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GLOBAL LANDSCAPE STUDY ON DIGITISING P2G PAYMENTS

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CGAP

Global Landscape Study on Digitising P2G Payments

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Authored by **Dalberg Global Development Advisors.**

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CGAP

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Established in 1995 and housed at the World Bank, CGAP seeks to improve the lives of poor people by spurring innovation and advancing knowledge that promotes responsible and inclusive financial markets. CGAP develops innovative solutions for financial inclusion through practical research and active engagement with financial service providers (FSPs), policymakers, and funders.

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ACRONYMS AND ABBREVIATIONS

ACB	Akiba Commercial Bank
ACH	Automated clearing house
API	Application programming interface
APY	Atal Pension Yojana
ATM	Automated teller machine
B2C	Business-to-consumer (payment)
B2G	Business-to-government (payment)
BESCOM	Bangalore Electricity Supply Company
BEST	Brihanmumbai Electric Supply and Transport
BIR	Bureau of Internal Revenue (Philippines)
BISP	Benazir Income Support Programme (Pakistan)
BSP	Bangko Sentral ng Pilipinas (Central Bank of the Republic of the Philippines)
BTCA	Better Than Cash Alliance
CBJ	Central Bank of Jordan
CeG	Centre for e-Governance (India)
CGAP	Consultative Group to Assist the Poor
CISMP	Centralised information system on mass payments (Azerbaijan)
COA	Commission on Audit (Philippines)
CRISIL	Credit Rating Information Services of India Limited
DAWASCO	Dar es Salaam Water and Sewerage Corporation (Tanzania)
DEITY	Department of Electronics and Information Technology (India)
DFS	Digital financial services
EBPP	Electronic bill presentment and payment
EBT	Exim Bank Tanzania
EFT	Electronic funds transfer
EGMP	E-Government Master Plan (Philippines)
EMP	Emerging Market Partners
EWURA	Energy and Water Utilities Regulating Authority (Tanzania)
FGD	Focus group discussion
FSP	Financial service provider
G2P	Government-to-person (payment)
GEPP	Ghana Electronic Payment Platform
GSM	Global System for Mobile Communications
GSMA	Groupe Speciale Mobile Association
ICT	Information and communications technology
IMPS	Immediate payment service (India)
INR	Indian rupee (currency)
IRCTC	Indian Railway Catering and Tourism Corporation
IT	Information technology
IVR	Interactive voice response
JOD	Jordanian dinar (currency)
JoMoPay	Jordan Mobile Payment
KBS	Kigali Bus Services
KP	Khyber Pakhtunkhwa (province in Pakistan)
KRA	Kenya Revenue Authority
KYC	Know your customer
LGU	Local government unit
MDR	Merchant discount rate
MFI	Microfinance institution
MNO	Mobile network operator
MTN	Mobile Telephone Network
NBP	National Bank of Pakistan
NEFT	National electronic funds transfer (India)
NFIF	National Financial Inclusion Framework (Tanzania)
NFIS	National Financial Inclusion Strategy (Pakistan)
NMB	National Microfinance Bank (Tanzania)
NPC	National Payment Council (Jordan)
NPCI	National Payments Corporation of India
NPS	National Pension Scheme (India)
NRPS	National retail payment system (Philippines)
NSDL	National Securities Depository Limited (India)
OBLS	Online Business Licensing Service (Singapore)
OECD	Organisation for Economic Co-operation and Development
OTC	Over-the-counter (transaction)
P2B	Person-to-business (payment)
P2G	Person-to-government (payment)
P2P	Person-to-person (payment)
Pag-IBIG Fund	Pagtutulungan sa Kinabukasan: Ikaw, Bangko, Industria at Gobyerno (Home Development Mutual Fund – Philippines)

PFRDA	Pension Funds Regulatory and Development Authority (India)
PHP	Philippine peso (currency)
PIN	Personal identification number
PKR	Pakistani rupee (currency)
PMJDY	Pradhan Mantri Jan-Dhan Yojana
POS	Point-of-sale (device)
PPP	Public-private partnership
PRAN	Pension registration number (India)
RDB	Rwanda Development Board
RFID	Radio frequency identification
RFP	Request for proposal
RFTC	Rwanda Federation of Transport Cooperatives
ROPL	RwandaOnline Platform Ltd.
RRA	Rwanda Revenue Authority
RTGS	Real-time gross settlement
RURA	Rwanda Utility Regulatory Authority
RWF	Rwandan franc (currency)
SIM	Subscriber identification module (card)
SIMM	Scaling Innovations in Mobile Money (USAID team)
SMI	Smart e-Money Inc.
SMS	Short messaging service
SSS	Social Security System (Philippines)
STK	SIM application toolkit
TPB	Tanzania Postal Bank
TRA	Tanzania Revenue Authority
TTMS	Traffic Ticket Management System (Pakistan)
TZS	Tanzanian shilling (currency)
UI	User interface
UKAID	UK Department for International Development
USAID	United States Agency for International Development
USD	United States dollar (currency)
USSD	Unstructured supplementary service data
UX	User experience

GLOSSARY OF TERMS

Automated clearing house (ACH) – An electronic network for financial transactions in the United States that processes transactions in batches.

Application programming interface (API) – A set of protocols and tools used for building software and applications. In the context of person-to-government (P2G) solutions, APIs are used to transfer information from the front-end solution to government back-end systems and vice-versa.

Back-end system – The technology stack, including software, systems, firewalls, and other technology-related investments, that a government makes when developing a digital P2G solution.

Cash in – The process by which a customer adds money to his or her account via cash. In mobile money, a customer typically goes to an agent who takes the cash and credits the customer's mobile money account.

Cash out – The process by which a customer withdraws money from his or her account. In mobile money, an agent typically gives the customer cash in exchange for a transfer of value from the customer's mobile money account to the agent's own account.

Channel – The space where, or interface through which customers initiate transactions. Digital channels include mobile phones, PCs/laptops/tablets, point-of-sale (POS) terminals or machines, automated teller machines (ATMs), digital kiosks, and, in selected cases, bank branches.

Closed-loop wallet – A wallet that allows consumers to load money into a stored value account that can be used for specific services, or to make payments to specific vendors. For example, in Tanzania, the Tembo card is a closed-loop wallet that allows customers to pay only public hospital fees.

Digital literacy – The knowledge and skills needed to use digital devices such as smartphones, tablets, etc.

Digital payment – Transfers of value from one account to another that are initiated and/or received using electronic devices and channels. We use the terms "digital payment" and "electronic payment" interchangeably in this report.

E-government – The use of the Internet and telecommunications technology to improve public sector effectiveness. Digitising P2G payments is one component of e-government; governments can also digitise service delivery, information to citizens, and businesses through e-government solutions.

Electronic funds transfer (EFT) – The electronic transfer of money from one account to another, either within a single financial institution or across multiple institutions.

End-to-end encryption – A P2G security protocol ensuring that only the payer (the individual) and payee (the government agency being paid) can see information being communicated (e.g., customer identity, account details, balance due, etc.).

E-money – Stored value held in digital accounts, e.g., money held in mobile wallets and prepaid cards.

E-payment – Transfers of value that are initiated and/or received using electronic devices and channels to transmit the instructions. We use the terms "digital payment" and "electronic payment" interchangeably in this report.

Financial literacy – Pertaining to personal finance, this is the ability to understand how money works, and how to earn and manage it (e.g., using bank and other accounts, financial products, etc.).

Front-end solution – In P2G, the part of the system that the user directly interacts with (e.g., an application, an unstructured supplementary service data [USSD] menu, etc).

Instrument – The means by which a customer transfers value to the government; digital instruments include cards (debit/credit/prepaid), direct debits, and EFTs (real-time gross settlements [RTGS]/NEFTs/ACHs).

Interoperability – The ability of users of different accounts to interact with one another. There are many different types of interoperability, including customer level, agent exclusivity, platform level, and account-to-account interoperability.

Know your customer (KYC) – Anti-Money Laundering rules and Combating the Financing of Terrorism rules that require financial service providers (FSPs) to carry out procedures to identify customers.

Merchant discount rate (MDR) – The rate charged by the acquiring bank to the merchant for being able to provide debit and credit card services.

Mobile money – A service where mobile phones are used to access financial services.

National electronic funds transfer (NEFT) – A prominent EFT system in India that allows bank customers to transfer funds on a one-on-one basis. Unlike RTGS transactions, which are done on a gross basis, NEFT transactions are batched on an hourly basis. This means there is a delay in fund delivery relative to RTGS transfers.

Over-the-counter (OTC) transaction – A transaction where an agent uses his or her own account to make a transaction on behalf of a customer.

Person-to-government (P2G) payment – Payments made by individuals to government agencies or public sector organisations.

Point of sale (POS) – The location at which a payment is made for goods or services.

Real-time gross settlement (RTGS) – Systems that allow instant fund transfers between bank accounts on a one-on-one basis without waiting to be bundled with other transactions.

Short messaging service (SMS) – The text messaging service component of a phone, web, or mobile communication system. SMS is used in P2G initiatives to communicate with consumers (e.g., receipt delivery).

SIM application toolkit (STK) – A Global System for Mobile Communications (GSM) standard that allows developers to build applications that are stored on subscriber identification module (SIM) cards and appear on feature phones. These applications can also be used for value-added services, e.g., mobile banking.

Store of value – Anything that allows an individual to store and retrieve value at a later date. Digital stores of value include bank accounts, e-money/stored value accounts, or prepaid accounts.

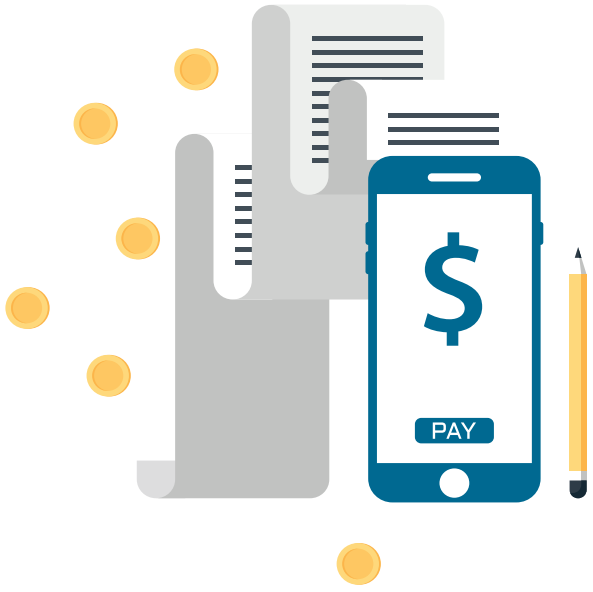
Unbanked – Customers who do not have an account at a formal financial institution.

Underbanked – Customers who may have access to a basic account offered by a formal financial institution, but still have financial needs that are not adequately met, e.g., access to credit, insurance, or other products.

User experience (UX) – All aspects of end-users' interaction with digital P2G payment solutions. This includes the launch of the application/screen, interface use, delivery, storage, and retrieval of receipts, and even customer support (where applicable).

User interface (UI) – The means through which users and computer systems interact. In the context of digital P2G payments, this would be the part with which customers directly interact, e.g., mobile applications, USSD menus, website/web interfaces, ATM screens, etc.

Unstructured supplementary service data (USSD) – A GSM technology that is used to send SMS messages between a phone and an application in the network. In mobile payments, customers often use a shortcode (short telephone numbers that can be used to address SMS messages) to access a USSD menu which then launches a series of steps to enable payments to merchants.



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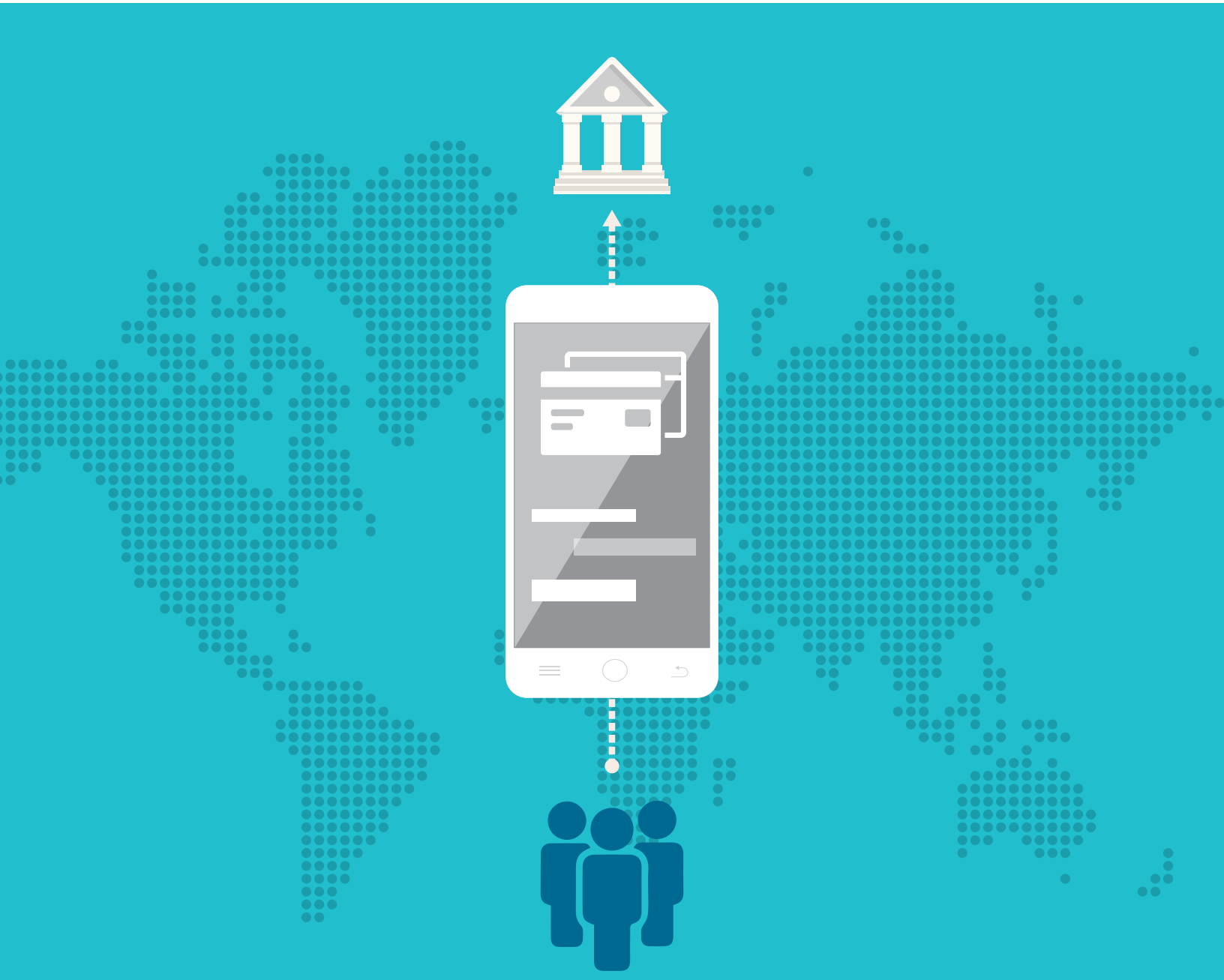
...the potential of P2G payments offers governments a compelling reason to invest in developing their payment ecosystems.



EXECUTIVE SUMMARY

This is the first comprehensive study to systematically examine the opportunities and challenges associated with digitising P2G payments.

At an estimated USD 8 trillion across the globe and USD 375 billion in low- and lower-middle-income countries alone, person-to-government (P2G) payments make up a significant part of the payments landscape.[1,2] The value proposition for digitising these payments is clear—and compelling:

- **For governments:** The promise of improved finances (driven by reduced costs and leakages), greater operational efficiency, and an opportunity to dramatically improve governance (increase transparency, address corruption, better understand consumers, etc.). For example, the education ministry in Côte d'Ivoire is now making policy decisions based on data collected on 1.5 million students as part of a school registration payment process.
- **For financial service providers (FSPs):** The opportunity to strengthen existing business lines, expand to new ones, and explore new business models, thereby increasing value for current and new customer segments. For example, in the Philippines, Globe, a major mobile network operator (MNO), considers investments in P2G solutions as a way of attracting and retaining customers. In Rwanda, MVEND, a payments aggregator, is considering using data collected through the digital P2G payment process to offer small and microloans to low-income families for secondary school.
- **For consumers, including the unbanked and underbanked:** A way to transform how they interact with their government (faster, cheaper, and more convenient and transparent) and a potential pathway to financial inclusion (by opening accounts and access to digital financial services [DFS]). In India, users of Karnataka's comprehensive e-governance platform, MobileOne, suggested during interviews with our team that they could take on more work and earn an additional INR 1,000–3,000 (USD 15–45) per month by using the time saved travelling to and from government payment points.

Yet, **digitising these payments has received relatively little attention to date,** particularly in relation to other types of payments such as government-to-person (G2P), remittances, and merchant payments. **This is the first comprehensive study to systematically examine the opportunities and challenges associated with digitising P2G payments.**

In undertaking this study, we sought to answer two central questions: (i) "Can digitising P2G payments help drive the financial inclusion of poor consumers?" and, (ii) "What does it take to set up efficient, sustainable, and inclusive payment systems for government fees and services?" Following a preliminary global scan of 61 initiatives, we studied 9 diverse P2G initiatives across 7 countries, focusing on those in Rwanda, the Philippines, and India,

1. We use the World Bank's definition of "low-income" and "lower-middle-income" countries throughout this document. The term "low- and lower-middle-income countries" is used interchangeably with "emerging economies". A list of these countries can be found at http://data.worldbank.org/about/country-and-lending-groups#Low_income.
2. See Annex 1 for additional details of market size estimates, including methodology.

where we conducted in-country research. These initiatives cover a range of use cases—from school fees to transport to small business registration—that we thought could have relevance to the unbanked. The scan includes examples of successful *and* failed initiatives.

We interviewed **86 experts** over the course of our study—including representatives of national and local government bodies, regulators, donors, FSPs, and payment experts—and **more than 90 users and non-users** of these digital services to test our hypotheses and validate our findings (see Annex 2 for a complete list of interviewees). The full approach is detailed at the beginning of the report. Our research is by no means exhaustive; there are many other ongoing efforts to digitise payments and many initiatives are still in their infancy. The user base was so small in a few cases (e.g., business registration and tax in the Philippines) that finding regular users proved challenging. However, a number of recurring themes surfaced across initiatives, countries, and users. These provide the initial evidence for our findings. We hope that further research in additional country contexts will help validate this report and uncover new findings.[3]

Nearly all solutions offered were for a standalone service or fee and were rarely linked to a national information and communications technology (ICT) or payments strategy.

We found that digital P2G initiatives are still very much in their infancy. At the aggregate level, only 16% of low- and lower-middle-income countries received tax payments predominantly in electronic form and only 6% received payments for utilities or other types of services predominantly in electronic form as of 2012, the last date for which this information is available. In a scan of 61 digital initiatives, 41 of which were in emerging markets, we found that nearly all solutions offered were for a standalone service or fee and were rarely linked to a national information and communications technology (ICT) or payments strategy.[4,5] Our research also revealed a need for products that consciously consider usability by the poor during product design (e.g., that do not presuppose digital or financial literacy, do not require a bank account, etc.).

Our research also revealed a need for products that consciously consider usability by the poor during product design.

While P2G is not a magic bullet for financial inclusion, digital P2G initiatives may still be able to drive the long-term adoption of digital payments among the unbanked and underbanked if:

- They are **anchored to a highly relevant use case**, i.e. payments that are made frequently and are relevant to large segments of the population.[6] Most government services/fees, however, are not paid for regularly: income taxes are traditionally paid annually and services such as birth registrations and passport fees are paid for on an ad hoc basis. The result is that, in most cases, a consumer is unlikely to open up a wallet or a prepaid card specifically for the purpose of making such government payments. Such services as transport, utilities, and school fees however, are notable exceptions.

3. There is already some work underway by CGAP (e.g., in-country research in Tanzania), GSMA (case study on a school fees initiative in Côte d'Ivoire), and the Better Than Cash Alliance (BTCA) (country-level diagnostics in selected markets, which include P2G payments).
4. See Annex 3 for a complete list of scanned initiatives.
5. Rwanda was a notable exception in that digitising payments is an integral component of its national payments strategy.
6. It is important to note that relevant use cases will vary widely by country.

Governments and their business partners make major investments to drive consumer awareness, education, and adoption through marketing campaigns that clearly communicate the value proposition of digital solutions.

- Governments and their business partners **make major investments to drive consumer awareness, education, and adoption** through marketing campaigns that clearly communicate the value proposition of digital solutions. Such campaigns educate consumers on how to use them, providing incentives such as discounts for early adoption (or disincentives for using cash). Further steps may include cautiously phasing out cash-based payments as an active policy measure to encourage digital payments. Our research shows that these approaches have demonstrable success. A notable example is Rwanda which has combined incentives (e.g., discounts for government services) with phased-in mandatory use of digital payments for certain services. Similarly, Jordan is investing heavily in upfront awareness and consumer education as part of its launch of a national digital payments solution.
- The **full business process—not just the payment—is digitised.** Users and non-users alike repeatedly pointed out that in order for them to see benefits, the entire process would need to be digitised, not just the payment. In India, we saw that digitising the payment did not fully address the issue of corruption. It merely shifted the point at which officials collected bribes. For example, in the case of birth certificates, we saw that consumers were forced to pay bribes at the point of delivery of the certificate. Similarly, in the Philippines, payments for business registration at a local city hall can take anywhere from four hours to two days. The bulk of the time is spent in getting an assessment for the tax due and submitting the appropriate forms, not in making the actual payment. In situations like this, a digital payment solution does not actually eliminate the need for consumers to go to a government office or stand in long lines, which dramatically diminishes the value of the digital payment. In the words of one consumer, "I still have to stand in line, so why bother paying digitally?"

Key issues include connectivity, interoperability, fraud and security, and consumer recourse.

- **Concerns around the product experience are addressed.** Unsurprisingly, our research uncovered that digital P2G payments suffer from many of the same issues—e.g., poor product design and functionality, a lack of consumer awareness, low levels of consumer training—that typically prevent other forms of digital payments from taking off in new markets. Given that consumer recourse mechanisms are either too slow or non-responsive in many countries, a failed transaction or a need (actual or perceived) for physical receipts could turn consumers away from using digital payments altogether. In the case of a payment for fines or taxes, a failed transaction or a digital receipt that is not accepted as proof of payments, could even result in penalties or punishments for the consumer.
- **Broader issues related to digital payments are addressed in parallel.** Key issues include connectivity, interoperability, fraud and security, and consumer recourse. We saw numerous instances of dropped or failed transactions in all three countries. Consumers also said that the value proposition of digital P2G solutions was severely diminished without account-to-account interoperability. [7] For example, in Rwanda, not all banks have signed onto Irembo, an online platform to access major government services, meaning that not everyone can use the platform.

7. See Section 6, "Today's Challenges: Driving Consumer Adoption" for a detailed discussion on the role of interoperability.

In addition, consumers in the Philippines and India expressed concerns about stolen identity and personal identification numbers (PINs) and, relatedly, poor recourse from the government and FSPs. These issues have been noted in other studies as well and our research continues to highlight the importance of addressing them to help encourage adoption.

Combining P2G efforts with other efforts such as G2P initiatives to disburse salaries, etc., could enhance the value proposition of both, i.e. digitising G2P gives consumers an electronic balance while P2G offers use cases that could help convince consumers to keep money in and make payments directly from their accounts. While we have not yet seen this link in specific emerging market country examples, we believe it is a promising area for additional research.

Combining P2G efforts with other efforts such as G2P initiatives to disburse salaries, etc., could enhance the value proposition of both.

We believe there are four critical factors that will determine whether governments are positioned to launch P2G initiatives set up for long-term success. In no specific order of priority, these are:[8]

- **Strong levels of buy-in from within the government and across business partners:** For example, top-level support from an individual champion or a team dedicated to e-government, as well as commitment from government agencies and business partners to co-developing a viable, long-term business model.
- **Reliable infrastructure:** This includes reliable connectivity throughout the payment process, strong back-end systems, and an inclusive and consumer-friendly payments ecosystem.
- **An enabling policy environment:** This includes regulations that allow government agencies to accept digital payments, issue and accept digital receipts, and offer consumer protections (e.g., data privacy and security and consumer recourse in cases of fraud).
- **Indications of consumer-readiness:** Given the relative complexity of P2G payments, countries that have been successful in driving digital solutions for other services (e.g., person-to-person [P2P], G2P) are more likely to be successful in driving the adoption of digital payments for P2G than the other way around.[9]

Given where emerging markets are today, these criteria indicate that digitising P2G will likely be a long-term investment for most countries. Making these investments, however, can have benefits beyond P2G and result in drastic improvements in the overall digital ecosystem.

