments work. I can see the passion and the drive there. They are like "How can I make this work better? I'm not happy with just sitting there and saying this is how we do things. How can we take this thing a step forward?" So, the youth give me hope.

## Conclusion: Understanding the Tanzania and Ghana experiences

The Tanzanian and Ghanaian experiences hold important lessons for other countries that want to develop inclusive payments ecosystems. Looking across the two markets, there are both similarities and differences in the approaches taken by policy makers and providers, with significant implications for how DFS have evolved. But overall,

these country experiences underscore the time, effort, and patience required for DFS to succeed in an African context. While Tanzania and Ghana are considered among the most successful DFS markets not only in Sub-Saharan Africa, but globally, this success did not happen overnight. It took nearly a decade of work by policy makers, funders, and the private sector to drive uptake and use of DFS—work that is still in progress today.

Table 1 provides a brief look at each country’s experience. And the following section provides analysis and addresses how the five components of inclusive payments ecosystems can contribute to greater financial inclusion through customer adoption and use of DFS.

## Regulatory approach

An effective regulatory approach (defined as enabling regulations and/or a regulator that knows how to effectively engage with industry) is the foundational component of an inclusive payments ecosystem. While CGAP has identified a set of regulatory enablers that can contribute to successful digital ecosystems (see Box 3), the Tanzania and Ghana regulatory experiences also demonstrate the need for an enabling regulator to drive DFS development. In Tanzania, the decision to take a deliberate test-and-learn approach is credited with driving the explosive growth in DFS over the past decade. On the other hand, Ghana initially attempted to impose well-intentioned regulations without input from industry or a full understanding of the evolving DFS space. It then consulted providers and experts that have experience from other markets to revise its approach. Overall, the two cases demonstrate that, while specific regulations can indeed be harmful or beneficial, the most important factor is a regulator that listens to industry and provides space for innovation.

As the financial services industry continues to develop and new players like FinTechs and

BigTech<sup>19</sup> enter the space, regulators need to continue to collaborate closely with the growing range of providers to evolve and adapt their approaches. Central banks will need to look beyond financial institutions like commercial banks with which they have traditionally worked and to engage with new players who are increasingly responsible for innovations in financial services for the poor. Furthermore, policy makers should ensure that their approaches to risk mitigation are proportionate to the risks.

The rapidly evolving nature of DFS requires even greater capacity on the part of regulators—and dealing with these uncharted waters calls for approaches that allow for learning and experimentation. One option is to use regulatory sandboxes, a type of test-and-learn approach that uses a controlled environment to assess the impact and feasibility of untested regulations before they are implemented.<sup>20</sup> Policy makers can also look to emerging regulatory technologies (RegTech) that offer the tools necessary to oversee a rapidly changing space.<sup>21</sup>

## Executive commitment and investment

While an enabling regulatory approach is the first step, Tanzania and Ghana demonstrate how good policy is not enough on its own to build inclusive payments ecosystems. Vodacom Tanzania and MTN Ghana demonstrated the importance of spending on infrastructure and customer awareness—suggesting that DFS success is largely a function of provider investment.

Mobile money is rarely profitable in early years. GSMA estimates that the average deployment does not begin to see modest, positive margins until years 4–5 (see Box 4). With major investments required to spur adoption and use, senior leadership needs to believe in the product and its potential—while also providing space to incur early losses. Vodacom’s Meza in Tanzania and MTN’s

19 BigTech refers to major technology platforms like Facebook, Google, WhatsApp, and Alibaba, among others.

20 For more information on regulatory sandboxes, see Jenik (2017).

21 For more information on RegTech, see Zmitrowicz (2017).

**Table 1. Lessons from Tanzania and Ghana for developing inclusive payment ecosystems**

Key Components	Tanzania Experience	Ghana Experience	Lessons
<b>Regulatory Approach</b>	BoT leadership understood the importance of innovation in the delivery of financial services and opted for a “test-and-learn” approach with rigorous due diligence procedures to regulate the nascent mobile money space. This provided space for innovation, even as BoT engaged with providers and learned from the experience while crafting permanent regulations.	The 2008 Guidelines imposed strict rules and requirements early on, before the industry had a chance to develop. This inadvertently stifled innovation and investment. When Elly Ohene-Adu’s effort to revise the guidelines in consultation with industry was successful, BoG opened the door to explosive growth in the mobile money space.	DFS growth is strongly aided by policy makers that keep an open mind when approaching regulation, allowing new players to participate in the provision of financial services and providing space for experimentation. Risk mitigation strategies should be proportionate in a way that facilitates innovation without jeopardizing financial stability. Although effective regulation is very important, a supportive regulatory approach, including ongoing dialogue with industry, may be just as important. Strong leadership is key, and policy makers should engage with industry and develop a deep understanding of the space when crafting regulations.
<b>Executive Commitment and Investment</b>	Rene Meza’s visionary leadership helped Vodacom make significant early investments in building an agent network and raising customer awareness of mobile money. These early investments, supported by BMGF, set the stage for long-term industry growth.	MTN Managing Director Eben Asante believed in mobile money and made investment a priority, even as other providers scaled back or considered dropping out in the face of early struggles. MTN’s investments in agent networks and customer awareness created a strong foundation for DFS success in Ghana.	The investment required by providers to build extensive agent networks and drive customer awareness should not be underestimated. While achieving profitability can take several years, these investments set the foundation for a successful market by solving problems related to use cases, customer education, and agent recruitment/training. Senior executive buy-in and support are essential to prioritizing DFS and sustaining investment in the face of early losses.
<b>Competitive Landscape</b>	Tanzania has a highly competitive DFS market that includes several mobile money providers, aggregators, banks, MFIs, and FinTechs. Competition has driven provider investments and innovation, and has led to a range of new use cases.	MTN has been the dominant provider from the early days of mobile money and has increased its market share in recent years. However, this has not seemed to impede the growth of DFS in Ghana. New players like FinTechs and banks promise to increase competition in the years to come.	As the Ghanaian experience (and those of other markets like Kenya and Zimbabwe) demonstrate, competition is not essential during early phases of market development, and a dominant provider with significant capital may be helpful to more quickly experience network effects and incentivize provider investment and innovation. But as markets mature, competition becomes increasingly important for driving customer value, while “coopetition” among MNOs and players like banks, MFIs, aggregators, and FinTechs leads to a range of new use cases that ride on DFS rails.

