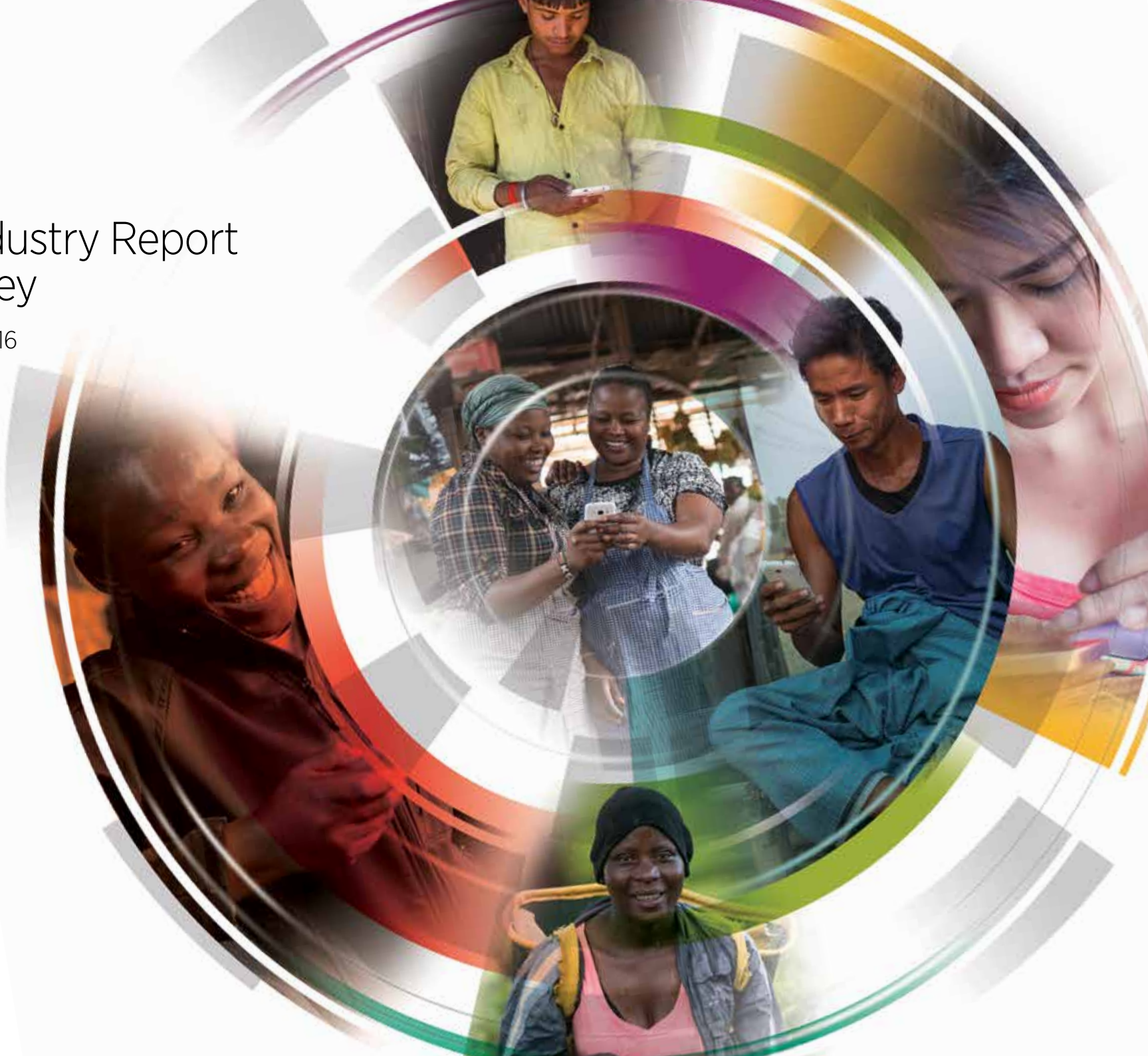
State of the Industry Report on Mobile Money

Decade Edition: 2006 - 2016



Mobile Money

The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with almost 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress, Mobile World Congress Shanghai, MobileWorld Congress Americas and the Mobile 360 Series of conferences.

For more information, please visit the GSMA corporate website at www.gsma.com.
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The GSMA's Mobile Money programme works to accelerate the development of the mobile money ecosystem for the underserved.

For more information, please contact us:
Web: www.gsma.com/mobilemoney
Twitter: @gsmammu
Email: mobilemoney@gsma.com

THE MOBILE MONEY PROGRAMME IS SUPPORTED BY THE BILL & MELINDA GATES FOUNDATION, THE MASTERCARD FOUNDATION, AND OMIDYAR NETWORK

BILL & MELINDA GATES foundation

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About the GSMA Mobile Money Programme

Two billion people remain unbanked, without access to safe, secure, and affordable financial services. The GSMA Mobile Money programme is working with mobile operators and industry stakeholders to create a robust mobile money ecosystem, which will make these services more relevant and useful and ensure they remain sustainable.

We do this through close engagement with mobile money providers, providing the mobile industry with tools and insights to help deployments scale, as well as supporting the creation of enabling regulatory environments to expand digital financial inclusion. The programme also promotes collaborative action amongst industry stakeholders, facilitating the integration of mobile money with diverse partners.

For more information, visit www.gsma.com/mobilemoney

Acknowledgements

The GSMA Mobile Money programme would like to express its sincere appreciation to the Bill & Melinda Gates Foundation, The MasterCard Foundation, and Omidyar Network for their ongoing support. We would also like to thank all of the mobile money, insurance, savings, and credit providers who participated in our annual Global Adoption Survey of Mobile Financial Services, without whom the analysis in this report would not be possible.

Contents

Foreword

It has been an incredible decade for the mobile money industry. We have seen how one connected handset can transform the life of not just its owner, but also the lives of his or her family and the broader community. A mere 10 years after M-Pesa launched in Kenya, the mobile money industry now celebrates an impressive decade of great achievements. As this report highlights, the industry has now reached a major milestone: more than half a billion mobile money accounts were registered as of the end of 2016, with more than 170 million active accounts around the globe.

By enabling people to store and transact money in digital form, hundreds of millions of underserved people are safer, are more productive with their time and their money, and are able to take advantage of increased socio-economic opportunities.

Beyond financial inclusion, mobile money contributes to 11 of the 17 UN Sustainable Development Goals, lessening inequality by enabling households to lift themselves out of poverty and empowering underserved segments of the population. Recent research shows that, in Kenya, two per cent of households were able to escape extreme poverty, and gains were most significant for women.[1] Women were able to expand their occupational choices—shifting from subsistence farming to business into business or retail sales—all because of mobile money.

Additionally, mobile money is a key driver of economic growth in emerging markets, particularly by formalising payments, delivering transparency, and boosting GDP. Digital finance, including mobile financial services, can add around US$ 3.7 trillion in additional annual economic activity by 2025, according to a recent study by the McKinsey's Global Institute.[2]

Often less celebrated, but fundamental to the success of the industry, are the efforts of regulators and policymakers who, since 2007, have been building and strengthening a framework for mobile money and digital finance to flourish. Through enabling regulation, regulators have been and must continue supporting an open and level playing field for banks and non-banks to reach the underserved at scale.

Looking ahead, we must continue to collaborate to take the mobile money industry to the next level. The GSMA is supporting multiple key industry initiatives to strengthen the foundations of mobile money, create industry growth enablers —such as harmonised mobile money APIs—and accelerate the next generation of mobile financial services.

We are especially excited by the industry's commitment to the Code of Conduct for Mobile Money Providers, to raise the bar on responsible business practices, as well as the proactive efforts to bridge the mobile money gender gap. In this way, the transformative ability of mobile money will continue to generate broader benefits for society over the next decade and beyond.

Mats Granryd
Director General, GSMA

[1] Voorhies, R. (2016). *The evidence is in: mobile money can help close the gender gap.* World Economic Forum.
[2] Popper, N. (2016). *Cellphones, Not Banks, May Be Key to Finance in the Developing World.* The New York Times.

Overview: 2016 at a glance

MOBILE MONEY

is available in TWO-THIRDS of low- and middle-income countries

REGISTERED ACCOUNTS SURPASSED

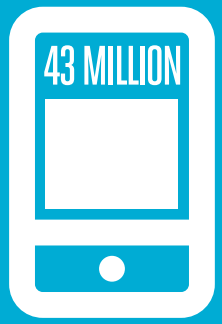
HALF BILLION

IN 2016

Mobile money providers are processing an average 30,000 transactions per minute, or more than

43 MILLION

PER DAY



IN DECEMBER 2016, THE INDUSTRY PROCESSED MORE THAN

US$ 22 BILLION

IN TRANSACTIONS

MORE THAN 40%

of the adult population in Kenya, Tanzania, Zimbabwe, Ghana, Uganda, Gabon, Paraguay and Namibia are using mobile money on an active basis (90-day). This is an increase from just two countries in 2015 (Kenya & Tanzania).

MOBILE MONEY IS STRENGTHENING THE BANKING INDUSTRY

Between September 2015 and June 2016, the volume of flows to and from bank accounts grew more than

+120%

In Sub-Saharan Africa, there were 277 million registered accounts in December 2016—MORE THAN THE TOTAL NUMBER OF BANK ACCOUNTS IN THE REGION

118 MILLION

accounts were active (30-day) during December 2016

35 deployments had

MORE THAN A MILLION 90-DAY ACTIVE ACCOUNTS

in December 2016

In 2016, total revenue for the top providers SURPASSED

US$ 1 BILLION

Introduction

With our *State of the Industry Report on Mobile Financial Services* now in its sixth year, this special 2016 edition is an opportunity to reflect on the incredible progress made over the last decade. While mobile money has been around for more than 10 years, few would dispute that the 2007 launch of M-Pesa in Kenya first demonstrated the potential of mobile technology to transform access to financial services in emerging markets. The following wave of investment and innovation has overturned traditional ideas about financial services and has had a profound effect on the lives of hundreds of millions of people.

In 92 countries around the world, mobile money has enabled financial inclusion, giving people access to transparent digital transactions and the tools to better manage their financial lives. It has also been a gateway to other financial services, such as insurance, savings, and credit. The impact of mobile money has been felt well beyond transactions and accounts: people's lives have been enriched by greater personal security, a sense of empowerment, and more.

Mobile money has also advanced economic growth by giving businesses the means to expand, and families a way to weather financial shocks. It also laid the foundation for a raft of innovation, evolving from a tool for purchasing airtime and sending money between friends and family, to a convenient way to access and pay for essentials, such as water bills or school fees. Importantly, it has also helped to nurture a generation of emerging market entrepreneurs, who will shape the future in ways yet to be imagined.

This special edition charts the story of mobile money over the last decade through four sections:

- **A decade of progress:** takes a look back at the emergence of mobile money and the rapid advancement of financial inclusion.
- **Mobile money industry lessons:** reviews mobile money fundamentals, from the business case to enabling regulation and interoperability.
- **Mobile money impact:** reflects on how mobile money has impacted people's lives, as well as the broader economic benefits mobile money has unlocked.
- **Looking ahead: Forces shaping the future of the industry:** closes with an examination of emerging trends that promise to take mobile money to new heights over the next 10 years.

To mark mobile money's decade milestone, the GSMA is planning several initiatives for 2017. Throughout the year, we will be celebrating the diverse community of partners that have made mobile money such a successful and transformative service. From international funders to banks, fintech companies, governments and regulators, and of course, mobile operators, this coming year will bring together those who are laying the foundation for the exciting future ahead.

A decade of progress

2016 is a milestone year for the mobile money industry. While mobile money has been around since 2001, when the first service launched in the Philippines, 2007 was a watershed moment for the industry. The launch of M-Pesa in Kenya that year and the lightning pace of customer adoption demonstrated the power of mobile money to reach the underserved. Looking back to where it all started helps us to see just how far the industry has come.

Life before mobile money

Before mobile money was introduced, people in developing countries relied on risky and informal methods of money transfer. Sarah Kigwama, a Nairobi housekeeper, reflected on how things worked before the arrival of M-Pesa. To help support her mother in a nearby village, Sarah had to put cash in an envelope, send it with someone on a country bus, and hope the person she gave it to would deliver it to her mother.[3] It could take days for her hard-earned money to arrive, if it arrived at all.

Ten years ago, this was the uncertain and expensive reality for many people sending money home. Similar stories exist for savings, credit, and insurance—all financial needs of even the poorest households.[4] While figures on how many people lacked access to formal financial services in 2006 are scarce, in 2009 the Financial Access Initiative undertook a comprehensive analysis, estimating that 2.5 billion adults in the world were unbanked.[5] However, more than one billion people in low and middle-income countries already had access to a mobile phone.[6] In 2011, the World Bank introduced the Global Findex—the first public database of indicators to measure usage of financial products.[7] That year, just four in every 10 adults in low- and middle-income economies had an account at a formal institution, and just two in every 10 low-income adults had one.[8]

It was against this backdrop that mobile money first emerged in 2001, as providers saw the opportunity to leverage mobile technology to reach millions of financially excluded people. By 2006, a total of six services had launched in four countries, primarily in the East Asia and Pacific region. While these services came to reinvent themselves in the latter part of the decade, customer activity in the early days was limited. That year, just 8.8 per cent of the 6.6 million registered mobile money accounts around the world were active (transacting once at least every 90 days). It was not until the 2007 launch of M-Pesa in Kenya, and its sudden and dramatic growth, that the potential of mobile money to transform lives became clear.

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[3] Ng'weno, A. (2010). *How Mobile Money Has Changed Lives in Kenya.* Bill & Melinda Gates Foundation.
[4] Collins, D. (2009). *Portfolios of the poor.* 1st ed. Princeton: Princeton University Press.
[5] Chaia, A., Dalal, A., Goland, T., Gonzalez, M., Morduch, J. and Schif, R. (2009). *Half the World is Unbanked.* Financial Access Initiative.
[6] Leishman, Paul. (2009). "Mobile Money: A US$5 Billion Market Opportunity". *Mobile Money for The Unbanked - Quarterly Update.*
[7] In partnership with the Gallup World Poll and the Bill & Melinda Gates Foundation, the Global Findex is based on interviews with about 150,000 adults in over 140 countries: *http://www.worldbank.org/en/programs/globalfindex*
[8] Demirguc-Kunt et al., (2015). *Account at a financial institution (% age 15+) for Low & Middle Income and Low Income in 2011.* Global Findex.

Global success stories

At the close of 2008, M-Pesa in Kenya made headlines by becoming the first mobile money service to cross the one million active account mark.[9] Anxious for the next big success story, industry analysts examined the mix of factors that enabled viral uptake,[10] taking a keen interest in why M-Pesa was off to a slower start in neighbouring Tanzania.[11] Two years later, Tanzania became the second mobile money market to reach the one million active account milestone. This effectively debunked the theory that a majority market share of mobile communications was a prerequisite for success. Tanzania also later showed that multiple services could thrive in one market.

By the end of 2013, the bright lights of the mobile money industry had expanded beyond East Africa. A total of 12 services had achieved critical mass, including services in Asia, Latin America and the Caribbean, West Africa, and the Middle East and North Africa region. Strikingly, the number of successful services almost doubled only one year later—23 services had more than a million active accounts in 2014. By 2016, a record total of 35 services had reached this milestone. While more than half of these are in Sub-Saharan Africa, the mobile money industry has proven that scale is possible in diverse geographies.

Many of these industry bright lights have public profiles and case studies documenting their journey, from Telenor's Easypaisa in Pakistan,[12] bKash in Bangladesh,[13] Tigo Money in Paraguay,[14] Orange Money in Côte d'Ivoire,[15] MTN Mobile Money in Ghana,[16] to EcoCash in Zimbabwe.[17] All have taken a different path, tailored to their specific markets and customer needs, and have enriched the industry and the financial inclusion community with insights on what it takes to kick-start a digital financial ecosystem.

[9] Active on a 90-day basis, unless otherwise stated.
[10] Mas, I. and Radcliffe, D. (2010). *Mobile Payments go Viral: M-PESA in Kenya.*
[11] GSMA (2012). *What Makes a Successful Mobile Money Implementation? Learnings from M-PESA in Kenya and Tanzania.*
[12] Telenor Group. (2013). *Easypaisa – banking services made easy.*
[13] Chen, G. and Rasmussen, S. (2014). *bKash Bangladesh: A Fast Start for Mobile Financial Services.* CGAP.
[14] See:
- Tellez, C. and McCarty, M. (2012). *Mobile Money in Latin America: A case study of Tigo Paraguay.* GSMA.
- Krom, A. (2015). *Paraguay: casi el 20% de la población utiliza Tigo Money.* TeleSemana.com.

[15] See:
- IFC. (2013). *Overview of Côte d'Ivoire: Mobile Financial Services Market Data 2013.*
- Penicaud Scharwatt, C. (2014). *Mobile money in Côte d'Ivoire: A turnaround story.* GSMA.

[16] Business Day Ghana. (2015). *Ghana: The Success Story of MTN Mobile Money.*
[17] Levin, P. (2013). *Big ambition meets effective execution: How EcoCash is altering Zimbabwe's financial landscape.* GSMA.

Spotlight: The exceptional growth and transformative power of M-Pesa in Kenya

> *"We had a big barometer chart in the department in Safaricom where we measured how many customers we signed up. By the end of December that year, we had 1.2 million active customers—really tremendous. What that really meant is that we hit the tipping point—it became viral after that, and that was the key."*
>
> Michael Joseph,
> Managing Director of Mobile Money at Vodafone and former CEO of Safaricom,
> reflecting on the 2007 launch of M-Pesa[18]

M-PESA: 2016 AT A GLANCE

90%	$399M	16.6M	101k
REGISTERED M-PESA ACCOUNTS AS PROPORTION OF ADULT POPULATION[19]	M-PESA REVENUES[20]	ACTIVE M-PESA CUSTOMERS[21]	M-PESA AGENTS[22]

Ten years after the launch of M-Pesa, mobile money is ubiquitous in Kenya. Growth was explosive from the start: there were 20,000 active users in the first month (March 2007) and one million active users eight months later.[23] As more users joined the system, Safaricom began to increase its value by launching new products and services, and expanded the ecosystem through diverse partnerships. In 2016, M-Pesa had 16.6 million active customers, or almost two-thirds of the adult population.[24] Last year, M-Pesa revenue accounted for more than 20 per cent of Safaricom's total revenue.[25]

PER 100,000 ADULTS IN KENYA[26]

11	6	538
ATMS	COMMERCIAL BANK BRANCHES	MOBILE MONEY AGENT OUTLETS

18 TechChange. (2013). *The Story of M-Pesa.*
19 Safaricom Limited. (2016). *Annual Report 2016.*
20 Ibid.
21 Ibid.
22 Ibid.
23 Safaricom. (2016). *Celebrating 9 years of changing lives.*
24 Safaricom Limited. (2016). *Annual Report 2016.*
25 Ibid.
26 International Monetary Fund. (2015). "Access To and Use of Financial Services, Kenya", *Financial Access Survey.*

Expanding financial inclusion

The rise of mobile money has generated important gains in financial inclusion. By 2011, registered mobile money accounts grew to 86.8 million, with more than a quarter of them active. Between 2011 and 2013, the net number of total mobile money services nearly doubled, from 116 services in 60 countries to 230 services in 82 countries (see Figure 1). When the Global Findex survey was updated in 2014, it showed the number of unbanked people globally had dropped from 2.5 billion to two billion in just five years.[27] Much of the gain in low-income countries has been attributed to the spread of mobile money.[28] The biggest impact was felt in Sub-Saharan Africa, where 12 per cent of adults in the region had a mobile money account. In 2015, mobile money accounts surpassed bank accounts in the region (see Figure 2).

By 2016, there were 277 million registered accounts in Sub-Saharan Africa, of which more than 100 million were active.