Interoperability is now a major part of the global payments agenda.

8. These factors are not listed in order of priority as the level of importance/relevance will vary based on country context. For example, indications of consumer readiness may be less critical in a country that plans to mandate digital payments.
9. P2G payments are particularly complex from both the supply and demand perspectives. On the supply side, they require partnerships between multiple government agencies and the private sector, and possibly legislative approval. P2G payments can also be a challenging starting point from a demand perspective. Previous studies have demonstrated that consumers tend to begin the journey to digital with P2P payments before attempting to make other types of payments. We explore these issues in further detail in the study.

Digitisation of P2G payments can make a valuable contribution to driving greater consumer adoption of digital payments, account usage, and ultimately, other financial services.

We remain optimistic about the potential of digitising P2G payments despite the challenges of setting up and adoption. There are some signs of traction within the P2G space itself, as well as changes to the broader digital finance ecosystem that suggest future promise:

- Governments are increasingly prioritising the digitisation of P2G payments as part of a holistic and strategic approach to digitisation (e.g., Rwanda, India, Jordan).
- Some initiatives are starting to take off (e.g., school fees initiative in Côte d'Ivoire and the Tap&Go initiative in Rwanda).
- Countries are increasingly investing in their digital payment ecosystems as a whole. For example, among other trends, interoperability is now a major part of the global payments agenda. Countries like Mexico and Nigeria are considering changes to know-your-customer (KYC) policies and some countries are making significant investments in improving payments infrastructure at the national level (e.g., Jordan, Philippines).

Ultimately, we believe the potential of P2G payments offers governments another compelling reason to invest in developing their payment ecosystems overall. If this is done well and in a sequence that is suited to a country's specific context and needs, we believe that the digitisation of P2G payments can make a valuable contribution to driving greater consumer adoption of digital payments, account usage, and ultimately, other financial services.

SECTION 1

Study Objectives and Approach

As we explore in this study, person-to-government (P2G) payments are a significant part of the overall payments landscape and digitising these payments could have tremendous economic and social benefits for governments, companies, and consumers. Despite the significance of the opportunity, digital P2G payments are still in their early stages and very little is known about them today.

This global landscape study on digitising P2G payments is the first comprehensive report to be published on the topic. In undertaking this study, our objectives were to: (i) understand the value proposition of digitising P2G payments; (ii) document the progress made to date; (iii) explore the current barriers to widespread adoption, and, based on all of these considerations, (iv) propose a path forward.

We first established common terminology around what qualifies as a P2G payment and specifically what qualifies as a ***digital*** P2G payment. To ensure that our definition was robust, we tested it against multiple initiatives derived from a scan of more than 60 P2G initiatives across the globe that have self-identified as "digital".

Our findings are also informed by:

a) **An analysis of existing data on P2G payments:** While existing data on P2G payments is sparse, we relied heavily on data from the World Bank, the Better Than Cash Alliance (BTCA), and others to inform our understanding of the size and relative use of digital instruments for P2G payments today. Further detail on our methodology for calculating the size of P2G payments can be found in Annex 1.

b) **In-depth analyses of nine initiatives selected from our initial scan:** These initiatives cover a range of payment types and methods, with an emphasis on initiatives that required no bank account and were located in low- and lower-middle-income countries. In some cases, these initiatives were not fully digital (e.g., traffic fine payments in Pakistan) or fully relevant to the unbanked (e.g., large numbers of the unbanked do not need to make tax payments). However, we chose them to draw broader insights that could still apply to our target group of unbanked and underbanked consumers.

   We provide a list of these nine initiatives and the rationale for selecting them in Exhibit 1. Full case studies can be found in the case studies section of the report. The case studies are informed by interviews with the government bodies and companies responsible for implementing these initiatives, as well as our own analysis of the supporting data.

c) **In-country research in India, the Philippines, and Rwanda:** We selected these countries based on the diversity of their P2G initiatives and key differences in their enabling environment and/or digital payment ecosystem.[10] We met with regulators, government bodies, banks, mobile network operators (MNOs), and other private sector actors in these countries to better understand the rationale,

10. We were keen to study India given its strong government focus on financial inclusion schemes, including opening up bank accounts for unbanked individuals, widespread digital G2P payments, and the presence of an award-winning digital P2G solution (MobileOne). We selected Rwanda for its relatively high levels of mobile money adoption and the government's commitment to, and involvement in digitising payments, including P2G. By contrast, the Philippines is notable for its relatively high rate of prepaid card adoption compared to mobile money (an initiative that never took off) and for the level of donor involvement in launching some of its initiatives.

We conducted 86 interviews with global and in-country experts, as well as interviews and FGDs with more than 90 current and potential consumers.

design, successes, and challenges of the specific initiatives that we were studying. We also spoke with other in-country experts (e.g., clearinghouse representatives, payment processors, etc.) to better understand the digital payment ecosystem. We conducted one-on-one interviews and focus group discussions (FGDs) with consumers, including users and non-users, to gain consumer-level insights and understand the current challenges to consumer adoption.

d) **Conversations with a range of global payment experts:** These included experts on national payments infrastructure, teams that have conducted global payment surveys, and experts on government-to-person (G2P) payments.

Ultimately, we conducted 86 interviews with global and in-country experts, as well as interviews and FGDs with more than 90 current and potential consumers to collect the data and insights that form the basis for this study. The full list of experts can be found in Annex 2.

EXHIBIT 1

Nine initiatives selected for deep-dive analysis

Initiative	Country	Rationale for selection
Back to School: Digitising school fee payments via mobile money	Ghana	A provider-led initiative for school fee payments, different from the well-studied Côte d'Ivoire initiative, which was government-led.
Karnataka MobileOne: Integrated mobile payment solution for government services	India	Provides a fully integrated solution for more than 1,000 government services through a mobile-based solution. A comprehensive state-level initiative launched by a state government.
Atal Pension Yojana (APY): Direct bank debit for pension payments	India	Explicitly targeted at the unbanked/underbanked. Directly linked to a large-scale financial inclusion programme being run by the government.
Jordan Mobile Payment (JoMoPay) + eFAWATEERcom: National payment switch with an online integrated payment portal that allows citizens to make P2G payments	Jordan	The only initiative in our research that examines the process of setting up a national payments switch. Allowed us to study the role of policy and regulatory support crucial to creating an enabling ecosystem for digital P2G payments.
E-challan: Over the counter (OTC) payments for traffic violations	Pakistan	The solution itself was not entirely digital (consumers paid agents in cash, who then used point-of-sale [POS] devices to make electronic payments on behalf of the consumer), but allowed us to test hypotheses related to driving down leakages.
Bayad Load: Airtime payments for social welfare schemes	Philippines	The only initiative in our research that offered consumers the ability to use airtime to pay for government services. Explicitly targeted informal sector workers.
Small business registration and tax payments	Philippines	The only initiative to have significant support from a major donor. Allowed us to study P2G payments from the perspective of small and microbusiness owners. Telecom is initially subsidising the cost of transactions to both government and consumers to retain and drive market share.
Tap&Go Smart Card: Smart card payments for public bus transport	Rwanda	The only initiative in our research that focuses on public transport, a service with frequent payment schedules and thereby particularly well-suited for digitisation. The government is mandating the adoption of cashless systems for public bus transport across Kigali by 2016, allowing us to explore the role and impact of government mandates in driving consumer adoption.
Water utility payments through mobile phones	Tanzania	One of the earliest examples of mobile-based payments for utilities, allowing us to study the evolution of the initiative over several years.

SECTION 2

Defining Digital P2G Payments

According to the World Bank, P2G payments are those that are made by individuals (payers) to government agencies or public sector organisations (payees). These can vary widely by country. While taxes are always paid to the government, services such as transportation and utilities are sometimes owned and/or operated by the government, sometimes by the private sector, and sometimes by public-private partnerships (PPPs). Services managed by governments are managed at the national, state, or local level (World Bank 2012a; Scharwatt 2014).

P2G payment types (i.e. the fees and services for which the consumer is making a payment) include *mandatory payments, payments for government services,* and *co-payments for social benefits:*

- **Mandatory payments:** Payments that are typically required by law or government order. Examples include taxes (e.g., income, property, sales) and fines or penalties (e.g., traffic, court-ordered);
- **Payments for government services**: Payments made for services rendered by government agencies or its contractors. Examples include transportation (railway, bus), education (school or university fees), visa, passport fees, other permits or registrations (birth, death, marriage, vehicle registration, driving licences), business registration, and utilities (power, water, fuel);
- **Co-payments for government benefits**: Co-payments for benefits provided by the government. Examples include health, life insurance, pensions, and public provident funds.

This study focuses on the *methods*—specifically digital methods—of making payments for any and all of these services. For the purposes of this study, then, we define **digital P2G payments** as:

The transfer of funds directly from **individual or business** accounts to government accounts, making use of a **digital payment method**.[11]

The payer, payee, and payment type in our definition are generally aligned with those of previous definitions (with a few caveats as illustrated in Exhibit 2). Where our current definition departs from most previous definitions is in limiting the payment methods to those that use digital channels, instruments, and stores of value—and with the stipulation that the consumer must have an account. We define these components of a digital payment method below:

- **Channel:** The space where, or interface through which customers initiate a transaction. Digital channels include mobile phones, computers, tablets, POS terminals or machines, automated teller machines (ATMs), digital kiosks, and, in selected cases, bank branches.[12]
- **Instrument:** The means by which a customer transfers value to the government. Digital instruments include cards (debit, credit, prepaid), direct debits, and electronic fund transfers (EFTs). Examples of EFTs include real-time gross settlements (RTGS), national electronic fund transfers (NEFT) (India), and automated clearing houses (ACHs).

11. We include microenterprises in our definition of P2G payments, given their relevance from a financial inclusion perspective (businesses employing less than ten individuals, as defined by the World Bank).

12. We consider bank branch transactions to be digital when consumers initiate fund transfers using their own accounts (through ATMs or with the help of agents).

- **Store of value:** Anything that allows an individual to store and retrieve value at a later date. Digital stores of value include a bank account, e-money or stored value account, or prepaid account.

Exhibit 2 outlines the dimensions of the definition.

EXHIBIT 2

The dimensions of the definition of P2G payments

	Payer	Payee	Payment type	Payment method
Overview	The individual from whose account the payment is being made to the government	The government agency being paid through the transaction	The service/fine/fee for which the payer is making a payment	The combination of channel, instrument, and store of value by which the payer makes the payment
Included in definition	▪ Citizens ▪ Other residents, e.g., non-citizens, migrant workers, refugees, etc. ▪ Non-resident citizens ▪ Micro enterprises (< 10 employees) and small businesses (if not possible to separate from microenterprises; otherwise excluded)	▪ Government-run enterprises, including public-private partnerships (PPPs) ▪ Any government-related service when provided by a private player, but payment made to the account of the government, e.g., payment of tolls, fees, or utilities (when the government has a majority stake)	All payments made to the government including: ▪ Mandatory payments, e.g., taxes and fines ▪ Government services, e.g., public transport ▪ Co-pay for government benefits ▪ Utilities (only if a government service)	▪ Channels such as POS terminals or machines, mobile phones, ATMs, bank branches, computers ▪ Instruments including cards (credit, debit, prepaid), electronic funds transfers (EFTs), including real-time gross settlements (RTGS), national electronic funds transfers (NEFTs), and automated clearing houses (ACHs), and direct debits ▪ Stores of value, e.g., bank accounts, e-money/stored value accounts, prepaid accounts
Excluded from definition	Medium and large corporations	Privately owned and run organisations with no government shareholding or ownership		Any channel using cash payments

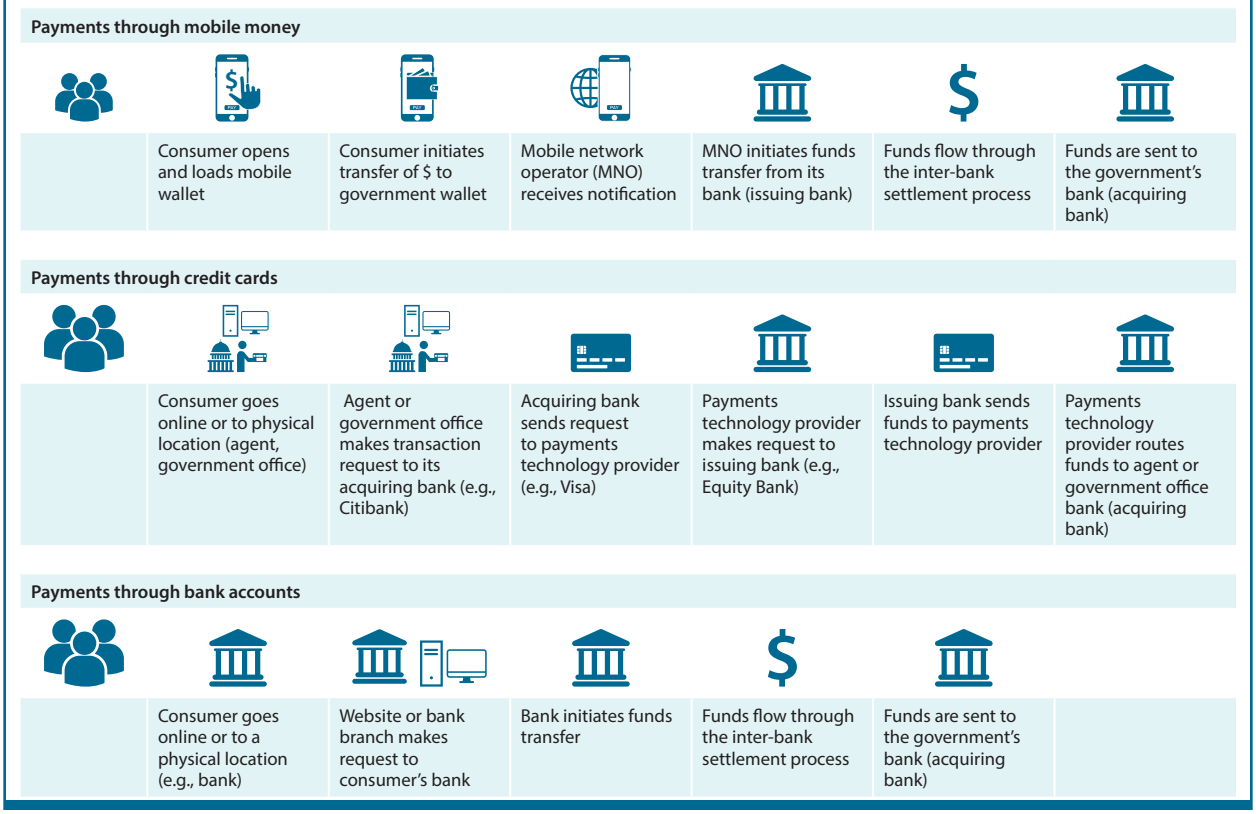
Payments can be initiated in a variety of ways and can involve a number of actors and physical locations.

It is important to note that **there is a fair amount of confusion in the market as to what constitutes a digital payment.** In some cases, we found that people considered a payment electronic if the government systems handled the back-end processes digitally, regardless of how the consumer conducted the transaction on the front end. Such initiatives were screened out from our study.

For the global landscape study, **the definition is based on an assumption that the payment should be digital end-to-end**, i.e. the exchange of value should be digital from initiation to fund transfer to settlement and disbursement. Exhibit 3 illustrates payment flows for different types of digital P2G payments. Not all payments will follow one of these schematics exactly, and there are other payment options available to consumers (e.g., prepaid cards), but these flows demonstrate that payments can be initiated in a variety of ways and can involve a number of actors and physical locations.

EXHIBIT 3

Illustrative end-to-end payment flows for different types of digital payments



Why is "digital from end-to-end" an important distinction? A fully digital experience brings greater value to the system—as described in this study—compared to OTC and other types of paper-based transactions that still involve many of the same costs as a cash-based system, such as time delays and the need for agents and physical presence.

Efforts to encourage digital P2G payments are part of a larger movement to encourage consumers to use digital channels and move away from cash-based behaviour. When a customer visits a store to make a payment and the store employee makes the digital transaction on her behalf (without the customer ever establishing a digital account), the transaction is doing little to help consumers move down the path to a digital economy. Put another way, our view is that **fully digital payments are those that are likely to have the greatest operational/system-wide benefits while also having the greatest impact from a financial inclusion perspective.**

However, for the purposes of this study, we *do* consider "agent-assisted OTC transactions" (when an agent helps a customer make a payment using the customer's individual account) to be digital, although they are a step short of full digitisation. The reality is that the number of cash-in points in emerging markets is still limited today. This makes it difficult for customers, particularly the unbanked and underbanked, to store value digitally. We similarly consider payments that require consumers to fill a transfer slip at a branch to be digital payments as they fulfil the criteria described earlier.

Our hope is that this new definition will help establish a common language and clear understanding of what constitutes a fully digital P2G payment. Such a common language serves an important purpose. As governments and the private sector explore the potential of digital payments to boost financial inclusion, government transparency, and other ambitious goals, actors in and outside of government look to absorb lessons from the experiences of other actors. It is crucial that we adopt a robust definition as a basis for comparison if we hope to understand the value of digital payments across a range of contexts (to track what works and what does not, and measure how effective digital payments can be).

SECTION 3

The Promise of Digitising P2G Payments

P2G payments are a significant feature of the global payments landscape. They typically include taxes (the largest component), fines, fees, and payments for utilities, among others. Collectively, they are:

- **Large in absolute value**, totalling an estimated USD 7.7 trillion globally, and USD 375 billion (~50% of annual government expenditure) across low- and lower-middle-income countries alone.[13,14]
- **Large relative to other notable payment flows.** While data with which to make systematic comparisons is sparse, indications are that P2G payments are significant in size relative to other large payment flows. For example, the P2G market in low- and lower-middle-income economies alone is comparable to the entire global remittance market (USD 528 billion in 2014) (World Bank 2016). Moreover, P2G payment flows are, in some cases, directly comparable in value to G2P payments (e.g., USD 25 million vs. USD 26 million per month in Malawi and USD 2.1 billion compared to USD 3.3 billion per month in Colombia). In other cases, P2G payments represent roughly a fifth of the size of G2P payments (USD 550 million compared to USD 4 billion per month in the Philippines and USD 408 million compared to USD 2.3 billion per month in Nigeria) (Hokans 2015; Zimmerman 2015; Marulanda 2015).[15]
- **Unique in their wide reach**, in that nearly every single adult citizen, including the financially excluded, makes payments to the government.

P2G payments are significant in size relative to other large payment flows.

Digitising these payments has a strong—and compelling—value proposition for governments, businesses, and consumers alike. Digitising payments can alleviate considerable costs for each of these actors and unleash new opportunities by facilitating progress toward shared goals such

The reality is that the number of cash-in points in emerging markets is still limited today.

13. P2G payments are calculated as government receipts minus business tax payments. Government receipts include revenue from taxes, social contributions, and other revenues such as fines, fees, rent, and income from property or sales (grants are excluded). Business tax payments are calculated as total tax payments (World Bank data) minus individual tax payments (OECD data). All data was available as of 2010 and extrapolated to 2014 using GDP growth rates (World Bank data on GDP at market prices). See Annex 1 for assumptions and a detailed methodology.
14. General government final consumption expenditure, as defined by the World Bank, includes all government current expenditures for purchases of goods and services (including employee compensation). It also includes most expenditure on national defence and security, but excludes government military expenditures that are part of government capital formation.
15. Globally comparable data across G2P and P2G payment values is not available. Components of P2G and G2P payments vary by country, but generally P2G payments in these four countries include taxes and utilities while G2P payments include public sector salaries, pensions, and social welfare transfers.

as financial inclusion. Exhibit 4 summarises the value proposition for each actor; these are discussed in greater detail below.[16]

EXHIBIT 4

Summary of value proposition from digitising P2G payments

GOVERNMENTS

- Savings in operational costs
  - » Costs of running collection centres
  - » Costs of handling cash
- Increased revenues
  - » Greater number of users
  - » Fewer leakages
- Increased efficiency to collect, track, and process payments
- Increased effectiveness
  - » Increased accountability
  - » Ability to improve services and inform policy by analysing data (e.g., analysing payment trends)
  - » Ability to advance financial inclusion objectives

BUSINESSES

- Strengthening of existing business lines
  - » Attracting new customers
  - » Increasing transaction volume and loyalty of existing customers
  - » Better understanding of customer base and optimisation of business operations
- Expansion to new business lines
- Ability to explore new business models (small margin, high volume)

CONSUMERS

- Time savings
  - » Reduced travel time
  - » Faster/shorter queues to access cash or services
- Cost savings
  - » Transport costs
  - » Opportunity cost/lost income due to time associated with making payments (transport, standing in line, making payments)
- Improved user experience
  - » Faster payment processing
  - » Increased transparency
  - » Decreased corruption
  - » Products more directly tailored to consumer needs
  - » Pathway to financial inclusion

P2G payments can also promote shared goals across actors, such as financial inclusion

For Governments

Digitising P2G payments offers governments the promise of improved finances, greater efficiency, and increased effectiveness:

- **Governments can provide services more cost-effectively (in some cases, allowing expansion to more areas) due to savings on costs of running collection offices and managing and transporting cash.** Consider the example of the MobileOne platform in India, an integrated e-governance solution that allows consumers to access—and where relevant, pay for—nearly 1,000 state and national government services.[17] Originally designed as a series of kiosks/walk-in centres (known as BangaloreOne centres), this service was initially available only in urban areas due to the costs associated with setting up and administering the centres in rural locations. Once payments moved to mobile, the services were cost-effectively extended to users in rural locations and the need for collection centres diminished in urban locations. In Rwanda, the Tap&Go smart card system for public buses holds the long-term potential

The MobileOne platform in India, an integrated e-governance solution, allows consumers to access nearly 1,000 state and national government services.

16. The number and extent of benefits accrued will vary considerably depending on a wide range of factors including the type of payment digitised and the policy and regulatory environment.

17. See the case studies section for additional information on this and other initiatives referenced in the report. These include: (i) Ghana: Digitising school fee payments via mobile money; (ii) India: Direct bank debits for pension payments; (iii) India: Integrated mobile payment solutions for government services; (iv) Jordan: National payment switch with an online integrated payment portal that allows citizens to make P2G payments; (v) Pakistan: OTC payments for traffic violations; (vi) The Philippines: Airtime payments for social welfare schemes; (vii) The Philippines: Business registration and tax payments through mobile money; (viii) Rwanda: Smart card payments for public bus transport; and (ix) Tanzania: Utility payments via mobile money.

"When you automate the system, it brings many benefits such as plugging leakages, introducing integrity, making control easier, making it easy to track payments and user history...the entire payment history of the taxpayer is central and easily accessible"

Government official in the Philippines

Fatigued by the time and energy required to make non-digital payments, consumers resort to paying bribes to delay or even skip payments altogether.

to eliminate the role of the ticket-taking conductor altogether and save substantially on staff costs. Similarly, digitising passport fees in Pakistan means that the National Bank of Pakistan (NBP) is no longer losing money on every transaction. Previously, processing a passport payment cost PKR 200–250 (~USD 2.00–2.50), of which only PKR 29 (ten percent of the cost) was passed on to the consumer. The rest of the cost was absorbed by the national exchequer. Now the government charges consumers PKR 100 to use the digital option which covers costs incurred by JazzCash (formerly Mobicash), the implementation partner, and the NBP. In the aggregate, reliance on cash is estimated to cost national economies 0.5–1.5% of GDP. Thus, while difficult to quantify, migrating P2G payments to digital could result in meaningful savings for governments.