*(continued)*

**Table 1. Lessons from Tanzania and Ghana for developing inclusive payment ecosystems (continued)**

Key Components	Tanzania Experience	Ghana Experience	Lessons
<b>Interconnected Services</b>	Interoperability was achieved through agreements between providers on common rules and bilateral connections between platforms. The growth in interoperable P2P transactions indicates that interoperability is on the right trajectory. The industry-led process is a rare example of successful mobile money interoperability.	Ghana attempted to impose interoperability early on with “many-to-many” regulations, but this ended up hindering investment. More recently, BoG mandated that all providers connect to a central switch, effectively introducing mobile money interoperability. Key to the success of this initiative will be involving the important stakeholders and ensuring that the business model incentivizes participation.	Interoperability is important, but is best pursued in established markets where providers are looking for growth opportunities. Engagement with industry is important, and regulators should be cautious when mandating interoperability so as not to hinder early investment. Generally, market forces should guide when interoperability happens and who takes part, except in situations where abusive practice forces regulators to intervene. Stakeholders should focus on governance and business rules, as well as the technical implementation of connections.
<b>Compelling Use Cases</b>	P2P remains the dominant use case, but the success of new products like M-Pawa and the emergence of FinTechs offering products that ride on the mobile money rails suggests that diverse use cases will become more important over time.	MTN Ghana has activity rates of over 70%, putting it in the highest bracket globally. It will be able to continue this momentum only by diversifying its offerings to customers. Although P2P remains the dominant use case in Ghana, the success of new products like TBill4All and the emergence of FinTechs offering products that ride on the mobile money rails suggests that diverse use cases will become more important over time.	P2P and airtime purchases remain the main drivers of DFS, but there are indications that use cases like savings, credit, bill payments, merchant payments, and government payments become more important as markets mature. Globally, the providers with the highest activity rates are integrated with seven banks, 95 billers, and 6,500 merchants on average.

Asante in Ghana show how executive commitment to investing in and prioritizing mobile money can lead to market success over the long term.

In markets where no infrastructure exists to facilitate digital payments and where understanding of DFS remains limited, there is a need for a first mover to take on the burden of building agent networks and driving greater customer awareness. These early investments by providers are what end up setting the foundation for a successful market, by solving problems related to use cases, customer education, and agent recruitment and training. Donors can play a role in supporting MNOs in the early stages of market development, as demonstrated by BMGF’s

grant to Vodacom in 2011. This grant was critical to spurring investment at a time when there was little evidence that mobile money could achieve profitability (see Box 14). Once a provider has made these early investments, other providers in the market can benefit—whether through sharing of agents or increased awareness of DFS among the population.

Country context is also important. For MNOs in African nations like Tanzania and Ghana, launching the first mobile money services can be particularly burdensome. With little to no existing digital payments infrastructure, these providers must build this infrastructure themselves, and they need to develop solutions for managing cash, educating

### Box 14. The role of development partners in driving market development

In Tanzania and Ghana, development partners played an important role in advancing digital financial inclusion through targeted engagement with regulators and providers. BMGF's grant, which was meant to spur investment in agent infrastructure and customer awareness, to Vodacom Tanzania in 2011 was the driving force behind the expansion of the market infrastructure that eventually became the backbone for the growth of mobile money in the country. Likewise, IFC's role (funded by BMGF) in convening mobile money providers in Tanzania is credited with an unprecedented agreement on interoperability. Both funders opted for a market-led approach, in which their involvement was designed to enable providers to make smart decisions that ended up benefiting the market as a whole.

Ghana's experience yields similar insights on the role of development partners. Faced with a regulatory approach that was stifling market development,

CGAP engaged with policy makers to offer pragmatic guidance on best practices for regulating the nascent mobile money space. The result was a complete course reversal by regulators at BoG, which spurred provider investments in mobile money and led Ghana to become one of the most successful markets in Africa.