Figure 1: Evolution of the global mobile money landscape (2001 to 2016)

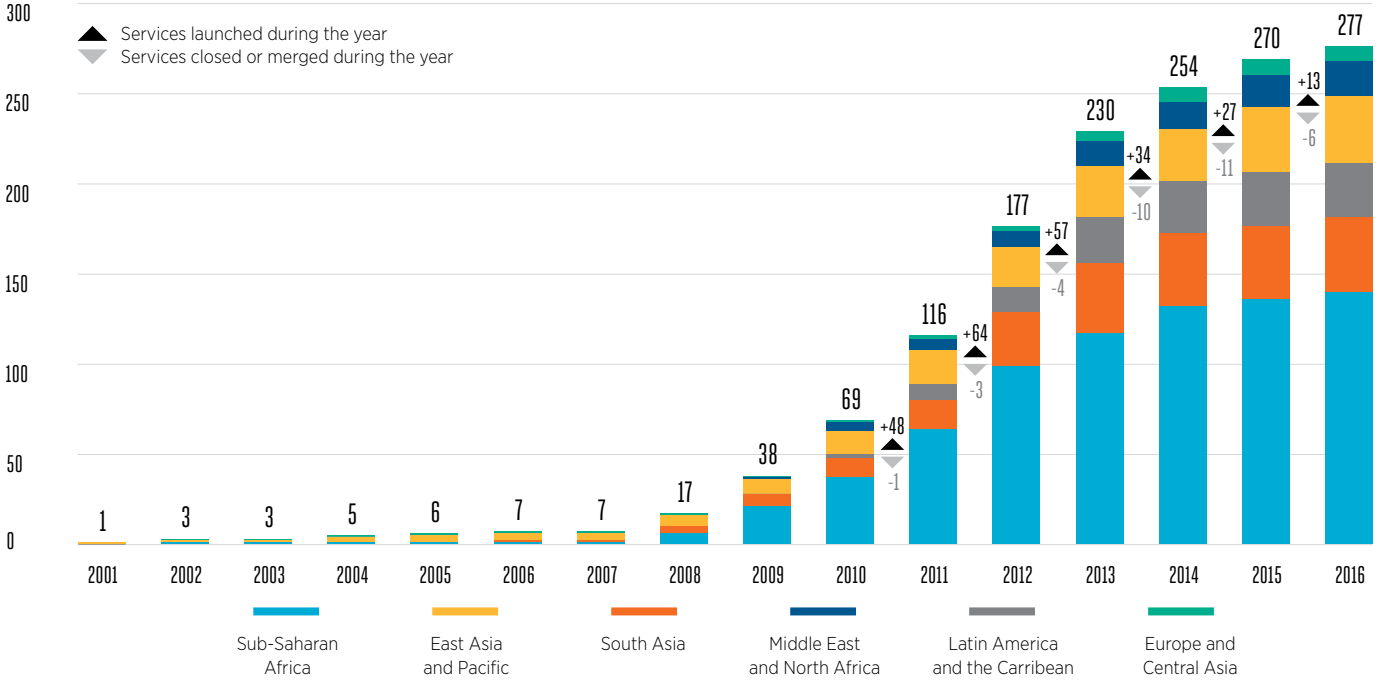
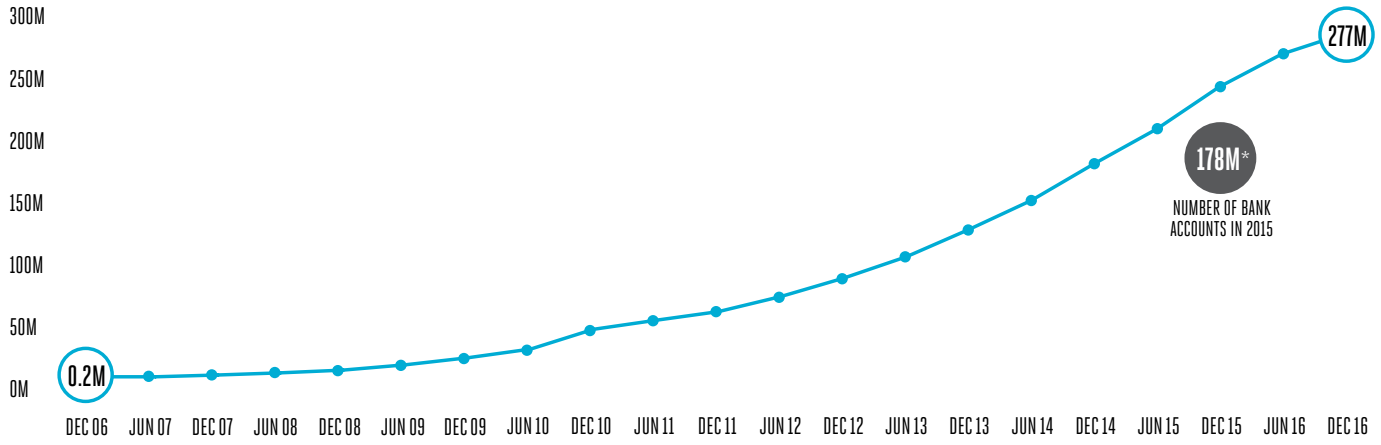


Figure 2: Growth of registered mobile money accounts in Sub-Saharan Africa

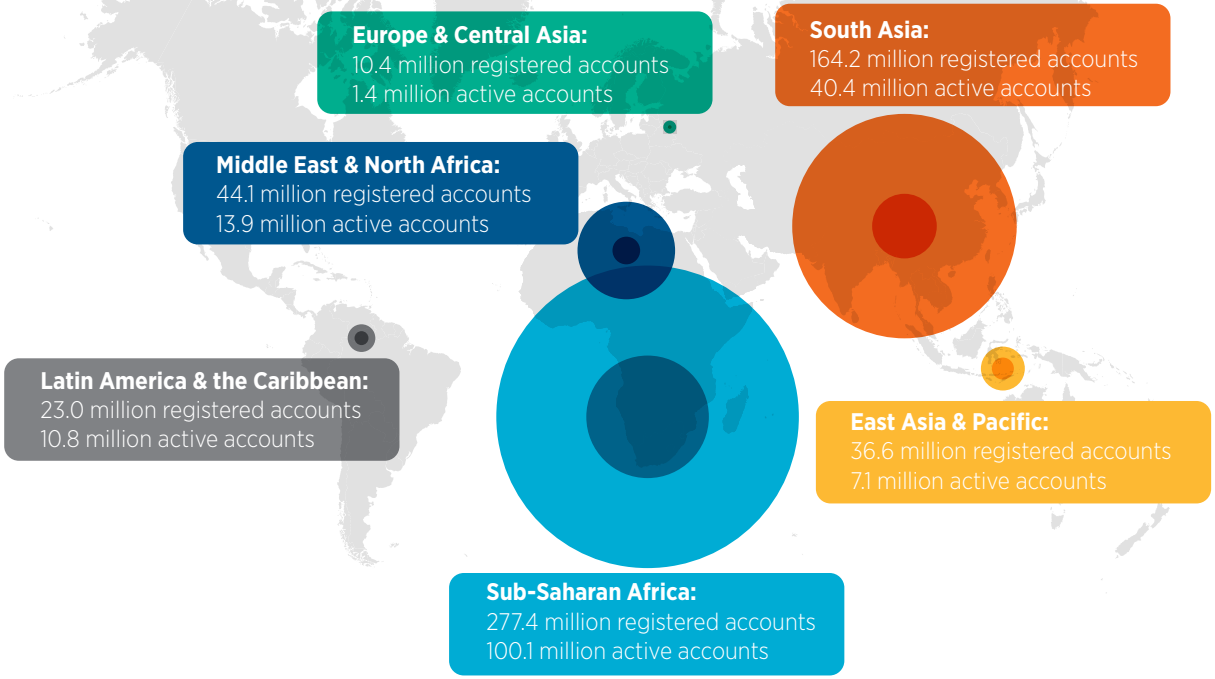


*SOURCE: AFDB, The Banking System in Africa: Main Facts and Challenges. SSA Bank accounts per 1000 adults 334.5

[27] Demirguc-Kunt, A., Klapper, L., Singer, D. and Van Oudheusden, P. (2015). *The Global Findex Database 2014: Measuring Financial Inclusion around the World.* World Bank Group.

[28] Ibid.

Figure 3: Number of registered and active customers, by region (90-day, December 2016)



In this context, mobile money has emerged as one of the primary tools for reaching the underserved. To put the size of the industry into context, the total number of registered mobile money accounts would today be the third largest country in the world, behind China and India.

- There are more than half a billion registered mobile money accounts globally (556 million), of which 174 million are active on a 90-day basis.
- There are 277 live mobile money services in 92 countries (see Figure 1).[29]
- Thirteen new services launched in 2016, and new markets where mobile money is live include Central African Republic, The Gambia, and Maldives.
- Mobile money is now available in two-thirds of low- and middle-income countries.
- There are 35 services with more than one million active accounts, of which nine boast more than five million active accounts.

Mobile money providers are at the forefront of payment services in many emerging market economies. In December 2016 alone, the industry processed 1.3 billion transactions, averaging around 30,000 transactions a minute.

While Sub-Saharan Africa continues to take a leading role in the share of registered and active mobile money accounts, new regions have demonstrated strong uptake of mobile money services in recent years. In 2016, 40 per cent of all new registered accounts were from South Asia, where providers were able to sustain strong registration growth and activity rates. In the five-year period between 2011 and 2016, active mobile money accounts in South Asia grew nearly thirty-fold.

Latin America and the Caribbean has also experienced noteworthy growth in recent years. Active mobile money accounts grew from less than a million in December 2011 to more than 10 million by the end of 2016. The number of live mobile money services in the region grew from 9 to 30 during this period.

[29] In 2016, we expanded our definition of mobile money to include smartphone-only services, provided they are still available to the unbanked. We track five smartphone-based services without a feature phone interface in Russia, South Africa, and India. Appendix A describes the implications of this change and provides additional detail.

Physical footprint of agents

Mobile money agents work on the front line, registering and supporting customers through the transaction process, and combating money laundering and the financing of terrorism by enforcing 'know-your-customer' regulations. They remain the critical backbone of mobile money, digitising and disbursing cash.

In 2006, there were only 21,584 registered agents,[30] or about 0.1 agents per 1,000 adults in countries with live services. Today, this number has risen to more than 4.3 million, or approximately 1.2 agents per 1,000 adults. According to 2016 survey respondents, registered agents represent 94.8 per cent of mobile money's physical cash-in and cash-out global footprint, whereas ATMs represent just 4.2 per cent and bank branches represent 1.0 per cent. In December 2016, 30 markets had 10 times more active (30-day) agents than bank branches. The expansive reach of agents is a hallmark of mobile money.

Today, this number has risen to more than 4.3 million, or approximately 1.2 agents per 1,000 adults, of which 2.3 million are active.

Mobile money usage

In 2006, it was unusual for mobile money to be used for anything other than sending money in-country or topping up airtime. Mobile money has evolved into a more sophisticated proposition in recent years. International remittances, bill payments, merchant payments and bulk disbursements—collectively referred to as "ecosystem transactions"—accounted for only 7.8 per cent of total transaction volumes in 2011. Five years on, this share has more than doubled to 18.8 per cent, with bulk disbursements, international remittances, and merchant payments becoming the fastest-growing products in 2016 (see Figure 4).

By looking at the evolution of ecosystem transactions in the past decade (see Figure 5), one can see that these transactions have grown more than four-fold since 2013, mainly driven by increased partnerships between mobile money providers and different industries that rely on cash collections. Notably, high volumes of bill payments have sustained growth in the share of ecosystem transactions in recent years. In South Asia, for example, mobile money providers more than doubled bill payment transactions, from 14.6 million in March 2015 to more than 31.5 million in December 2016.

Beyond bill payments, the industry has generated significant increases in bulk disbursements—payments from one-to-many, such as salary disbursements and government-to-person payments. This is an important development, as it suggests more funds are entering the ecosystem and could be used digitally, benefitting both customers and providers. In particular, the recent growth of bulk disbursements is driven by an increasing number of companies integrating with mobile money providers to pay their employees. In 2016, more than 52 per cent of bulk disbursements were business-to-person transfers, compared to 32 per cent the previous year.

Collectively, these analyses suggest that mobile money is becoming more relevant in the daily lives of the underserved.

[30] Note that this is not the number of unique mobile money agent outlets, but rather the sum of the agent outlets providing cash-in and cash-out services for the mobile money services that are available globally. In many markets, individual outlets may serve several mobile money service providers. This practice is more pronounced in mature mobile money markets, particularly where competition among service providers is high. For that reason, the number must be interpreted with care, as it does not reflect the number of unique mobile money agent outlets. Agent outlets and registered agents are used interchangeably.

Figure 4: Global product mix by value and volume, December 2011 and December 2016

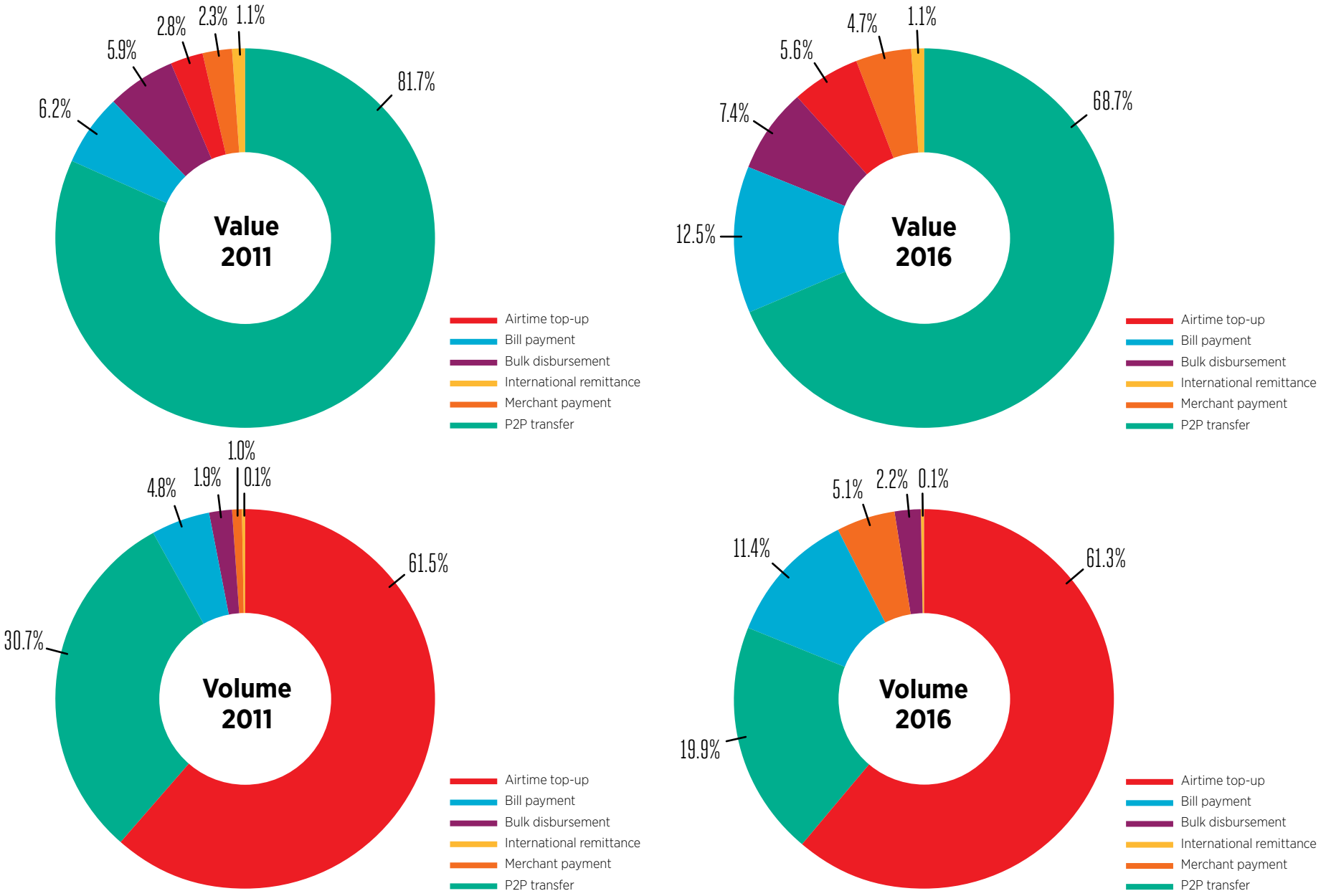
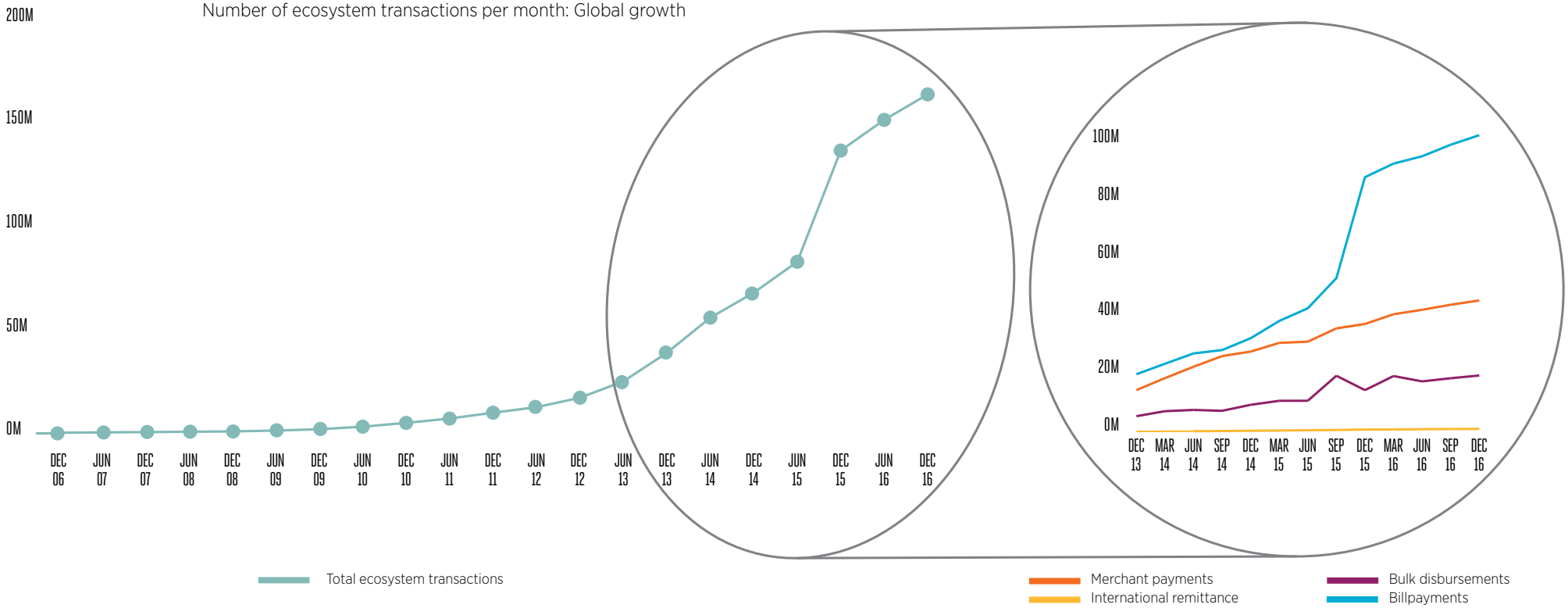


Figure 5: Ecosystem transactions quadrupled between 2013 and 2016

Number of ecosystem transactions per month: Global growth



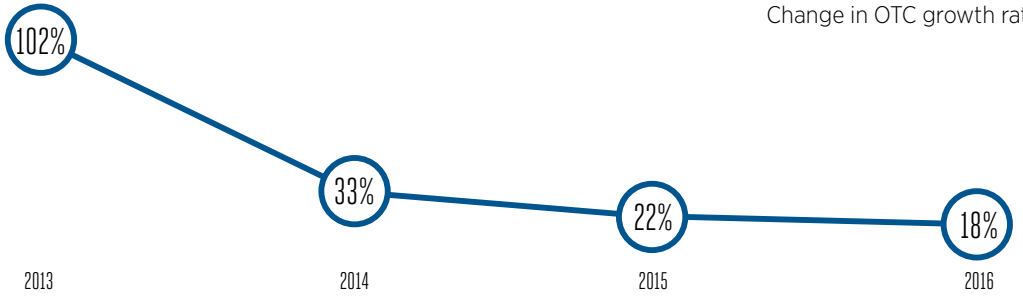
The mobile money industry is digitising an increasingly diverse set of payments, in partnership with a variety of organisations

Over-the-counter and unregistered users

Over-the-counter (OTC) activity, whereby a mobile money agent performs transactions on behalf of customers, still characterises many mobile money services today. Some, like Zoona in Zambia and Malawi, have made this their core business and formal service offering. Globally, at least 44.3 million unregistered customers performed an OTC transaction in June 2016, compared to 37.4 million in June 2015. Although high, this figure represents a deceleration in the growth of OTC customers. The annualised growth rate for the number of unregistered mobile money users who transacted OTC was 18 per cent in 2016, compared to 33 per cent in 2014, and 102 per cent in 2013 (see Figure 6). However, the total number of mobile money OTC customers may actually be much higher, as these figures only account for formal OTC usage that mobile money providers can track.

Figure 6: Over-the-counter growth rates between June 2013 and June

Change in OTC growth rates (2013 to 2016)




PCR

Mobile-enabled insurance, credit and savings services

More than an innovative and accessible tool for payments, mobile money has grown to offer options for saving and borrowing money, supporting people in managing financial risks and household shocks. While microfinance has roots going back to the late 1970s[31] and microinsurance to the late 1990s,[32] mobile-enabled insurance, credit, and dedicated savings services are much newer offerings.

Mobile has helped to increase access to various types of insurance for the underserved, including life, health, and accident insurance. In 2016, there were 106 live mobile-enabled insurance services available in 31 emerging markets, up from 41 live services in 14 markets in 2011.[33] By June 2016, survey respondents[34] reported that 52.7 million policies had been issued, with seven services issuing more than one million policies each. Between September 2015 and June 2016, the cumulative number of mobile-enabled insurance policies issued nearly doubled. For respondents, the top three product offerings in 2016 were life insurance, combined life and health insurance, and health or hospital insurance.