- **Governments can raise additional revenue, for example, by increasing the number of payers or reducing leakages in the system.** Multiple examples highlight this point. Fatigued by the time and energy required to make non-digital payments, consumers resort to paying bribes to delay or even skip payments altogether. This, in turn, leads to revenue losses for governments. In 2011, the Tanzania Revenue Authority (TRA) enabled tax payments over mobile money for property taxes and personal income taxes. Just a year later, around 15% of the tax base was paying via mobile money. A study found that some of those now using mobile payments had no history of paying taxes, suggesting a decrease in tax avoidance over that period (Scharwatt 2014). Similarly, the inconvenience associated with the payment of traffic fines in Pakistan historically led users to pay fines directly in cash to police officers.[18] A recent initiative to digitise these payments (E-challan) is likely to increase fine collections, and early findings suggest that leakages (estimated to be 40% before digitisation) have declined considerably.[19] The Tap&Go system in Rwanda has resulted in reduced direct skimming (i.e. pocketing of fees) by bus drivers and conductors; revenues increased from RWF 5 million (USD 6,500) in January 2016 to RWF 12 million (USD 15,600) in February 2016. It has also reduced drivers' ability to demand and pocket greater fees (Uber-like surge pricing) from consumers during periods of high demand, i.e. evenings and bad weather. The benefits of reduced leakages go beyond increased revenues. Our interviews with government officials highlighted that they deeply valued the reduction of corruption because it results in **better governance and greater transparency.**
- **Digitising payments can also increase the efficiency of government operations.** For example, a programme that enabled public school fees in Côte d'Ivoire to be collected via mobile money allowed the government to collect fees over a shorter period and earlier in the year (due to faster processing) (Frydrych et al. 2015). In Rwanda, there is emerging evidence that buses that are cashless have faster-moving routes than those that still use cash. And in India, the MobileOne platform discussed earlier bundles several types of payments into one app. This reduces the redundancies from working with multiple vendors and generates cost savings.

18. Traffic fines are typically paid at a designated bank branch that operates during normal work hours. Offenders anticipate a 3–4-hour process and there is no guarantee that confiscated documents (e.g., driving licences) will not be misplaced.

19. Data self-reported by A2Z ePayments, an e-payment provider in Pakistan.

- **More broadly, digitising payments can provide a pathway for governments to be more effective by increasing their accountability to citizens and collecting data to inform their understanding of consumer needs.** Some of these mechanisms are more immediate—for example, the E-challan system in Pakistan allows not only for increased savings, but also promotes greater accountability for police officers: each officer issues individually numbered *challans* (i.e. the individual tickets for traffic violations). The *challans* can be tracked from issuance to payment completion. Others, such as systemic reforms based on an improved understanding of user behaviour and needs, are more likely to unfold over the longer term and we are already beginning to see encouraging signs. In Côte d'Ivoire, digital registration of students has allowed the ministry of education to compile a consolidated student database of over 1.5 million students. The database has allowed the ministry to collect statistics on students and make policy-related decisions. The Groupe Speciale Mobile Association (GSMA) conducted a case study on this initiative that highlights how the student database allowed the government to "identify, quantify, and track the issue of pregnancy among female students," and thereby address one root cause of low rates of female schooling. The Rwandan government has also expressed interest in using consumer data to gain consumer insights and make policy decisions. For example, there is interest in exploring the potential of a "double wallet" to help parents save for other school-related expenses. However, more sophisticated use of data is not an immediate priority as the government is currently more focused on launching other P2G initiatives.[20] In Jordan, the government believes that increased revenues from digitising payments will help it better manage its annual budget, thereby better serving the poor via subsidy allocation and direct benefit transfers.

For Businesses

Digitisation also unleashes new opportunities for business actors such as MNOs, banks, and technology companies, although the extent of these opportunities can vary greatly by the stage of digitisation and the type of payment being digitised.

- **The digitisation of P2G payments can help businesses strengthen their existing business models:**
  - » **Digital P2G payments can serve as a sustainable business line.** There are MNOs that generate a profit stream from processing P2G payments. For instance, the estimated profit margins for MNOs in Uganda and Tanzania for mobile money payments of water bills range from USD 0.2 – USD 0.4 per transaction (Hope et al. 2011). In a similar vein, Telenor, the MNO that runs the E-challan model in Pakistan, expects to break even in two to three years as the number of transactions on the platform grows.
  - » **P2G payments can serve as an additional value-added service** to attract new users and retain existing ones for non-P2G services, especially for MNOs. While P2G payments tend to be relatively low in value (the school fee payments in Côte d'Ivoire discussed above represented just one percent of the MNO Orange's total annual transactions in 2014), they can help sustain a base of active users who may then also use other services.
  - » **Data collected through digitisation can strengthen understanding of consumer needs and behaviour.** For example, AC Group, the smart card operator behind Rwanda's Tap&Go bus fee payment system, plans to collect demographic, transit, and payment information to share with the bus operators to improve their overall service delivery.
- **The digitisation of P2G payments can also serve as a gateway to additional business opportunities.** Our conversations in Rwanda highlighted the potential of data analytics, in particular. As part of the data required for assessing credit-worthiness, MVEND, an aggregator, is looking at using data collected through the digital P2G payment process to offer small and microloans to low-income families for secondary school.

20. The double wallet is intended to help parents put aside any regular savings on mobile money into a linked account earmarked for a specific purpose.

For Consumers

Making P2G payments digitally can help consumers save time and money and considerably improve their experience with government services:

- **Consumers can save hours (and in some cases, quite literally, *days*) currently spent travelling to and from payment centres and standing in queues to access cash and make non-digital P2G payments.** Consider the example of motor vehicle licences in Tanzania. Prior to digitisation, people paid the annual licence fee by cash either at banks or at the TRA, a process that could take anywhere between half a day and a full day. Once mobile money payments were allowed in 2013, the time required to complete the process dropped to less than an hour as consumers could pay digitally and then print the licence sticker out at the TRA (Pillai 2016). We heard similar stories of long travel and wait times across our research; three to four hours for traffic ticket payments in Pakistan, three to four hours for domestic worker benefit co-payments and four to five hours for small business registration in the Philippines. The overall time spent can be higher for rural consumers, in particular. For example, in India, rural consumers said they needed to travel two to three hours each way to make payments in Bangalore. Payments can often span multiple days during the work week, resulting in lost income. Depending on the payment type, payment options can also be concentrated in a single location (e.g., a bank or government office) or be limited to a small window of time (e.g., school fee due dates), which exacerbate the queues.[21]
- **Saving time results in meaningful financial and non-financial benefits for consumers.** The time spent travelling and making payments has meaningful opportunity costs—notably, time to generate additional income and time to spend at home doing chores or with the family. For example, in India, users of the MobileOne solution said that they earned an extra INR 1,000–3,000 (USD 15–45) per month due to the additional time spent at work. While some of these savings are a result of avoiding the lost income discussed above, another source of savings comes from eliminating transport expenses—users in Rwanda pointed out that every trip to the district office (and there could be several for a single transaction) costs them roughly RWF 200 (USD 0.25). The costs and fees associated with digital payments may also be less likely to fluctuate over time. Users in Rwanda also explained how bus conductors charge an added fee of up to 30% of the fare for travel post sunset or when it rains.[22] Consumers, especially the poor, may not have the luxury of adjusting their travel timings to minimise such costs.
- **Digitising payments can also improve the user experience (UX) in other ways, e.g., by speeding up service provision, increasing payment transparency, and reducing corruption.** Digital payments also have the potential to offer consumers faster access to services (payment is often processed faster), increased transparency (consumers can track their payments), decreased corruption (consumers can more easily register complaints and all payments are recorded), and, in general, an improved UX (digital products can be designed to be more tailored to consumer needs). A striking example of accelerated service comes from the prepaid electricity market. Digitising payments across

Consumers queue up to pay their income taxes in Quezon City (Source: Dalberg)

21. An FGD with six university and high school students was conducted in Musanze district, Rwanda. They said the earlier process of making payments involved waiting in long queues at the bank (up to 60 minutes) to make cash payments. This inconvenience was exacerbated by the fact that most people waited until the last day to make their payments. In addition, deposit charges are imposed on people without bank accounts at the same bank.

22. This is similar to surge pricing/dynamic pricing models used for transport in other countries, e.g., private cab services such as Uber in the United States.

Rwanda, the Philippines, and Tanzania has allowed consumers to restore their prepaid electricity supply almost instantly upon making up a missed payment. This process used to take several days.

Exhibit 5 illustrates the consumer value proposition of digital payments through the example of birth registration in Rwanda. In addition to the time and cost savings illustrated in the exhibit, the consumer could also reap significant benefits from reduced opportunity cost, particularly if she chose to utilise the time saved for income-generating activities. Before the introduction of Irembo, the Rwandan government's digital platform launched in 2015, the birth registration experience was much more time consuming, more likely to be expensive, and required more transactions than it does with Irembo. This case also illustrates that the value proposition to consumers is the strongest if the entire service is digitised as consumers often need to continue to spend time and money to complete the service request after payment (in this case, the consumer has to return to the district office to collect the birth certificate).

The value proposition to consumers is the strongest if the entire service is digitised.

EXHIBIT 5

Illustrative customer journey before and after digitisation

Birth registration process - before Irembo

	Application/verification			Payment			Receive service	
	Collect stamp → Visit and wait Village office	Collect stamp → Visit and wait Sector office	Collect stamp → Visit and wait District office	Pay processing fee → Visit and wait Bank branch	Collect stamp → Visit and wait District office	-Receive notification →	Collect document → Visit and wait District office	
Time	15–60 mins	15–60 mins	15–60 mins	15–60 mins	15–60 mins	(After 2 weeks)	15–60 mins	1.5–6 hours
Charges	RWF 0–200+ (transport)	RWF 0–200+ (transport)	RWF 0–200+ (transport)	RWF 500 (flat charge)	RWF 0–200+ (transport)	RWF 0	RWF 0–200+ (transport)	RWF 500–1,500+

Birth registration process - after Irembo

	Application/verification	Payment			Receive service	
	Log-in/enter details on Irembo	Pay online via mobile money or VISA card	Receive receipt immediately	Receive notification	Collect document	
Time	20–120 mins (based on internet/data connectivity speed, website responsiveness)	5–10 mins	0.5 mins	(After 2 weeks)	15–20 mins	~40 mins–2.5 hours
Charges	RWF 0–400 (RWF 150–400 agent charges + charge for Internet café or phone data connection)	RWF 500 (flat fee)	RWF 0	RWF 0	RWF 0–200+ (transport)	RWF 500–1,100+

Note: "Stamp" refers to the formal signature and stamping procedure of the local government; the birth certificate document is valid for three months from the date of issue and is used as one of the supporting documents for the application of services such as driving licenses, etc.

In summary, we believe there is a strong value proposition for digitising P2G payments. Doing so would alleviate existing pain points (time, money, energy) that consumers currently face in making P2G payments, increase government efficiency and effectiveness, raise revenue, and unleash new opportunities for businesses to strengthen their existing offerings and expand into new ones. However, as we explore in subsequent sections, emerging economies are still in the early stages of digitising P2G payments and there is a range of barriers both to setting up effective systems and to consumer adoption. There are also risks associated with shifting payments to digital, such as leaving behind those who do not know how to use the system.

BOX 1

How digitising financial P2G payments can advance the financial inclusion agenda

P2G payments are unique in that they touch the lives of the vast majority of people, including the unbanked and underbanked, by design. These payments are often a regular feature of most people's day-to-day lives (school fees, bus tickets). They can even be mandated on occasion. For example, in Rwanda, the "Mutuelles de Santé" programme is a mandatory annual payment of RWF 3,000 (USD 4) to the Rwanda Social Security Board.

We are starting to see P2G initiatives that use solutions that can support the financial inclusion agenda (e.g., mobile money-based solutions, prepaid cards, etc.): Our study was designed to uncover such solutions. We were able to find 27 mobile-based initiatives (most of which included a mobile money payment option) out of the 41 emerging market initiatives we considered. These initiatives could reach financially excluded populations.

Our hypothesis and hope are that digitising P2G payments can improve financial inclusion by:

- **Encouraging more users to consider opening up digital money accounts ("banking the unbanked").** P2G payments offer yet another reason for users to open digital money accounts, particularly because some forms of payments (e.g., taxes, fines) are mandatory. Given that the payment is to the government, the government has the opportunity to also require that these payments be made digitally (as they can for G2P payments).
- **Encouraging regular and greater use of digital financial services (DFS).** Given the recurring and critical nature of some of the payments, once consumers begin using digital money for P2G payments, they may gain familiarity with digital accounts, start using them to receive payments, and, over time, even develop the habit of transacting digitally and/or leaving balances in their accounts to make subsequent payments. Governments that offer integrated solutions allowing digital payments have a particular advantage in that they can offer one convenient platform to pay for a broad array of services/fees with a likely one-time effort on customer education, followed by limited outlay for subsequent additions to the platform.
- **Enhancing financial health for regular users.** As with other digital payments, digital P2G payments can help consumers improve their resilience to financial shocks. For example, tools such as digital receipts allow consumers to manage their use of services (e.g., utilities or transport) and budget expenses better. Similarly, digital payments can result in greater flexibility for the consumer. For example, consumers can pay later in the month without actually being late because digital payments have shorter processing times. Similarly, if a payment is late, suspended services can be restored much faster, even automatically.

It is still too early to tell if these initiatives are advancing financial inclusion as many of them are in early stages and data is scarce. However, there are some early—and promising—signs:

- **Prepaid hospital cards in Tanzania are serving as a gateway to digital payments for unserved/underserved consumers.** A private hospital in Tanzania, Kilimanjaro Christian Medical Centre, set up a closed-loop prepaid card system, the 'Tembo' card, to address a major cash collection problem. The hospital has seen a 66% increase in revenues since the introduction of this card and several public hospitals have also adopted it. Importantly, ~20% of system users are believed to be new to digital payment instruments, though it remains to be seen whether their use of digital payments for hospital fees will translate into other types of payments.
- **Schemes linked to India's Jan Dhan Yojana programme—a national programme to open bank accounts for the poor—are helping reduce account dormancy.** For example, India's Atal Pension Yojana (APY) initiative automatically debits pension payments from consumers' bank accounts on a monthly basis (for those who have enrolled in the programme). Use cases such as APY and other schemes (e.g., insurance-based schemes) linked to India's newly opened bank accounts have helped the government reduce the number of dormant accounts under the new Pradhan Mantri Jan-Dhan Yojana initiative to under 25%.
- **In Uganda, mobile payment of water bills is producing greater service reliability for consumers.** Before the introduction of a mobile money-based payments solution, consumers would often miss payments, lose service, and pay their utility bills only after losing their connections. Even after the bill was paid, it would take days for their water to be reactivated due to delays in updating consumer accounts. By contrast, the mobile money solution offered by Mobile Telephone Network (MTN) Ghana has increased water supply reliability in two ways. First, the mobile solution reduces service disconnection time (in the case of a late payment) by eliminating the need for customers to travel to check account balances/pay bills, and by quickly updating customers' accounts. Second, MTN Ghana sends short messaging service (SMS) alerts for late payments, prompting consumers to pay and reducing the number of late payments and disconnections every month. Looking forward, offering prepaid solutions for utility bills can help consumers improve their financial health by tying utility consumption and payment to the size and flow of their income streams.[23]

We remain optimistic about the link between P2G and financial inclusion and believe there is a need for added research and data collection in this area. We also believe that linking systems for G2P and P2G can augment the effectiveness of both by multiplying the use of consumer accounts, therefore making it more likely that consumers will actively use such digital solutions.

23. For example, Mozido, a digital payment solutions provider, partnered with NettCash, a Zimbabwe-based mobile wallet company, to offer a range of payment solutions, including prepaid utility services. The service had more than 250,000 customers in just four months.

SECTION 4

The Transition to Digital: How Far are We Today?

Overall, the digitisation of P2G payments in emerging economies (low- and lower-middle-income countries, as defined by the World Bank) is in its infancy: At the aggregate level, only 16% of low- and lower-middle-income countries received tax payments predominantly in digital form and only 6% received payments for utilities or other types of services predominantly in digital form as of 2012 (the last available date for this information) (World Bank 2012b).[24] By contrast, high-income countries have already made notable progress towards digitising their payment systems (Dilmegani et al. 2014).[25] Data from the World Bank suggests that over 80% of high-income countries received taxes primarily through electronic means in 2012. The corresponding figure for payments for utilities and other services (e.g., fees or fines) was over 60% (World Bank 2012b).

Over 80% of high-income countries received taxes primarily through electronic means in 2012.

Existing initiatives face challenges on both the demand and supply side, and are not yet fully supportive of financially excluded populations: While systematic data on the types of initiatives in countries is limited, our scan of 60+ global initiatives included 41 examples from emerging markets. Across the board, we found that:

- **On the supply side, currently offered solutions are largely ad hoc.** The initiatives we studied were often not linked to a national government digitisation strategy, and there were many instances of multiple, separate initiatives within a single country. For example, we saw examples of two different and unlinked P2G initiatives in the Philippines—Bayad Load (MNO-led) and business registration and tax payment via mobile phone (donor-led and offered by a different MNO). Linking these initiatives could have created value for customers, especially small business owners who were paying fees for business registration and often also made social welfare contributions on behalf of their employees.
- **Adoption continues to be a challenge on the demand side.** We saw that the adoption of several existing initiatives was quite low across all of our conversations. For example, mobile-based payments for business registration and taxes in Batangas City in the Philippines have no

The initiatives studied were often not linked to a national government digitisation strategy, and there were many instances of multiple, separate initiatives within a single country.

24. Electronic means are defined as payment instructions that enter a payments system via the Internet or other telecommunications network. Examples of devices used to initiate payments include computers and mobile phones and examples of instruments include e-money and debit/credit transfers. Alternatives to electronic payments include payments by cash and through paper forms (check or payment order). Here, we use the term "digital" interchangeably with "electronic".

25. This is part of a broader push toward the digitisation of the public sector (providing information online, developing integrated portals for citizens, digitising internal processes, etc.). McKinsey estimates that over 130 countries currently have some form of online service.

active users after two years. Similarly, Quezon City has just two to three users after a year (Frydrych et al. 2015). Governments and providers were looking into a range of options to increase adoption, including marketing initiatives to increase consumer awareness and revisions to pricing strategies to increase usage. A notable exception is the school fee programme in Côte d'Ivoire which saw very strong adoption even before it was mandated by the government; 97% of school registration fee payments were made digitally in the two to three years following launch, 72% of which were paid via mobile money.[26] The figure for digital payments rose to 99.3% after digital payments were legally required (Frydrych et al. 2015; Frydrych and Scharwatt 2016).

- **More can be done to take the needs of the poor into account.** First, there is a need for more solutions that do not require bank accounts. Second, governments can do more to develop solutions that do not presuppose digital or financial literacy. Specifically, there is a need to improve the overall user interface (UI) and UX for poor consumers (as we explore in detail later in the study).

Governments can do more to develop solutions that do not presuppose digital or financial literacy.

Many countries are working to launch new, or strengthen existing initiatives, building on these early learnings. Our current observations are as follows:

- **Solutions are being designed by all levels of government.** Initiatives range from city-level initiatives for a specific type of payment (such as the Tap&Go bus fee payment system in Rwanda that, at least initially, dealt with only one bus operator in Kigali) to state-wide solutions that integrate payments across a wide range of government agencies (MobileOne in Karnataka, India is a one-stop mobile-based platform for 1,000+ public services, including P2G payments, at the state and national level).
- **Solutions are being designed for all types of P2G payments.** A wide range of P2G payments are being digitised. This includes taxes (MobileOne in India for property tax payments), utilities (Jordan Mobile Payment [JoMoPay] in Jordan), traffic tickets (E-challan payments in Pakistan), school fees (Côte d'Ivoire), and bus payments (Tap&Go in Rwanda). Taxes and utilities (17 of 41 initiatives) are the most common categories being digitised in emerging markets, based on our scan. There are marginally fewer initiatives (15) that focus on co-payment of government benefits, fees, and payments of fines like parking tickets.

There is a need to improve the overall UI and UX for poor consumers.

- **Solutions are being created in partnership with the private sector.** The majority of the solutions in our scan (52 of 61 overall, and 29 of 41 in emerging markets) involved at least one private sector actor, most often an MNO offering a mobile-based payments solution. While our scan was not systematic (it was focused on solutions possessing high potential in emerging markets), it is indicative of the fact that there are many solutions that actively involve the private sector.
- **Strong desire to learn from early models, particularly to address known adoption challenges.** Across all our interviews and research, we heard repeated interest in learning from the experience of other countries/initiatives in designing new payment solutions, as well as a commitment to continuous improvement of existing products and

26. Côte d'Ivoire is an example of a public-private partnership.

services to encourage adoption. For example, the Central Bank of Jordan (CBJ) looked at digitisation examples from Tanzania when designing its own digital P2G solutions. We even saw examples of services that did not see significant adoption upon launch (such as Bayad Load in the Philippines) being considered for relaunch with updated design and fee structures.

Experience from high-income countries shows a shift towards an integrated approach and can serve as a model for where P2G payments in emerging markets might ultimately lead.[27] For example, the UK government's website (*https://www.gov.uk/*) has grown over the past six years and now includes all 24 ministerial departments and over 300 other public agencies. Citizens can use this portal to access a wide range of information or services, for example, pay driving licence fees, renew or apply for passports, and pay taxes. Similarly, the Singapore government portal *(www.ecitizen.gov.sg)* and accompanying mobile platform offers citizens, businesses, and visitors a wide range of information and payment options both to and from the government (United Nations 2014). At the same time, there are also payment portals that do not cover all services—for example, in the US, pay.gov is a portal that allows individuals and businesses to pay for non-tax-related federal services using bank accounts, credit cards, debit cards and digital wallets (e.g., PayPal). Tax payments can also be made electronically but through a different portal.

As emerging economies continue to make the journey towards digitisation, there is a range of barriers that they will have to overcome. Our research and interviews with experts show that there are specific reasons for why setting up digital P2G initiatives and driving adoption remain a challenge for emerging countries. We discuss these challenges in the following two sections.

The UK government's website (https://www.gov.uk/) includes all 24 ministerial departments and over 300 other public agencies.

It is estimated that there will be nearly 6 billion smartphone connections by 2020, with added growth coming primarily from emerging markets.

27. Integration may only apply to certain types of government payments, i.e. payments that go directly into a government account rather than into the account of a government-owned entity (e.g., utilities, transport) which is unlikely to be part of a treasury single account.

BOX 2

Why today's trends in digital finance hold promise for advancing the P2G agenda

Recent changes in the broader digital finance ecosystem are making it easier for countries to design P2G solutions, including those with greater potential to reach the poor. Four trends particularly relevant for P2G payments are shown in the overview below. Further details on connectivity and interoperability can be found in *Today's Challenges: Driving Consumer Adoption*.

- **Rapid growth in smartphone penetration:** Globally, smartphone adoption rose from 9% in 2011 to ~45% by the end of 2015. It is estimated that there will be nearly 6 billion smartphone connections by 2020, with added growth coming primarily from emerging markets. This growth in smartphones, including low-cost models in the USD 25–40 range, expands the world of applications that consumers—including poor consumers—can access and use. The implications are manifold from a P2G perspective.
  - » For consumers, smartphones can bring greater ease of use than unstructured supplementary service data (USSD)/SMS solutions, particularly beneficial to less digitally or financially literate consumers.[28] It also means that consumers can use P2G solutions that are designed for use with the Internet via web browsers or specific applications.
  - » For governments, smartphones allow the collection of more powerful consumer data (e.g., information on what apps an individual consumer is using, where they are located, etc.) and can drive consumer behaviour change through built-in phone features such as payment reminders and auto-pay services. Smartphones make it easier to overcome key barriers to adoption, e.g., a lack of complete digitisation of P2G services. For example, smartphones allow consumers to pay for a service on their phone and even fill out and submit forms through applications/phone web browsers.

The shift toward smartphones for P2G solutions is still in its early stages, but several businesses indicated that they saw it as a high-potential opportunity they were planning to take advantage of. For example, in the Philippines, Smart Communications is planning a relaunch this year of the failed Bayad Load initiative; a key feature will be smartphone-based applications. In Pakistan, both the major MNO players (Telenor and Mobilink) in the market are in the process of designing and launching applications supporting their mobile wallets.