Overall, these two experiences highlight the importance of development partners enabling smart decisions by key market actors. They also point to an approach that allows for these market actors to lead efforts and take ownership, rather than have funders dictate approaches. In both country cases, this approach required development partners to be patient as they waited nearly a decade for their efforts to bear fruit. When coupled with the lessons distilled from these country cases, this suggests that there are concrete ways in which development partners can promote successful market development.

potential customers, engaging with and educating regulators, and more.

The rise of government-led efforts like India Stack, which includes a centralized system for customer identification and payments routing, may affect how countries approach DFS development in the future.<sup>22</sup> By making digital financial infrastructure a shared public good, such approaches can relieve some of the pressure on providers to make significant investments for the benefit of the broader market. But even in countries that opt for such a government-led approach, providers will need to educate customers and create access points for their services.

## Competitive landscape

When it comes to competition in the DFS market, Tanzania and Ghana both demonstrate the value of a diverse provider landscape. It is unclear whether competition has any major effect on the success of DFS during the early years of market development—in both cases, a single player was responsible for big initial investments that drove early adoption. However, as inclusive payments ecosystems mature and several providers jockey

for market position, each country experience points to the positive benefits of greater competition. For example, providers in Tanzania and Ghana credited their competitors with helping to inspire innovative approaches to serving customers, while providers in Tanzania consistently cited competition in the GSM space as an important factor behind their decisions to invest in mobile money networks. In the end, innovations and investments motivated by a competitive market landscape benefit customers and providers alike.

Because Tanzania is a more mature market, new developments there can offer insight into the importance of competition. As the Tanzanian market has become more saturated, there are signs that providers are moving their offerings further down-market, with new entrants like Halotel pursuing a strategy to target rural and poor customers. With growth in the number of new accounts beginning to slow, questions remain as to whether competition for customers will drive new use cases, lower prices, and expanded access.

Maturing markets like Tanzania and Ghana are expanding the very definition of competition in the DFS space. As the rails of an inclusive payment

<sup>22</sup> For more information on India Stack, see Raman and Chen (2017).

ecosystem are built, the focus of competition broadens to include businesses such as aggregators, FinTechs, PAYGo companies, banks, and MFIs—all of which are offering products and services that ride on the rails established by mobile money providers. As the space becomes increasingly crowded, both Tanzania and Ghana show early indications that the future of competition in DFS will move beyond mobile money services to the use cases they enable.

## Interconnected services

Because neither Tanzania nor Ghana implemented full interoperability during the early years of DFS development, it is difficult to draw hard conclusions about the importance of interconnected services to DFS success. However, emerging data from Tanzania indicate that interoperability has been important in driving greater value for customers who are increasingly taking advantage of their newfound ability to transact across networks, while helping smaller providers gain a foothold in the market. Furthermore, the emergence of third-party providers that facilitate cross-network transactions like Nsano in Ghana and the decision among providers in Tanzania to connect their platforms bilaterally provide further evidence that there is a greater appetite for interoperability as markets mature.

Ghana's decision to impose a form of interoperability (i.e., many-to-many regulations) in 2008 before mobile money services had launched offers evidence that mandating interoperability too early can backfire and hinder investment among providers who fear that their efforts would benefit competitors. The difference in the collaborative process pursued by Tanzania, where industry was a key player in developing the approach and rules for interoperability, and the Ghanaian decision to impose interoperability early on, demonstrates the importance of engaging with providers to implement interoperability.

Overall, the main message that emerges from a review of both country experiences is that interoperability is important, but it is best pursued in mature markets. Engagement with

industry is important, and regulators should be cautious when mandating interoperability so as not to hinder early investment. Stakeholders need to focus on governance and business rules—as was the case in the year-long negotiations between providers in Tanzania—and not just the technical implementation, which is currently the overwhelming focus in Ghana. As both markets continue to mature, it will be important to monitor the Tanzanian and Ghanaian experiences in the years to come to fully understand the impact of interoperability on DFS.

## Compelling use cases

In both Tanzania and Ghana, the ability to send and receive P2P payments was what convinced customers to start using mobile money, and it remains the predominant use case. Hence, compelling use cases such as P2P are crucial to early market development, because customers need a convincing reason to use the products and services on offer.

However, it remains unclear how new products and services will affect the use of DFS as markets mature. Customers today have more reasons than ever to use DFS, and the success of M-Pawa in Tanzania and the TBill4All product in Ghana indicates that customers are becoming more aware of how to use their mobile wallets to do more than just P2P. Mobile money and digital payments, more broadly, are increasingly being used to pay bills, facilitate new service categories like PAYGO solar, and pay merchants.

Conversations with providers in both countries indicate that digitizing government payments and driving greater use of digital payments at merchant points of sale are central to their strategies moving forward. The sheer volumes of government payments, much of which are currently made in cash, means that digitizing these payments would dramatically increase the use of DFS. And digitizing merchant payments, which are more frequent than remittances or bill payments, promises to drive up activity rates and convince merchants themselves to conduct higher value transactions with suppliers digitally.

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