One of the most pronounced effects of mobile money has been that millions of individuals and businesses that have never had access to credit are now able to generate a transaction history, borrow money, and pay it back through their mobile phone. In 2016, there were 52 live mobile money-enabled credit services, up from seven services in 2011.[35] Mobile credit is particularly prevalent in Sub-Saharan Africa, where the mobile money industry is relatively more mature. The Commercial Bank of Africa disbursed 40 billion shillings (US$ 495 million) in loans in Kenya in 2015 through M-Shwari, with a non-performing loan ratio of two per cent[36] (compared to 4.3 per cent globally and 5.4 per cent for Sub-Saharan Africa).[37] A similar product, M-Pawa, was introduced in Tanzania in 2014. As of May 2016, M-Pawa had 4.8 million accounts, with 39 billion shillings (US$ 17.9 million) disbursed to entrepreneurs, most of whom were women or youth.[38]

A dedicated savings account linked to a mobile money account allows users to expand their tools for managing and storing funds, gaining direct access to licensed deposit-taking institutions. In 2016, there were 26 dedicated savings services in 16 countries. Data also suggests that customers view dedicated savings accounts enabled by mobile money as a trustworthy channel to save funds.[39] The percentage of mobile savings accounts with a positive balance increased by 16 points from June 2014, to 69 per cent in June 2015. Further, the average balance of active accounts also increased by more than one third, to US$ 16.18 by the end of June 2015.[40]

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[31] Grameen Research, Inc. (2016). *History of Grameen Bank.*
[32] Micro Insurance Network. (2016). *Microinsurance - A brief history.*
[33] Mobile-enabled insurance services include those that allow subscribers to pay premiums through airtime deductions, as well as those that collect and disburse funds via a mobile money account.
[34] We had 48 respondents that offer mobile-enabled insurance in our 2016 Global Adoption Survey.
[35] Mobile credit services use the mobile money account for loan disbursements or collections, and often rely on data from mobile operators to assess the credit worthiness of borrowers.
[36] Genga, B. (2016). *Kenyan Lender CBA to Take Mobile-Bank Service Deeper Into Africa. Bloomberg.*
[37] World Bank Group. Bank nonperforming loans to total gross loans (%). *International Monetary Fund, Global Financial Stability Report.*
[38] Tanzania Daily News (2016). *Tanzania: Vodacom M-Pawa Loans Reach 4.2 Billion - in May.*
[39] GSMA. (2016). *2015 Mobile Insurance, Savings & Credit Report.*
[40] Ibid.

The rise of the financial inclusion community

One cannot understand the story of the past 10 years without appreciating the central role of international financial inclusion stakeholders, whether private or public donors, global standard-setting bodies, or academics and other thought leaders.

Together, they have ensured the prominence of financial inclusion on the global development agenda and enabled greater understanding of the needs of low-income individuals, many of whom remain excluded from the formal financial system.

In the last 10 years, financial inclusion has emerged as a significant international policy objective

While stakeholders like the World Bank's Consultative Group to Assist the Poor (CGAP) have been involved in the issue from as early as 1995, international coordination to advance financial inclusion reached new heights over the past decade, spurred in part by the potential of mobile technology to reach the unbanked (See Figure 7). The Bill & Melinda Gates Foundation, in particular, has played a prominent role in promoting digital financial services, fuelling the development of a robust community of stakeholders.

Towards the end of 2009, central bankers and policymakers gathered in Nairobi for the launch of the Alliance for Financial Inclusion (AFI), where representatives of 60 low- and middle-income countries committed to making financial services available to millions of people living on less than US$ 2 a day.[41] That same month, Her Majesty Queen Máxima of the Netherlands was named the UN Secretary-General's Special Advocate for Inclusive Finance for Development.[42] The Maya Declaration followed soon thereafter, the first-ever global commitment by policymakers to unlock "the economic and social potential of the poor through greater financial inclusion."[43] In 2010, G20 leaders in Seoul had launched the Global Partnership for Financial Inclusion, naming three implementing partners (AFI, CGAP, and the International Finance Corporation) to take forward their financial inclusion action plan.[44] These international institutional frameworks, and the resources mobilised to support them, gave way to a raft of national strategies.[45] Financial inclusion was firmly on the agenda.

[41] Bill & Melinda Gates Foundation. (2009). *AFI Develops Financial Services for the Poor.*
[42] UNSGSA. (n.d.). *Queen Máxima as the UNSGSA.*
[43] AFI. (2016). AFI Maya Declaration 2016 Fact Sheet.
[44] GPFI. (n.d.). *About GPFI.*
[45] Hannig, A. (n.d.). *National Strategies to Fulfill the Global Commitment: Financial Inclusion.* G20 Portal.

Having assessed the year before that two billion people remained unbanked, in 2015, the World Bank launched the Universal Financial Access 2020 initiative, calling for public commitments to contribute to the goal of closing the access gap. A year later, in 2016, the UN's Sustainable Development Goals (SDGs) were launched. This landmark event underscored the importance of financial inclusion, a core enabler of 11 of the 17 SDGs. Public-private partnerships are at the heart of both initiatives.

International funders have catalysed development through significant aid investments

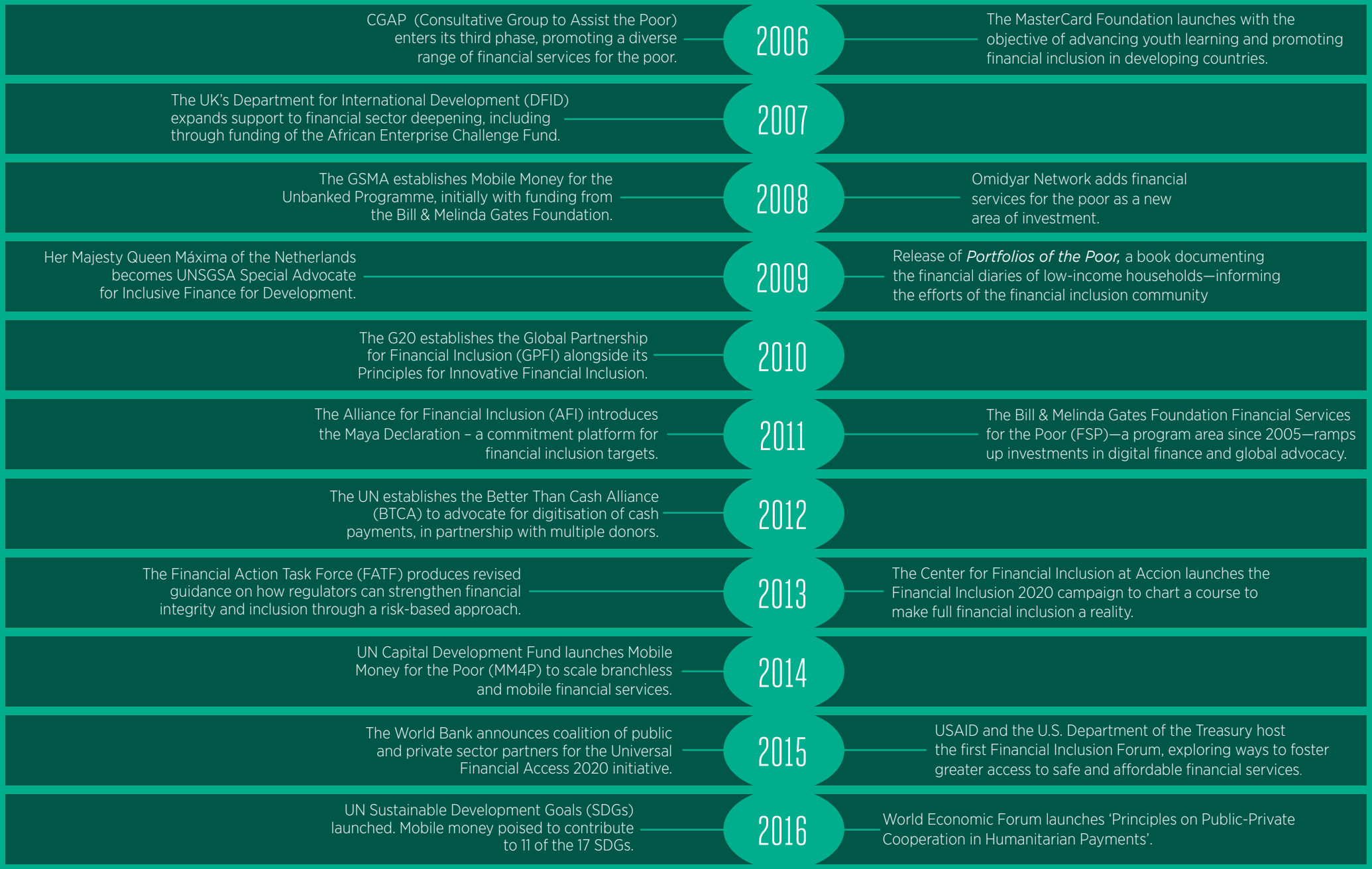
According to CGAP, US$ 34 billion of public and private donor aid was disbursed in support of financial inclusion between 2008 and 2015.[46] National development agencies, such as USAID, DFID, GIZ and multilateral organisations, such as the UN, represent just over 70 per cent of commitments, while private funders, such as the Bill & Melinda Gates Foundation, constitute the remainder.[47] In 2015 alone, at least US$ 200 million of this aid targeted actors in the digital finance ecosystem, with US$ 130 million going directly to mobile network operators or mobile money providers and the rest spread among payments platforms, money transfer services, and fintech firms.[48] The GSMA's Mobile Money programme, which is supported by the Bill & Melinda Gates Foundation, The MasterCard Foundation, and Omidyar Network, is an example of how public and private funds are being jointly leveraged to advance mobile money.

Financial inclusion stakeholders have encouraged debate and pushed thought leadership forward

The expansion of implementing and convening organisations related to financial inclusion has given rise to a vibrant exchange of ideas about every aspect of the issue, from regulation to the governance of transaction hubs. Hardly a week goes by without the release of new analysis or the opportunity for public-private dialogue. Organisations like the GSMA, CGAP, UNCDF's Mobile Money for the Poor programme, Better than Cash Alliance, Financial Sector Deepening Trusts, MicroSave, and Bankable Frontier Associates are propelling this thought leadership. The academic community has also provided evidence of the impact of digital financial services on the lives of the underserved, on the economies in which they operate, and on the potential of mobile money-based innovation to transform the future.

[46] Soursourian, M., Dashi, E. and Dokle, E. (2016). *Taking Stock: Recent Trends in International Funding for Financial Inclusion.* CGAP.
[47] Ibid.
[48] Ibid.

Figure 7: The rise of the financial inclusion community



A decade of mobile money

2006 to 2016

277 SERVICES

LIVE ACROSS 92 MARKETS

2006

- Just one billion people in the developing world use a mobile phone, which grows to 3.6 billion by 2016.
- Seven mobile money services are live across five countries (mostly in Asia) with 6.3 million accounts, of which nine per cent are active.
- The Central Bank of West African States (BCEAO) launches enabling e-money regulation, covering eight francophone markets: Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, and Togo.
- The Nobel Peace Prize 2006 was awarded jointly to Muhammad Yunus and Grameen Bank for their social and economic development efforts, putting the international spotlight on microfinance.

2007

- Safaricom launches M-Pesa in Kenya, facilitated by UK DFID funding.
- Ten live deployments, six of which are based in East Asia & Pacific, and eight of which are led by mobile operators.

2008

- Evidence of early success: Kenya's M-Pesa surpasses one million active accounts within one year of launching.
- First mobile operator launches mobile money in West Africa – Orange Côte d'Ivoire launches 'Orange Money'.
- Mobile money is piloted in Latin America by Tigo Paraguay. Millicom later launches in Guatemala, Honduras, El Salvador and Bolivia.
- 17 services live across Africa, Asia and Latin America.
- Vodacom launches M-Pesa service in Tanzania.

2009

- Telenor launches first over-the-counter mobile money service in Pakistan. Five more deployments are launched in this market over the next few years.
- Afghan police officers paid salaries via Roshan's M-Paisa service, making salary skimming more difficult. Programme participants saw their incomes increase.
- Financial Access Initiative finds there are 2.5 billion unbanked globally.
- DAWASCO water provider partners with Vodacom Tanzania to digitise bill payments, resulting in savings of TZS 1 billion per month within four years.
- First international partnership between two mobile money providers to support international remittance payments: AirCash Malaysia to GCash Philippines.

2010

- Niger government social cash transfer programme digitised via mobile money—saves beneficiaries' time and travel costs, and helps reduce government's administrative costs by 20 per cent.
- Telesom ZAAD Somaliland hires female agent staff to onboard more female customers. In 2010, the proportion of its female customer base rose from 17 per cent to 24 per cent.
- MTN Mobile Money now live across seven Sub-Saharan Africa markets: Benin, Cameroon, Côte d'Ivoire, Ghana, Guinea-Bissau, Rwanda, and Uganda.

2011

- Alliance for Financial Inclusion (AFI) launches the Maya Declaration to champion financial inclusion.
- 116 services live across 64 countries, with 650,000 registered agents, 87 million registered accounts (of which 26 per cent are active).
- Education ministry of Côte d'Ivoire partners with mobile money providers. By 2014, 94 per cent of the country's 1.5 million secondary students paid school fees via mobile money.
- M-KOPA launches and partners with M-Pesa in Kenya. Customers can now make remote digital payments for their lease-to-own solar home systems.
- bKash launches in Bangladesh, grows quickly, and in 2015, processes more than one billion transactions.

2012

- Safaricom's M-Pesa partners with Commercial Bank of Africa to offer credit & savings product M-Shwari. By the end of 2014, 9.2 million savings accounts opened and 20.6 loans issued. Similar success seen with Vodacom-CBA partnership in Tanzania in 2015.
- Regulation is key to success: 12 of the 14 fastest-growing services are located in markets with an enabling environment.
- 14 live mobile money services across Latin America & the Caribbean. Regulation remains a barrier to deployment of mobile money in most markets across the region.
- Airtel launches mobile money in India, and across 12 Sub-Saharan African markets.
- Dialog Sri Lanka launches eZ Cash, the first-ever shared platform for mobile money providers.

2013

- Rural agent successes grow: Evidence from Mali and Chad highlights strong customer uptake and agent performance in rural border towns, refugee settlements, rural marketplaces, and remote mining towns.
- M-Peso Nicaragua launches urban transport payment NFC card linked to their customers' mobile money accounts. By 2015, 90 per cent of bus rides in Managua (800,000 per day) are paid via TUC card.
- 84 live mobile insurance services available. Bima (Milvik) and MicroEnsure are the largest, partnering with mobile money providers to offer life, health and accident cover.
- 62 per cent of Kenyans are active mobile money account holders.

2014

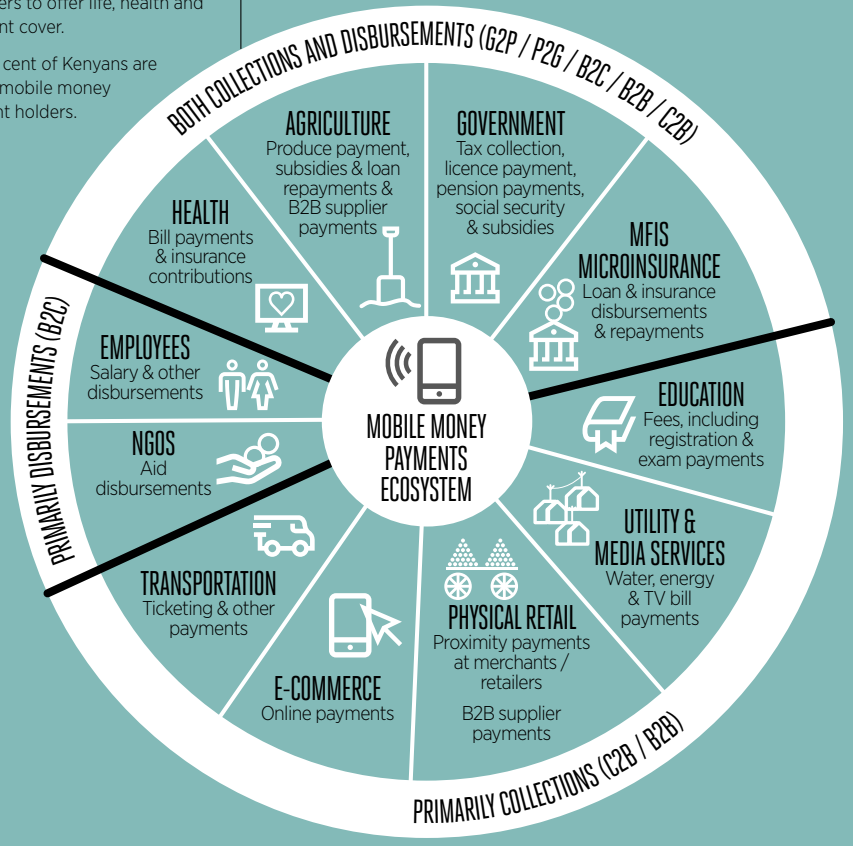
- Code of Conduct for Mobile Money Providers endorsed by 15 operator groups, which account for more than half of all 103 million active accounts globally.
- Number of unbanked globally falls by 500m to two billion. Mobile money playing central role in advancing financial inclusion, particularly in Sub-Saharan Africa.
- Nearly a third of providers now offer their mobile money service through an app (as well as USSD and/or STK), but transaction volumes processed via apps remain low.

2015

- Mobile money becomes a large income source for agents: the top 10 providers paid out 54 per cent of revenues to 925,000 agents as commissions in June 2015 alone.
- Nearly half of all mobile money services now interconnected with banks. A link between banked and unbanked people established.
- 12 billion mobile money transactions made in 2015—double the amount PayPal facilitated in 2015, globally.
- New payments bank regulation launched in India. The Reserve Bank of India grants 11 'in principle' licences.

2016

- 53 mobile money providers (covering 170 million registered accounts) are now partnered across national borders, allowing customers to send money across 46 corridors spanning 21 countries.
- Account-to-account interoperability live across 15 markets, and customers are able to send funds across mobile money accounts on different networks. Tanzania shares lessons in GSMA case study.
- Humanitarian organisations using mobile money to digitise cash transfers in response to multiple displacement crises: Iraq, Afghanistan, Pakistan, Jordan, Uganda, Rwanda, and DRC.
- Revenues from largest mobile money providers grow from strength to strength, surpassing US$ 1 billion.
- A shared mobile money platform, BiM, is launched in Peru, representing a collaborative effort led by the association of banks. Source: https://cfi-blog.org/2016/02/17/bim-the-first-fully-interoperable-mobile-money-platform-now-live-in-peru/



IN 2016
52 MARKETS
HAD ENABLING REGULATION

35 SERVICES WITH OVER
1 MILLION
ACTIVE ACCOUNTS
2016

Mobile money industry lessons

Mobile money offers a solution to a persistent development challenge

For generations, conventional banking excluded large segments of society that could not carry the account balances that make banks profitable, or provide the proof of identity required to open an account. While microfinance efforts supported by the development community had registered important gains, many were unable to reach the scale required to address a problem of the magnitude of financial exclusion.[49] Enter mobile money, which redefined the economics of banking the poor by leveraging wide-reaching agent networks, affordable feature phones, and mobile network connectivity to serve mass markets in a commercially sustainable way.

Mobile money makes good business sense

For mobile operators, mobile money was initially viewed as a tool for increased customer loyalty and usage of core mobile services—like voice calls and SMS messages. Additionally, savings on the distribution of airtime can be significant as customers shift to purchasing their airtime digitally instead of through scratchcards. For example, 59 mobile operators in our 2016 Global Adoption Survey sample disclosed the percentage of total airtime sold through mobile money. The majority (76 per cent) reported selling more than one per cent of airtime through mobile money, and 34 per cent of respondents reported selling more than 10 per cent of their airtime through mobile money. By contrast, the majority of mobile operator respondents in 2014 sold less than one per cent of their total airtime via their mobile money services.

However, direct revenues from customers and corporate transaction fees have increasingly become the most important, making the services commercially attractive for investment. Of course, not all mobile money deployments are profitable, but nearly a quarter of respondents reported doubling their revenues between September 2015 and June 2016. Collectively, the top mobile money providers surpassed US$ 1 billion in revenues in 2016.[50]

Spotlight: Mobile operators experience impressive revenue growth in recent years

- Vodacom reported that M-Pesa in Tanzania accounted for 22.6 per cent of service revenue in FY2015.[51]
- Millicom Group reported that total revenue from mobile financial services in nine markets in Sub-Saharan Africa and Latin America and the Caribbean increased by 23.1 per cent in Q3 2015 from Q3 2014.[52]
- MTN Group reported that MTN Mobile Money revenue increased by 55.8 per cent in 2015, accounting for 16.8 per cent of its total revenue in Uganda, 6.0 per cent in Ghana, and 6.2 per cent in Rwanda.[53]
- In its FY2015 report, Orange announced an increase of 64 per cent in revenues generated by mobile money as compared to the previous year.[54]

[49] Chowdhury, Anis. (2009). "Microfinance as a poverty reduction tool—A critical assessment." United Nations, Department of Economic and Social Affairs (DESA) Working Paper, (89)
[50] GSMA analysis of operator annual reports.
[51] Vodacom Group Limited, (2015). *Integrated Report for the year ended 31 March 2015.*
[52] Frydrych, J. (2016). *Mobile Money Revenues and investments in 2015: A look at the data.* GSMA.
[53] MTN Group Limited, (2016). *MTN Group Limited results overview for the year ended 31 December 2015.*
[54] Frydrych, J. (2016). *Mobile Money Revenues and investments in 2015: A look at the data.* GSMA.

Mobile money thrives on enabling regulation

"Regulators must think beyond the conventional brick and mortar delivery channels to enhance financial inclusion. It is critical to embrace technological innovations and provide a supportive policy environment to nurture the growth of MFS in a safe manner. Careful assessment of risks through the "test and learn" approach, along with the creation of products and systems that lower the risk profile of such services, will allow enhanced access to financial services through innovation while maintaining systemic stability."