- **Increased flexibility around know-your-customer (KYC) requirements:** Stringent KYC requirements are one of the reasons that banks have traditionally found serving low-income consumers to be challenging and costly. Governments are increasingly exploring **tiered KYC** and **virtual KYC.**[29] Tiered KYC allows for fewer and more flexible account opening requirements for low-value accounts, subject to caps and transaction restrictions, while virtual KYC allows customers to send documentation remotely without having to travel to banks or government offices. The aforementioned smartphone trend is increasing the possibilities of virtual KYC, e.g., via an agent on a mobile phone/tablet or by using biometric features, such as iris scans, for identity verification purposes.

  Governments launching or running P2G initiatives have an opportunity to build off of this progress. Today, many P2G services (e.g. passport services, birth registration, etc.) require in-person ID verification; governments could consider accepting virtual forms of identity proof and form submission. This would help overcome what we discovered is a key barrier to adoption of P2G solutions today: they do not address the full process of completing a transaction.
- **Connectivity expansion to underserved areas:** As we explore later in the study, there continue to be major investments in increasing the availability, quality, and pricing of connectivity, particularly mobile 3G and 4G connectivity, across the world. Connectivity is a fundamental requirement to enabling digital P2G payments at every step of the transaction, from consumer initiation (when using a smartphone) to fund settlement. For poor consumers, increased data access can mean a faster—and critically, a more reliable—digital experience, resulting in a significantly enhanced value proposition for digital P2G payments.
- **Shift toward interoperable solutions:** The benefits of interconnectedness have been well studied in other payment schemes—the need for interoperability for mobile money, in particular, is now gaining a great deal of attention. Since 2013, Indonesia, Tanzania, Sri Lanka, Pakistan, Rwanda, Madagascar, and Thailand have all achieved full account-to-account interoperability.[30] We study the importance of interoperability, as well as interoperability-related challenges in P2G solutions later in the study.

28. For more details, please see CGAP (2015a).

29. See Faz (2013) for an example from Mexico and Central Bank of Nigeria (2013) for an example from Nigeria.

30. A more exhaustive definition of account-to-account interoperability would be the ability to: i) directly transact between mobile wallets at different mobile money operators; ii) directly transact between mobile money accounts and bank accounts; iii) settle the funds for transactions across schemes and between schemes and banks; and iv) implement common risk management practices that preserve the integrity of the individual mobile money scheme (see Clark and Camner [2014]). There are also other forms of interoperability. These include customer-level interoperability (customers can access their accounts through any SIM on the same network and can also access multiple accounts on one SIM), agent-level exclusivity (customers' ability to use agents of providers other than their own for cash-in/cash-out services), and platform-level interconnection (customers can send or receive money to or from other customers who use different mobile money service providers). For more details, see Kumar and Tarazi (2012).

SECTION 5

Challenges: Setting Up Digital P2G Solutions

There are a number of noteworthy barriers to consider for governments or businesses hoping to launch digital P2G payment systems. The most critical challenges are: i) aligning all relevant government agencies around a common vision and plan; ii) investing sufficiently in systems and integration; and iii) designing sustainable business models that incentivise all players in the value chain. Overcoming these barriers can help ensure that governments develop solutions that are designed for long-term success.

Challenge 1: Obtaining Approval from Multiple Government Bodies can be an Opaque and Time-Consuming Process

Launching a P2G digital payment initiative for a single service can require approvals from a host of government entities. These can include the various federal or local agencies to whom payments are being made, budget and administrative offices, and regulatory bodies, among others. It may not be immediately clear which government agencies wield the requisite authority, and once it is, the approvals process can take a long time, and even require legislative change. In Kigali, for example, the Rwanda Development Board (RDB) informed us that the services the government plans on digitising require the approval of the Ministry of Justice, which, in some cases, needs to go through the process of enacting legislation to remove old procedures. Initiatives that aim to combine multiple services into one solution can require the approvals of even more agencies. **These approvals take, at a minimum, months to acquire. As we found from our research, they can sometimes take years.** The political calendar can extend the process and complexity further: in the time needed to secure the necessary approvals, entire administrations can cycle out of power and digitising payments can quickly vanish from the priority list.

The value proposition of digitising payments is not always clear to government or agency-level officials, particularly local officials. There may even be negative incentives or political ramifications to consider. In the Philippines, our conversations with the United States Agency for International Development (USAID) indicated that it took the organisation nearly a year to find supportive local administrators. Instead of starting with a typical market assessment,[31] USAID began by identifying those cities that were most likely to be interested in implementing innovative digital solutions, e.g., cities that had won awards for implementing new government solutions or had been previously recognised for ease of doing business. Smart Communications, a leading MNO, faced a similar issue when it sought to launch its Bayad Load product. The Bangko Sentral ng Pilipinas (BSP) and Department of Budget and Management believed it could be transformative for informal workers and were supportive of the initiative. However, Smart Communications struggled to gain traction with the specific social welfare agencies that would receive the digital payments.

In Rwanda, there was a concern in the trade sector that clearing agents would lose their jobs as a result of digitisation. However, this concern was swiftly managed internally as Rwandan government agencies were already aligned with the project and had bought into a national digitisation plan. Similarly, in Bangladesh, there is currently a ten percent quota for digital payments (online and mobile payments) of train tickets, a figure that is far too low relative to demand. Increasing this quota has become a highly politicised issue as agents selling tickets in cash oppose increasing the quota due to the likely impact on their businesses.

31. For example, determining locales based on where P2G payments were high, where consumers were already using digital payments, etc.

Obtaining necessary approvals can still take years, even when local government officials have bought into the value proposition. As an example, in Rwanda, the payments aggregator, MVEND must obtain formal approval from the local government administration for every new school it seeks to enrol in its digital payment solution—even when the local school administration is eager to participate. This process can take anywhere from one month to one year to resolve, depending on the technical capacity of the local government officials involved. In other cases, the bottleneck is due to unclear or outmoded regulations. These bottlenecks exist despite the Rwandan government's keen interest in digitisation, especially at the national level. In the Philippines, for instance, in addition to facing buy-in challenges, the USAID Scaling Innovations in Mobile Money (SIMM) team realised that government bodies were not allowed to accept e-payments under existing regulations. The team had to wait nearly two years before the Commission on Audit (COA) released a circular that clarified guidelines on issuing e-payments.

Challenge 2: Government Investments in Systems Often Lack the Flexibility to Expand for Growth or Adapt to Future Trends

Designing a digital P2G solution requires governments to make at least some—and in many cases, major—investments in back-end processes. These commonly include investments in (i) new servers (or upgrades to existing servers) holding consumer data; (ii) firewalls to ensure data security; (iii) upgrades to Internet connectivity; and (iv) integration with a front-end solution via an application programming interface (API) designed either by the financial service provider (FSP) or a third party. The API could be "open" to spur greater innovation or more "closed" if oversight and technical maintenance are serious concerns. The exact technical specifications of the solution, however, as well as how much money a government spends on the solution, can vary widely. We heard of upfront investments as low as USD 50,000 for a basic solution at a local city level where officials collected consumer data in a spreadsheet such as MS Excel and transactions were largely carried out offline. We also came across investments as large as USD 42 million in a long-term tax project funded by the World Bank in the Philippines. Costs can be even higher when there is a need to maintain legacy systems while new systems are being set up and the annual costs of maintenance are taken into account. Box 3 offers further details on various integration options, as well as their benefits and trade-offs.

A key challenge is that governments are not always able to plan long term for investments like these. For example, government agencies are often mandated by law to accept the lowest bid for information technology (IT) projects. This has, at times, resulted in solutions having to be rebuilt altogether due to the poor quality of the initial solution, or the lack of flexibility to add new features or adapt to new technologies that may emerge. A separate, but equally important consideration for governments is that government agencies planning for an investment may not be aware of other government needs that the system could meet, and so tailor it for the one initiative rather than broader use. In doing so, they may miss the opportunity to share costs across agencies.

Even when the case for investment is compelling, government agencies may not have enough technical staff on their teams to inform the necessary design decisions. For example, a government would want staff with specialised skills to understand and articulate the specifications required for their digital P2G solution. We heard of instances where key advisors who were not IT professionals, were not able to analytically assess the pros and cons of different technical solutions. The end result was that decision-makers selected the cheapest options rather than considering those that offered greater long-term value. In other instances, government officials saw the value of better solutions but were limited by budget constraints. As a result of either—or both—of these constraints, governments may make decisions that make adding additional services onto the platform in the future more complicated.

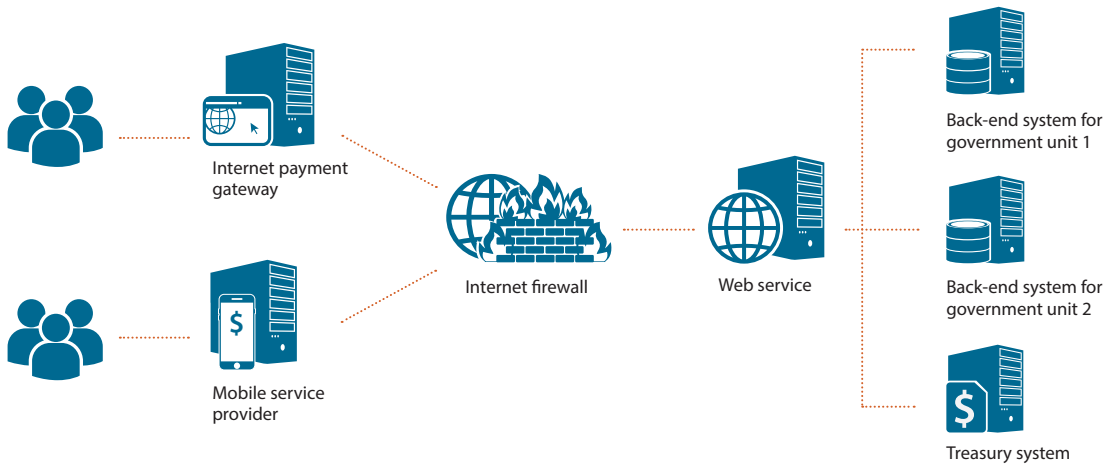
The lack of technical capacity can affect both the selection and design of payment solutions. Most worryingly, a recurring complaint we heard was that governments were not investing sufficiently in system data security and privacy. In some cases, the level of disconnect on this issue makes businesses

less interested in working with the government, particularly when companies can be held liable for breaches, lapses, or losses on systems they may not fully control. This is a growing issue in emerging markets where data breaches—including those of government systems—appear to be routine.[32]

As a result of these common government constraints, digital P2G solutions risk being poorly developed, having limited flexibility, and lacking sufficient security measures. These effects can cast a long shadow after a product's launch: a poorly designed system (as we explore in the next section—can become a major barrier to consumer adoption).

EXHIBIT 6

Illustration of a full-integration system



	Full integration	Partial integration	Cloud-based
Description	Government payment systems are directly connected to treasury systems for real-time processing.	Government payment systems and treasury systems are linked to a central web service, but not to each other.	Government payment systems are linked to an external host that interacts with the front-end solution.
Challenges/ considerations	Highest-cost option with greatest needs for sophisticated back-end systems.	Funds settlement typically takes one to two days as systems do not update in real time. Suitable for governments with limited pre-existing infrastructure.	Users can make/receive payments at any time, but servers and treasury systems update only when connected to the Internet, i.e. there could be a delay in payment confirmation. Suitable for governments with limited pre-existing infrastructure (e.g., poor connectivity).

There are other solutions beyond those illustrated here: e.g., offline solutions where Internet connectivity is particularly poor and the solution is not actually fully digitised, and solutions that only link to an Internet payment gateway and not an MNO, etc. While there are clearly strong benefits associated with a fully integrated solution, governments ultimately need to select the solution that is most appropriate to their needs based on their long-term objectives, the quality of existing systems, levels of connectivity, and budget availability.

The cost for developing and maintaining the required infrastructure for digital P2G systems is highly variable, but there are four key drivers of cost that governments should keep in mind: the number of users, number of departments that will be part of the system (as well as the quality of their legacy systems), the existence of a payments gateway, and the method of integration. The overall costs for P2G solutions can be high, but cost-effective for governments, particularly when assessed on a per-transaction level and over the lifetime of the initiative. We encourage governments to take a long-term perspective when designing solutions as making strong, upfront investments can ensure system reliability, help drive adoption, help reduce future expenses (by reducing the need for system rework/redesign), and lead to long-term success.

Source: Expert interviews and documentation from USAID's E-PESO initiative in the Philippines.

32. See, for example Temperton (2016), Muncaster (2012), and Mugisha (2016).

BOX 3

Exploring the infrastructure behind digital P2G solutions

At the most basic level, infrastructure for a digital P2G solution requires the following front-end and back-end components:

Front End:

Software: This is the part of the service that the consumer interacts with directly, e.g., a mobile application, a website, or a USSD menu. The front-end solution enables the consumer to initiate a payment to the government. This software can be offered to a consumer by an individual bank or MNO, or even directly through a government portal.

Servers: When a consumer initiates a transaction, his/her payment data is captured by a front-end server and passed along to the government servers at the back end. Similarly, information from the government systems (e.g., success/failure of a transaction) is also transmitted to the consumer through the front-end servers. These front-end servers can be "hosted" by individual banks or MNOs or by Internet payment gateways, which allow a government agency to accept payments from multiple channels. The number of servers needed, as well as their capacity, will depend on the number of users, number of expected transactions, and the overall complexity of the front-end solution.

Back End:

Government web service: The government web service consists of servers that facilitate/direct the transfer of information between the front-end payment servers, the individual government agency servers, and treasury servers at the back end. For example, if a consumer makes a utility payment, it is the web service that directs the transaction information to the utility company's servers.

Individual agency databases/servers: Government agency servers hold information at the account level, e.g., what a consumer owes, when payments are due, etc. They approve a consumer's transaction and launch the beginning of the payment process, starting with the acquiring bank.

Treasury system: The treasury manages the government's accounts, including verification of fund transfers between consumers' (or MNO's) banks and acquiring banks (i.e. the government's bank).

There is a need for strong security and connectivity across both the front end and back end. Security includes investments in Internet security (firewalls, data encryption, etc. to protect consumer data) and investments in the physical security of data centres themselves. Connectivity is required throughout the transaction for consumers to access and use front-end solutions, for information to be transmitted between front-end and back-end servers, and for the reconciliation of funds between bank accounts and the treasury. Digital P2G solutions often require governments to invest in upgrading their connectivity.

Typically, governments are responsible for developing and integrating their back-end systems while their business partners are responsible for managing front-end solutions. We articulate three approaches to developing the required back-end infrastructure for digital payments below. These approaches range from full integration to cloud-based systems, which require only limited levels of government investment.

Challenge 3: Designing a Sustainable Business Model is not a Straightforward Process

Many consumers view digital payments for government services more as a public good than a valuable convenience. We will explore why this is the case in greater detail in the next section. For our present purposes, this means that even consumers who are able to absorb convenience fees are often unwilling to do so, at least at first. A key challenge, therefore, in launching digital P2G payment services has been the answer to a fundamental, yet complex question: "Who pays for it?"

Businesses are—unsurprisingly—keen to find a sustainable business model. In some cases, they may be willing to absorb the expense of administering digital payments in order to acquire consumers, but in most cases, these losses are unsustainable, at least beyond the short term. That typically leaves the government or the consumer.

Governments are often reluctant to make an investment without a clear business case for what they will get in return. Depending on the political will or technological capacity within a given agency, that case may be difficult to make or understand. Additionally, operational savings are difficult to calculate, and in some cases, difficult to realise, e.g., by reducing staff or closing a facility.

Some governments are amenable to passing on the costs of a digital service directly to the consumer, or to phasing costs in over time. However, other governments are unwilling or

unable to do so. If the government will not pass on fees to the consumer, it can pay some or all of the fees itself. They may be concerned that additional costs will make the service inaccessible to poor people or may generally disincentivise its adoption. However, doing so may be impossible in some cases. For example, the government may be prohibited from levying a convenience fee on consumers—or from allowing business partners to do so—as in the case of the Philippines.[33]

The solution does not always have to be binary. There is an ongoing discussion in India about lower merchant discount rates (MDRs) for payments made to the government. MDRs are bank charges to merchants (to governments in the case of P2G) for providing debit/credit services. The current proposal stipulates that, in exchange for a lower discount rate, the government would agree to pay the MDR in order to drive customer acceptance, and in the long term, even consider paying the full MDR (Reserve Bank of India 2016). Jordan is taking a different approach: consumers are being offered an upfront incentive/discount period to drive adoption. The plan is to phase these subsidies out over the next two years. These two examples show that countries can land at different solutions with respect to who pays. What is critical, however, is upfront, early, and regular discussion with businesses on the issue.

Our field research showed a range of examples that can serve as thought starters for actors building business models. Exhibit 7 lays out the various ways in which revenues can be collected and distributed across actors.

EXHIBIT 7

Variations of digital P2G business models[34]

Who pays for the service provider?		**The government:** The government in Côte d'Ivoire pays the service provider a flat fee of USD 0.08 for every school fee transaction processed.
		**Consumers:** Citizens in India are charged USD 0.07 as a convenience fee for using the MobileOne integrated payment portal.
		**The service provider:** Globe, a mobile network operator in the Philippines, is subsidising each transaction (USD 0.1- 0.2 per transaction) as it plans to build a consumer base and use the data to better understand consumer habits and needs.
How is the transaction priced?		**Flat fees on transactions:** Consumers in Pakistan pay a flat fee of USD 0.2 per digital transaction for traffic-related offences.
		**Variable fees on transactions:** In the Philippines, the now defunct Bayad Load initiative for co-payment for government benefits by informal workers charged a variable fee on transactions.
Who receives the payment?		**The government:** Consumers in Rwanda pay online directly to the government through the Irembo platform.
		**The service provider or an intermediary:** Consumers in Ghana make payments for school fees either through their mobile money wallets or to a Mobile Telephone Network (MTN) mobile money agent for onward payment to school bank accounts.
How are revenues shared across providers, intermediaries, and the government?		Digital payments for traffic offenses in Pakistan are received by **agents** (who collect a monthly commission), sent to the **payments solution provider**, EasyPaisa (who does not collect any charges as this is part of its corporate responsibility programme), and then passed on to the **traffic police department**.
		In Rwanda, digital payments for bus tickets via smart cards are received by the **smart card provider.** Some 95% of revenue is passed onto the **bus company,** 4% is retained by the smart card provider, and 1% is shared with the **agent network** that supports consumers in topping up cards.

33. This is due to existing regulations in the Philippines that prevent government agencies from charging more than the face value of a bill.

34. Dalberg analysis. Icons from the Noun Project

Many of the examples listed here are in initial stages, so success and sustainability are still open questions. That said, the exhibit shows that business models range widely in terms of who pays for the service, how payment is collected, and how revenue is shared. The Irembo platform in Rwanda is a particularly innovative model. The government of Rwanda has set up a 25-year PPP with RwandaOnline Platform Ltd. (ROPL), a technology services provider. We discuss this partnership in Box4.

In short, our research demonstrates that, while setting up a P2G payment system continues to pose real challenges for governments and the private sector, these challenges can be overcome with time and deep commitment from government officials. In many respects, the greatest challenges for P2G solutions actually begin once the payment system is up and running. These may include how to change consumer habits, allay fears, and drive widespread adoption

BOX 4

A public-private partnership for government services: Irembo

In April 2014, the government of Rwanda and RwandaOnline Platform Ltd. (ROPL) entered into a 25-year public-private partnership (PPP) to build Irembo, an integrated e-governance solution for Rwanda's citizens and businesses. Irembo aims to be Rwanda's "one-stop shop" for citizens using government services.

ROPL is responsible for building and operating the Irembo platform for 25 years and then transferring it to the government. It will take a portion of the service fees charged by the Rwanda Revenue Authority (RRA) for services accessed by citizens for the first 25 years. ROPL receives a split on a sliding scale for services costing less than RWF 1,500. Services costing more than RWF 1,500 give ROPL a fixed fee of up to 31% – the estimated savings from reduced administration needs. The fee structure is designed to compensate ROPL for the operational expenses associated with running the platform. This includes the cost of training government officials and call-centre agents in their own network and subcontractor fees for software development and staff (ROPL had 50 staff members as of April 2016). By passing on administrative savings to ROPL, the government compensates the private firm for building and operating the service while also ensuring that consumers do **not** have to pay an incremental fee over and above any traditional fee charged for using the digital service. ROPL also pays the government separately for the use of its national data centre which Irembo uses for hosting, connectivity, and information security.

The government of Rwanda is keen to promote competition and involve other private players in digitising their services. Therefore, while ROPL has exclusivity rights for the first three years, other third-party providers will be invited to digitise government services through an open tender process. ROPL will maintain exclusivity around: (i) the front-end system, and (ii) the first 100 government services that are brought onto Irembo.

While the initiative is still in its early days, there are signs of progress:

- **Speed to launch:** Since its official launch in July 2015, ROPL added ~20 government services (exceeding initial targets) and plans to launch up to an additional 100 services by 2018, and up to a total of 800 by the end of the PPP. The stated time to add new services is just six weeks. This includes the time to analyse the process and understand what it takes to digitise it (inclusive of any process efficiency changes that can be identified) and software design and testing.
- **A growing number of business partners:** So far, customers of MTN, Tigo, Airtel, and the Bank of Kigali can use the solution. ROPL is in the process of signing additional business partners to increase the number of citizens who can use the Irembo platform.
- **Policies to mandate government adoption:** The government is also phasing out manual service delivery. The timeline is within 6 months of launch on the Irembo platform in urban areas and within 12 months of launch in rural areas. Government agencies not meeting this requirement will have to pay additional fees to ROPL, i.e. 100% of the fees they generate from consumers will be passed on to ROPL as opposed to the maximum 31% split mentioned earlier.
- **Initial signs of user adoption:** Of the ~20 services available through Irembo during our visit in March 2016, the most popular were registration for driving tests, birth certificates, marriage certificates, and certificates for being single. As one example of user adoption, 70–80% of all police department collections for driving licence exam registrations are through Irembo. This is the most popular service on Irembo today. While initially promising, progress on user adoption needs additional review as our FGDs indicated low consumer awareness, overall.
- **Ongoing and planned efforts to improve adoption:** Today, there is a range of consumer-focused initiatives in training, awareness, and data security through "service" points across the country. In addition, the government plans to use several other channels to drive adoption: (i) engaging with "information and communications technology (ICT) telecentre operators" who have an explicit mandate to make ICT services available in rural areas; (ii) engaging local leaders to make announcements on a monthly basis; (iii) partnering with FSPs to place agents at local service centres; and (iv) developing independent agent networks/franchisees.

SECTION 6

Today's Challenges: Driving Consumer Adoption

Digital P2G solutions offer consumers (citizens in the case of government services) an ideal of convenience and economy: in place of travelling to government offices and queuing in long lines to make payments, digital P2G platforms promise local or mobile options that are immediate, efficient, cost-effective, and transparent.

And yet, to date, results have been mixed on digital P2G adoption, particularly among poorer consumers. Some countries are beginning to see signs of adoption—in Côte d'Ivoire, for example, a government programme that allows digital school fee payments is being used by 99% of parents of secondary school students (Frydrych et al. 2015). Meanwhile, in Tanzania, mobile money-based payments for water bills were launched in early 2009 and gained more than three million customers within two years of deployment (Hope et al. 2011).

In other cases, however, the levels of consumer adoption have been quite low. For example, the government of the Indian state of Karnataka recently won multiple awards, including at the World Government Summit, for MobileOne, an app that allows users to access more than a thousand government services, including the payment of utility bills and income tax (Government of Karnataka 2016). And yet, in contacting a sample of roughly 550 individuals across rural and urban areas and various socioeconomic and demographic criteria, our research team found only nine users who had actually used the app.[35] Exhibit 8 summarises the known adoption rates of the initiatives we examined in this study.