Professor Njuguna S. Ndung'u,
former Governor of the Central Bank of Kenya,
reflecting in 2013 on the regulatory journey in Kenya[55]

Technological and operational innovation have been central to the mobile money story. Often overlooked, however, is the role that regulatory innovation has played. The idea of a 'test-and-learn' approach to the regulation of financial services was once considered bold and risky. The same is true of a functional approach to regulation, in which non-banks could be licensed to provide payment services, or the ability to delegate account opening and cash-in and out functions to agents.[56]

Today, these are growing emerging market norms. The majority of public and private sector stakeholders recognise that allowing non-banks, whether retailers, mobile operators, or others, to issue mobile money is a necessary step toward greater financial inclusion. Similarly, the concept of a proportional risk-based approach to customer registration requirements has become a widely accepted norm, one endorsed by international standard-setting bodies such as the Financial Action Task Force and the Bank for International Settlements.[56]

The importance of enabling regulation is supported by data. For instance, 12 of the 14 fastest-growing mobile money services in 2012 were in markets with enabling regulatory frameworks.[57] In 2015, researchers at the University of Chicago found that heavy regulation—particularly limitations on the role non-banks can play, disproportionate know-your-customer requirements, and excessive restrictions on the agent network—was generally fatal to mobile money services.[58] In 2016, the GSMA, in partnership with a Harvard Business School professor and an independent economist, conducted the first-ever large sample quantitative analysis of the factors making mobile money successful, and reached similar conclusions on the importance of enabling regulation.[59]

Reflecting this growing consensus, 52 out of 92 countries with mobile money services today have an enabling regulatory approach.[60] Sub-Saharan African regulators have been most progressive in this regard: the majority of markets with live mobile money services in the region have enabling regulation (30 out of 40).[61] The Central Bank of West African States, or BCEAO, in 2006, became one of the first regulators in the world to allow the issuance of e-money by non-bank providers. The regulatory framework was subsequently updated in 2015 to best meet the goals of financial inclusion, stability and integrity.[62] Also in pursuit of these goals, East African regulators took a different journey. Regulators in Kenya and Tanzania encouraged innovation and growth while preserving the soundness of the financial sector, monitoring mobile money services closely before introducing appropriate regulatory frameworks. [63] [64]

[55] di Castri, S. (2013). A conversation with Professor Njuguna Ndung'u, Governor of the Central Bank of Kenya, on the critical policy issues around mobile money. GSMA.
[56] See:
- FATF. (2012). *International Standards on Combating Money Laundering and the Financing of Terrorism & Proliferation, updated October 2016.*
- Committee on Payments and Market Infrastructures and World Bank. (2016). *Payment aspects of financial inclusion,* Bank for International Settlements.

[57] di Castri, S. (2013). *Mobile money: Enabling regulatory solutions.* GSMA.
[58] Evans, D. and Pirchio, A. (2015). *An Empirical Examination of Why Mobile Money Schemes Ignite in Some Developing Countries but Flounder in Most.* University of Chicago Coase-Sandor Institute for Law & Economics Research Paper No. 723.
[59] Naghavi, N., Shulist, J., Cole, S., Kendall, J. and Xiong, W. (2016). *Success factors for mobile money services: A quantitative assessment of success factors.* GSMA.
[60] The GSMA defines an 'enabling regulatory environment' for mobile money as one where the following criteria are met: (1) MNOs or their subsidiaries are able to obtain a licence directly to offer electronic money; (2) prudential requirements are proportional to the risks presented by the mobile money business; (3) mobile money providers are able to offer their services using a network of third party agents; (4) Know Your Customer requirements are tiered and risk-based to support the growth of low-value accounts; (5) regulations allow for a market-led approach to interoperability.
[61] Sub-Saharan African markets with enabling environments include: Benin, Botswana, Burkina Faso, Burundi, Democratic Republic of Congo, Côte d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger, Rwanda, Senegal, Seychelles, Sierra Leone, Somalia, Swaziland, Tanzania, Togo, Uganda, Zambia, and Zimbabwe. The Gambia became enabling in 2016.
[62] CGAP. (2016). *Market System Assessment of Digital Financial Services in WAEMU.*
[63] Muthiora, B. (2015). *Enabling Mobile Money Policies in Kenya: Fostering a Digital Financial Revolution.* GSMA.
[64] di Castri, S. and Gidvani, L. (2014). *Enabling mobile money policies in Tanzania.* GSMA.

Latin America and the Caribbean has seen the most improvement in its regulatory environment over the past five years. In 2012, regulation was enabling in just two markets. As of the end of 2016, regulation was enabling in six markets: Bolivia, Brazil, Guyana, Nicaragua, Paraguay and Peru. In Bolivia, regulators recently allowed non-banks to hold a settlement account at the central bank. This is highly innovative, as it allows mobile money providers, like Tigo Money, the ability to connect to the country's clearing and settlement network and integrate with the Bolivian banking system.[65] Furthermore, regulation in Colombia may soon become enabling as non-banks await licence approvals, and 2016 marked promising regulatory developments in El Salvador and Honduras.[66]

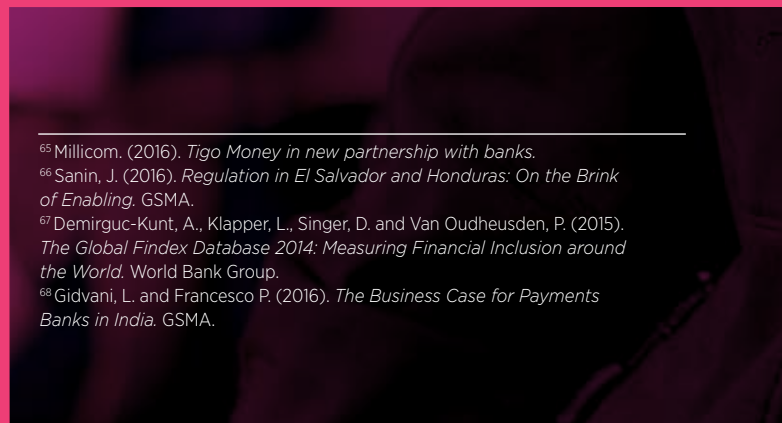
In Asia, enabling regulation is more prevalent in East Asia and Pacific, where 12 of the 16 mobile money markets have enabling regulation. Myanmar joined the ranks of markets with enabling regulation in 2016 and licensed its first service in the same year, unleashing a powerful opportunity for financial inclusion in a market where only 22.8 per cent of adults have an account.[67] In South Asia, just two of the seven markets have enabling regulation (Afghanistan and Sri Lanka). Notably, India's regulatory framework for mobile money has evolved significantly over the last decade, resulting in the creation of 'Payments Banks' under a new narrow banking framework uniquely suited for the Indian market. The mobile money industry is enthusiastic about the potential for the new Payments Banks in India to propel digital financial services as mainstream payments and savings providers.[68]

Spotlight on India: A bold and holistic approach to financial inclusion

The emergence of full-service mobile money deployments in India is one of the most recent and significant developments of the past decade. In late 2016, 15 months after in-principle licences were awarded by the Reserve Bank of India (RBI), the first of India's payments banks began operations. Neither full banks nor simple mobile money providers, payments banks are specialised institutions with a lower risk profile than a normal bank. They cannot lend on their own balance sheets and they face strict limitations on investing deposits. Yet, they represent a potentially game-changing development for the future of mobile money in India. Prior to their arrival, non-banks were restricted to either providing semi-closed wallets (in which money could enter but not be withdrawn from an account) or to serving as part of the distribution network of a bank. The introduction of payments banks allows non-banks and banks alike to offer a comprehensive suite of savings and payments services.

To be sure, payments banks will be entering a highly competitive and increasingly commoditised market for savings and payments products, joining new banks, government schemes, and specialised payments providers all vying for clients and transaction volumes. GSMA research has shown that, to reach profitability and ensure long-term viability, payments banks will need to pursue ecosystem opportunities and adjacent revenue streams (whether digital credit, insurance, or merchant payments), in addition to basic payments and savings services. Robust ongoing dialogue between payments providers and India's regulatory authorities will be essential to maintain the investment case and ensure requirements are proportionate, including with respect to ongoing capital requirements and the direct costs of account acquisition and maintenance.

The establishment of payments banks is just one of a myriad of bold steps being taken by the Indian government and regulators to digitally empower society and to transform India into a knowledge economy. As part of the Digital India programme, the Government has launched an open Application Programming Interface (API) policy, known as India Stack. India Stack is a set of open APIs for developers, which include the Aadhaar for Authentication (covering over 1 billion people), e-KYC documents, e-Sign (digital signature), Unified capitalize Payments Interface (UPI, for financial transactions) all of which are privacy protected. India Stack will enable governments, businesses, startups, and developers to leverage core digital infrastructure at a low cost, making services instantly available to a large part of India's 1.2 billion strong population.



[65] Millicom. (2016). *Tigo Money in new partnership with banks.*
[66] Sanin, J. (2016). *Regulation in El Salvador and Honduras: On the Brink of Enabling.* GSMA.
[67] Demirguc-Kunt, A., Klapper, L., Singer, D. and Van Oudheusden, P. (2015). *The Global Findex Database 2014: Measuring Financial Inclusion around the World.* World Bank Group.
[68] Gidvani, L. and Francesco P. (2016). *The Business Case for Payments Banks in India.* GSMA.

The Middle East and North Africa remains the region with the most non-enabling markets. None of the seven markets with live mobile money services in the region have enabling regulation.[69] Nevertheless, many of these markets are proactively exploring strategies to expand financial access. Morocco, Egypt, and Jordan have made commitments under AFI's Maya Declaration—a promising sign for future regulatory reform in the region.

After a decade of mobile money and a growing body of evidence on international best practice, regulators and policymakers may be more willing to embrace innovation and foster further growth of mobile money ecosystems.

Mobile money is a key part of the wider payments ecosystem

Early on in the mobile money journey—as early as the mobile money industry began to demonstrate its potential to reach the underserved—interoperability emerged as a topic of debate. Regulators, policymakers, international organisations called on providers to interconnect their platforms and to cooperate to expand the reach of agent distribution networks. It was the start of an ongoing dialogue around interoperability use cases, priorities, network effects, and competition drivers.

As the industry has prioritised specific interoperability use cases based on market conditions and commercial opportunities, both the commercial results and way forward are becoming clearer.

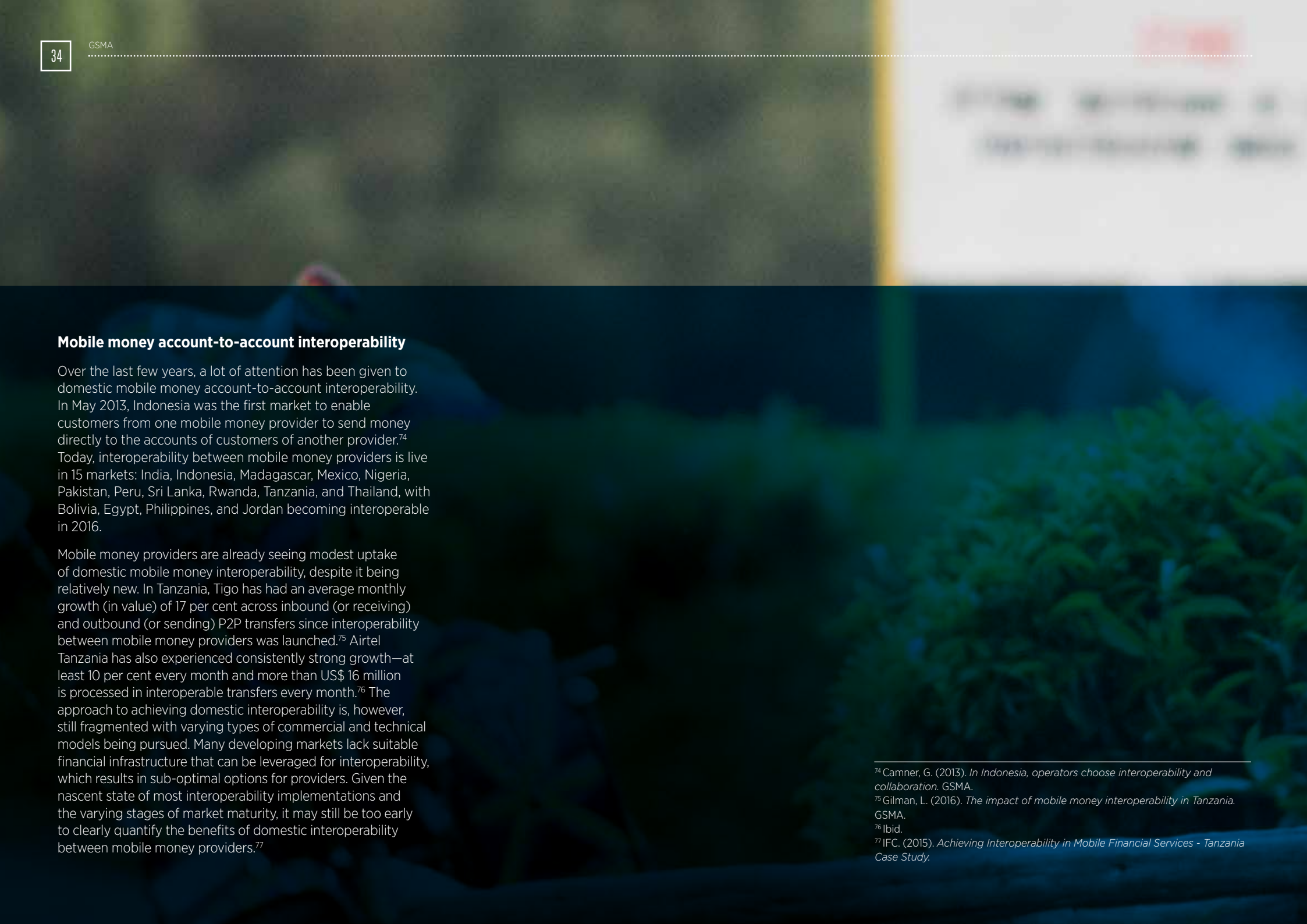
Mobile money-to-bank account interoperability

Mobile money-to-bank account interoperability has been a focus for providers in recent years. In 2016, 45 per cent of mobile money services were connected to at least one bank. From September 2015 to June 2016, mobile money-to-bank account transactions increased by more than 120 per cent amongst Global Adoption Survey respondents. Allowing mobile money users to transact directly with bank accounts has led to a greater diversity of use cases and increased access to other sources of funds for mobile money users. In Pakistan, for instance, the value of Interbank Funds Transfer (mobile money-to-bank transfers and vice versa) more than tripled between October 2014 and September 2015. The increase in transactions in Pakistan reflects the participation of mobile money operators in the 1LINK switch.[70]

Financial infrastructure to enable interoperability

Financial infrastructure—such as switches and payments schemes—can accelerate mobile money interoperability. However, many legacy systems are not yet suitable for mobile money integration. An appropriate governance structure, commercial model, and technical architecture to attract the participation of mobile money providers is critical.[71] In recent years, a willingness by institutional financial systems to facilitate direct access to mobile money providers has also been observed. In addition to the example of Tigo Money in Bolivia connecting directly to the country's Clearing and Settlement Management Corporation network,[72] the Mexican central bank has evolved its interbank payments system as the de facto clearing and settlement mechanism for low-value transactions, including mobile money.[73] As national payments infrastructure is traditionally optimised for high-value transfers, and participation is generally limited to banks, this is no small feat.

[69] Middle East and North Africa mobile money markets include: Egypt, Iraq, Iran, Jordan, Morocco, Qatar and Tunisia.
[70] Nautiyal, A. (2016). *Branchless Banking Interoperability in Pakistan: A Promising Start.* GSMA.
[71] Gilman, L. (2016). *The impact of mobile money interoperability in Tanzania.* GSMA.
[72] Millicom. (2016). *Tigo Money in new partnership with banks.*
[73] Almazan, M. (2015). *National infrastructure to support mobile money interoperability: Lessons from Mexico's Inter-bank Payments System (SPEI).* GSMA.



Mobile money account-to-account interoperability

Over the last few years, a lot of attention has been given to domestic mobile money account-to-account interoperability. In May 2013, Indonesia was the first market to enable customers from one mobile money provider to send money directly to the accounts of customers of another provider.[74] Today, interoperability between mobile money providers is live in 15 markets: India, Indonesia, Madagascar, Mexico, Nigeria, Pakistan, Peru, Sri Lanka, Rwanda, Tanzania, and Thailand, with Bolivia, Egypt, Philippines, and Jordan becoming interoperable in 2016.

Mobile money providers are already seeing modest uptake of domestic mobile money interoperability, despite it being relatively new. In Tanzania, Tigo has had an average monthly growth (in value) of 17 per cent across inbound (or receiving) and outbound (or sending) P2P transfers since interoperability between mobile money providers was launched.[75] Airtel Tanzania has also experienced consistently strong growth—at least 10 per cent every month and more than US$ 16 million is processed in interoperable transfers every month.[76] The approach to achieving domestic interoperability is, however, still fragmented with varying types of commercial and technical models being pursued. Many developing markets lack suitable financial infrastructure that can be leveraged for interoperability, which results in sub-optimal options for providers. Given the nascent state of most interoperability implementations and the varying stages of market maturity, it may still be too early to clearly quantify the benefits of domestic interoperability between mobile money providers.[77]

[74] Camner, G. (2013). *In Indonesia, operators choose interoperability and collaboration.* GSMA.
[75] Gilman, L. (2016). *The impact of mobile money interoperability in Tanzania.* GSMA.
[76] Ibid.
[77] IFC. (2015). *Achieving Interoperability in Mobile Financial Services - Tanzania Case Study.*

Spotlight on interoperability in Jordan: Lessons for the wider industry

At the beginning of 2016, Jordan became the first country in the Middle East and North Africa to implement interoperability of mobile money services. Over the past few years, the Central Bank of Jordan has developed a clear regulatory framework for mobile money and initiated the process to develop a National Financial Inclusion Strategy. These critical steps are putting Jordan on the forefront of financial inclusion efforts both in the region and globally.

However, the journey toward interoperability in Jordan has not come without difficulties. This case study identifies key success factors and challenges to the development of mobile money interoperability in Jordan:

- Dialogue between mobile money providers and regulators is key to ensure alignment in understanding the timing, benefits, costs, and risks of interoperability.
- Interoperability is only a means to an end and cannot by itself guarantee the success of mobile money if solid foundations are not in place, such as strong distribution networks or good customer experience.
- The choice of the technical solution to support mobile money interoperability has a direct impact on the cost structure and on the business model for mobile money providers.
- If mandated and introduced prematurely, interoperability could undermine early-stage investment incentives and increase operational complexity and risk, without advancing market growth.

Read more: Scharwatt, C. and Nautiyal, A. (2016). *The long road to interoperability in Jordan: Lessons for the wider industry.*

Cross-border interoperability

Beyond domestic interoperability, mobile money providers have demonstrated a strong appetite for cross-border interoperability, with 46 remittance corridors now active. These corridors continue to drive the price of sending remittances down, providing users increasingly competitive options for sending money internationally.[78] Finally, discussions around regional interoperability projects are aiming to create payment systems that connect all mobile money services and banks across a number of countries. For instance, the Southern African Development Community Bankers Association is currently in the early stages of planning to allow for mobile money connection to a central transaction hub. This could enable users to transact across all services and banks spanning 15 markets. Similar discussions are also taking place in the West African Economic and Monetary Union, as well as the East African Community.[79]

Interoperability continues to play a significant role in increasing the adoption of mobile money by providing customers the opportunity to transact with more users across more use cases, services, and markets. An important question for both the mobile money industry and the broader financial system is how mobile money will be integrated into existing payments infrastructure going forward. Full interoperability across all services and country corridors remains a long-term goal of the mobile money industry. How to achieve this in a commercially sustainable manner is a question that will continue to feature prominently in the dialogue between mobile money stakeholders.

[78] Farooq, S., Naghavi, N. and Scharwatt, C. (2016). *Driving a price revolution: Mobile money in international remittances.* GSMA.
[79] SADC Banking Association, (n.d.). *SADC Payments Project.*

Spotlight: Mobile money propels international money transfers

The number of international migrants has grown faster than the world's population,[80] surpassing 244 million people in the last decade.[81] Migrants are now sending an estimated US$ 581 billion in remittances to their families—three times the volume of official aid flows.[82]

In the early days, mobile money providers interested in international remittances facilitated 'North-South' flows, where mobile money was the channel for receiving remittances from developed countries. More recently, the industry has been experimenting with mobile money as both a sending and receiving channel for international remittances, allowing providers to target intra-regional corridors.

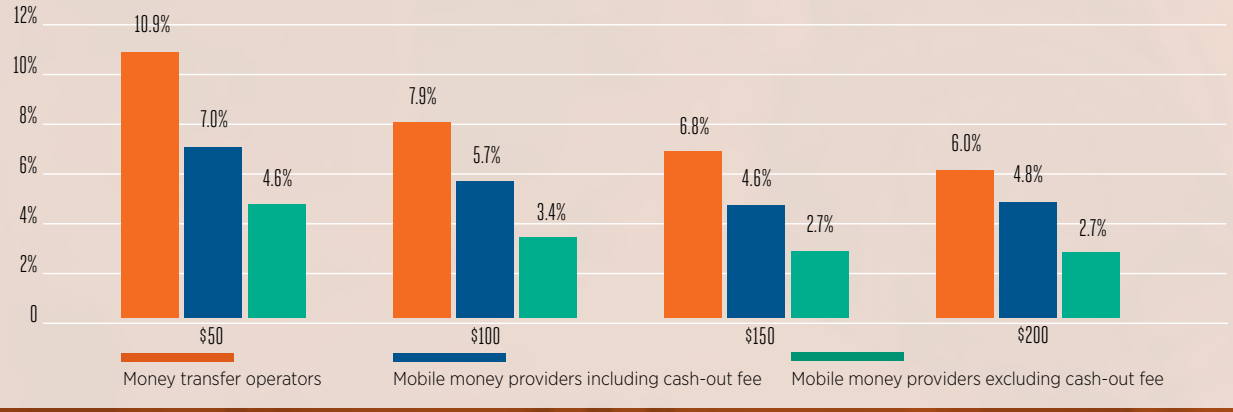
Early examples of using mobile money for sending international remittances were seen in the West African Economic Monetary Union, subject to a common regulatory framework that has supported the rapid growth of mobile money. In 2013, Orange launched international remittances for Orange Money customers in Côte d'Ivoire, Senegal, and Mali. By 2014, international remittances sent through Orange Money accounted for an impressive 24.7 per cent of all remittances reported by the World Bank between these three markets.[83] In early 2014, MTN and Airtel launched a landmark collaboration that allowed MTN Mobile Money customers in Côte d'Ivoire to transfer money to Airtel Money customers in Burkina Faso.

This was the first time in the region that two different operator groups interconnected their services to offer international remittances.[84]

More recently, uptake of mobile money for international remittances has been observed on a regional level. At the end of 2016, there were 46 live international remittance corridors across 21 countries where mobile money was both the sending and receiving channel. Most of these corridors are in Sub-Saharan Africa, but initiatives are also live between France and Côte d'Ivoire, Mali, and Senegal through Orange, as well as Qatar to the Philippines and Kenya through Ooredoo. Mobile money is also contributing to efforts to achieve UN SDG 10.c. This past year, GSMA research revealed that the cost of sending US$ 200 using mobile money is already less than three per cent in 34 country corridors, and it is less than two per cent in 15 country corridors.[85] Further, on average, the cost of international remittances using mobile money was more than 50 per cent lower, when recipients chose to forego cash-out fees by retaining their remittances in digital form[86] - and more than 20 per cent cheaper when incorporating cash-out fees.

[80] 244 million international migrants living abroad worldwide, new UN statistics reveal. (2016). *UN Sustainable Development Blog.*
[81] United Nations Population Division. (2015). *International migrant stock 2015.*
[82] World Bank. (2016). *Migration and Remittances Factbook 2016.*
[83] Scharwatt, C. and Williamson, C. (2015). *Mobile money crosses borders: New remittance models in West Africa.* GSMA.
[84] Ibid.
[85] Excluding cash-out fee. Source: Farooq, S., Naghavi, N. and Scharwatt, C. (2016). *Driving a price revolution: Mobile money in international remittances.* GSMA.
[86] Ibid.

Figure 8: Average remittances cost for global MTOs and mobile money providers (per cent, August 2015)



The journey is just getting started

With two billion people still excluded from the formal financial system, there is still a great deal that the mobile money industry can do to advance financial inclusion, and there are a number of challenges that will need to be confronted along the way.

Mobile money is still nascent in many markets

Notwithstanding the consistent growth of services such as bKash in Bangladesh, Orange Money in Côte d'Ivoire, or Tigo Money in Paraguay, almost two-thirds of the 277 live services have existed for five years or less. For many, the task of building a broad, efficient agent network is ongoing, as are efforts to secure the right partnerships to meet the varied needs of existing and potential customers. Accordingly, people in many countries are hearing of mobile money for the first time and slowly building the trust needed to exchange their physical cash for digital money.

Without sustained robust investment, success will elude some

While mobile money has proven it can be profitable and makes good business sense, getting there is far from painless. This business requires heavy operational expenditures, full buy-in from senior leadership, and a clear roadmap to expand the digital ecosystem. In the early phase, providers should expect to invest six to eight times the revenue units generated by mobile money, and break-even can be possible in three years.[87] Where investment is less, or regulatory compliance hurdles are high, that timeline is longer. Providers, particularly mobile operators, must weigh these decisions against pressing alternatives, such as the need to fund expanding network access. With the growth of new service launches plateauing, and approximately 2-4 per cent of services closing or merging yearly over the past five years, there are signs of movement toward a phase of consolidation.

Regulatory barriers persist in some markets

While regulators in more than half of mobile money markets have embraced an enabling regulatory framework, there are at least 41 countries[88] where regulatory barriers have discouraged or complicated the emergence of mobile money services. A conducive regulatory framework encourages competition and innovation, attracts investments from both banks and non-banks, and allows providers to focus on operational efficiency and ultimately accelerates financial inclusion. A recent GSMA study found that the total mobile money transaction value (normalised by money supply) was 5.4 percentage points higher in markets with enabling regulation, as compared to countries with non-enabling frameworks.[89]

New product development and the expansion of the mobile money ecosystem takes time

Over the past five years, most mobile money providers have successfully partnered with external organisations to provide everything from utility bill payments to humanitarian relief disbursements. They have done so in a bid to grow payments ecosystems and facilitate a transition from cash to digital payments—whether disbursements or collections. However, third party integration is not yet seamless, slowing the pace at which new product development can take place. In this respect, the industry is reaching an inflection point where harmonised application programme interface (APIs) and greater integration with national payments infrastructure stands to accelerate a new wave of growth and innovation.

A long reach has not been enough to include all rural customers

Over the last decade, mobile money providers have seen lower uptake by rural populations. Initially, mobile money was embraced by early adopters—a group which tended to be young, college educated, and salaried.[90] For instance, early adopters of M-Pesa were more likely to be based in urban areas, be male, and be characterised by higher levels of consumption and education.[91] Money transfers typically flowed from urban centers to rural areas in Kenya.[92] In contrast, those based in rural areas, with lower levels of education, consumption, and literacy, have tended to be late adopters of mobile money.[93] Network access also remains a challenge. Providing commercially viable services in areas with low population density and income often requires subsidisation by the state, network sharing, or other innovative solutions. While GSMA analysis of predominantly rural countries[94] found that providers have captured just 17 per cent of the addressable mobile money market, expanding coverage of GSM and broadband access has become a significant priority for governments and operators across emerging markets.[95]

[87] Almazan, M. and Vonthron, N. (2014). *Mobile money profitability: A digital ecosystem to drive healthy margins.* GSMA.
[88] GSMA analysis; please refer to the glossary for an overview of enabling regulation.
[89] Naghavi, N., Shulist, J., Cole, S., Kendall, J. and Xiong, W. (2016). *Success factors for mobile money services: A quantitative assessment of success factors.* GSMA.
[90] IFC. (2016). *Mobile Money Product Adoption Lifecycle.*
[91] Jack, W. and Suri, T. (2011). *Mobile Money: The Economics of M-PESA.*
[92] Morawczynski, O. and Pickens, M. (2009). *Poor People Using Mobile Financial Services: Observations on Customer Usage and Impact from M-PESA.* CGAP.
[93] Ibid.
[94] For this analysis, "rural" countries are defined as low-income markets where mobile money is live with greater than 30% GDP from agriculture. To control for the impact of regulation, markets without an enabling regulatory approach were removed from the analysis.
[95] Gilman, L., Shulist, J., de Dinechin, E. and de Lisle, M. (2015). *Spotlight on Rural Supply: Critical factors to create successful mobile money agents.* GSMA.

The opportunity to empower women through mobile money has not been fully realised

Mobile money has the potential to accelerate financial inclusion for women. However, there is a significant gender gap in money financial services. Data from the Global Findex 2014 shows that in low- and middle-income countries, women are 36 per cent less likely than men to use mobile money (see Figure 9). This represents a loss to society yet to reap the benefits of financially including women,[96] and a loss to mobile money providers, which fail to capture half of their markets.

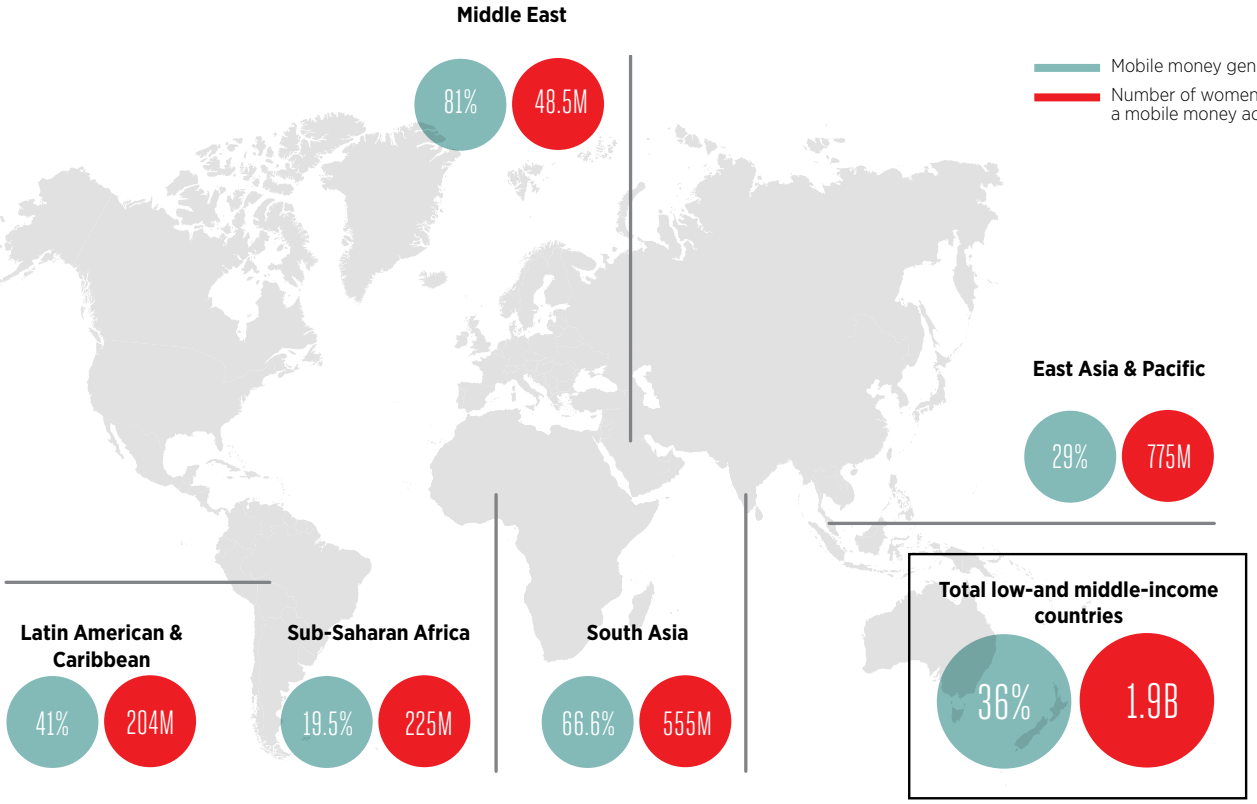
Mobile technology can help empower women and provide access to life-enhancing services. Owning a mobile phone makes it easier for women to use mobile money. However, research published by GSMA in 2015 estimated over 1.7 billion females in low- and middle-income countries do not own a mobile phone.[97] Women are often disproportionately affected by barriers to both access and use of mobile technology—studies highlight that fewer women than men own a mobile phone. Even when women do own a mobile phone, they are less likely to use it for transformative services such as mobile money, further widening the divide. There are strong economic incentives to address this issue. Closing the gender gap in mobile phone ownership and usage could unlock an estimated market opportunity for the mobile industry of US$ 170 billion in the period from 2015 to 2020.[98]

[96] Research has shown that when women use mobile money, they have more control over household finances, save time and money, and feel a greater sense of security, privacy, and independence. For more information, see GSMA mWomen (2013). *Unlocking the Potential: Women and Mobile Financial Services in Emerging Markets.*

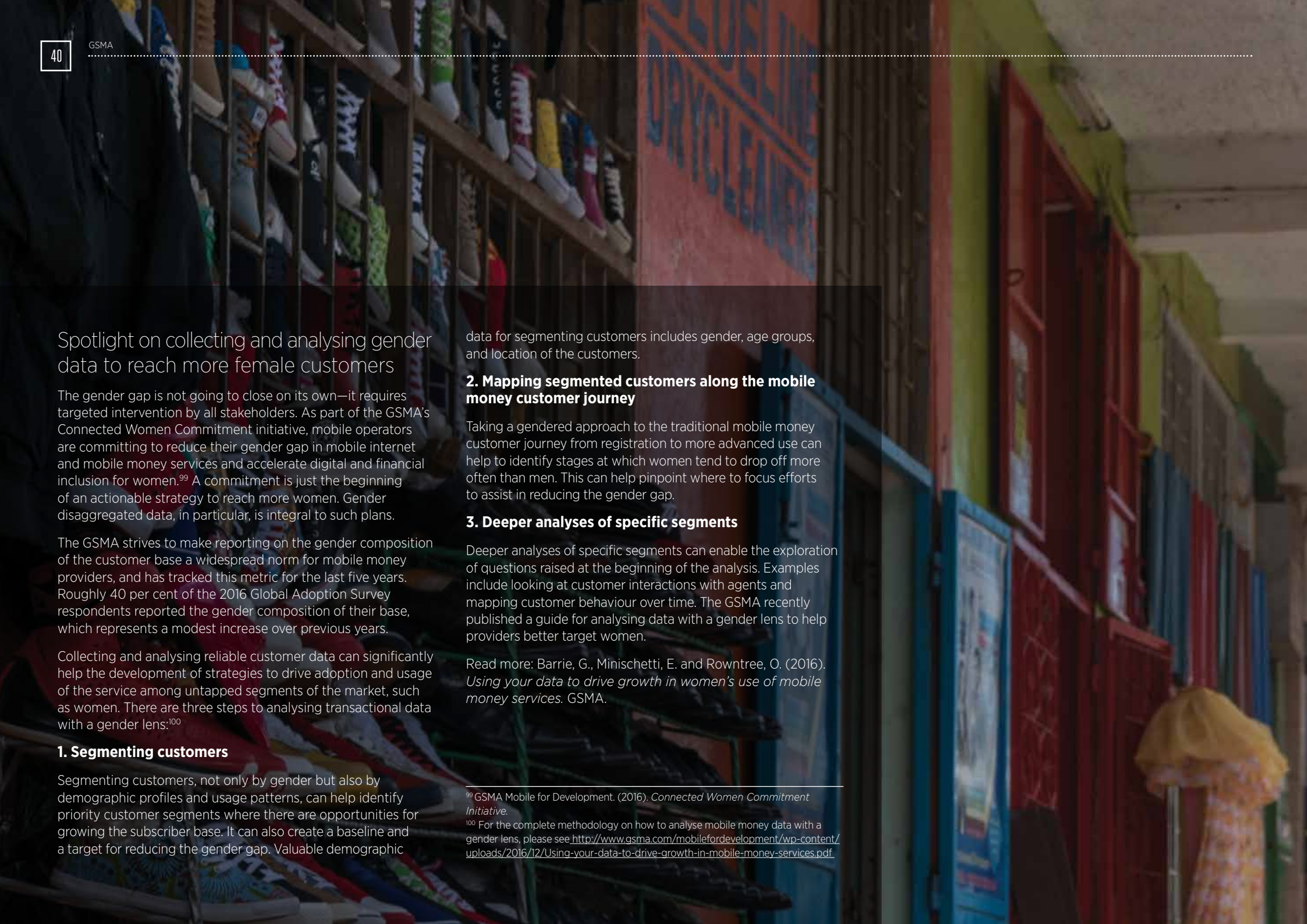
[97] GSMA Connected Women. (2015). *Bridging the gender gap: Mobile access and usage in low- and middle-income countries.*

[98] Pénicaud Scharwatt, C. and Minischetti, E. (2014). *Reaching half of the market: Women and mobile money.* GSMA.

Figure 9: In low- and middle-income countries, women are 36 per cent less likely than men to have a mobile money account



Mobile money gender gap = (% of men +15 with a mobile account - % of women +15 with a mobile account) % of men +15 with a mobile account



Spotlight on collecting and analysing gender data to reach more female customers

The gender gap is not going to close on its own—it requires targeted intervention by all stakeholders. As part of the GSMA's Connected Women Commitment initiative, mobile operators are committing to reduce their gender gap in mobile internet and mobile money services and accelerate digital and financial inclusion for women.[99] A commitment is just the beginning of an actionable strategy to reach more women. Gender disaggregated data, in particular, is integral to such plans.

The GSMA strives to make reporting on the gender composition of the customer base a widespread norm for mobile money providers, and has tracked this metric for the last five years. Roughly 40 per cent of the 2016 Global Adoption Survey respondents reported the gender composition of their base, which represents a modest increase over previous years.

Collecting and analysing reliable customer data can significantly help the development of strategies to drive adoption and usage of the service among untapped segments of the market, such as women. There are three steps to analysing transactional data with a gender lens:[100]

1. Segmenting customers

Segmenting customers, not only by gender but also by demographic profiles and usage patterns, can help identify priority customer segments where there are opportunities for growing the subscriber base. It can also create a baseline and a target for reducing the gender gap. Valuable demographic data for segmenting customers includes gender, age groups, and location of the customers.

2. Mapping segmented customers along the mobile money customer journey

Taking a gendered approach to the traditional mobile money customer journey from registration to more advanced use can help to identify stages at which women tend to drop off more often than men. This can help pinpoint where to focus efforts to assist in reducing the gender gap.

3. Deeper analyses of specific segments

Deeper analyses of specific segments can enable the exploration of questions raised at the beginning of the analysis. Examples include looking at customer interactions with agents and mapping customer behaviour over time. The GSMA recently published a guide for analysing data with a gender lens to help providers better target women.

Read more: Barrie, G., Minischetti, E. and Rowntree, O. (2016). *Using your data to drive growth in women's use of mobile money services.* GSMA.

[99] GSMA Mobile for Development. (2016). *Connected Women Commitment Initiative.*

[100] For the complete methodology on how to analyse mobile money data with a gender lens, please see http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/12/Using-your-data-to-drive-growth-in-mobile-money-services.pdf


PHOTOCOPY

Mobile money impact

The human impact

Over the last decade, mobile money has become one of the best tools to advance financial inclusion. Transparent and efficient mobile money services have significantly improved the financial lives and livelihoods of the unbanked and underserved. Industry research and analysis provide concrete evidence of these positive impacts, from being better able to weather financial shocks or sending money home to family more securely, to spending less time travelling to a bank or queuing to pay bills.

Today, mobile money is part of everyday life for millions of people. In 2016, more than 40 per cent of the adult population was using mobile money on an active[101] basis in eight countries—Gabon, Ghana, Kenya, Namibia, Paraguay, Tanzania, Uganda, and Zimbabwe. This is a big increase from just two countries in 2015 (Kenya & Tanzania).

MORE THAN

40%

OF THE ADULT POPULATION IN EIGHT COUNTRIES ACTIVELY USE MOBILE MONEY

The international development community has long argued that impact comes not only from access to payments and other financial services, but from sustained usage.[102] Globally, more than 117 million mobile money accounts were active on a 30-day basis in December 2016. A typical active mobile money customer makes more than 11 transactions a month, on average, and is beginning to diversify usage patterns—paying bills, receiving salary and government payments, and using mobile money to pay for goods. Airtime purchases, cash-in, P2P transfers, and cash-out still represent the most popular transaction types, as previously discussed.

These basic features, even on their own, can improve livelihoods; more so if usage continues to diversify. What is not captured in these transactions is the empowerment that comes with the account, the ability to store funds safely, and the new products and services that can now ride on the rails of the mobile money ecosystem.

The academic community has closely monitored the development of mobile money over the last decade, and has produced a healthy body of evidence on the impact of mobile money at various levels.[103] A large proportion of the impact data amassed thus far comes from Sub-Saharan Africa—particularly East Africa, where mobile money has a longer history and maturity. The effects highlighted in these studies are likely to spread as mobile money services in other regions mature and as more households around the globe experience corresponding gains in well-being.

[101] 90-day basis.
[102] Baijal, H. (2013). *Financial Inclusion: Running The Last Mile.* CGAP.
[103] Academic consortiums include the Abdul Lateef Jameel Poverty Action Lab (J-PAL) at the Massachusetts Institute of Technology and Innovations for Poverty Action (IPA), among others.