EXHIBIT 8

Adoption rates of several P2G payment initiatives

Initiative name	Location	Year launched	Indications of consumer adoption
Back to School	Ghana	2014	~750,000 users as of April 2016[36]
MobileOne	Karnataka State, India	2015	n/a[37]
Atal Pension Yojana	India	2015	2.75 million registered users as of June 2016[38]
Jordan Mobile Payment (JoMoPay)/eFAWATEERcom	Jordan	2016	~10,000 live wallets as of February 2016[39]
E-challan	Pakistan	2015	~13,000 OTC transactions per day as of March 2016[40]
Bayad Load	Philippines	2013	~200 initial users as of 2013 (now defunct)[41]
Small business registration and tax payments	Quezon City, Philippines	2014	2–3 users as of March 2016[42]
Tap&Go Smart Card[43]	Rwanda	2015	70,000 users as of March 2016
Water utility bill payments through mobile	Dar es Salaam, Tanzania	2009	Over 2.3 million users as of 2011 (updated information n/a)(Hope et al. 2011)

35. We contacted 550 people to identify 6 urban and 3 rural users. The sample was not representative, but accounted for a range of demographic and socioeconomic criteria, including age, gender, education levels, occupation, access to banking services, and a socioeconomic category as described by the Market Research Society of India. The users we spoke with included both one-time and regular users.

Several common barriers to user adoption emerged in the countries we studied. They are not equally relevant to each country, but in different contexts, each barrier helps explain why the promise of digital P2G payments has not yet been fulfilled. Together, the barriers suggest the kinds of challenges governments, sponsors, and business partners may encounter in setting up digital P2G systems (Exhibit 9).

In Tanzania, mobile money-based payments for water bills were launched in early 2009 and gained more than three million customers within two years of deployment.

Barrier 1: Paying Digitally Might not be as Convenient for the Consumer as it Seems

This is, at least in part, because making payments through current systems is often not quite as onerous as it might seem and consumers' pain thresholds can be quite high—particularly when consumers have built up trust in the system and are familiar with how it works.

Despite the costs associated with cash-based P2G payments (in terms of time, distance, convenience, and corruption), people have, in many ways, become comfortable with workarounds to reduce the challenges of making traditional P2G transactions. In the Philippines, for example, consumers often paid "fixers" to visit government offices to make payments on their behalf. These fixers have relationships with government officials that allow them to get through the lines faster than consumers, and can even bribe government officials to reduce overall tax payments or registration fees.

In the Philippines consumers often paid "fixers" to visit government offices to make payments on their behalf.

Anecdotal evidence from Nepal suggests that entire rural villages have also created workarounds. Rural communities are often considered the most likely to benefit from digitisation—long trips to distant government offices can be costly. However, rural Nepalese villages have been known to offer local children a nominal reward for making the journey to pay the entire village's utility bills.

While workarounds do not appear to be the norm, understanding them helps clarify the consumer experience today. It also helps identify how to improve the value proposition of digital payments relative to traditional methods or the workaround solutions themselves (which still have time and direct and indirect opportunity costs).

Governments have also played a role in making the current payment process less painful by offering multiple payment locations. In Karnataka, India, the government has set up BangaloreOne branches where people can go to make a variety of OTC payments. These branches are more numerous

36. Self-reported by MTN Ghana as five percent of the customer base as of April 2016. The number of users is calculated based on MTN Ghana's customer base of 15 million as of year-end 2015, the last available date for this figure.
37. While data on the number of users—aggregate or active—or even the number of payments made using MobileOne is not available, we do know that there were more than 5 million IVR calls and approximately 1.5 million USSD hits in 2015.
38. This figure is not representative of the number of users who are actively making pension payments.
39. Self-reported by the CBJ.
40. Self-reported by e-payments provider, A2Z e-Payments.
41. Self-reported by Smart E-Money Inc. Philippines, which launched its service in July 2013.
42. Self-reported estimate by government official in Quezon City.
43. Not technically a P2G payment as private bus operators are contracted by the government to provide "public" transport. Data on usage was self-reported by AC Group, the smart card firm managing this system.

and widespread than government offices, and therefore easier for consumers to access. Consumers can pay in cash or by card in these centres, though our interviews suggested that the vast majority of payments are made in cash. In the Philippines, meanwhile, the government has made payments more convenient by licensing retail stores to accept consumer payments for government services. Consumers have found these solutions to be quite helpful, both in terms of reducing required travel and in terms of the time spent standing in line. In some cases, consumers also have greater flexibility around *when* they can pay. For example, in Pakistan, making payments at retail stores means that consumers can make payments as late as 11:00 p.m., well past bank/government office working hours.

> "I still have to stand in line, so why bother paying digitally?"
> *– Consumer*

In some cases, the consumer may benefit from cash-based approaches, but at the cost of the government. We encountered an example where the current payment system, while inefficient from the perspective of the government, was nonetheless far more convenient for consumers than a digital payment system could hope to be. Customers in India pointed out that if they missed a utility payment, a local official or representative would come to their home to collect the payment. Not only did the utility collector make house calls, but over time, customers could develop a relationship with this representative and request a little more time to make the payment. These customers could delay payments without penalty or service stoppage.

In Rwanda, meanwhile, the school system usually demands that parents pay fees through a bank. One mother mentioned that she would visit the school headmaster (often after the payment was due) in order to offer a cash payment at a later date. This required a special trip and a negotiation, but the bank system proved less flexible than personal relationships with school personnel. These examples in India and Rwanda demonstrate how individuals can use personal relationships to their advantage, a benefit that is not available in the digital model.

By contrast, the convenience of digital solutions is diminished for many consumers by the fact that they require a cash-in point. Since few people—especially among the poor—in the countries we studied tend to store money in digital accounts, making a digital payment first requires a special trip to put money onto a prepaid card or into a mobile wallet—which is not all that more convenient than a special trip to make the payment directly, in cash. Frequent visits to cash-in points can seem like an extra step, particularly in places where people are uncomfortable with storing money digitally (e.g., in the Philippines where business owners said they would rather put available cash into inventory). Stipulations around expiry dates or dormant accounts can further reduce the attractiveness of cashing-in to a digital solution. For example, in Tanzania, the Tembo card has a one-year validity and becomes dormant if not used at least once in that timeframe; it also carries a nominal fee of TZS 1,500 (USD 0.70). By contrast, cash never expires and has no associated fees.

In other cases, a greater barrier is the limited reach of, or the ease of accessing the cash-in network for digital payments (compared to the cash-based option). Consumers in Manila complained about the digital payment system for transport because refilling cards required locating stores that offered top-ups, which, in some cases, might be located a great distance from the station.

In both cases, digital payment solutions on their own may not necessarily drive up consumer use of digital or mobile wallet accounts. This is especially true for the unbanked where money cannot be transferred to a wallet from a bank account.

Finally, and perhaps most importantly, digital payments may not solve the entire payment process. The actual transfer of funds is typically only part of a P2G transaction. If the full process is not digital, the digital P2G payment is unlikely to be transformational. For example, annual business registration and tax payments in the Philippines are notorious for long lines—consumers said waits of 12+ hours were not uncommon. Furthermore, there are separate lines for handing over documents for a tax assessment, for obtaining forms that must be filled out to make payments, for receiving an official signature/stamp on the form, and another for making the actual payment. A digital payment system solves only the very last part of the process, meaning consumers still have to stand in three lines. In this scenario, the ability to make a digital payment does not save the consumer that much time.

Overall, this first barrier to consumer uptake suggests that it may be more difficult to drive the adoption of digital payments for some P2G services such as business registration, than for others. This can be because the demand for a more convenient service is not acute, or because consumers deem the convenience of the digital service to be minimal (relative to cash).

Chief among these barriers, across the geographies we studied, are connectivity, interoperability, fraud and security, and lack of consumer recourse.

Barrier 2: Deficiencies in the Existing Payment Ecosystem are Holding Back Widespread Adoption of P2G Solutions

Deficiencies in the enabling infrastructure continue to present considerable barriers for digital payments of all kinds. Infrastructure challenges are not unique to P2G platforms; their critical role has been well documented in other areas of mobile money and cashless payments.[44] Our research indicates that these findings apply equally to digitising government payments, both G2P and P2G. They apply even more aptly in the cases of security and fraud.[45] This suggests that ecosystem challenges serve to cloud the case for digital P2G solutions from the consumer's perspective. Chief among these barriers, across the geographies we studied, are **connectivity, interoperability, fraud and security,** and **lack of consumer recourse.**

The lack of connectivity presents a major challenge for digital transactions. Almost two billion people live outside the current reach of broadband networks.

CONNECTIVITY

Fast and reliable Internet connectivity is critical to digital transactions. For consumers in emerging markets, this means transacting on the Internet via mobile phones—and increasingly via smartphones.[46] However, reliable

44. See, for example, Klapper and Singer (2014).

45. As an example, weaknesses in the payment system in Pakistan have meant that "ghost recipients" have been able to collect disbursements meant for the poor.

46. Today, 60% of Internet users in India access the Internet via their mobile phones. Globally, GSMA estimates that there were 3.2 billion unique mobile Internet subscribers in 2015—roughly equivalent to the International Telecommunication Union's estimate for the total number of Internet users in the world.

connectivity remains elusive across the countries we studied in terms of three critical supply-side factors: availability, quality, and pricing.

- **The lack of connectivity presents a major challenge for digital transactions.** Almost two billion people live outside the current reach of broadband networks. Within emerging markets, just 31% of people live within range of a high-speed mobile network. Globally, just 29% of the rural population is covered by high-speed mobile broadband (International Telecommunication Union 2015).
- **Even where broadband networks are available, the poor quality of the connection can present a host of problems.** A dropped connection means that the sender and receiver of a payment are no longer in sync, which can lead to incomplete transactions, multiple charges, or transactions without receipts. The breakdown might be due to a problem with the MNO, the payment application, the government's network,[47] or some other party. But for the consumer, the effect is a lack of trust in digital payments. Similarly, low speeds may impair a consumer's ability to use data-intensive applications.

  Despite vastly different levels of investment and government commitment, each of our focus countries struggled with connectivity quality—the Philippines, for example, ranks 21st out of 22 in Internet download speed among Asian countries, while in India, a spectrum crunch means that networks are frequently overwhelmed and access is poor even in urban areas, where there is often little or no signal. During user tests and FGDs in both Mumbai and Manila, for example, we were often unable to open applications on our phones to show consumers products.
- **Finally, while the price of mobile broadband is steadily falling in emerging markets (contributing to the fact that half a billion more people came online over the course of 2014), almost half of the world's population cannot afford mobile broadband.**[48]

The consequence of these connectivity barriers is that large segments of the population are unable to use mobile applications for transactions. Even those able to do so are plagued by connectivity breakdowns that can erode trust in the overall digital payment system.

USSD-, SMS-, and SIM application toolkit (STK)-based solutions offer a workaround to connectivity problems in that they do not require Internet connectivity. However, frequently dropped mobile phone signals tend to create the same issue of lost transactions. These solutions are also typically less consumer-friendly from a UI/UX perspective.

> "You see all of these reports in the media about credit card theft/stolen identities—it makes us Filipinos less likely to use cards, even if we have them."
>
> *- Small business owner in the Philippines*

47. Experts interviewed pointed out that government systems tend to have particularly poor Internet connectivity as compared to the private sector.

48. According to Facebook (2016), "Over 3 billion people cannot readily afford mobile broadband packages". An affordability analysis was conducted based on 500 MB of consumption per month, an industry benchmark and close to the average use of individuals in developed countries. The commonly used affordability threshold is five percent of per capita gross national income (per the Broadband Commission and the International Telecommunication Union).

INTEROPERABILITY

A lack of interoperability between different types of digital accounts can hinder consumer adoption of digital payments more broadly. Interoperability between payment systems crucially allows people to make payments to the many different parties they transact with on a daily basis, increasing the value proposition of maintaining and using digital accounts (for the consumer), opening new markets (for businesses), and potentially increasing the reach of P2G solutions (for governments).

Providers with a large share of the market have financial incentives to resist an interoperable scheme".

In our research, a lack of account-to-account interoperability was most prevalent, i.e. not all banks and MNOs were part of a specific P2G solution. This excluded some customers from making government payments digitally. As an example, in Rwanda, Airtel was not part of the Irembo platform until May 2016, nearly a year after the initiative's launch. Similarly, a number of banks are still not part of the Irembo platform, meaning their customers cannot pay for government services using the platform. In the Philippines, only users of Globe's GCash wallet can make mobile payments for property tax or business registration in Quezon City. Customers of Smart, Globe's main competitor, must either pay in person or get a Globe SIM card and open a GCash wallet account. Furthermore, customers cannot make these payments via debit or credit cards as the local government unit (LGU) has not completed negotiations with banks and card issuers.

However, the challenge of interoperability is complex: independent development often leads to incompatible processes or technologies. Providers with a large share of the market have financial incentives to resist an interoperable scheme, hoping that their proprietary solutions will dominate. As a result, many digital financial products that are most relevant to low-income populations are currently not interoperable. Where interoperability exists, it is often for a specific product or financial institution and is carried out in a way that is inefficient and expensive. Even worse, there is no consensus on how best to balance the interests of providers and consumers, or how governments and agencies can effectively regulate to facilitate interoperability.

FRAUD AND SECURITY

Consumers in some of the countries we studied expressed strong concerns about several risks inherent in digital payments: what happens in the case of lost or stolen phones, identity theft, or stolen ATM personal identification numbers (PINs)/codes? While FGD participants in Rwanda did not have security concerns, the subject has a higher profile in the Philippines where credit card and identity theft scams routinely make the news.[49]

Consumers are reluctant to type ID numbers into their phones for fear of ID theft in the case of lost or stolen phones.

Consumers in the Philippines describe themselves as wary of ATMs and credit cards even if they have never had a negative personal experience. This broad mistrust in digital payments carries over to mobile money. Consumers are reluctant to type ID numbers into their phones for fear of ID theft in the case of lost or stolen phones.

49. See, for example Agcaoili (2016).

POOR OPTIONS FOR CONSUMER RECOURSE

Issues with connectivity and security highlight the need for accessible, efficient, and transparent processes for consumers to submit grievances, claim refunds, and receive assurances. Customer service is particularly essential in marketplaces where fear of fraud is a driving concern. However, our research suggests that complaints and inquiries take a long time to be resolved and the experience is often antagonistic toward consumers.

Consumers in our research cited the difficulties of refuting claims or seeking refunds. According to a payment expert in the Philippines, for example, there is no recourse in the country for the fraudulent use of credit cards. In other words, cardholders are liable for *all* charges on their cards, even if those charges are made by a thief. By contrast, MobileOne users in urban Bangalore, India said they preferred using debit cards as they had recourse via their banks, whom they trusted. However, they were hesitant to use products such as mobile wallets due to a lack of trust in newer digital account providers such as Airtel and PayTM.

Consumers often find that grievance systems in the public sector work slowly and financial reversal/refunds are so cumbersome that they expect similarly slow processes for digital transactions.

The issue of recourse is a global one for digital finance. A 2014 survey by the Consultative Group to Assist the Poor (CGAP) found that 85% of respondents were particularly concerned about fraud and inadequate consumer recourse. The survey covered 237 FSPs, policymakers, consumer advocates, and foundations involved in digital finance around the world (Zimmerman and Tyler 2014). While much of this concern relates to the processes put in place (or not) by banks/mobile money operators, there may be specific concerns when governments are part of the transaction. Consumers often find that grievance systems in the public sector work slowly and financial reversal/refunds are so cumbersome that they expect similarly slow processes for digital transactions. In some countries, the question of corruption may sometimes make people less inclined to trust the government to provide the appropriate guarantees.

Ultimately, if consumers do not believe their grievances will be resolved in a timely manner when something goes wrong, they will likely continue to prefer cash transactions which are transparent, in person, and produce a tangible receipt.

Barrier 3: Current P2G Products are Beset by a Number of Technical, Functional, Design, and Pricing Challenges

Each of the digital payment initiatives we studied had challenges at the product and/or business model level. These included: i) a lack of resilience in light of poor connectivity; ii) poor design and usability; iii) issues with receipts; and iv) pricing hurdles.

When transactions failed, there were often concerns that the money was being deducted from users' accounts, but that without a receipt, there would be no proof of payment.

Payment products had difficulty functioning under local connectivity conditions in our three focus countries. Menus were slow to load or would freeze, sometimes shutting down the process in the middle of a transaction. It may be possible to anticipate poor connectivity with resilient product features such as a message informing consumers that their payment is in a

queue, or that the payment will be attempted again in 30 seconds, or that they can cancel and not be charged, etc. Without such features, consumers are not always able to tell whether the problem is due to connectivity or to the product. The unfortunate effect is that poor product experiences, like dropped connections, have the potential to fuel consumers' distrust of digital payments in general.

The poor design and usability of P2G payment applications also presented challenges. The unwieldiness of USSD interfaces is well known and longstanding. Yet, we saw little evidence of efforts being made to improve their usability. This was true, for example, in the case of MobileOne in India which operates on an integrated platform. While consumers liked the fact that they could pay for different types of services using this platform, the tests demonstrated that it was difficult for users to navigate the USSD menus due to the number of successive options they had to wade through, often on very tiny screens (especially on a simple feature phone). Consumers (especially those with prior smartphone experience) found the application version of MobileOne easier to navigate than the USSD menu. More generally, while apps are able to address some of the issues around usability, they do not solve all of the common challenges faced by consumers. These included challenging registration processes, the need to remember long ID numbers/ account numbers, and sudden language shifts during transactions.

The concern around receipts is particularly acute for the unbanked as consumers with bank accounts can, to some extent, rely on bank statements and bank records to serve as proof of payment.

One of the most pressing concerns in the Philippines and India was receipts, an issue that did not appear in Rwanda. When transactions failed, there were often concerns that the money was being deducted from users' accounts, but that without a receipt, there would be no proof of payment. FGD participants expressed several related concerns about digital receipts, including, "What happens if I accidentally delete my SMS?" and, "What happens if I lose my phone?" The concern around receipts is particularly acute for the unbanked as consumers with bank accounts can, to some extent, rely on bank statements and bank records to serve as proof of payment.

Consumers preferred having physical receipts even when transactions were successful. Durable, physical receipts might actually matter more for government services than for other services (e.g., merchant payments), especially for important payments like taxes, which can carry severe penalties for non-payment (or, in the case of audits, if there is no proof of payment).[50] For one, it could be a perception-related issue: even when transactions were successful, consumers were uncertain if government authorities would accept SMS/e-mail receipts. This was one of the reasons some suggested they would still want to print out their text messages or e-mails as physical proof of payment. It could also be a practical issue; government officials do not always accept digital receipts in practice (they may not know that they can accept digital receipts or may choose to not accept them). And sometimes, it can be a legal issue where there is no law that allows for electronic receipts.

Sometimes, it can be a legal issue where there is no law that allows for electronic receipts.

Finally, the value of a digital receipt can go beyond proof of payment for the relevant P2G service. Several interviewees, particularly those who had a bit more money, pointed out that their receipts had other purposes as well, e.g., physical tax receipts were required for bank loan and mortgage applications.

50. According to consumers and experts alike, one possible explanation for the more positive attitude towards digital P2G payments in Rwanda, as compared to India and the Philippines, is that consumer trust in the Rwandan government is unusually high.

Finally, product pricing and pricing transparency were issues in at least some situations. In the Philippines, consumers and government agencies balked at the 12% fee charged by the Bayad Load service, leading to its quick demise. More generally, consumers in the Philippines and India expressed uncertainty about what and when they would be charged for digital transactions. They were either accustomed to, or aware of the MDR fees (1–3%) that they had to pay for using their credit or debit cards, and assumed that this fee would also apply to digital payments for government services. We found a strong sentiment in some markets against paying this fee; consumers we spoke with in the Philippines, unsurprisingly, disliked variable fees more than fixed fees.

Countries should tread particularly carefully in launching P2G initiatives given the reality of technical issues (connectivity and interoperability), product shortcomings, and consumer awareness of the cumbersome processes of public entities. If P2G payments breed bad experiences, there is a danger that people will turn away from digital payments altogether.

Barrier 4: There is Insufficient Investment in Driving Consumer Awareness

Experts in government and the private sector alike acknowledged in interviews the shortcomings of their current approaches to creating consumer awareness of P2G e-payment products. First, governments and companies do not always prioritise driving awareness. Second, they are uncertain who should pay for it. Third, when they do invest in it, they may not be pursuing effective strategies.

Governments and companies do not always prioritise driving awareness.

In some cases, we found uncertainty on the part of both public and private sector partners as to which party should pick up the tab for marketing efforts. Even when they did invest in marketing and awareness campaigns, almost none of the organisations we spoke with had conducted consumer research to understand what kinds of messaging would be most effective.

We found uncertainty on the part of both public and private sector partners as to which party should pick up the tab for marketing efforts.

Addressing this gap is now one of the core objectives of the E-PESO USAID initiative which seeks to scale up digital tax payment initiatives in the Philippines over the next few years. As a result, they have launched 'E-Bayad' tours in partner cities which provide target users with an opportunity to try digital payment methods with the assistance of Globe agents. The tours were launched in February 2016 and have been conducted in four cities to date (Cagayan de Oro, Iloilo, Quezon City, and Batangas City), and more are planned for later this year. These are set up at city halls or other payment offices where customers who come to pay OTC are encouraged to pay using their own phones. Initial results from these tours have been encouraging. For example, Quezon City alone has seen ~PHP 4 million (~USD 90,000) collected from mobile-based payments for property tax, business registration, and income tax.

A lack of consumer awareness seemed prevalent in the countries we studied in the absence of strong consumer research and outreach. For example, consumers in Bangalore, India, who visited their local BangaloreOne (government) centres to make payments for various government services,

were unaware of the government's MobileOne e-payment application. These centres would seem to be the natural place for the government to advertise the application—or to go a step further, by training tellers to market the application to consumers.

As another example from the Philippines, awareness of Quezon City's property tax initiative (with Globe Telecom) was so minimal that, as of the end of 2015, only 300 households had used the property tax product. This amounted to less than 0.01% of the eligible user base of over 300,000. In Rwanda, we asked smart card users (in groups of six, typically aged 20–25 years) if they would pay for basic government services using mobile money if the option existed. All of them said yes, but none had heard of Irembo, the nation's online P2G/e-government portal.

Consumers in Manila could see the cost of making the digital payment, but did not immediately believe that it was less than the costs associated with cash payments.

Beyond finding limited success in driving awareness of specific initiatives, governments and their partners have not focused on clearly communicating to consumers the value proposition of digital P2G payments—particularly in relation to the cost of cash. The time spent travelling to a government office and then waiting there, plus the expense of transport, add up to a clear cost to consumers for paying in cash. However, our interviews with consumers and experts across all three countries indicated that the price of cash was not being marketed to consumers. This became particularly clear in markets where a convenience fee was being charged to consumers to make a digital payment (e.g., in the Philippines). Consumers in Manila could see the cost of making the digital payment, but did not immediately believe that it was less than the costs associated with cash payments. They were more likely to see value in the digital payment when we walked them through the calculations.

According to some interviewees, poor government and MNO agent training contribute both to making the value proposition unclear to consumers and to limiting consumers' ability to use digital payment products. In many cases, the MNO agents themselves do not understand the value proposition sufficiently well to frame it in a way that sells customers on the benefits of the service; this was specifically highlighted in the Philippines. In other cases, the issue may actually be linked to the underlying incentive structure. For example, in Pakistan, we heard that commissions from OTC transactions may be preventing agents from encouraging clients to shift to wallet-based solutions. In such environments, there may be a need to ensure sufficient incentives to encourage agents to promote wallet-based solutions, or consider other alternatives to consumer education (e.g., government agents).

People have recognised this agent-training void and some are now even seeing a business opportunity in helping citizens understand how to use digital payments.

On the government side, when the government of Rwanda and ROPL launched the Irembo service in July 2015, they conducted train-the-trainer programmes across the country to allow more local government Internet service centres to help Rwandans use the site. Two months later, however, the trained trainers had themselves forgotten how to use the site (the initiative invested further in retraining the same group).

People have recognised this agent-training void and some are now even seeing a business opportunity in helping citizens understand how to use digital payments. One FGD participant, a cyber café owner in Kigali, charged his customers RWF 300 to help them use Irembo. The government did not

commission him; he simply taught himself the system and found a way to earn money by fulfilling a need.

As these barriers demonstrate, governments and private sector players must weigh a range of important considerations as they determine what payments to digitise, and in what order. Taken together, the barriers to setting up digital P2Gs and consumer adoption are multifaceted, interrelated, and in many cases, complex. The next section is intended as a set of guidelines to help governments determine the most opportune time to pursue digital P2G payment solutions, and what other supporting actions can be taken either in parallel with or in anticipation of doing so. We will discuss what stakeholders can do to enable the P2G ecosystem as a whole.