Figure 10: A month in the life of an average active mobile money customer in 2016

CASH-IN

2.1 Transactions (per month)
US$26.9 / transaction
(average value per transaction)

BULK DISBURSEMENT

0.2 Transactions (per month)
US$37.9 / transaction
(average value per transaction)

CASH-OUT

1.6 Transactions (per month)
US$32.0 / transaction
(average value per transaction)

BILL PAYMENT

0.8 Transactions (per month)
US$12.2 / transaction
(average value per transaction)

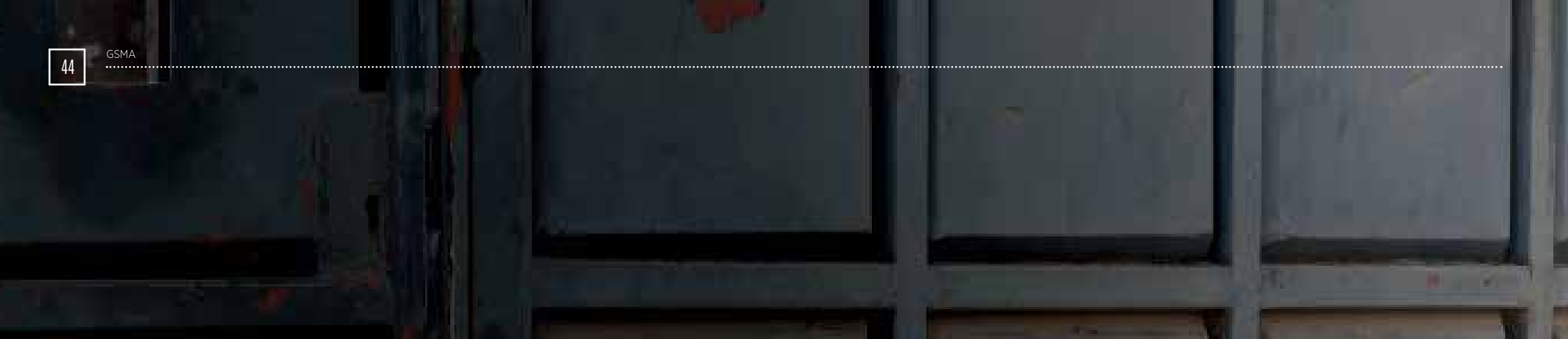
AIRTIME TOP-UP

4.5 Transactions (per month)
US$1.0 / transaction
(average value per transaction)

MERCHANT PAYMENT

0.4 Transactions (per month)
US$10.3 / transaction
(average value per transaction)

P2P Transfer
1.5 Transactions (per month)
US$38.6 / transaction
(average value per transaction)



More resilient households

Financial resilience is the ability to withstand unexpected life events that affect one's income or assets, such as job loss, health problems, or a natural disaster. In Uganda, research has shown that the per capita consumption of rural households increased by 72 per cent after the adoption of mobile money.[104] This was because they were able to receive remittances in higher amounts, more often, and from more people than rural households that did not adopt mobile money.[105] In Kenya, when households were hit by a negative income shock, such as a health issue, those that did not use mobile money suffered a seven per cent drop in consumption.[106] Here, as in Uganda, an increase in remittances had a similarly positive effect.[107] Most strikingly, recent research has shown that access to M-Pesa has lifted 194,000 households (or two per cent of households) in Kenya out of poverty.[108]

Improved health

As poverty and health are closely linked, financial resilience can lead to better health outcomes for poor and underserved people.[109] This happens at both the systems level and at the individual level in mutually reinforcing ways. Mobile money is being used to improve the efficiency of healthcare in many ways: to disburse salary payments or incentive payments for health workers, collect health insurance premium payments, allow people to save for future health costs through a dedicated health savings account, make payments for emergency care transportation, and more.[110] For example, Pathfinder Kenya introduced mobile money for all operational and community health worker stipend payments in 2012. Since this transition, it has reported improved health outcomes, increased transparency and reduced leakage and waste of payments.[111] In Tanzania, Comprehensive Community-Based Rehabilitation (CCBRT) launched their "Text to Treatment" programme for women requiring maternal healthcare services. Ambassadors in rural communicates arrange transportation for patients and receive travel costs via M-Pesa.[112] Since the programme was launched, more than 2,000 women with birth canal damage have been treated and, in 2014, more than 80 per cent of patients with this condition treated at CCBRT and associated facilities were referred by ambassadors using M-Pesa.[113]

[104] Munyegera, G. and Matsumoto, T. (2014). *Mobile Money, Remittances and Rural Household Welfare: Panel Evidence from Uganda.* National Graduate Institute for Policy Studies.
[105] Ibid.
[106] Jack, W. and Suri, T. (2014). *Risk Sharing and Transactions Costs: Evidence from Kenya's Mobile Money Revolution.*
[107] Ibid.
[108] Suri, T. and Jack, W. (2016). *The long-run poverty and gender impacts of mobile money. Science,* 354(6317), pp.1288-1292.
[109] WHO. (n.d.). *Poverty and health.*
[110] USAID (2013). *Mobile Money for Health Case Study Compendium.*
[111] Ibid.
[112] Ibid.
[113] Ibid.

Greater personal safety and security

A growing body of research suggests that when a society uses less cash, the rate of crime goes down and the sense of personal security goes up.[114] Just three months after the launch of Safaricom's M-Pesa, Vodafone reported early anecdotal evidence that customers were storing value for personal safety and security reasons, and for emergencies.[115] Research later confirmed this, citing reasons for using M-Pesa as ease of use, safety, and emergencies.[116]

More time, fewer costs

It has been shown that when government payments are digitised, customers save both time and costs. For example, Rwanda's e-government platform, Irembo, has reduced the time to complete a birth registration from more than six hours to as little as 40 minutes.[117] In Tanzania, the day after mobile money could be used to pay an annual vehicle licence fee, the time it took to do this dropped from one day to less than an hour.[118] In Pakistan, passport application payments via mobile money reduced a day of travelling and queuing to a matter of minutes.[119] In Niger, recipients of a social protection programme who received disbursements via mobile money incurred significantly fewer costs than those who received them in cash. Those receiving cash travelled just over four kilometres on average to collect their disbursement, while those who received their disbursement through mobile money travelled less than one kilometre on average.[120]

Mobile money is also being used to distribute government salaries, which can have a substantial impact on income and quality of life for civil servants. For teachers in rural Nimba County in northern Liberia, receiving salary payments via mobile money eliminated the time they had to spend away from their classrooms to travel to collect their salaries, and reduced the costs of receiving their salaries.[121] Previously, teachers spent 15 per cent of their monthly salary just to collect their paycheque.[122]

New sources of income

As digital transactions have become more routine, mobile money has created opportunities for entrepreneurs in emerging markets to become agents. By 2016, the number of active agents had soared to 2.3 million globally, with significant growth in agent activity in regions such as South Asia and East Asia and Pacific. Although some agents shifted their business activity from airtime sales to mobile money, the net gain in new income sources is sizeable, and the percentage of commissions mobile operators pay their agents is revealing. A GSMA analysis of revenues for the top 10 mobile money providers in 2015[123] found that 54 per cent of revenues were paid out as agent commissions, helping to ensure that local businesses and entrepreneurs are supported by the mobile money ecosystem.[124] Revenue for this group was around US$ 1.2 billion, with more than US$ 650 million paid directly to approximately 925,000 mobile money agents last year.

[114] The Economist (5 April 2014). *Less coin to purloin: A cashless economy leads to a safer society.*
[115] Jack, W. and Suri, T. (2011). *Mobile Money: The Economics of M-PESA.*
[116] Dalberg. (2016). *Global Landscape Study on Digitising P2G Payments.* Karandaaz Pakistan.
[117] Ibid.
[118] Shulist, J. (2016). *Person-to-government payments in Pakistan – what does the current landscape look like?.* GSMA.
[119] Aker, J., Boumnijel, R., McClelland, A. and Tierney, N. (2012). *Zap it to Me: The Impacts of a Mobile Cash Transfer Program.*
[120] USAID & mSTAR, (2016). *Mobile Salary Payment Factsheet.*
[121] Ibid.
[122] Ranked by 90-day active customer accounts.
[123] GSMA. (2016). *2015 State of the Industry Report on Mobile Money.*

Spotlight on mobile money and its impact on the Sustainable Development Goals

"Financial inclusion is about human development and empowerment. Financial inclusion gives people the means to improve their own lives."

Her Majesty Queen Máxima of the Netherlands, United Nations Secretary-General's Special Advocate for Inclusive Finance for Development[125]

Launched in January 2016, the United Nations Sustainable Development Goals (SDGs) aim to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind. Today, the mobile money industry is directly contributing to 11 of the 17 SDGs.

[125] Klapper, L., El-Zoghbi, M. and Hess, J. (2016). *Achieving the Sustainable Development Goals: The Role of Financial Inclusion.* CGAP.

SDG 1 – No Poverty:

By providing the poor with the financial services they need to make investments and manage unexpected expenses, the mobile money industry is helping to eliminate extreme poverty. The industry is also contributing to job creation, entrepreneurship, and the growth and stability of the financial system in many markets, all of which help to reduce poverty. Recent estimates found that access to M-Pesa has lifted 194,000 households in Kenya out of poverty since its inception in 2007.[126]

SDG 2 – Zero Hunger:

Access to financial services can help small agricultural producers increase crop productivity by facilitating the purchase of equipment or agricultural inputs, upgrades to more productive farming practices, digitising value-chain payments, or the purchase of insurance. Partnerships have been formed between agricultural organisations and mobile money providers in numerous countries—Côte d'Ivoire, Kenya, Pakistan, and Uganda—where a range of beneficial mobile financial services are offered to those working in agricultural industries.

SDG 3 – Good Health and Wellbeing:

Financial services can help individuals to successfully manage their own health and that of their family, by giving them a greater ability to track medical expenses, save income, receive remittances from friends and family in times of crisis, and purchase health insurance. In India, Ghana, Kenya, Mali, Paraguay, Senegal, Sri Lanka, and elsewhere, mobile money providers are partnering with health service providers—predominantly insurance providers—to offer these services to people without a formal bank account.

SDG 4 – Quality Education:

In several markets, mobile money providers are working with primary and secondary schools, as well as universities (either directly or through the Ministry of Education), to digitise the payments of registration fees, tuition fees, and exam fees. Digital payments via mobile money are helping schools to better manage their finances, receive tuition payments on time, and even pay teacher salaries.[127] This has resulted in cost and operational efficiencies and greater transparency.

SDG 5 – Gender Equality:

Financial services help women to empower themselves economically. It is currently estimated that 42 per cent of women globally are not integrated into the formal financial system.[128] The mobile money industry is helping to give women greater control over household finances, helping them to access credit to start or expand businesses, relieving them of the insecurity associated with carrying cash, and enabling greater privacy.

SDG 6 – Clean Water and Sanitation & SDG 7 – Affordable and Clean Energy:

More people in the developing world have access to mobile phones than basic services such as electricity, water, and sanitation. The mobile money industry has been a key enabler of the rapidly expanding pay-as-you-go sector, a new industry that is facilitating better access to water and services through a lease-to-own model. More than 30 countries have pay-as-you-go models that provide off-grid energy in exchange for ongoing payments, and many of these companies are partnering with mobile money providers to facilitate the timely and secure collection of payments.

SDG 8 – Decent Work and Economic Growth:

By employing agents to register customers and perform cash-in and cash-out services, the mobile money industry has created a new source of income for many in the developing world. In June 2015, the top 10 mobile money providers paid out 54 per cent of their revenues (US$ 650 million) as commissions to their 925,000 agents. Mobile money has also been a catalyst for local business and entrepreneurship—important in developing markets, where formal small and medium-sized enterprises contribute up to 45 per cent of employment and 33 per cent of GDP. [129]

SDG 9 – Industry, Innovation and Infrastructure:

The digitisation of payments and access to credit services via mobile money have both led to the emergence of new industries, innovative practices, and even infrastructure. Many businesses now rely on mobile money providers to secure timely payment for goods and/or services. The pay-as-you-go solar industry, now operating in 30 countries, is just one example of this. Access to credit services via mobile money is also helping micro and small businesses to flourish.

SDG 10 – Reduce Inequalities:

High unemployment rates mean that economic migration is common across much of the developing world. Migrant workers tend to earn low incomes and send some or all of the money they earn to relatives back home, many of whom rely on remittances as an important source of income. The cost of sending remittances is often high relative to income. Lower costs mean that migrants and their relatives can keep more money in their pockets. Recent findings show that sending international remittances from a mobile money account is, on average, 50 per cent cheaper than doing so via a global money transfer, underscoring the role that the service is playing in making remittances more affordable.[130]

SDG 17 – Partnership for the Goals:

Mobile money providers are partnering with a large number of businesses, governments, and NGOs across a range of sectors to facilitate the transition to digital payments. Ultimately, all partners benefit—mobile money providers increase the sustainability of their operations, and businesses, governments, and NGOs benefit from the greater efficiency, transparency, and security that digital payments offer.

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[126] Suri, T. and Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science,* 354(6317), pp.1288-1292.

127 Braniff, L. (2016). *Digital Finance and Innovations in Financing for Education.* CGAP.

[128] Klapper, L., El-Zoghbi, M. and Hess, J. (2016). *Achieving the Sustainable Development Goals: The Role of Financial Inclusion.* CGAP.

[129] World Bank. (2015). *Small and Medium Enterprises (SMEs) Finance.*

[130] Farooq, S., Naghavi, N. and Scharwatt, C. (2016). *Driving a price revolution: Mobile money in international remittances.* GSMA.

The economic impact

When citizens gain access to life-enhancing financial products and services, they are able to manage financial setbacks and shocks and, ultimately, transition out of poverty. This ripple effect extends beyond their households and communities—whole economies experience many positive impacts when digital financial services are embraced. Better access fuels economic growth by raising national income through increased savings and investments for households and small and medium enterprises, injecting formal savings into the system, diversifying the capital base, and providing stability during downturns.[131]

At the economic level, mobile money has helped governments to increase transparency and efficiency, contributed to greater agricultural productivity and entrepreneurial performance, helped to formalise the informal economy, and contributed to a stronger banking sector.

Mobile payments increase transparency and boost government revenues

Over the past decade, mobile money has helped to make public utility payments (known as person-to-government, or P2G) vastly more efficient and cost-effective. In Tanzania, the Dar es Salaam Water and Sewerage Corporation enabled water payments via mobile money in 2009. By 2013, mobile money payments had increased utility revenues by US$ 45,000 per month.[132] Mobile payments for water services have improved revenue collection, reduced losses, and disrupted the monthly billing and payment paradigm, allowing households to pay when, where, and how they want.[133]

The cost efficiencies and commercial growth facilitated by digital payments via mobile money helps to strengthen public sector budgets, facilitating more efficient investment and contributing to a more effective state.

Spotlight: Innovation drives mutually beneficial partnerships in energy, water, and sanitation

Lack of access to reliable energy, improved water sources, and basic sanitation facilities is an everyday reality in emerging markets. Just 62 per cent of the rural population in least developed countries has access to improved water sources,[134] and 1.2 billion people worldwide remain without access to electricity, primarily in Africa and Asia.[135] Mobile technology is supporting product and service delivery of energy, water, and sanitation in many ways[136] and, in recent years, mobile money itself has been used to improve the efficiency of bill payments and offer pay-as-you-go products.

Pay-as-you-go (PAYG) solar providers, offering lease-to-own products that can be paid for via mobile money, are becoming some of the largest mobile money bill pay recipients: in Sub-Saharan Africa, Fenix International was the third largest bill pay account by transaction volumes for MTN Uganda,[137] while PEG in Ghana has become the biggest biller for MTN Mobile Money, outside of key government services and urban utilities.[138]

There are also early signs of increased financial inclusion with new customers signing up to mobile money services to access PAYG solar services: in Rwanda, 20 per cent of Mobisol's customers using the entrepreneurial kit were new MTN Mobile Money customers.[139]

In the Kayole Soweto settlement on the outskirts of Nairobi, the Nairobi City Water and Sewerage Company (NCWSC) allows residents to pay their water bills with mobile money, and has also provided subsidies through their Maji Mashinani programme to enable poorer households to be connected to the piped water networks.[140]

In South Asia, BRAC is using mobile money to provide loans to procure basic sanitation products like latrines and water systems to rural women in Bangladesh. BRAC has estimated that approximately 50 per cent of the recipients of the loans were entirely new customers to mobile money.[141] Beyond strengthening sanitation facilities, this service empowers women with financial services. When women thrive, businesses and economies thrive.[142]

[131] Alliance for Financial Inclusion. (2010). *AFI response to G20.*
[132] Omary, M. (2013). *Dawasco hails M-Pesa billing.* The Citizen.
[133] Krolikowski, A., Fu, X. and Hope, R. (2013). *Wireless Water: Improving Urban Water Provision Through Mobile Finance Innovations.* University of Oxford.
[134] An improved water source by nature of its construction or through active intervention, is protected from outside contamination. Source: World Health Organization & UNICEF. (2015). *Progress on sanitation and drinking water – 2015 update and MDG assessment.*
[135] International Energy Agency. Energy Access Database.
[136] The GSMA Mobile for Development Utilities programme has identified five key channels to support access to energy and water services. Learn more: *http://www.gsma.com/mobilefordevelopment/programmes/m4dutilities/annual-report*
[137] Shah, R. (2015). *Fenix International: Scaling Pay-as-you-go Solar in Uganda.* GSMA.
[138] Cohen, I. (2016). *PEG Ghana: Licensing Solar-as-a-Service in a New Market.* GSMA.
[139] Cohen, I. (2016). *Mobisol: Pay-as-you-go Solar for Entrepreneurs in Rwanda.* GSMA.
[140] World Bank. (2015). *Leveraging Water Global Practice knowledge and lending: Improving services for the Nairobi water and sewerage utility to reach the urban poor in Kenya.*
[141] Forthcoming GSMA Mobile for Development Utilities blog post.
[142] Sibthorpe, C. (2016). *How a mobile can transform a woman's life.* GSMA Connected Women.

In several markets, mobile money providers are working with primary and secondary schools, as well as universities (either directly or through Ministries of Education), to digitise payments for registration fees, tuition fees, and exam fees.

The most noteworthy effort in this respect has been the school fees payment initiative in Côte d'Ivoire. In 2011, a public-private collaboration between the Ministry of Education and mobile money providers digitised school registration fees for secondary school students. Customer uptake has been rapid: in the 2014–15 school year, 94 per cent of Côte d'Ivoire's secondary school students paid their fees via mobile money,[143] and the following school year this rose to 99.3 per cent.[144] Not only were lost payments, fraud, and theft drastically reduced, but the Ministry of Education was also better able to manage annual budgets because mobile money allowed the government to collect fees earlier in the year.[145]

"Because of the digitisation of payments, school fees are now being collected in full, much earlier in the year. Collecting more funds, earlier, means our education establishments have the money they need to function properly at the start of the school year, something which was previously a struggle.

This facilitates better learning conditions for our students and better working conditions for our teachers. Indeed, parents also benefit greatly, needing to spend less time away from income-generating activities to have to stand in long queues to make cash payments."

Mr. Gninhoyo Coulibaly,
Assistant Director of Information Systems,
Ministry of Education, Côte d'Ivoire[146]

Digitising government-to-person (G2P) payments can also bring greater savings for governments by reducing the security and handling costs associated with paying people in cash. In Niger, using mobile money for a government transfer programme decreased administration costs by 20 per cent over just one year.[147] In Liberia, adding mobile money to the government's current payment system could provide net benefits of more than US$ 22.5 million per year, thanks to potential productivity gains and cost savings from government travel.[148]

[143] Frydrych, J., Scharwatt, C., and Vonthron, N. (2015). *Paying school fees with mobile money in Côte d'Ivoire: A public-private partnership to achieve greater efficiency. GSMA.*
[144] Frydrych, J. (2016). *Mobile money facilitates 1.7 million school fee payments in Côte d'Ivoire.* GSMA.
[145] Frydrych, J., Scharwatt, C., and Vonthron, N. (2015). *Paying school fees with mobile money in Côte d'Ivoire: A public-private partnership to achieve greater efficiency.* GSMA.
[146] Frydrych, J. (2016). *Mobile money facilitates 1.7 million school fee payments in Côte d'Ivoire.* GSMA.
[147] Aker, J., Boumnijel, R., McClelland, A. and Tierney, N. (2012). *Zap it to Me: The Impacts of a Mobile Cash Transfer Program.*
[148] Hasselback, C. (2015). *Digitizing Payments One Cabinet at a Time.* ICTworks.

Greater agricultural productivity and entrepreneurial performance

In low- and middle-income countries, agriculture employs 1.3 billion people and can contribute up to 35 per cent of a country's GDP.[149] However, the financial access gap in rural areas, where 53 per cent of the population live, suggests that the majority of smallholder farmers operate in a cash economy.[150] Equipping smallholder farmers with mobile money, and digitising agricultural payment streams can unlock significant value.

Mobile money users have more productive crops, market a larger proportion of their outputs, and have higher profits than those who do not use the technology.[151] In Kenya, smallholder farmers are using mobile money to purchase fertiliser and pesticides, boosting crop yields and market sales.[152] By reducing the cost of business transactions, the amount of cash needed on hand, and the risk that breeds financial restraint, some Kenyan farmers are seeing 35 per cent higher profits per acre of banana production.[153]

Recently, providers have been exploring opportunities to digitise entire agricultural value chains. For example, in early 2016, Telenor's Easypaisa service collaborated with Nestlé Pakistan to make the disbursement of milk payments to dairy and livestock farmers swift, easy, and transparent.[154] Nestlé works with around 150,000 dairy farmers in Pakistan, paying approximately US$ 208 million to farmers each year for almost half a billion tons of milk.[155]

Formalising the informal

In emerging markets, the informal economy can represent a significant proportion of a country's official GDP, with estimates ranging from 25 to 80 per cent.[156] In 2010, the World Bank found that Sub-Saharan Africa had the highest proportion of informal economic activity, accounting for 40.8 per cent of the region's official GDP.[157] For individuals working in the informal sector, there is often less job security, lower income, limited social benefits, and fewer opportunities for formal education and training.[158]

For entrepreneurs, opening an account can be an important first step into the formal economy—leading to the formalisation of small businesses.[159] Researchers have found that the availability of mobile money has increased the macroeconomic output of Kenya's entrepreneurial sector[160] by reducing the risk of theft and improving access to credit. In Uganda, research shows that mobile money has a significant positive long-term association with the growth of credit in the private sector.[161]

Integrating economic activity into the formal sector creates more efficient, productive, and transparent economies. Recently, McKinsey found that governments could gain US$ 110 billion per year in emerging markets by digitising payments and reducing leakage in tax collection and public spending.[162] It is estimated that US$ 3.7 trillion could be added to the GDP of emerging markets by 2025 in addition to 95 million new jobs, the majority through greater productivity of businesses and governments.[163]

A stronger banking sector and digital ecosystem

In the last decade, some mobile money providers have created partnerships that have extended banking services, such as credit, to underserved segments of society. Partnerships with mobile money providers can be a cost-effective way for commercial banks and microfinance institutions to collect public deposits and offer credit services to customers that are otherwise beyond their reach.[164]

Mobile money can help to strengthen informal savings groups, such as village savings and loan associations or rotating savings and credit associations. CARE, Catholic Relief Services, and other international aid organisations have started to test mobile money linkages to savings groups, with early positive results.[165] Research also found that M-Pesa increased the probability of being banked.[166] When the largely corporate Commercial Bank of Africa partnered with Safaricom to launch the mobile savings and credit service M-Shwari, it became the largest retail bank in Kenya in terms of customers, signing up 10 million in less than three years.[167]

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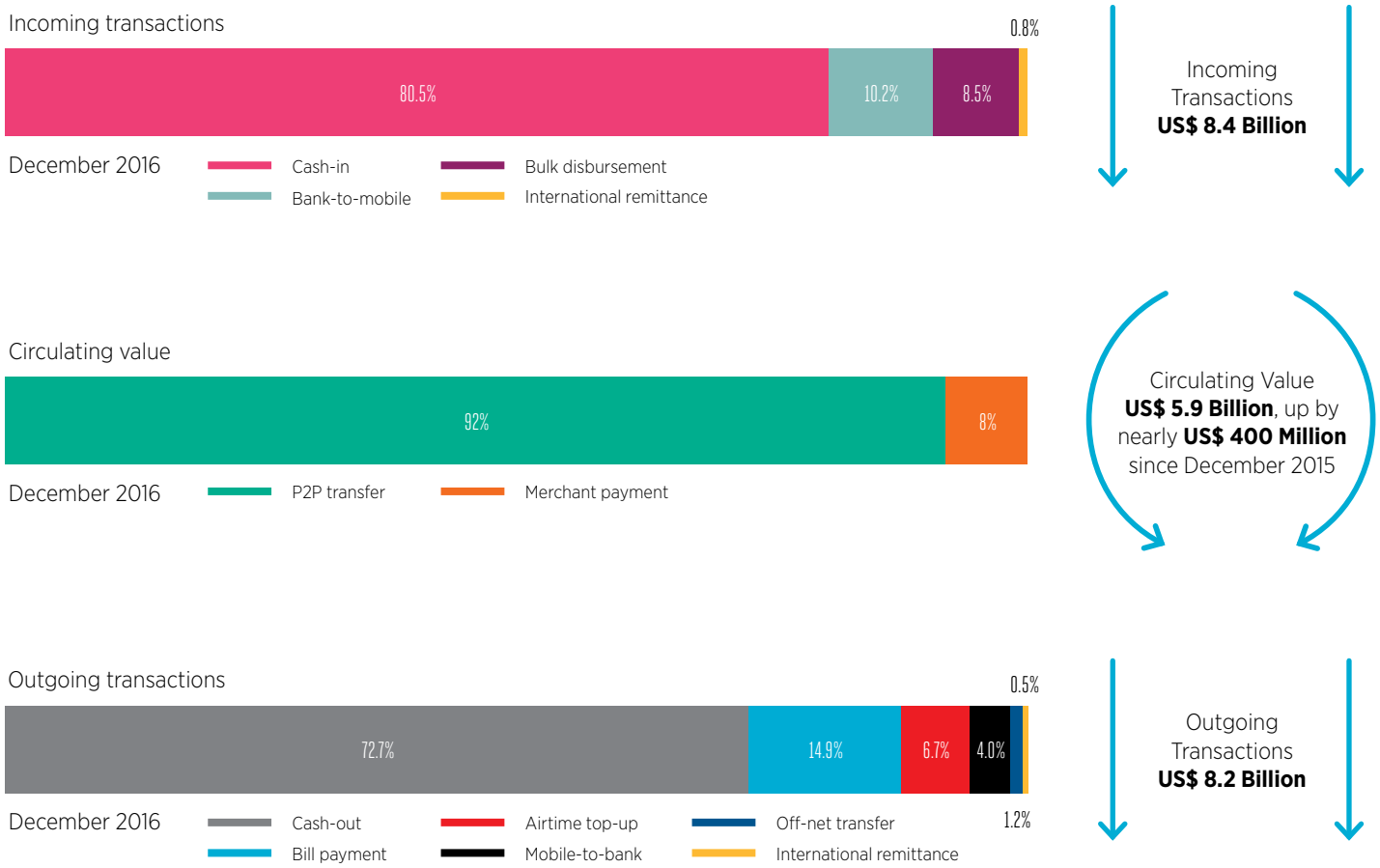
[149] Arese Lucini, B. and Okeleke, K. (2016). *Market size and opportunity in digitising payments in agricultural value chains.* GSMA Intelligence.
[150] Ibid.
[151] Kikulwe E.M., Fischer E., Qaim M. (2014). Mobile Money, Smallholder Farmers, and Household Welfare in Kenya. *PLoS ONE* 9(10): e109804. doi:10.1371/ journal. pone.0109804
[152] Ibid.
[153] Ibid.
[154] Arese Lucini, B. and Okeleke, K. (2016). *Market size and opportunity in digitising payments in agricultural value chains.* GSMA Intelligence.
[155] Ibid.
[156] Pratap, Sangeeta & Quintin, Erwan, 2006. "The Informal Sector in Developing Countries: Output, Assets and Employment," Working Paper Series RP2006/130, World Institute for Development Economic Research (UNU-WIDER).
[157] Schneider, F., Buehn, A. and Montenegro, C. (2010). *Shadow Economies All Over the World. World Bank.*
[158] Bacchetta, M., Ernst, E. and Bustamante, J. (2009). *Globalization and informal jobs in developing countries.* 1st ed. Geneva: International Labour Organization.
[159] The Bill & Melinda Gates Foundation and Better Than Cash Alliance. (2014). *The Opportunities of Digitizing Payments.*
[160] Beck, T., Pamuk, H., Ramrattan, R., and U. Burak. (2015) *Mobile Money, Trade Credit and Economic Development: Theory and Evidence European Banking Center Discussion Paper No. 2015-005.*
[161] Nampewo, D., Tinyinondi, G.A., Kawooya, D.R. et al. Financial Innovation (2016) 2: 13. doi:10.1186/s40854-016-0033-x
[162] McKinsey Global Institute. (2016). *Digital finance for all: Powering inclusive growth in emerging economies.*
[163] Ibid.
[164] Muthiora, B. (2015). *Enabling Mobile Money Policies in Kenya: Fostering a Digital Financial Revolution.* GSMA.
[165] See:
- CARE. (2011). *Tanzania: Linking Savings Groups to Mobile Banking.*
- Loupeda, C., Ouédraogo, A. and Gash, M. (2015). Pilot Project Report: Using *Mobile Money to Link Savings Groups to Financial Institutions. Freedom from Hunger.*
- Svarer, C. (2014). *From savings groups to bank accounts: how do we get to the next level?. The Guardian.*

[166] Mbiti, I. and Weil, D. (2011). *Mobile Banking: The Impact of M-Pesa in Kenya.* National Bureau of Economic Research.
[167] Okuttah, M. (2015). *CBA now biggest retail bank with 10 million customers.* Business Daily.

Figure 11: An overview of the mobile money ecosystem (December 2016)



As discussed earlier in this report, the GSMA estimates that at least 45 per cent of mobile money deployments were connected to banks in 2016 to facilitate bank-to-mobile and mobile-to-bank transactions.[168] Between September 2015 and June 2016, the volume flows to and from bank accounts witnessed exceptional growth (+120 per cent), among Global Adoption Survey respondents. This suggests that mobile money is, indeed, complementing the formal banking sector while fulfilling the needs of customers.[169] Mobile money providers are focussed on developing a mobile money ecosystem that supports a broad range of digital transactions. This, in turn, is helping to make mobile money more central to the lives of customers and to enhance the impact of the service on people and on economies. Driving usage can be challenging, but it is clear that mobile money is playing an increasingly important role. In fact, the total value of digital money circulating across mobile money platforms increased by nearly US$ 400 million in 2016 (See Figure 11). Exciting new developments stand to accelerate this process over the coming years.

[168] Pasti, F. and Vonthron, N. (2015). *A2A interoperability: What is happening between banks and mobile money providers?* GSMA.
[169] Ibid.

Looking ahead: Forces shaping the future of the industry

As highlighted in this report, the evolution of mobile money has transformed financial services in emerging markets, overturned traditional regulatory models, and established a new platform for innovation. Looking ahead, there are clear signs that the industry is on course to reach new heights.

Mobile money should become even more accessible than it is today. A decade from now, everyone, including the world's poor, should be able to send money to any number in the world in real time, to pay for goods or services electronically, and to access a wide range of financial products and services that fit their needs. Below, we identify six trends which will help to move us toward that reality over the coming years.

New solutions to old challenges

Notwithstanding the tremendous achievements of the mobile money industry over the past decade, some persistent challenges have hampered growth and innovation. In some instances, this has not been about mobile money itself but rather about the broader context in which the service has spread. Challenges relating to infrastructure and identity in particular have made it difficult for some to reap the benefits of mobile money. Other challenges specific to the industry, such as the diversity of technical platforms, have complicated the process of scaling new ideas. In many of these areas, important changes are on the horizon.

Greater penetration of mobile networks will bring mobile money to more people

The GSMA estimates that approximately 1.6 billion people globally still live outside the reach of a mobile broadband-enabled network. In Africa, 3G networks cover only 50 per cent of the population, compared to the global average of 78 per cent.[170] Closing the mobile coverage gap is primarily an economic challenge. A base station in a remote location can be 10 times less profitable than the equivalent site in an urban area. The operating costs can be as much as three times higher and the capital investment requirements up to two times higher. [171] In light of this, governments, international organisations, and the private sector are cooperating to make the economics of serving rural communities work better. To get around the high price of traditional base stations, small cells and infrastructure sharing are, for example, being used to facilitate cheaper network rollout. Experiments with methanol fuel cells or hybrid power systems are improving the cost of powering network infrastructure. Broadening the reach of mobile networks is a long-term endeavour, but the convergence of political will, new policy development, and technology innovation promises to extend connectivity to many more people over the coming years.

[170] GSMA Intelligence

[171] GSMA. 2017. *Unlocking Rural Coverage: Enablers for Commercially Sustainable Mobile Network Expansion.*

Advances in digital identity will boost the uptake of mobile money

Many people cannot access formal financial services because they lack the necessary evidence to establish their identity during the registration process. Current estimates suggest that there are 1.5 billion people around the world who do not have any form of identification and would therefore be unable to register for a mobile SIM in most countries. Digital identity, combined with the extensive use of mobile devices in emerging markets, offers new hope in this regard. Governments are increasingly investing in digital national ID infrastructure and promoting the delivery of e-government services. India is a shining example of this potential—the country has been at the forefront of digital identity for the past two years, with the issuance of Aadhaar IDs to more than 93 per cent of the adult population. Regulators are simultaneously working to harmonise 'Know Your Customer' (KYC) rules and SIM registration requirements, which should help digital solutions to scale even faster.

Harmonised APIs will accelerate the expansion of the mobile money ecosystem

Rapid expansion and growth has naturally yielded a complex and technically fragmented industry. This is now changing as the business requirements of interoperability and third-party integrations are driving the willingness of providers to simplify and harmonise their approach. Recognising this, in 2016 the GSMA led an industry initiative (in consultation with platform providers, mobile money providers, and a host of third-party stakeholders) to facilitate the design of common mobile money Application Programming Interface (APIs). Adoption of these APIs is expected to stimulate new and more complex use cases and products for mobile money customers. APIs will also enable quicker on-boarding for companies planning to incorporate mobile money into their operations, particularly as businesses take advantage of new opportunities to leverage mobile money as a tool for enterprise and retail payments. This will lead to more transactions and accelerate the path to a more diverse digital financial ecosystem.

New phones, new services, new opportunities

It's not just old challenges that are set for disruption. Many emerging markets are on the cusp of a digital services revolution. What a mobile phone can do, how well companies can understand and cater to their customers, and the vibrancy of the digital marketplace are all changing rapidly. Three trends in particular should seed new opportunities and change how customers and providers alike think about mobile money.

The rise of smartphones will provide the most significant boost for mobile money

The rapid spread of smartphones is perhaps the most significant technology trend underway in low- and middle-income countries. This process is being driven in large part by the plummeting cost of smartphones and greater access to mobile broadband.

Progress will certainly be uneven, reflecting national differences in network rollout, average incomes, digital literacy, and the availability of local content and services. While this means that feature phones will retain a foothold for some time, the trend is clear. Myanmar, for example, saw a six-fold increase in smartphone adoption in the 18-month period between January 2014 and July 2015. By 2020, 63 per cent of all mobile connections in emerging markets will be linked to smartphones.[172] For many, this will mean the ability to use the internet, a richer interface, and access to more advanced financial services.

The evolution of mobile money will see the emergence of new revenue streams

In the long term, mobile money transaction revenues are likely to shift away from person-to-person transfers and airtime top-ups to third-party transactions. This will represent an important change for the mobile money business model which, to date, has been largely based on transaction revenue. Over the long term, as basic transactions become commoditised by competition, providers will likely seek out new mobile money-based services. They will leverage a range of assets—such as the agent distribution network, customer base, transaction platform, and customer transaction data—to tap these opportunities and offer new products and services. This will stimulate novel approaches to ensure profitability and to meet a wide range of customer needs. Those who succeed in this scenario can expect healthy profit margins of more than 20 per cent and cash flow margins above 15 per cent.[173] Adjacent revenue streams therefore have the potential to transform top-line revenue growth for providers, although this will require sustained investment and a large pre-existing customer base.

Mobile money and e-commerce will grow symbiotically and at an extraordinary pace

Growing smartphone adoption coupled with internet penetration is already fuelling the expansion of e-commerce. While Sub-Saharan Africa and South Asia currently represent small e-commerce markets, strong double-digit growth is expected in the coming years, with revenues set to surpass US$ 100 billion in 2020.[174] Currently these markets are dominated by inefficient cash-on-delivery payments solutions. In both regions, more than 90 per cent of online purchases of physical goods are paid for in cash. This is expensive, not only for the seller but the buyer as well. Customers must wait with cash in hand to receive deliveries. Mobile money providers (particularly those in countries with low payment card penetration) are well positioned to integrate with the growing e-commerce sector in emerging markets to address this problem. There is also a strong commercial incentive for this to happen, given competition from internet players, as seen in China and India with Alipay, WeChat, and Paytm.

The above are just some of the trends likely to power the growth of mobile money over the coming years. Others, such as the rise of technology to assist regulatory compliance and monitoring, the use of distributed ledger technologies such as blockchain to facilitate international transfers, or the projection of network connectivity via drones or balloons, could also transform the possibilities for people seeking financial services. As we reflect on everything the industry has accomplished in the past decade, providers continue to look squarely at many new ways mobile money promises to improve people's lives in the decade ahead.

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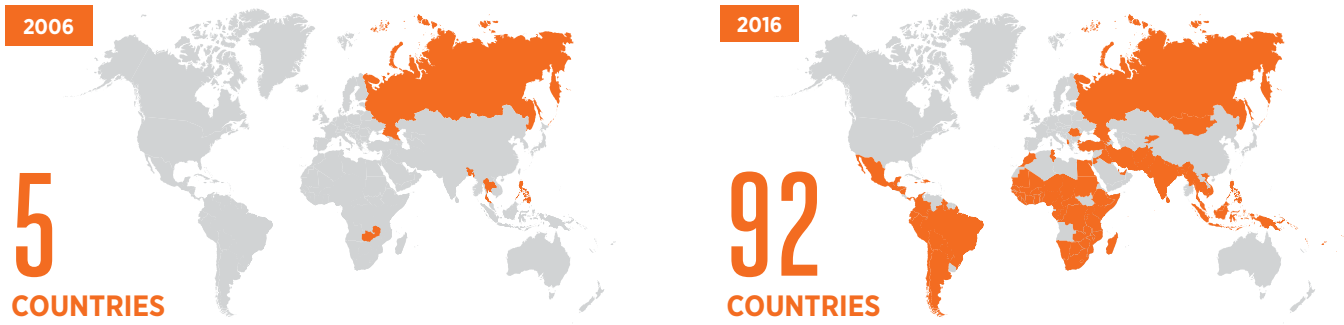
[172] GSMA (2016). *Smartphones dominating global mobile connections base: 2020 regional device adoption forecasts and assumptions.*
[173] Almazan, M. and Vonthron, N. (2014). *Mobile money profitability: A digital ecosystem to drive healthy margins.* GSMA.
[174] eMarketer.com

Figure 12: Decade of progress

Coverage

Mobile money is now available in TWO THIRDS of low- and middle-income countries



Mobile money transactions processed

Mobile money providers are processing an average 30,000 transactions per minute

2006 $1.2Bn TRANSACTIONS

2016 $269Bn TRANSACTIONS

Agent outlets

21.6 THOUSAND REGISTERED AGENTS

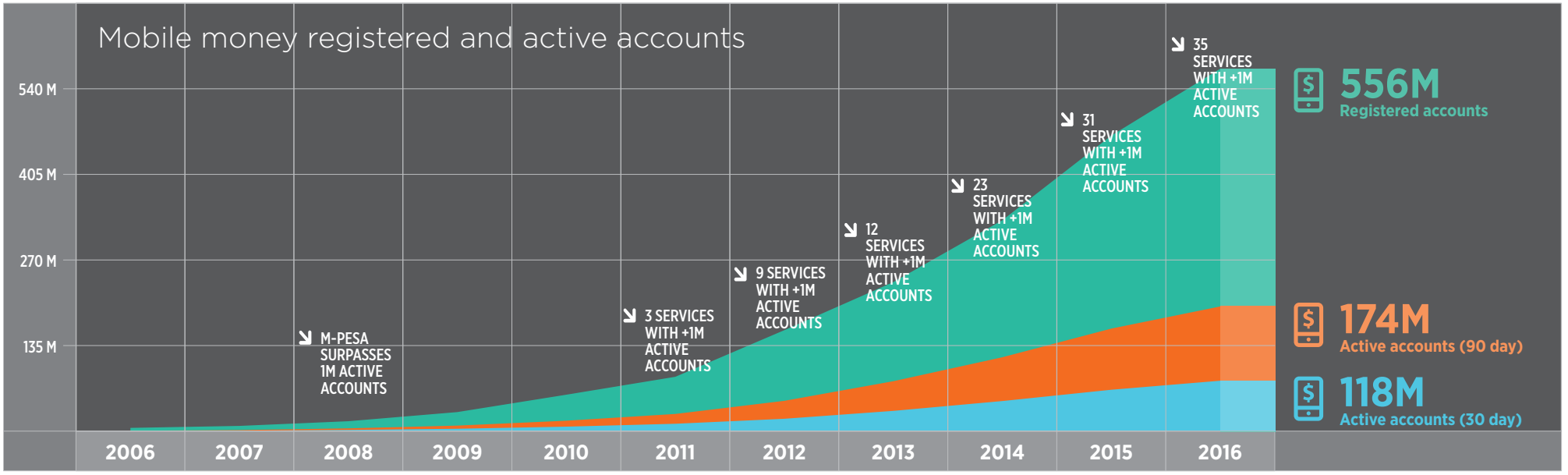
4.3 MILLION REGISTERED AGENTS

12 THOUSAND ACTIVE AGENTS

2.3 MILLION ACTIVE AGENTS

2006 2016

Mobile money registered and active accounts



Appendix A: About the GSMA's State of the Industry Report on Mobile Financial Services

Each year, the GSMA's Mobile Money Programme publishes a State of the Industry Report on Mobile Financial Services, enabling readers to track the development of the MFS industry over time.

This report is designed to provide MFS practitioners with insights into the important developments taking place in mobile money, as well as insurance, savings, and credit enabled by mobile money. It is also designed to provide other stakeholders, such as regulators, senior executives in the telecom and banking sectors, and international development agencies, with an authoritative overview of the industry and its impact on the financial lives of unbanked and underserved users.

Now established in the majority of emerging economies, mobile money is a maturing industry serving new business areas and enabling a wider range of digital payments. Mobile money has become a core product offering for many mobile network operators (MNOs), which have unique assets and incentives to deliver these services in a sustainable and scalable way, namely trusted brands, widespread distribution, and secure channel access.

Methodology

This report provides a quantitative assessment of the state of the mobile financial services industry based on GSMA data from the Mobile Money Deployment Tracker, the 2015 Global Adoption Survey of Mobile Financial Services, and Mobile Money Estimates & Forecasts. The report also uses qualitative insights on the performance of mobile financial services based on the GSMA Mobile Money Programme's engagement with the industry over the past year.

GSMA Mobile Money Deployment Tracker

The GSMA Mobile Money Deployment Tracker is an online database that monitors the number of live and planned mobile money services for the unbanked across the globe. It also contains information about each live deployment, such as the name of the provider and the name of the mobile money service, its launch date, what financial products are offered, and which partners are involved in delivering each service. In 2014, the GSMA Mobile Money Deployment Tracker was extended to include information on mobile insurance, mobile credit, and mobile savings services.

Note: In 2016, we expanded our definition of mobile money to include smartphone-only services (provided they are still available to the unbanked) given the expected growth of smartphones in the coming years. We also did a significant overhaul of our Mobile Money Deployment Tracker. This evolution has meant that we are now tracking 277 live deployments across 92 countries, of which 13 are new launches in 2016, and five are additions based on our updated definition. As part of this overhaul, 12 services were removed from our tracker across multiple years.

Figure 13: Impact of change in mobile money definition on the global figures reported

	Total registered accounts	Total active accounts (90 day)	Total active accounts (30 day)	Total registered agents	Total active agents (30 day)	Total volume of transactions	Total value of transactions
Total figures including smartphone-only services	556 Million	174 Million	118 Million	4.3 Million	2.3 Million	1.31 Billion	22.4 Billion
Total figures excluding smartphone-only services	554 Million	172 Million	117 Million	4.2 Million	2.1 Million	1.3 Billion	22.3 Million

The GSMA Global Adoption Survey of Mobile Financial Services

The GSMA Global Adoption Survey of Mobile Financial Services is an annual survey designed to capture quantitative information about the performance of mobile financial services around the world. All of the service providers represented in the GSMA Mobile Money Deployment Tracker were invited to participate in the 2015 survey. Respondents supplied standardised operational metrics about their services for the months of September 2015, December 2015, March 2016, and June 2016, on a confidential basis.