EXHIBIT 9

Barriers to consumer adoption

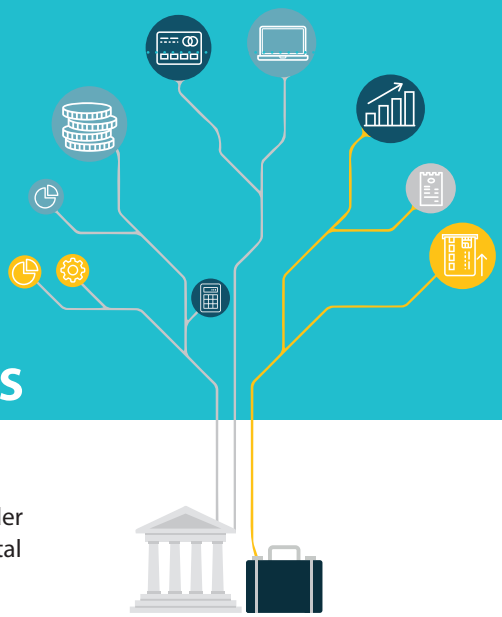
Barrier	Overview	Examples from research	**Ways to address** (explored in detail in Sections 7 and 8)
1. Limited digital value proposition barriers			
Alternate "workaround" solutions	Users already have alternate solutions to reduce the existing pains associated with P2G payments.	▪ Using "fixers" to wait in line or manage transactions *(Philippines, Nepal).*	▪ When designing P2G solutions start with single - transaction payments (e.g., transport, utilities). i.e., ones that are not part of a longer process consisting of multiple transactions and activities. ▪ For other types of payments, work towards making the full process digital (e.g., collect documentation online, accept digital forms of ID verification). ▪ Incentivise digital payments (e.g., charge less for government services if consumers pay digitally, e.g., for passport services). ▪ Over time, consider gradually phasing OTC models out, or even mandating digital payments, outright.
Alternate over-the-counter (OTC) models	Governments are reducing the cost of making P2G payments for consumers by offering them the option to pay in cash at alternate outlets, many of which are closer to the consumer.	▪ In the state of Karnataka, the government has invested in 50+ centres where individuals can pay for a range of government services OTC *(India).* ▪ Across Manila, retailers can register for "Bayad" licences, allowing them to accept payments for common services, such as electricity *(Philippines).*	
Benefits from paying in cash	Paying in cash offers benefits to consumers not available via digital payments.	▪ Personal relationships with local authorities that permit flexible payment options *(India, Rwanda).*	
Need for cash-in	Convenience offered by digital solutions is diminished by the need to cash-in.	▪ Schools accept only mobile money payments, but cash-in infrastructure is lacking *(Rwanda).* ▪ Consumers are unwilling to store money on mobile wallets, so would have to go to cash-in to make a digital payment each time *(Philippines).*	
Entire process is not digitised	The entire payment process may require many steps, apart from just the transaction.	▪ Users in Quezon City said that payment was only one of five steps associated with registering their businesses and that having the option of paying digitally did not actually save time *(Philippines).* ▪ Consumers in Bangalore said the value proposition of a digital payment is severely hampered if one has to go to the office to pick up forms (e.g., for birth/death registration) *(India).*	

Continued on the next page

Barrier	Overview	Examples from research	**Ways to address** (explored in detail in Sections 7 and 8)
2. Ecosystem barriers			
Poor connectivity	Fast, reliable connectivity via broadband landlines or mobile devices is critical to all digital transactions.	▪ We experienced product failure during focus group discussions (FGDs) and consumer tests due to poor connectivity *(Rwanda, India, Philippines)*.	▪ Make investments in improving connectivity (at the back end for government servers and in cell-towers, hot spots, etc., and at the front end for consumers). ▪ Consider implementing policies that enable, incentivise, or even mandate interoperability. ▪ Design strong regulatory frameworks around consumer security, privacy, and recourse. Ensure that consumers clearly understand these mechanisms.
Lack of interoperability	A lack of interoperability and payment methods can hinder consumer adoption.	▪ A lack of interoperable networks means only users of one network—Globe—can use solution *(Philippines)*. ▪ Tap&Go Smart Card initially not usable on all bus systems; bus companies set up competing systems *(Rwanda)*.	
Concerns around fraud and security	Consumer concerns regarding loss of phone or identity theft.	▪ Customers are wary of using digital methods due to high-profile cases of fraud *(Philippines)*.	
Poor government recourse	Users require avenue to complain or claim refunds in case of failed payments.	▪ MobileOne users use debit/credit cards but do not trust mobile wallets due to poor recourse *(India)*.	
3. Product implementation barriers			
Product functionality	Poor product design hampers UX.	▪ User tests demonstrated that consumers find the Irembo platform complicated and struggle to register to use the product *(Rwanda)*. ▪ Consumers found the need for identification numbers and personal identification numbers (PINs) particularly confusing during tests *(Philippines, India)*.	▪ Integrate regular product testing and iteration into initiative implementation. ▪ Consider building consumer education programmes into awareness campaigns (e.g., training videos, one-on-one trainings). ▪ Consider streamlining account numbers across multiple services to reduce the number of PINs and codes that consumers need to remember (where possible, largely applicable to integrated solutions). ▪ Implement policies that ensure that digital receipts have legal validity; train government officials to accept digital receipts. ▪ Make sure that pricing policies are transparent and clear (e.g., at ATMS, advertise what fees, if any, are associated with making a digital payment, include pricing information in promotional campaigns, train government agents to answer questions about pricing).
Concerns around the utility of, and lack of trust in digital receipts	Consumers do not believe digital receipts are durable or will be accepted to prove a transaction; in some cases, physical receipts are necessary for other services (e.g., copies of tax payments are needed for loan applications).	▪ Users were unsure whether government officials would accept digital receipts in lieu of paper receipts and stated that the latter were even more important for government services relative to other services, given the high punitive measures for non-payment *(India, Philippines)*.	
Pricing and pricing transparency	High prices and/or poor understanding of the costs make consumers wary of using digital solutions for P2G payments.	▪ Digital payment initiative for social benefits (Bayad Load) shelved due to high transaction fees two months after launch *(Philippines)*. ▪ Consumers said they thought they would have to pay to use a digital platform and were unsure what the fee would be, given prior experience with paying merchant discount rates (MDRs) when using a credit card *(Philippines, India)*.	
4. Consumer awareness and understanding barriers			
Limited investment in marketing campaigns	Limited business and government investment (time, money) in marketing directly to consumers, resulting in poor awareness.	▪ Transport smart card users expressed interest in paying for government services using mobile money but were not aware of the government's integrated Irembo platform *(Rwanda)*.	▪ Build strong marketing and awareness programmes into the initiative planning process and budget. ▪ Clarify the roles of different actors (e.g., governments, businesses) in conducting marketing and awareness and education activities. ▪ Consider providing incentives for business actors who successfully enrol customers into digital programmes. ▪ Conduct targeted consumer research to identify approaches that will maximise consumer adoption. ▪ Invest in upfront agent training and regular refreshers.
Poor articulation of the value proposition	The opportunity costs of cash payments are not communicated to customers.	▪ Marketing efforts do not emphasise the value of time lost, or the cost of cash *(Philippines, Rwanda, India)*.	
Gaps in agent training	Limited investment or success in training agents to teach consumers to use digital services.	▪ Train-the-trainer programmes to demonstrate the value of using Irembo were unsuccessful when conducted the first time. Refresher trainings are needed to remind users how to use the site *(Rwanda)*.	

SECTION 7

Building Digital P2G Solutions: Recommendations for Governments and Businesses



Our fundamental view is that digital P2G initiatives are best positioned for success if they: a) are designed for the long term; and b) are part of a broader digitisation strategy. The framework we develop in this chapter places digital P2G solutions within this holistic perspective. We present:

a) A framework to help governments decide whether to invest in P2G;

b) How to get started;

c) A roadmap for implementation.

A. Determining Digital P2G Readiness

We see four factors for governments to consider when determining whether and/or when to invest in digitising P2G solutions. The checklist below provides a synthesis of these determinants followed by an explanation.

High levels of stakeholder buy-in: The level of government buy-in can have a tremendous influence on the success of a P2G initiative. Digitisation is a national priority in Rwanda, so much so that it has been incorporated into a national payment system strategy. As an extension of this work, the government of Rwanda has been actively focused on building out its Irembo platform. The platform on-boarded nearly 20 government services in eight months (exceeding targets) and has aggressive plans to launch up to 100 more in the next three years. This rapid progress can be, at least in part, attributed to strong levels of government support. This example stands out when compared to others such as Bayad Load in the Philippines where insufficient support from key government agencies meant that the initiative was active for only a few months.

Top-level support, ideally both in the form of an individual champion at the senior level and a team dedicated to e-governance, can play a major role in ensuring broader buy-in across relevant government agencies and public bodies whose support is needed to move the initiative forward. Allocating budgets specifically for P2G initiatives and building initiative goals into department strategies (or even national-level strategies such as digitisation or national payment system strategies) can similarly play an instrumental role in building and maintaining support.

Early indications of private sector support can also go a long way later down the process, particularly in terms of developing a sustainable business model and ensuring shared responsibility and accountability for the success of P2G initiatives.

Top-level support, ideally both in the form of an individual champion at the senior level and a team dedicated to e-governance, can play a major role in ensuring broader buy-in across relevant government agencies and public bodies.

Early indications of private sector support can also go a long way later down the process, particularly in terms of developing a sustainable business model

Reliable infrastructure is essential so that: a) P2G solutions work well for both the consumer and the government, and, critically, b) so that governments do not have to keep redesigning their business processes and making changes to their systems beyond regular maintenance. While it is not critical for infrastructure to be optimised *before* a P2G initiative is launched, an explicit commitment to making these investments alongside the development of their initiatives will ensure that the solution not only works, but works well upon and after launch.

Reliable infrastructure is a product of three main components:

- **Reliable connectivity** – On the front end, this improves the quality of the consumer experience. On the back end, it ensures that payments are processed quickly and securely. Governments may consider making investments alongside MNOs in improving the quality of mobile connectivity and developing apps that tolerate unreliable connectivity. As an example, a government might allow or pay for additional cell tower sites, develop local hotspots, or increase spectrum allocation to extend the reach of high-speed networks and provide consumers with a faster and more reliable experience marked by fewer dropped transactions. On the back end, making appropriate investments to upgrade connectivity will help ensure that government systems can handle large payment volumes.

Flexible and reliable back-end systems can make it easier to make changes to existing services and incorporate additional services over time.

- **Strong back-end systems** – As we explored earlier, this often requires upgrades to existing databases to ensure that they are reliable and digital. Investing in digital databases (where they do not already exist) is particularly important where consumer records remain paper-based, in order to ensure that transactions can be attributed to the correct payer. The process of translating historical consumer records into a digital form that is compatible with payment systems and the front-end solution, can require a meaningful investment, depending on the volume of data requiring conversion.[51] In addition, governments often need to make investments in (i) new servers or upgrading existing ones to store and process large volumes of data; (ii) security of both consumer data and servers; (iii) software upgrades, and (iv) staff for ongoing maintenance and upgrades. Flexible and reliable back-end systems can make it easier to make changes to existing services and incorporate additional services over time.

  The case of MobileOne in India highlights the importance of investing in strong back-end systems. Integration onto the MobileOne platform was very easy where a government agency had previously upgraded its infrastructure. However, the process tended to be trickier when the provider had to work with agencies with legacy systems and databases. This required more time and added investments in special APIs to bring the agencies onto the platform. IMImobile stated that integrating hundreds of government agency systems was the most time-consuming part of setting up MobileOne.

51. While not necessary for digital P2G solutions, national-level databases (e.g., those in India and Pakistan) can provide added efficiencies. For the government, it would mean that consumer records could be more easily compared across government bodies. For the consumer, it could mean a more streamlined payment experience across services (e.g., all accounts could have the same number).

- **Inclusive and consumer-friendly payment ecosystem** – All countries have existing payments infrastructure, but do not always have the infrastructure in place that will facilitate the adoption of digital payments by consumers, including the underserved. "Inclusive" refers to payments infrastructure that can accommodate the needs of the underserved. This means the availability of a wide reach of cash-in points and digital payment solutions such as mobile wallets, prepaid cards, and rechargeable cards – all solutions that do not require bank accounts. "Consumer-friendly" means that payments infrastructure incorporates, plans to incorporate, or is capable of incorporating features that improve the overall attractiveness of digital payments to consumers more broadly. These include features such as interoperability, real-time (or near real-time) funds settlement, a national switch, open-loop systems, etc. The government of Jordan's recent investment in developing its national switch (JoMoPay) alongside a range of payment solutions (bank and mobile-based) is a good example of a government's commitment to developing an inclusive and consumer-friendly payment ecosystem.
- There are, of course, other reasons to invest in improving payments infrastructure beyond driving consumer adoption. For example, establishing a treasury single account[52] can help governments improve cash management by ensuring that cash balances are not left idle (and therefore not earning interest), thereby cutting cash handling costs and increasing accountability and transparency.

A policy environment that is flexible and responsive to trends in digital finance can be a strong enabler for P2G payments.

Supportive policy environment: At the most basic level, this requires a regulatory environment that allows government bodies to accept digital payments. Taking this a step further would be policies that allow governments to pay fees for digital payments or pass on fees to consumers, which may not always be a straightforward process, given the political implications.

Separately, policies that protect the consumer are particularly important when developing P2G solutions. These include clear regulatory frameworks for consumer data and privacy and policies for consumer recourse and the issuance/acceptance of electronic receipts. While these policies are useful for all forms of payments, they are especially important for digital P2G payments given the importance and sensitivity associated with government documentation (e.g., tax payments, birth certificates, etc.), as well as the ramifications if things go awry (identity theft, penalties for missed payments, lost records, etc.).

Policies that protect the consumer are particularly important when developing P2G solutions..

More broadly, a policy environment that is flexible and responsive to trends in digital finance can be a strong enabler for P2G payments. As an example, incorporating flexible policies around KYC[53] can make it easier for consumers to complete transactions remotely (e.g., for providing ID verification for birth certificates or passports), while an environment that supports various forms of interoperability can allow more customers to take advantage of P2G solutions.

Indications of citizen-readiness: Even a reliable and inclusive digital payment solution may not see uptake if it does not clearly alleviate consumer pain points. This means that digital solutions should be perceived by consumers as

52. An individual or set of linked bank accounts through which the government transacts all its receipts and payments.

53. Tiered KYC requirements, acceptance of digital forms of ID.

better than the cash alternative. Otherwise, they will continue to use methods that are more convenient for them.

Separately, countries with more advanced digital ecosystems may be better positioned for P2G solutions than those still in the early stages of digitisation (primarily cash-based societies with little adoption of mobile money).[54] These countries will have a consumer base that understands the value of paying digitally and is already used to making digital payments. Consumers in these countries might also be willing to pay digitally for government services as a logical next step. By contrast, it is hard to imagine countries driving demand for digital payments through P2G given that these payments are typically made once a month or less, carry a higher risk to consumers (e.g., a failed transaction might be seen as non-payment and can have legal ramifications), and are more complex (can require added documentation) relative to other digital payments (e.g., G2P, person-to-person [P2P] payments). The notable exception is when governments mandate digital payment, which, in certain cases, can be an effective tool in driving consumer adoption.

Rwanda is a good example of a country that has shown citizen-readiness. This is evident in the progress of mobile money adoption and government policies that are phasing-in digital P2G payments. India may be on its way to demonstrating citizen readiness, particularly as bank account usage continues to rise and its own digital ecosystem continues to develop, characterised by rapid growth in digital payments in recent months.

EXHIBIT 10

P2G readiness framework

Determinants	Key components	
High levels of stakeholder buy-in	Overt commitment across relevant government agencies	☐
	Strong partnership (including a viable business model) between government and financial service providers	☐
Reliable infrastructure	Reliable connectivity	☐
	Strong back-end systems	☐
	Inclusive and consumer-friendly national payments architecture	☐
Supportive policy environment	Regulations that allow government agencies to accept digital payments	☐
	Regulations that protect consumers	☐
	Flexibility and responsiveness to trends in digital finance	☐
Indications of citizen-readiness	Digitising payments will solve consumer pain points	☐
	Other forms of digital payments gaining traction	☐

54. See Better Than Cash Alliance (2012) for more details on the stages of digitising payments.

B. Getting Started

Once a government has decided to set up a digital P2G initiative, it is important to do three things:

- **Articulate a clear set of objectives:** Having a clear set of objectives can help alignment across government agencies and ensure that all are working toward common goals. For example, governments eager to reach the poor may choose to start with transportation and utilities, while governments whose primary purpose is to maximise revenue collections may instead choose to begin with income taxes.
- **Develop digitisation plans:** A key challenge to digitising P2G payments today is the length of time that it takes to develop and launch a solution and overall process efficiency. A clear digitisation plan can serve as a useful guide for governments as they launch and manage P2G initiatives. Key components would include (i) the rationale for digitisation; (ii) what services should be digitised; (iii) target consumer segments; (iv) what payment methods should be made available; (v) an early assessment of technology needs; (vi) a high-level budget envelope; (vii) a timeline for implementation; (viii) the makeup of the team responsible for the project, and (ix) metrics for success.
- **Build internal commitment and capacity:** Our research highlighted that this has been an area of relative underinvestment. Training administrative officials within a government agency, ensuring alignment with other relevant departments (e.g., finance and education ministries, school boards, internal IT, finance departments, etc.), and making sure all relevant people—all the way down to the people who collect funds—are informed and incentivised, can help ensure implementation success. Wherever possible, it is useful for departments to prioritise digital payments as part of their own strategies and allocate budgets (where needed) as signs of their own commitment. This is particularly true in the case of integrated initiatives that require support across government agencies.

A clear digitisation plan can serve as a useful guide for governments as they launch and manage P2G initiatives.

It is useful for departments to prioritise digital payments as part of their own strategies and allocate budgets (where needed) as signs of their own commitment.

These are all upfront planning steps and can take place in any order (or in parallel), depending on the specific country context. Indeed, each of these planning steps can support the other, e.g., building internal commitment can result in a stronger digitisation plan and vice-versa.

C. Setting up and Launching a P2G Initiative

The high-level roadmap below (Exhibit 11) is **intended to serve as a guide for the key steps to launching a digital P2G programme efficiently and successfully.** The Exhibit is illustrated linearly for the purposes of simplicity. In reality, many of these steps will work best when implemented in parallel. These steps are likely familiar to those who have worked on mobile payment implementation projects before. We follow this section with P2G-specific recommendations that governments and businesses may find useful as they prioritise their efforts.

EXHIBIT 11

Roadmap to implementing a P2G initiative

I. Establish partnerships	II. Develop and test solution	III. Pilot and iterate on solution	IV. Conduct internal training activities	V. Launch product
▪ Establish relationships with financial service providers ▪ Agree on business model (who pays, fee structure, revenue sharing amongst parties) » Develop and agree on project timeline » Develop and agree on project budgets (costs of set up and maintenance and cost sharing) » Agree on any upfront incentive periods ▪ Agree on consumer recourse methods ▪ Select vendors (e.g., IT partners, training agents, marketing agencies, etc.)	▪ Develop front-end solution (note: financial service providers likely to develop) ▪ Integrate front-end solution with back-end government systems ▪ Redesign government business processes ▪ Conduct internal product tests	▪ Develop pilot plan (timeline, pilot location, target consumers, duration, metrics for success) ▪ Train staff/agents responsible for implementing pilot ▪ Conduct pilot with target consumers ▪ Collect and analyse data from pilots ▪ Incorporate feedback into product design	▪ Identify who needs to be trained (e.g., mobile money agents, government office workers, etc.) ▪ Develop training manuals ▪ Conduct trainings	▪ Develop launch materials ▪ Conduct initial marketing campaigns ▪ Enable solutions to work across designated geographies

Ongoing: investments in technology, marketing and awareness, and performance management

Technology
- Initial capability assessment and development of systems solution
- Ongoing systems updates and upgrades
- Product upgrades

Marketing and awareness
- Consumer
- Agent

Performance management
- Profitability assessments
- Impact assessments

Investing in strong technology solutions will help ensure that additional services and payment options can be added relatively seamlessly at a later date.

KEY RECOMMENDATIONS FOR GOVERNMENTS:

- **Start simply and take a long-term view.** A new digital P2G initiative can iron out kinks and acculturate consumers to digital payments by focusing on payments for one or two core services with broad reach. At the same time, working toward longer-term integrated solutions means planning for flexibility in advance. And, as discussed before, investing in strong technology solutions will help ensure that additional services and payment options can be added relatively seamlessly at a later date. A notable example is the Hong Kong Octopus smart card. The solution was initially built for public transit but, after mass adoption, now covers several retail stores in Hong Kong, hosts merchant loyalty programmes, and even provides ID verification for some buildings.[55] Similarly, AC Group in Rwanda is considering extending the smart card solution beyond bus transport, although that is a plan for the future.
- **Integrate consumer adoption across all aspects of design and implementation.** P2G initiatives are likely to benefit from heavy strategic investments in consumer marketing and awareness, particularly in making clear the benefits of switching from cash. Depending on the context, the government or business partner may be better positioned to handle the actual messaging. For example, in India, the government is offering banks an incentive fee for each customer enrolled into the APY programme, as well as additional funds specifically for marketing and

55. Note that the Octopus smart card is not a government solution, nor is public transit a government service in Hong Kong. We highlight this example because it demonstrates how a compelling use case can be employed to build the case for, and expand the use of digital payments.

awareness campaigns.[56] In Jordan, the CBJ is investing in a large-scale consumer awareness and education campaign alongside businesses (Box 5). And in Rwanda, ROPL is deploying a number of paths to increase awareness, including working with Internet centres and local government to educate local communities.

Still, consumer adoption is not just about marketing and awareness. Governments will benefit from considering consumer adoption across the design and implementation cycle: Is the pricing model going to work for consumers? Is the solution's design going to solve real consumer pain points? Will the selected use case's reach be broad enough to make the investment worthwhile? All of these components need to work together to create a compelling value proposition for consumers and all parties involved.

- **Take a cautious approach to mandating digital payments.** In certain circumstances, mandating digital payments can be a compelling and effective way to drive consumer adoption, especially as part of a larger, concerted movement away from cash. This approach is probably not suited to every context. The population's level of trust in the government is as important as the availability and reliability of mobile services. Stakeholders should do their best to anticipate unintended consequences (such as leaving people behind). Still, mandatory digital payments remain an available tool, if needed. One phased approach to mandating digital payments is to:
  - » Incentivise the use of the P2G solution relative to the traditional option. For example, in Turkey, visa fees are cheaper for those who submit their applications online and prior to entry.
  - » Make it more challenging to use the traditional option. In the Philippines, the government is mandating that certain offices (e.g., the social security system [SSS] and the Philippine Health Insurance Corporation) phase out their OTC payment counters. While consumers will still be able to go to other OTC points (e.g., banks), they will no longer be able to go to the government centre itself.
  - » *Once there is sufficient awareness and uptake of the solution, consider mandating the digital approach either explicitly or phase out the availability of the traditional method altogether (an indirect mandate).* The Rwanda Utility Regulatory Authority (RURA) has mandated that all bus companies use smart cards by June 2016.
- **Focus on internal process redesign and training.** As our research in the Philippines indicated, this does not have to take a long time or even a significant amount of money, but is an often overlooked or poorly executed step. Governments can ensure that there are fewer internal challenges early on by considering and implementing the necessary business process changes upfront (e.g., which departments are involved in payment processing, what the order of the workflow is, who needs to provide oversight, etc.). And by focusing on internal training, employees, particularly government agents who have consumer-facing roles, will be better equipped to ensure that the initial deployment is successful.

Rwanda begins its awareness and education efforts by training government officials as the first points of contact, and then spreading the message from there.

56. See case study 3 for more information on the incentives offered to banks and their implementation partners for marketing to, and enrolling customers.

As an example, Rwanda begins its awareness and education efforts by training government officials as the first points of contact, and then spreading the message from there.