A total of 113 service providers from 65 countries participated in the 2016 survey, and an additional 60 on mobile insurance, and 24 on mobile credit and savings. The full list of survey participants is included in Appendix C.

GSMA Mobile Money Estimates & Forecasts

For some metrics, GSMA Mobile Money uses data modelling to estimate and forecast these figures, making information available for the entire industry rather than only survey participants. The methodology used to model these metrics is based on a mix of bottom-up (service level) and top-down (country level) approaches. A number of data sources, including the Global Adoption Survey of Mobile Financial Services, the GSMA Mobile Money Deployment Tracker, central bank reports, and the International Monetary Fund's (IMF) annual Financial Access Survey (FAS), are used in the estimates and forecasts models. Estimates and forecasts for mobile money metrics are developed at the service level and the numbers are then aggregated at the country and regional level. For mobile money services with historical data available, growth until December 2016 is developed based on this data, trend analysis, and analyst judgement. For mobile money services that do not have historical data available, performance on each metric is developed based on country and regional benchmarks, GSMA's internal market expertise, as well as tailored assumptions about the service's future growth. These estimates and forecasts will be updated on a regular basis to reflect the evolution of the industry, in particular the launch of new mobile money services, changes to regulation, and the evolution of market dynamics.

The main update is carried out on annual basis, incorporating reported figures from the GSMA Global Adoption Survey of Mobile Financial Services. As such, December 2015 figures which were published in the 2015 State of the Industry Report have been updated with reported data from the 2016 survey data.

Disclaimer

This report is based on data collected through the annual GSMA Global Adoption Survey of Mobile Financial Services, the GSMA Mobile Money Deployment Tracker, Mobile Money Estimates & Forecasts, and internal analysis by the team.

Survey data

Survey data is self-reported and has not been verified independently by the GSMA. Before data is entered, it is thoroughly checked for what is included and excluded, as well as how the metric is defined by the participant. Data is also cross-checked against regional benchmarks and other data sources.

Confidentiality

Data published in this report is always presented in a way to protect the confidentiality of each deployment. We only highlight services where the service provider has granted approval to disclose key performance information.

Appendix B: Glossary

Certain definitions were taken from the Guideline Note on Mobile Financial Services: Basic Terminology, by the AFI Mobile Financial Services Working Group

Agent outlet	In the case of mobile money, an agent outlet is a location where one or several provider-issued tills are used to conduct transactions for clients. The most important of these are cash-in and cash-out (i.e. loading value into the mobile money system, and then converting it back out again); in many instances, agents register new customers too. In some markets, an agent outlet can also operate tills issued by several providers; these are generally referred to as shared or non-exclusive outlets. Agents usually earn commissions for performing these services. As they are the human touch point for the mobile money service, they also often provide front-line customer service, such as teaching new users how to initiate transactions on their phone. Typically, agents will conduct other kinds of business in addition to mobile money. The kinds of individuals or businesses that can serve as agents will sometimes be limited by regulation, but small-scale traders, microfinance institutions, chain stores, and bank branches serve as agents in some markets. Some industry participants prefer the terms "merchant" or "retailer" to describe this person or business to avoid certain legal connotations of the term "agent" as it is used in other industries. An active agent outlet is an agent outlet where any of the tills were used to facilitate at least one transaction within the last 30 days. Agent tills are provider-issued "lines", which can be SIM cards or POS machines, authorised and used to facilitate mobile money transactions.
Airtime top-up	Purchase of airtime via mobile money, funded from a mobile money account.
Anti-money laundering/ combating the financing of terrorism (AML/CFT)	A set of rules, typically issued by central banks, that attempt to prevent and detect the use of financial services for money laundering or to finance terrorism. The global standard-setter for AML/CFT rules is the Financial Action Task Force (FATF).
Application programming interface (API)	For the mobile money industry, an application programming interface is the set of design principles, objects, and behaviours for software developers to enable interactions between mobile money platforms and vendors.
Bank account-to-mobile money account transfer	A direct transfer of funds made from a customer bank account to a mobile money account. This transaction typically requires a commercial agreement and technical integration between the bank and the mobile money provider to allow direct transfers.
Bill payment	A payment made by a person from either their mobile money account or over-the-counter to a biller or a billing organisation via a mobile money platform in exchange for services provided.
Bulk disbursement	A payment made by an organisation via a mobile money platform to a person's mobile money account. For example: salary payments made by an organisation to an employee's mobile money account or payments made by a government to a recipient's mobile money account, or payments made by development organisations to beneficiaries.

Cash-in	The process by which a customer credits their mobile money account with cash. This is usually via an agent who takes the cash and credits the customer's mobile money account with the same amount of e-money.
Cash-out	The process by which a customer deducts cash from their mobile money account. This is usually via an agent who gives the customer cash in exchange for a transfer of e-money from the customer's mobile money account.
Country corridor	For international remittances, a country corridor is a unique combination of a sending country and a receiving country. For example, Kenya-to-Tanzania and Tanzania-to-Kenya represents two distinct country corridors.
Credit enabled by mobile money	Credit enabled by mobile money uses the mobile phone to provide microcredit to customers. The GSMA Mobile Money team tracks credit services enabled by mobile money which meet the following criteria: • To use the service, the customer must have a mobile money account. • The service allows subscribers to borrow a certain amount of money that they agree to repay within a specified period of time. • Customers can be mobile money agents, mobile money users, or merchants accepting mobile money. • The loan must be disbursed and repaid electronically directly to/from the mobile money account. Services which offer collateralised lease-to-own assets, such as solar home systems, are not included. • The credit service should be technically integrated with the mobile money account and rely heavily on mobile technology throughout the customer journey. • Services where the mobile phone is used as just another channel to access a traditional credit product should not be included. • The service must be available for customers on any types of mobile device (including smartphones apps).
E-money	Short for "electronic money," e-money is stored value held in the accounts of users, agents, and the provider of the mobile money service. Typically, the total value of e-money is mirrored in (a) bank account(s), such that even if the provider of the mobile money service were to fail, users could recover 100 per cent of the value stored in their accounts. That said, bank deposits can earn interest, while e-money traditionally cannot.
Enabling regulation	An 'enabling regulatory approach' for mobile money is one in which the rules established by the regulator:[175] • Permit non-banks to issue electronic money (or equivalent)[176] by allowing them to: o be licensed directly, OR o set up a subsidiary for this business, OR o apply for a payments bank (or equivalent) licence, OR o provide the mobile money service under a letter of no-objection to the non-bank or its partner bank, pending the approval of a specific regulation, • AND imposes initial and ongoing capital requirements that are proportional to the risks of the e-money business, • AND permits them to use agents for cash-in and cash-out operations, • AND does not prescribe the implementation of specific interoperability models without allowing for a market-led approach.
Escrow (trust) account	To ensure that a customer's money is available when the customer wants to redeem it, regulators typically require that the non-bank mobile money provider maintain liquid assets equal in value to the amount of money issued electronically. These funds are usually pooled and held by one or more banks in the name of the issuer (or in the name of a trustee appointed by the issuer). The account in which the funds are pooled is known as an escrow account (or a trust account where the issuer has appointed a trustee). In countries with a common law legal tradition, the funds typically are held in trust for the benefit of the mobile money users. In countries where the common law concept of trust does not exist, mobile money users typically have a right to claim these funds under the law of contract.

[175] These rules may be codified or may be outlined in individual "letters of no-objection".

[176] In some cases, regulators authorise providers to offer such services under a different name, such as "mobile money", "mobile payment", or "electronic deposit".

Float	The balance of e-money, physical cash, or money in a bank account that an agent can immediately access to meet customer demands to purchase (cash-in) or sell (cash-out) electronic money.
Government-to-person (G2P) payment	A payment by a government to a person's mobile money account.
Informal financial services	Financial services offered by unregulated entities. Examples of informal financial services are 'susu' collections in Ghana, 'loan shark' lending, savings groups, etc.
International remittance enabled by mobile money	Cross-border fund transfer from one person to another person. This transaction can be a direct mobile money remittance, or can be completed through the use of an intermediary organisation such as Western Union.
Interoperability	The ability for customers to undertake money transfers between two accounts at different mobile money schemes, or to transfer money between accounts at mobile money schemes and accounts at banks. To date, mobile operators in 15 markets have interoperated their mobile money schemes.
Insurance enabled by mobile money	Insurance enabled by mobile money uses the mobile phone to provide microinsurance services. GSMA Mobile Money tracks insurance products enabled by mobile money which meet the following criteria: • To use the service, the customer must have a mobile money account. • The service must allow customers to manage risks by providing a guarantee of compensation for specified loss, damage, illness or death. • The customers should be able to pay the premium using the mobile account, and receive the claim using the mobile account (unless the beneficiary mobile money account has exceeded the limit, or the beneficiary does not have a mobile money account). • The insurance product should be technically integrated with the mobile money account, and rely heavily on mobile technology throughout the customer journey. • Services where the mobile phone is just another channel for the clients of an insurance company to access a traditional insurance product should not be included. • The service must offer customers an interface for managing the insurance product for customers that is available on mobile devices (SMS, USSD, call centre, smartphone app).
Know-Your-Customer (KYC)	Financial institutions and regulated financial services providers are obligated by regulation to perform due diligence to identify their customers. The term is also used to refer to the regulation which governs these activities. The FATF (Financial Action Task Force) recommends a risk-based approach to due diligence for AML/CFT (anti-money laundering and counter-financing of terrorism) controls. Due to the lack of formal identity documents in some markets, solutions such as tiered KYC and adjusting acceptable KYC documentation can help mobile money providers facilitate customer adoption and increase financial inclusion, especially in rural areas.
Liquidity management	The management of the balance of cash and e-money held by a mobile money agent in order to meet customers' demands to purchase (cash-in) or sell (cash-out) e-money. The key metric used to measure the liquidity of an agent is the sum of their e-money and cash balances (also known as their float balance).
Merchant payment	A payment made from a mobile money account via a mobile money platform to a retail or online merchant in exchange for goods or services.
Mobile financial services (MFS)	The use of a mobile phone to access financial services and execute financial transactions. Mobile money, in addition to insurance, credit, and savings enabled by mobile money are mobile financial services.
Mobile insurance	Insurance enabled by mobile, broadly speaking. This includes insurance enabled by mobile money, as well as insurance that leverages airtime channels for premium payments.

Mobile money	In 2016, we revised our definition of mobile money. Now, a service is considered a mobile money service if it meets the following criteria: • A mobile money service includes transferring money and making payments using the mobile phone. • The service must be available to the unbanked, e.g. people who do not have access to a formal account at a financial institution. • The services must offer at least one of the following products: o Domestic or international transfer; o Mobile payment, including bill payment, bulk disbursement, and merchant payment; or o Storage of value. • The service must offer an interface for initiating transactions for agents and/or customers that is available on mobile devices. • The service must offer a network of physical transactional points outside bank branches and ATMs that make the service widely accessible to everyone. • Mobile banking services that offer the mobile phone as just another channel to access a traditional banking product are not included. • Payment services linked to a traditional banking product or credit card, such as Apple Pay and Google Wallet, are not included.
Mobile money account	An e-money account which is primarily accessed using a mobile phone and which is held with the e-money issuer. In some jurisdictions, e-money accounts may resemble conventional bank accounts, but are treated differently under the regulatory framework because they are used for different purposes (for example, as a surrogate for cash or a stored value used to facilitate transactional services). An active mobile money account is a mobile money account which has been used to conduct at least one transaction during a certain period of time (usually 90 days or 30 days).
Mobile money account-to -bank account transfer	A direct transfer of funds made from a mobile money account to a customer bank account. This transaction typically requires a commercial agreement and technical integration between the bank and the mobile money provider to allow direct transfers.
Mobile money ecosystem	The mobile money ecosystem includes mobile money providers and all third-party organisations which can benefit from mobile money, either by using it as a payment mechanism or leveraging mobile money accounts. The mobile money ecosystem facilitates transactions from different sectors such as retail, utilities, healthcare, education, agriculture and transport, as well as insurance, savings, and credit.
Money transfer operator (MTO)	A company which has a government-issued licence to provide telecommunications services through mobile devices.
Mobile network operator (MNO)	A company which has a government-issued licence to provide money transfer services.
Off-net transfer	Transfers which are initiated by registered mobile money users to unregistered users are typically referred to as off-net (off-network) transfers. Some deployments may refer to an off-net transfer as a voucher, coupon, or token. In this case, the e-money will need to be cashed out at an agent of the sender's agent network. Transfers between two accounts of different but interconnected mobile money schemes are also sometimes referred to as "off-net transfers".
Over-the-counter (OTC) services	Some mobile money services are being offered primarily over-the- counter (OTC). In such cases, a mobile money agent performs the transactions on behalf of the customer, who does not need to have a mobile money account to use the service.
Person-to-person (P2P) transfer	A mobile money transfer made from one person to another person.
Platform	The hardware and software that enables the provision of a mobile money service.
Point of sale (POS)	A retail location where payments are made for goods or services. A "POS device" denotes a specialised device which is used to accept the payment, for example, a card reader.

Regulator	In the context of mobile money, this typically refers to the regulator who has supervisory authority over financial institutions within a particular country, usually the central bank or other financial authority.
Savings enabled by mobile money	Savings enabled by mobile money uses the mobile phone to provide dedicated savings facilities. GSMA Mobile Money tracks savings services enabled by mobile money which meet the following criteria: • To use the service, the customer must have a mobile money account. • The savings service allows subscribers to save money in a dedicated account that provides principal security and in some cases, an interest rate. • Also included in this definition are: o Mobile investment uses the mobile phone to provide investment facilities (e.g. in government bonds). o Mobile pension uses the mobile phone to provide pension savings facilities. • The customer should be able to store value electronically in the savings account, and be able to transfer funds to/from a mobile money account. • The savings or investment product should be integrated technically with the mobile money account, and rely heavily on mobile technology throughout the customer journey. • Services where the mobile phone is just another channel to access a traditional savings accounts are not be included. • The service must be available for customers on any types of mobile device (including smartphones).
Unbanked	Customers who do not have a bank account or transaction account at a formal financial institution.
Underbanked	Customers who may have access to a basic transaction account offered by a formal financial institution, but still have financial needs that are unmet or not appropriately met.
Unregistered users	Unregistered users include both people transacting over-the-counter in the case of OTC services, and unregistered recipients of off-net P2P transfers in the case of account-based services.
Voucher	Money sent as an off-net transfer from a mobile money account holder to an unregistered recipient, along with a code for the recipient to withdraw the funds at an agent outlet. Also known as a coupon or token.

Appendix C:
2016 Survey Participants

Key

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

Ⓜ Mobile money
ⓘ Mobile insurance
© Mobile credit & savings

EAST ASIA & PACIFIC

CAMBODIA
WING Ⓜ BIMA ⓘ
INDONESIA
BTPN Ⓜ DOKU Ⓜ
Indosat (Ooredoo) Ⓜ
XL (Axiata) Ⓜ
MALAYSIA
Maxis Ⓜ
MYANMAR
Telenor Ⓜ True Move
(True Corporation) Ⓜ
PAPUA NEW GUINEA
BIMA ⓘ
PHILIPPINES
Globe Telecom ⓘ
SOLOMON ISLANDS
ANZ Ⓜ ©
THAILAND
dtac Ⓜ

EUROPE & CENTRAL ASIA

ROMANIA
Vodafone Ⓜ

LATIN AMERICA & THE CARIBBEAN

ARGENTINA
Sicom Ⓜ
BOLIVIA
Tigo (Millicom) Ⓜ
BRAZIL
BIMA ⓘ Oi Ⓜ
Vivo (Telefónica) Ⓜ
COLOMBIA
DaviPlata Ⓜ
DOMINICAN REPUBLIC
Orange Ⓜ
ECUADOR
Banco Central de Ecuador Ⓜ
EL SALVADOR
Tigo (Millicom) Ⓜ
GUATEMALA
Tigo (Millicom) Ⓜ
GUYANA
Guyana Telephone and Telegraph Company (GT&T) Ⓜ
HAITI
Digicel Ⓜ BIMA ⓘ
HONDURAS
Tigo (Millicom) Ⓜ BIMA ⓘ
MEXICO
Telcel (América Móvil) Ⓜ
NICARAGUA
Banpro Grupo Promerica Ⓜ
PARAGUAY
Tigo (Millicom) Ⓜⓒⓘ BIMA ⓘ
Personal (Telecom Argentina) ⓘ

MIDDLE EAST & NORTH AFRICA

EGYPT
Mobinil Ⓜ
IRAN
MCI (TCI) Ⓜ
JORDAN
Al Hulool (Umniah) Ⓜ
Zain Ⓜ
QATAR
Ooredoo Ⓜ
TUNISIA
Tunisiana (Wataniya) Ⓜ
Ooredoo Ⓜ Orange Ⓜ
Tunisie Télécom Ⓜ

SOUTH ASIA

AFGHANISTAN
Roshan (TDCA) Ⓜⓒⓘ
Afghan Wireless (AWCC) Ⓜ
BANGLADESH
banglalink
(Global Telecom) Ⓜⓒⓘ
BIMA ⓘ bKash Ⓜ
Grameenphone (Telenor) Ⓜ
Microensure ⓘ Robi (Axiata) Ⓜ
Trust Bank Ⓜ
INDIA
My Mobile Payments Ltd (MMPL) Ⓜ Eko Ⓜ
NEPAL
FonePay Ⓜ
PAKISTAN
BIMA ⓘ Habib Bank Limited Ⓜ
MicroEnsure ⓘ Telenor Ⓜⓒⓘ
Mobilink (Global Telecom) Ⓜⓘ
UBL Bank Ⓜⓒⓘ
Ufone (PTCL) Ⓜⓒⓘ
Zong (China Mobile) Ⓜ
SRI LANKA
Dialog (Axiata) Ⓜ BIMA ⓘ
Mobitel (Sri Lanka Telecom) Ⓜ

SUB-SAHARAN AFRICA

BENIN
Moov (Etisalat) Ⓜ MTN Ⓜⓒⓘ
BOTSWANA
Orange Ⓜ
BURKINA FASO
MicroEnsure ⓘ
BURUNDI
MobiCash Ⓜⓒⓘ
CAMEROON
MTN Ⓜ Orange Ⓜⓘ
CENTRAL AFRICAN REPUBLIC
Orange Ⓜ
CHAD
Tigo (Millicom) Ⓜ
Airtel (Bharti Airtel) Ⓜ
CONGO
MTN Ⓜ
CONGO, DEMOCRATIC REPUBLIC OF
Orange Ⓜ
Airtel (Bharti Airtel) Ⓜ
CÔTE D'IVOIRE
Moov (Etisalat) Ⓜ
Orange Ⓜⓘ MTN Ⓜ
GABON
Airtel (Bharti Airtel) Ⓜ©
GHANA
Airtel (Bharti Airtel) Ⓜ© BIMA ⓘ
MicroEnsure ⓘ MTN Ⓜⓒⓘ
Tigo (Millicom) Ⓜ Vodafone Ⓜⓒⓘ
GUINEA
MTN Ⓜⓒⓘ Orange (Sonatel) Ⓜ
KENYA
Airtel (Bharti Airtel) Ⓜ©
MicroEnsure ⓘ Safaricom Ⓜⓒⓘ
Tala (Inventure) ©
LESOTHO
Vodafone Ⓜ
LIBERIA
Lonestar (MTN) Ⓜ
MADAGASCAR
Airtel (Bharti Airtel) Ⓜ
Orange Ⓜ MicroEnsure ⓘ
MALAWI
Airtel (Bharti Airtel) Ⓜ TNM Ⓜ
MicroEnsure ⓘ Zoona Ⓜ
MALI
Orange (Sonatel) Ⓜⓒⓘ
MAURITIUS
Orange (Mauritius Telecom) Ⓜ
NIGER
Airtel (Bharti Airtel) Ⓜ
Orange Ⓜ MicroEnsure ⓘ
NIGERIA
Access Bank Ⓜ Diamond Bank Ⓜ
Teasy Mobile Ⓜ MicroEnsure ⓘ
RWANDA
Tigo (Millicom) Ⓜ MTN Ⓜ
Airtel (Bharti Airtel) Ⓜⓒⓘ
MobiCash Ⓜⓒⓘ
SENEGAL
Orange (Sonatel) Ⓜ BIMA ⓘ
Tigo (Millicom) Ⓜ
SEYCHELLES
Airtel (Bharti Airtel) Ⓜⓒⓘ
SIERRA LEONE
Orange Ⓜ
SOUTH AFRICA
FNB Ⓜ
SWAZILAND
MTN Ⓜ
TANZANIA
Airtel (Bharti Airtel) Ⓜ© BIMA ⓘ
Tigo (Millicom) Ⓜ Vodacom Ⓜ©
TOGO
Togo Cellulaire Ⓜ
UGANDA
Africell Ⓜ BIMA ⓘ
Airtel (Bharti Airtel) Ⓜ
EzeeMoney Ⓜ
ZAMBIA
Airtel (Bharti Airtel) Ⓜ
MicroEnsure ⓘ Zoona Ⓜ
ZIMBABWE
NetOne Ⓜ

Appendix D: List of figures & text boxes

Figures

Spotlights

Appendix E: Bibliography

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Notes:

For the full report please visit the GSMA Mobile Money website at www.gsma.com/mobilemoney

GSMA HEAD OFFICE
Floor 2
The Walbrook Building
25 Walbrook
London EC4N 8AF
United Kingdon
Tel: +44 (0)20 7356 0600
Fax: +44 (0)20 7356 0601