- **Prioritise ongoing learning and iteration.** Integrating learning and iteration into every stage of the process from design to implementation and after launch is critical to long-term success. Establishing and regularly measuring (e.g., every six months) against metrics of progress and success around project management and implementation, consumer adoption rates, and finances and impact, can ensure that goals are being met. If goals are *not* being met, the process allows for early course correction or even re-evaluation about whether to keep investing in the solution. Course correction includes identifying new approaches to consumer awareness, additional tweaks to business processes to improve internal workflow efficiency, changes to business models, etc. This is especially important for P2G solutions given that they are consumer-facing and that a poor product experience can turn people away from future digital initiatives, P2G or otherwise.

KEY RECOMMENDATIONS FOR BUSINESSES

- **Design robust and flexible front-end solutions that take the needs of the unbanked and underbanked into account.** As we explored earlier in the study, UI and UX considerations are important reasons that consumers, and particularly the underserved, are hesitant to adopt P2G solutions. Businesses that take the needs of the underserved[57] into account when developing front-end solutions can help overcome these adoption challenges. These solutions should be easy to update as governments make changes to the solutions – e.g., add a new service/biller, accept digital ID as verification for KYC, allow digital submission of application forms, etc.

Businesses that take the needs of the underserved into account when developing front-end solutions can help overcome these adoption challenges.

- **Co-invest alongside governments to ensure appropriate levels of MNO agent training and consumer awareness.** As our research indicated, one reason the value proposition of digital P2G payments is not clearly being communicated to consumers is that agents do not know how to distinguish between a P2G service and any other value-added service. We believe that ensuring sufficient agent training[58] for these services could go a long way towards helping drive adoption. As an example, as part of its relaunch of Bayad Load, Smart is focusing on training its agents to help consumers understand the value proposition and opportunity cost of paying in cash. [59]
- **Offer upfront incentive periods for consumers to attract and then retain first-time users.** The right incentives could be instrumental in attracting the initial user base and driving adoption. We have seen numerous examples of businesses offering such promotions to customers upfront:[60]

57. Simple menus that are easy to scroll through, solutions requiring fewer codes, messages that clearly articulate why a transaction has been dropped, etc.
58. At a minimum, they must understand the value proposition, be able to clearly communicate fees, and offer consumers accurate information on recourse options.
59. Smart's training activities are conducted using train-the-trainer programmes.
60. Results are not yet available in the case of Jordan, but the government believes that offering the service free-of-charge is critical to driving adoption.

- » Kigali Bus Services (KBS) launched a promotion offering the Tap&Go card for RWF 12,000 (USD 15.5) for up to 200 rides in the first month of use—effectively a ~60% discount on normal fare, assuming full usage of the 200 rides at a typical ~RWF 150 (USD 0.19) per ride. This offer helped KBS achieve a circulation of 40,000 cards in the first two months of operations. In addition to the upfront discount, KBS is also considering offering a loyalty scheme;
- » In the Philippines, Globe Telecom is not charging fees to consumers using its mobile solution for business registration and tax or property tax, though it does plan to test different business models as it drives adoption.

Such incentives could certainly be developed in partnership with government, which may be willing, in certain instances, to bear some of the costs.

Driving consumer adoption: lessons from Jordan

BOX 5

In designing JoMoPay, the government of Jordan was keen to learn from other countries with experience in developing national payment systems and driving the adoption of digital payment solutions, including P2G. A key lesson was the need to invest heavily in consumer awareness. In collaboration with business partners, the CBJ is investing in a range of activities designed to support consumer awareness and education alongside the roll-out of the solution:

- Direct consumer engagement, including with the underserved (e.g., through flyers, question-and-answer forums, and one-on-one sessions); [61]
- Mass awareness campaigns that include online and offline approaches (e.g., short tutorial videos that can be shared via television or on social media, SMS blasts);
- 24/7 customer service centres;
- Customer support through MNO agents.

Exhibit 12 below shows the first page of a two-page question-and-answer brochure designed to market JoMoPay to potential consumers.[62]

EXHIBIT 12

JoMoPay brochure

While not exhaustive, a range of topics that came up as important to consumers in our research are covered in the brochure:

- Value proposition, including benefits (cost of cash and opportunity cost) and costs (fees for making mobile payments);
- How the solution works (including for bank account and non-bank account holders);
- How and where to cash-in/cash-out;
- Security (including identity protection, what happens in the event of a lost device, etc.);
- Receipt handling;
- Dispute resolution.

JoMoPay is still in its early days, having just launched in April 2016. The results of the awareness and consumer education efforts remain to be seen, but we are optimistic that targeted and holistic initiatives such as this will have a meaningful effect on driving adoption.

61. One-on-one sessions with potential users are currently planned for launch after initial awareness activities. The CBJ is working to find a third party who can send individuals to universities/mobile retail outlets.

62. While the exhibit is in Arabic, we have included it to show the design of the brochure.

SECTION 8

What's Next: Recommendations for Key Stakeholders

There is still much to learn about the potential of, and the best ways to digitise P2G payments. Governments, businesses, donors, multilateral organisations, researchers, and advocates all have a role to play in advancing our understanding of what works and what does not, and improving the overall digital payments infrastructure. This will make P2G initiatives easier to implement successfully in the future, and ultimately, also increase the impact on the underserved. While there are undoubtedly other initiatives that stakeholders could undertake, the following stood out as being particularly valuable for advancing the overall P2G agenda.

Governments

Policymakers and regulators have a critical role to play in improving the overall environment for digital payments. Key areas for intervention include:

- Upgrades to government back-end systems;
- Investments in connectivity;
- Improved national payments infrastructure;
- Clear policies around consumer privacy, security, and recourse mechanisms;
- Enabling policies for digital payments (e.g., interoperability, KYC, etc.);
- The integration of digital payments, including P2G, into national plans (e.g., digitisation plans, payment plans, etc.).

These interventions were covered in detail in the previous section.

Businesses

Invest in shared payments infrastructure. Businesses, particularly banks and MNOs, have an opportunity to improve the overall payments infrastructure upon which digital P2G payments, as well as other payments, are made. For example, the ten banks that are part of the National Payments Corporation of India (NPCI) have come together to develop various solutions that are meant to speed up, standardise, and increase the security of payments in India, thereby increasing the attractiveness of digital payments.[63] Beyond directly

Businesses have an important role in supporting and informing the legislative process.

63. Recent solutions include immediate payment systems, an instant interbank EFT service, and, as of April 2016, a unified payment interface to simplify and provide a single interface across all payment systems in India.

financing and building such solutions themselves, businesses have the opportunity to **provide technical assistance to governments,** e.g., providing input into the solution architecture, the business process changes, and required policy changes.

Advocate to governments for required policy changes. While policymakers and regulators are ultimately responsible for making key policy-related decisions, businesses have an important role in supporting and informing the legislative process. For example, they can comment on draft circulars or legislation put forth by government bodies, serve on advisory boards, or share lessons and best practices from other contexts.

Donors and Multilateral Organisations

Support governments in: i) improving the digital payments infrastructure generally and, specifically, ii) ensuring that enabling conditions for digital P2G payments are in place. Donors are uniquely positioned to play this role given the breadth of their interaction with governments: they provide funding to individual countries, help countries work on their policy agendas (in some cases, even help write/draft agendas), provide technical assistance, and have a cross-country perspective that they can share.

Governments should take the lead, but donors can help make the business case.

Invest in country-level diagnostic studies prior to working with governments to launch P2G pilots. This would entail understanding if a specific country's infrastructure is primed for investments in digital P2G initiatives and identifying in advance priority investments and use cases that can drive adoption. It would also entail mapping existing business processes to optimise them for digital payments. Pilot programme designs may be poorly matched to country contexts without the insight provided by these diagnostics.

Invest in enabling infrastructure. Governments should take the lead, but donors can help make the business case, offer technical assistance, and, where there is a compelling case, subsidise an initial investment to "make the case" and support longer-term funding from the government, directly.

Share lessons derived from working with other countries on digital P2G, provide technical understanding of the infrastructural needs of digital payment systems (i.e. via IT specialists—this proved to be quite helpful in the case of the Philippines), **and provide policy-level expertise.** They can also provide funding for additional research (discussed below).

Make the case for investments in areas such as financial education or information security that governments may not initially buy into, particularly if they are expensive. In some cases, donors can also consider making direct investments in these areas.

Researchers and Advocates

This study is a foundational step in building the evidence base for digitising P2G payments. While there are undoubtedly many other areas for exploration, the following stood out as research and advocacy-related activities that would help address common gaps in digital P2G payments today:

Invest in a common P2G database. For example, conduct a country survey to understand which services are classified as government service and which are not, as well as the size and volume of these services by consumer segment. In some countries, P2G is a relatively large part of the economy, while in other countries it is not. For the financial inclusion community, a cross-country comparison would be useful in determining where the community may want to invest its resources. Within countries, as governments look to prioritise digitisation among various payments, it would also be helpful for them to understand payment flows by consumer segment and payment type.[64]

For the financial inclusion community, a cross-country comparison would be useful in determining where the community may want to invest its resources.

Clearly establish the extent of the common benefits between G2P and P2G. One hypothesis we formulated as part of our research is that by providing consumers with options to pay for valuable services, governments can encourage them to keep money within the digital system. In other words, building digital P2G solutions alongside G2P solutions (i.e. disbursements for salaries, conditional cash transfers, pensions, etc.) is likely to have a meaningful impact on the value to consumers of both solutions. This may eliminate or diminish the need to cash-in. Testing this hypothesis was beyond the scope of our project, but it could be an important area for further research, particularly when viewed from a financial inclusion perspective.

Identify specific best practices for communicating the value proposition to consumers. For example, focus groups in Rwanda reacted very positively to clear comparisons with the cost of traditional transactions, suggesting a need to invest in at least high-level "cost-of-cash" analyses for new services. Further consumer research to test this hypothesis and account for different messaging approaches by country/region/culture as well as customer segment, would be a key part of improving P2G adoption and, critically, understanding the viability of P2G initiatives. Such analyses could potentially be co-funded by commercial actors who would also have business interests in better understanding customer marketing potential and their willingness to pay.

Building digital P2G solutions alongside G2P solutions (i.e. disbursements for salaries, conditional cash transfers, pensions, etc.) is likely to have a meaningful impact on the value to consumers of both solutions.

Ensure that the protection of consumer privacy and security are maintained. Advocates have an opportunity to play a vital role in making certain that policymakers are cognisant of these concerns as they shape the infrastructure and policy for P2G initiatives, and, more broadly, for digital payments.

Conduct and disseminate best practices from country-level studies. Although to date, we have looked at just a small selection of initiatives, we found a high degree of similarity in the challenges they face. The similarities extend to the set-up of digital P2G payments. As we learned, although country contexts can be quite distinct, the set-up process is fairly replicable, requiring

64. This work could also complement any country-level diagnostics undertaken by others, such as those that have been produced by BTCA (e.g., in the Philippines, Nigeria, Malawi, and Colombia).

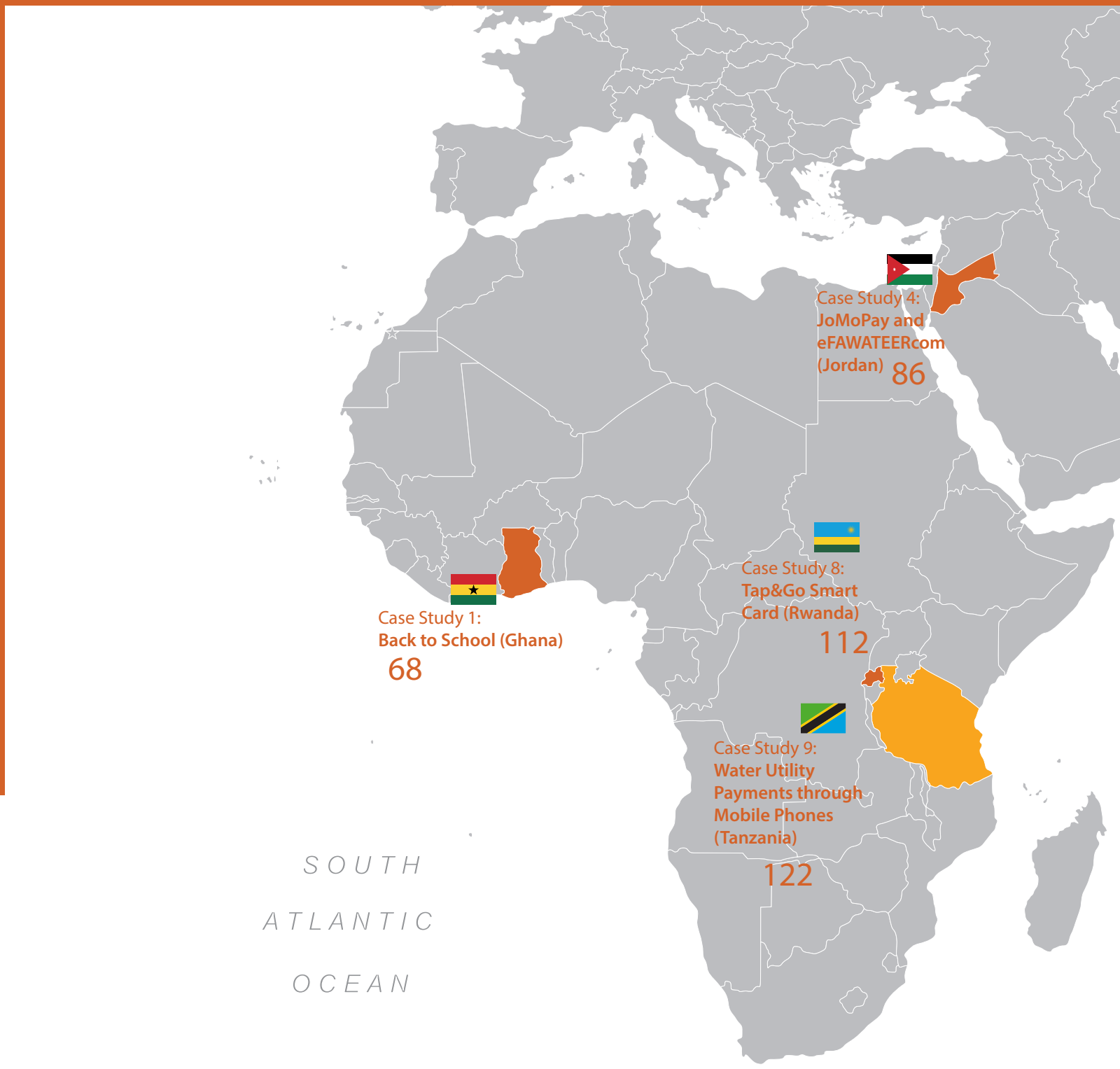
similar infrastructural environments and similar stakeholder participation/ buy-in.

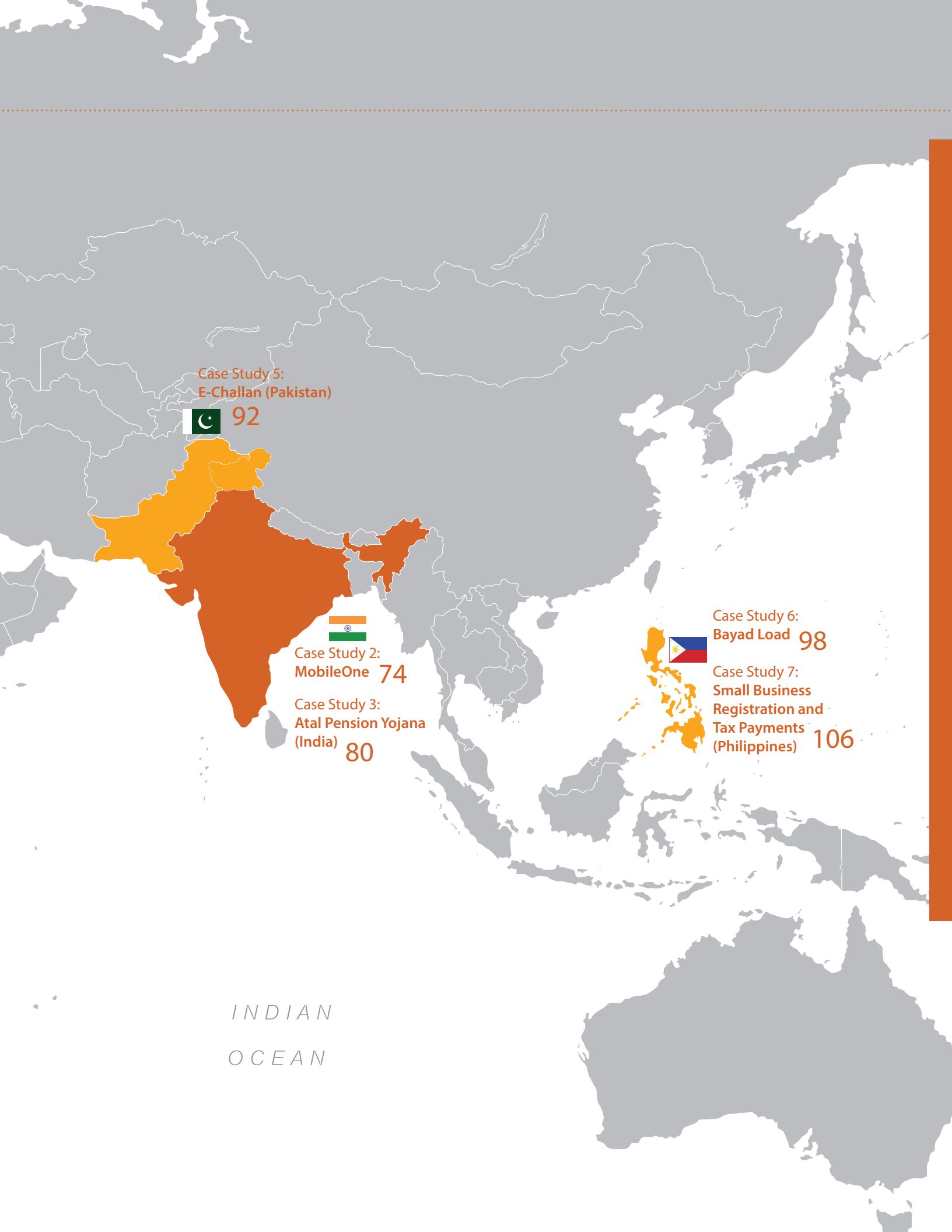
Unfortunately, we found that much of the existing information on P2G payments online is outdated. This state of affairs will change as P2G initiatives are rolled out and we hope this report will lead that change so that current information is available. We also found in our interviews that a broad spectrum of stakeholders was eager to learn from the experiences of others—all the more reason to push for new country-level studies and wide dissemination. Even where information on P2G payments is sparse, we anticipate that there are relevant lessons to be drawn from other forms of digital payments, e.g., merchant payments or business-to-government (B2G) payments. Finally, longitudinal studies that track a selection of initiatives (either in one country or across several countries) could be particularly valuable because they would allow researchers to capture the evolution of programmes over a longer period of time.

Our hope is that these recommendations are actionable and address gaps in knowledge, ecosystems, and design and implementation while offering guidance to stakeholders on how to effectively play their respective roles as they seek to advance the P2G agenda and drive financial inclusion.

Although country contexts can be quite distinct, the set-up process is fairly replicable.

CASE STUDIES




Case Study 5:
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CASE STUDY 1

BACK TO SCHOOL

Back to School is a mobile payment solution that allows parents to pay fees to their children's schools, colleges, or universities without having to rely on children to make payments or going to a bank. It reduces the cost, time, and risk of making payments in person. Launched in 2014 in Accra by MTN Ghana, it works in partnership with a range of educational establishments across Ghana.

Key Outcome

Over 100 schools and approximately 750,000 MTN mobile money customers use the service.[65]

A. Overview of the Initiative

Year founded	2014
Location	Ghana
Payment purpose	School fees (tuition and examination fees, materials costs, etc.)
Payment method	**Channel:** Mobile phones **Instrument:** EFT **Store of value:** Electronic wallets
Payer	Parents/guardians and students responsible for payment of school fees (even remotely located)
Payee	School or other educational establishment
Payment solutions provider	MTN Ghana
Key policy and regulatory entities	Ghana Education Service (limited role to date)[66]
Other partners	Ten partner banks, IT Consortium Ltd. (local IT provider)
Target consumer profile	Parents of children currently enrolled in public and private schools and tertiary educational institutions. Note: only payments made to public schools are considered P2G payments; a disaggregation of payment recipients (public vs. private schools) is not available.

Relevance to financial inclusion

Current state of financial inclusion in Ghana. Mobile money is driving financial inclusion growth in Ghana. Bank account holders increased from 34% to just 36% during 2010–2015. By contrast, access to mobile money, which was virtually non-existent in 2009, is now 29% (Zetterli 2015a). Mobile wallet holders are also using their accounts more regularly than bank account holders; only 14% of mobile wallet holders have inactive accounts compared to 26% of bank account holders. Airtime recharge and P2P transactions comprise the bulk of mobile transactions. Only six percent of users save money on the platform and fewer still make or receive institutional payments (e.g., utilities, wages).

The initiative's potential impact. As currently designed, the product is likely to have limited impact on the poor. The service was launched at schools around Accra and is likely to cater to wealthier households rather than the national median. It also focuses largely on existing mobile money users rather than acquiring new ones. However, as the product scales to schools beyond Accra, it is likely to bring more poor consumers onto the service and hence

65. Estimated based on MTN self-reported data that five percent of the mobile money customer base is using the service to pay for school fees.
66. To date, they have issued a no-objection statement and provided some school details to MTN for the initiative.

begin to make an impact on the poor, primarily through transaction cost savings and transport time.

Relevant trends in digital finance and e-governance

Digital finance. The regulatory environment has historically been seen as a hindrance to the development of DFS in Ghana. Early attempts to regulate the sector unintentionally gave excess powers to the banks and disincentivised investment and innovation in the mobile space. However, new regulations published in mid-2015 are widely considered to have facilitated the rapid growth in mobile money that has been seen since (Zetterli 2015b). These regulations cut away many of the requirements around banking relationships and enabled MNOs to drive innovation through more effective business models.

E-governance. Ghana ranks 123 of 193 in the UN's E-Government Development Index, slightly below Kenya, but ahead of countries like Nigeria, Tanzania, Rwanda, and Bangladesh. The government has so far acted more as a facilitator and has not actively driven digital G2P or P2G services as has been seen elsewhere.

Context

The traditional methods of payment for school fees were cash payments (either in person or through an intermediary) or bank transfers/drafts. These can be time-consuming (requiring regular trips to make payments), risky (if trusting an intermediary), expensive (due to banking fees), and inflexible (as the bank/school must be open in order to accept payments). MTN identified mobile money as a method to reduce transaction costs.

Customer pain points were identified in the costs and risks of cash or bank transactions. Key school pain points were the handling and aggregation of large numbers of payments. The school fees payment facility was designed in 2014 as a value-added service both to attract new customers to MTN and to increase transactions from existing customers.

B. The Proposed Solution

Rationale and overview of the technology solution

MTN approached a local IT partner to design a system that allowed money transfers (payments) to be made from parents'/guardians' mobile money accounts directly to school bank accounts. Payments can be made for regular tuition fees as well as additional costs (e.g. examination fees). MTN is the market leader for mobile money in Ghana but struggles with account dormancy and faces strong competition from Tigo and Airtel Money. School fee payments were seen as value-added services to drive usage and attract customers to the network.

Benefits to schools

More efficient mechanism to receive payments. The service takes cash—which is expensive and risky to handle—out of the system, allowing the school to collect all fees in one location in a timely manner. A cash-based system often leads to crowds at schools/banks on payment day. The new system eliminates the risk of students misappropriating cash payments and allows parents outside the formal banking system to make digital payments.

Greater transparency. Schools are provided with a data portal through which they can monitor transactions and the settlement of payments to track who has and has not paid.

More predictable revenues. Liquidity management is improved as income is received more predictably and in a way that is easily aggregated. The system helps schools manage cash flows and make payments (e.g., teacher salaries) more effectively.

Free to use. The service is provided by MTN for free in order to drive scale.

Benefits to consumers

Time and cost savings. Consumers can make regular payments directly from their mobile money wallets or from a local mobile money agent rather than travelling to the school or bank branch.

Reduced risk. Payments are made through a trusted and regulated intermediary (MTN) and are not subject to the risks associated with entrusting a ward with cash.

Flexibility. Fees and expenses, particularly those that arise ad hoc (e.g., for examinations), can be paid at short notice.

The system greatly simplifies the consumer's payment process. Previously, the only options were:

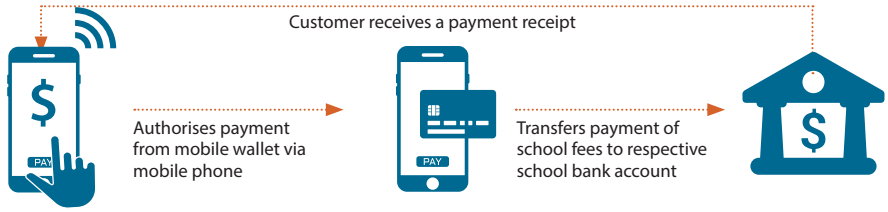
- Paying in person, requiring travel to the school and being available during specific hours, and bearing the risk of carrying large amounts of cash;
- Paying through a bank draft, requiring travel to the bank and being available during banking hours;
- Paying through an intermediary (usually the child attending school) and incurring the risk of placing large amounts of cash in the hands of a child.

MTN found that fees were often diverted or not paid in full in these cases.

The mobile money option greatly simplifies this process. Payers can use existing funds in a mobile wallet or pay funds into their accounts at an MTN mobile money agent. The payment is made directly to the school's bank account minus a commission (approximately USD 0.50) paid by the consumer.

EXHIBIT 13

The consumer's journey: Using the Back to School service



PAYER	MOBILE TELEPHONE NETWORK (MTN) MOBILE MONEY	SCHOOL BANK ACCOUNT
▪ Customer authenticates payment through MTN mobile money (via either SMS or smartphone app) or through MTN mobile money agent	▪ Money deducted immediately from payer account	▪ School fees are transferred to school bank account
▪ User inputs school ID, user ID, enters name and amount	▪ Customer receives confirmation SMS immediately	▪ School pays no fees to use the service, banks take no commission
▪ Flat fee of ~USD 0.50 charged to payer by MTN		▪ School and banks have a weekly settlement cycle

C. Business Model

Business model overview

MTN sees Back to School as an investment to drive usage of value-added services on top of its basic P2P offering. The short-term goal is to drive regular usage, build good products and user experiences for consumers, reach scale quickly, and capture active clients in a fast-growing digital finance market. By providing more value-added services, MTN hopes to drive greater transaction volumes and increase value storage in mobile wallets. To date, the company has found that 60% of customers pay via mobile wallet and 40% pay OTC through MTN mobile money agents. The average transaction size is USD 105.

Though the long-term plan is to build revenues, MTN is looking at a five-year horizon and is not focused on the revenue side for now. It instituted a small consumer fee (approximately USD 0.50) instead of offering the service for free. The idea was that consumers might actually be less likely to use a free service out of a fear of hidden costs. By not charging any fees to schools, they plan to drive scheme expansion and acceptance.

The short-term goal is to drive regular usage, build good products and user experiences for consumers, reach scale quickly, and capture active clients in a fast-growing digital finance market.

Key infrastructure requirements and costs

MTN Ghana engaged a local IT provider (IT Consortium Ltd.) to design and implement the technology behind the system. The cost is USD 15,000 per month.

D. Design and Implementation Timeline

- MTN launched the product in 2014 after an eight-month pilot phase.
- MTN approached the Ministry of Education and received a no-objection letter and a supporting letter to be sent to schools.
- MTN wrote letters to target schools. They also marketed the scheme at the end of term and through parent-teacher associations.

E. Challenges

For the provider

Limited government involvement. The extent of government involvement has been limited beyond providing basic approvals for MTN to carry out this initiative. Additionally, MTN has invested its own resources in managing awareness campaigns; we have seen the government lead awareness campaigns in other P2G initiatives or run alongside MNO partners.

Limited revenues to date. MTN's fees from this initiative have been limited to date, given the small transaction fee and the limited number of schools enrolled in the programme. MTN sees investment in the initiative as a long-term play and hopes to see improved revenues over time, especially as more schools join the platform.

For consumers

Trust remains a factor. Part of a broader challenge of mobile money uptake and usage relates to a lack of trust on the part of the customer that money sent will actually reach its intended destination. Ghana has not yet reached the point at which the majority of the population is comfortable converting cash to digital money. School fees are likely to be a relatively large transaction for many households, so the trust requirement is even higher.

Part of a broader challenge of mobile money uptake and usage relates to a lack of trust on the part of the customer that money sent will actually reach its intended destination.

F. Looking Forward: Next Steps

A shared value proposition has to be built with schools. On the payee side, a key issue is convincing enough schools to accept the payment in order to drive scale. This can be a cost-intensive process where the government could potentially play a role—for example, by coordinating awareness efforts for all public schools in a region rather than leaving MTN to do it on an ad hoc basis.

Building customer awareness is a critical challenge. It is vital to find the right times, places, and channels to market the scheme to parents. MTN found that this can be done effectively at the school (an obvious central node). The company announced the scheme to students who were about to go on holiday to promote the payment service in time for the next term's fee payment. MTN also leveraged existing networks such as parent-teacher associations and distributed flyers to build awareness.

The service does not need to drive revenue in the short term. MTN's overall objective is to drive greater usage of its mobile money services, increase the number and frequency of transactions, and get more money flowing through (and ultimately staying in) electronic wallets. The more services are available, the more attractive the service is to current and potential customers. As long as MTN has the cash to absorb losses, the impact may be measured elsewhere and over a longer horizon.

CASE STUDY 2

MOBILEONE

MobileOne is a mobile based e-governance platform that gives Karnataka residents access to ~1,000 state and national government services and ~3,000 private services. They can be accessed via an application, on SMS, USSD, IVR, and a website (www.mobile.karnataka.gov.in) in both English and the local language, Kannada.[67]

67. It is important to note that the number of services is not equal to the number of billers on the platform. While this figure is not available, we do know that consumers can make a range of payments for government services, including, but not limited to utility bills, income and property tax, and bus and railway tickets, among others.

Key Outcome

The government had collected ~INR 118 million (USD 1.76 million) in payments by December 2015. It received over 5 million IVR calls and ~1.5 million USSD hits in its first year of operation.[68]

A. Overview of the Initiative

Year founded	December 2014
Location	Karnataka state, India
Payment purpose	170 state and national government services (taxes, utility payments, and government services like birth certificates) and ~3,000 private services across transport (e.g., Ola cabs), health (e.g., Practo), telecom (e.g., Airtel, Vodafone), and content services such as TxtWeb.
Payment method	**Channel:** Mobile phone and PCs/laptops **Instrument:** EFT (NEFT), cards (debit/credit) **Store of value:** Bank accounts and electronic wallets
Payer	Residents of Karnataka state, India
Payee	Multiple state and national government bodies (P2G) and private players (P2B)
Payments solution provider IMImobile (private partner responsible for the creation and management of the technology platform)	**Key policy and regulatory entities:** **Centre for e-Governance (CeG)**, government of Karnataka (state government agency responsible for launching and managing the service) **Ministry of Finance** (regulator for certain national payments) **Department of Electronics and Information Technology (DEITY)** (regulatory body for the PayGov platform)
Other partners	National Securities Depository Limited (NSDL) Database Management Ltd. (provider of PayGov – payment gateway services)
Target consumer profile	All residents of the state of Karnataka, India

Relevance for financial inclusion

The current state of financial inclusion in India and Karnataka. At a national level, India has made significant progress in reducing the number of unbanked adults from 557 million (~69%) in 2011 to 233 million (~27%) in 2015 (PricewaterhouseCoopers 2015). The recent progress can largely be attributed to the national PMJDY programme which resulted in over 182 million bank accounts being opened in 2014–2015. While exact data on the share of unbanked adults in Karnataka is not available, the state has performed relatively well in financial inclusion measures. For example, the

68. "Minimum Government - Maximum Governance" [PowerPoint presentation], CeG, 2015. Note: the number of IVR calls is not equal to the number of payments that were made using the service.

Credit Rating Information Services of India Limited (CRISIL) financial inclusion index ranks Karnataka 6 out of 35 states and union territories, based on branch penetration, credit penetration, and deposit penetration.

The initiative's potential impact. By providing the option to pay for a range of government services electronically, including those relevant to the unbanked and underbanked (e.g., utilities), MobileOne provides a set of relevant use cases that together can drive digital payments. In addition, the service provides additional tools that can help consumers manage their financial lives (e.g., digital receipts).

Relevant trends in digital finance and e-governance

Digital finance. The national government has increasingly focused its attention on DFS, demonstrated by the newly launched payment banks in India, many of which are owned by MNOs and DFS players like Paytm. Policy shifts by the government and major investments by business actors are starting to show some results. For example, the value of digital wallet transactions grew 157% during the period February 2015–February 2016, i.e. from INR 8.8 billion (~USD 135 million) to INR 22.5 billion (~USD 350 million) (Shukla and Bhakta 2016).

E-governance. Since 2006, India has made e-governance a national priority as evidenced by the launch of the National e-Governance Plan with 27 different national digital payment initiatives. The government of Karnataka launched the CeG in 2006. The MobileOne initiative builds off of this e-governance platform and offers digital payments for government services as part of the Centre's services for citizens.

Context

Launched in 2008, the first state-wide e-governance programme, KarnatakaOne, provided 54 government and private services in physical citizen service centres across the state. However, the centres were only present in ten cities and excluded Karnataka's large rural population (61%) altogether.

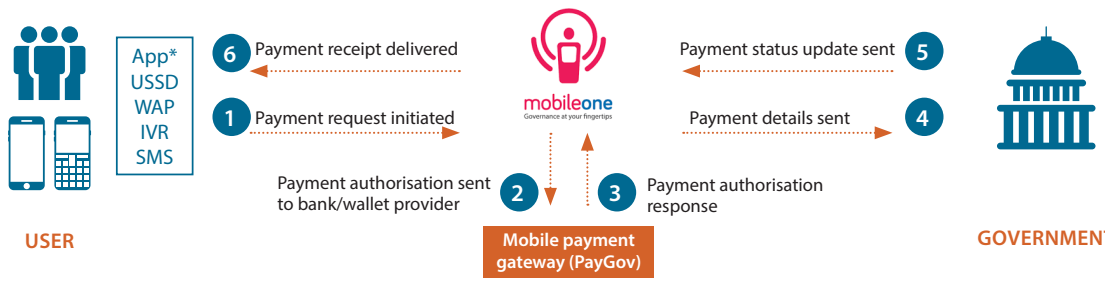
The government of Karnataka chose to set up an integrated digital delivery platform, MobileOne, in order to extend the footprint of citizen services, including P2G payments.

B. The Proposed Solution

Launched in 2014, MobileOne is the first mobile-based e-governance platform in India. It provides citizens access to an integrated solution with ~1,000 state and national services and ~3,000 private services, making it the world's largest multi-channel mobile services platform. The 26 categories of services range from basic citizen services (utility payments, transport, police, health, education) to more specific services (crop price alerts, weather alerts for farmers). The initiative was set up by the CeG (run by the government of Karnataka) as a PPP with IMImobile, a

EXHIBIT 14

MobileOne's payment process



- Step 1: User makes a payment request via SMS (message 161), IVR (call 161), USSD (dial *161#), or through the MobileOne app. There is also a toll-free number.
  On receiving the request, the system provides a menu of services in English and Kannada.
- Step 2: After choosing the payment purpose, the customer is redirected to the PayGov platform where payment can be made via credit/debit/prepaid card, electronic funds transfer, mobile wallet, or digital wallet (i.e. accessible on a PC).
- Steps 3 and 4: On receiving the payment details and authorisation from PayGov, the platform routs the consumer information to the relevant government department servers.
- Step 5: The government departments, all of which are integrated on the PayGov platform, provide an instant payment status update.
- Step 6: Consumers are sent a receipt as soon as payment is confirmed. However, the payment may take up to a day to process.

One of the key features of this system is that all receipts are stored centrally so that users can access their receipts at a later time. Receipts can also be accessed on all types of platforms – USSD, SMS, IVR, and the app.

* USSD = unstructured supplementary service data; WAP = wireless application protocol; IVR = interactive voice response; SMS = short messaging service.

"From a government department's point of view, having to look for various channels to provide citizen services through different vendors or service providers is a daunting task. As such, Karnataka MobileOne's objective is to provide a one-stop-shop for departments to just plug in their services, which are made available online without having to worry about a separate tendering process or managing service-level agreements with different vendors for service delivery and performance parameters".

– CeG website

mobile solutions company. The service is available on smartphones (Android and iOS) and can be accessed via an application on SMS, USSD, IVR, and via a website on a PC/laptop. The service is integrated with all eight of India's mobile operators on one short code (161) that can be used across the state.

Payments can be made from bank accounts using EFTs using online banking facilities (called "net-banking" in India), debit/credit cards, or digital wallets.[69] The payment gateway for the application, PayGov, is a centralised platform created by NSDL Database Management, a quasi-governmental body.[70] Exhibit 14 describes the payment process for the mobile application.

Benefits to government

Reduced administrative costs. MobileOne has reduced collection costs for the state in three ways:

a) Centralised delivery of services with a single vendor responsible for creating and managing the online platform. This saves vendors duplication of effort in terms of providing each service separately;

b) Centralised payment collection on a single platform;

c) Reduced need for physical centres for service delivery and collection.

Sustainable business model for the government. While the government has made an upfront investment of ~INR 40 million (~USD 615,000) in developing the platform, it has been able to monetise the platform by bringing in, and charging for, private services. This has helped the government recover the initial costs and break even within a year of launch (Chathurvedula 2015).

Centralised data tracking and monitoring. The MobileOne platform has helped the government to track both service delivery and P2G payments on one central platform.

Benefits to consumers

Reduced time and cost in paying bills. This was cited as the most important benefit across urban and rural users. Users noted time savings of 15–60 minutes and assigned a corresponding monetary value (in terms of potential additional income or cost savings from transport) of INR 30–2,500 (USD 0.5–40) per month.

Flexibility to pay at one's convenience. Many users mentioned that the service offered them the flexibility to pay at their convenience, not within business hours (which often required them to take time off from work or household duties).

Ability to track expenses regularly. A limited number of users suggested that receiving SMS-based receipts helped them keep track of bills paid and expenses incurred. Note: Not having a physical receipt was actually seen as a drawback in many cases (e.g., tax payments).

69. EFTs can be made through NEFTs or immediate payment services (IMPS), an instant interbank EFT service that works through mobile phones or online banking platforms.
70. PayGov is a key infrastructure enabler and is provided at low rates to government bodies by NSDL. It has a standard set of documents, procedures, and system protocols to facilitate integration across departments.

C. Business Model

Business model overview

One of the key objectives of the government has been to ensure a sustainable business model for the initiative. As mentioned earlier, the government generates revenues by charging private players who wish to include their services on the platform.

The government pays IMImobile a pre-agreed-upon fee for each service enabled—information services as well as push, pull, and payment services. These fees vary by the service type and are based on the number of platform users.

Citizens typically pay payment gateway charges for using MobileOne only when they use a debit or credit card/ net-banking (online banking). There are some services, however (e.g., electricity), where a convenience fee is collected either from the line department or from the citizen directly. The revenue earned from this convenience fee is shared by IMImobile and the CeG.

Key infrastructure requirements and costs

The government of Karnataka began its e-governance programme in 2006 when much of the required payment infrastructure for MobileOne was already in place (e.g., data management centres, digital procurement teams, etc.).

The key incremental cost was that of integration with various state departments. This was particularly challenging given the number of departments involved and the varying quality of their respective legacy systems. For example, in the case of BESCOM, the required billing infrastructure was already in place and only a simple integration was required. In other cases where departments had older systems, IMImobile had to develop an additional software layer to pull citizen records from the departments (not needed in the case of BESCOM) and present the information to consumers in an easy-to-use format.

D. Design and Implementation Timeline

Phase 1: Pre-rollout (January–December 2012). This phase involved policy changes and securing funding and approval from the Cabinet. The government issued an order in January 2012 that required all government departments to onboard their services through a common unified mobile governance platform to make the onboarding process efficient and cost effective. The government issued an RFP for a private partner in 2012 and selected IMImobile to develop, deliver, and manage the mobile-based solution. The initiative was set up by the CeG as a PPP with IMImobile.

Phase 2: Development and Pilot (December 2012–December 2014). Government and private services were enabled in two phases. One was completed in May 2014 with roughly 70 services enabled, the second by the end of November 2014 with more than 150 government and private services enabled. The President of India formally launched the project on 8 December 2014.

Phase 3: Rollout and scale-up (January 2015 to date). The government is currently focused on improving platform awareness and adoption, as well as expanding the number and type of services available on the platform.

E. Challenges

For government

- Onboarding multiple departments. This was a particularly challenging process given the number of government departments involved and the varying quality of legacy systems. The CeG drove this process with the help of key champions across government departments.
- Planning for adoption/scale. The government has found it challenging to drive adoption and identify the right use cases for bringing in users. It has therefore adopted a "platform" approach in which it brings high-volume private business-to-consumer (B2C) services onto the platform to drive adoption. Examples include mobile bill payments and cab bookings.

For providers

- Lack of clarity on level and scope of work. The key challenge for the private partner was working with multiple government departments to integrate them on the platform, especially since they were at varying levels of technological readiness. A lack of clarity on this early on led to a recalibration of the level of effort required during the project, which caused delays in the original timeline and led to additional costs to the provider.

For consumers

- Limited awareness of the platform and its usability. The general level of awareness of the platform seems limited. We had difficulty finding regular users for our research—in fact, in contacting a universe of roughly 550 individuals across rural and urban areas and various socioeconomic and demographic criteria, we encountered only nine users of the platform.[71] Experts and users alike suggested that adoption and use are largely based on word-of-mouth information.
- Limited knowledge about the payment process, including fees and security. Most users we spoke to had a limited understanding of the fees being charged for services. In addition, many users did not fully understand how the process worked (e.g., who was collecting the payment, how it reached the government, in how many days, etc.). Some users were also worried that their bank or payment details were not secure and could potentially be misused.
- Lack of stable Internet connectivity hinders trust in the platform. Most users complained of poor data connectivity on their phones and many said they used the app only when they had reliable Wi-Fi connectivity. Users said they felt nervous making payments over an unstable connection. Even during our user tests, poor network connectivity prevented us from observing consumers use the service at length.
- Common usability challenges are linked to a complicated registration process, limited language options, and overly sophisticated menus. Almost all users felt that the registration process for the mobile-based service was complicated for first-time users, particularly in terms of creating a password. In addition, some users found the language complex. For example, the MobileOne application groups all government bill payments under the category "utility", a term with which our users were not familiar. At times, the app shifts between Kannada and English. In our rural research, some users felt that even the IVR menu options were unclear, and said the language was "too technical".

F. Looking Forward: Next Steps

Despite limited uptake to date, MobileOne users find the solution convenient and useful. The product has won multiple awards for being an innovative and effective digital solution.[72] In MobileOne's next phase of deployment, the government plans to focus on:

d) Improving adoption across both urban and rural areas through targeted advertising campaigns and more relevant use cases. The government has recently commissioned a professional marketing agency to do this;

e) Expanding access to more services relevant to low- and middle-income consumers, such as the Bangalore Metro and an auction system for farmers;

f) Adding additional payment modes (e.g., a semi-closed wallet);

g) Integration with the government of India's recent Unified Payment Service (UPI).

71. We contacted 550 people to identify six urban and three rural users. Demographic and socioeconomic criteria included a mix of age, gender, education levels, occupation, access to banking services, and the socioeconomic category as described by the Market Research Society of India. The users we spoke with included one-time and regular users.

72. Examples include the Digital Citizen Solutions Award (Rank I) by Express IT Awards, the mBillionth Award South Asia 2015 (m-Governance Category), and the SKOCH Smart Governance Award 2015 (Order of Merit).

CASE STUDY 3

ATAL PENSION YOJANA

The Atal Pension Yojana (APY) was launched by the government of India in June 2015 as a small ticket contributory pension product particularly targeted at unorganised sector workers. The government made a limited period co-contribution to incentivise uptake.

Key Outcome

There were more than 2.75 million registered APY users (~0.5% of India's unorganised workforce) as of 22 June 2016. Approximately 1.35 million of these were from rural areas (Government of India 2016a).[73]

A. Overview of the Initiative

Year founded	June 2015
Location	India
Payment purpose	Payment of government pension scheme
Payment method	**Channel:** n/a (payment is made automatically every month from the consumer's account after registration at the bank) **Instrument:** Direct debit **Store of value:** Bank account
Payer	All citizens of India with a bank account
Payee	Eleven pension fund managers appointed by the government of India (three public sector managers, eight private sector managers)[74]
Provider	Banks – public and private sector (nodal agency for enrolment of target group banks)
Key policy and regulatory entities	Pension Funds Regulatory and Development Authority (PFRDA), government of India (regulator of all pension products in India)
Other partners	**NSDL:** For operational and administrative support; also monitors co-payment by PFRDA
Other financial players	Microfinance institutions (MFIs), cooperative banks, business correspondents (to support with enrolment and awareness generation).
Target consumer profile	While all citizens can open a pension account under the APY, it is particularly targeted at workers in the unorganised sector.

Relevance for financial inclusion

Current state of financial inclusion in India. Over the last few years, India has made significant progress in reducing the number of unbanked adults from 557 million (~69%) in 2011 to 233 million (~27%) in 2015 (PricewaterhouseCoopers 2015). The recent progress can largely be attributed to the national PMJDY programme which resulted in over 182 million accounts being opened in 2014–2015. This included a significant number of unorganised workers. While many of these workers now have bank accounts, the programme does not address the fact that they do not have access to pensions or old age benefits.

73. This figure does not indicate the number of regular users of the programme.
74. See Pension Fund Regulatory and Development Authority (2016) for a complete list of fund managers.

The initiative's potential impact. The programme has significant scope for broader financial health by providing a tailored product that enhances resilience and encourages (automates) regular bank account use.

Relevant trends in digital finance and e-governance

Digital finance. As part of its commitment to financial inclusion and to digital finance (see additional details in the MobileOne case study), the government is focused on reducing dormancy and increasing usage of Jan Dhan accounts. The programme has several features that support digital financial inclusion, e.g., USSD codes to launch a basic mobile banking menu and immediate payment services (IMPS) to enable instant fund transfers between accounts. It is also providing additional financial products—such as the APY pension product—that are linked to the Jan Dhan accounts (Government of India 2016b).

E-governance. Since 2006, India has made e-governance a national priority which is evidenced by the launch of the National e-Governance Plan with 27 national digital payment initiatives.

Context

An estimated 450 million people, more than 90% of India's labour force, work in the unorganised sector and do not have access to any formal pension products. The government of India launched APY with the aim to bring these workers into the fold of a formal pension programme.

B. The Proposed Solution

APY was launched in 2015 under the umbrella of the Prime Minister's ambitious PMJDY programme which aimed to provide a bank account to every household. As an extension of the Jan Dhan (People's Wealth) programme, the Ministry of Finance also launched the Jan Suraksha (People Protection) programme, which included APY and two additional insurance programmes for the same target group.

The monthly contribution is in the range of INR 42–1,400 (USD 0.6–20) depending on the pension amount the payer wants when he/she reaches 60 years of age. The payer receives a guaranteed amount of INR 1,000–5,000 (USD 15–75) per month if she joins and contributes between the ages of 18 and 40 years, and pays for a minimum of 20 years. Exhibit 15 shows the indicative contributions required for a monthly pension of INR 1,000 (USD 15) and demonstrates that the monthly contribution is lower when the payer contributes from an early age.[75]

EXHIBIT 15

Indicative monthly contribution levels to receive monthly pension of INR 1,000 (USD 15)

Enrolment age	Years of contribution	Indicative monthly contribution
18	42	INR 42/~USD 0.60
20	40	INR 50/~USD 0.75
25	35	INR 76/~USD 1.10
30	30	INR 116/~USD 1.75
35	25	INR 181/~USD 2.70
40	20	INR 291/~USD 4.30

Source: PFRDA.

Users can pay for this scheme through a direct debit from their bank accounts on a predetermined date. Users can choose how much they want to contribute and at what frequency (monthly/quarterly/annually). Users must maintain the requisite amount in the account on the date of the contribution or they are penalised. The penalty is in the range of INR 1–10 (USD 0.015–0.15) per month, depending on the contribution.

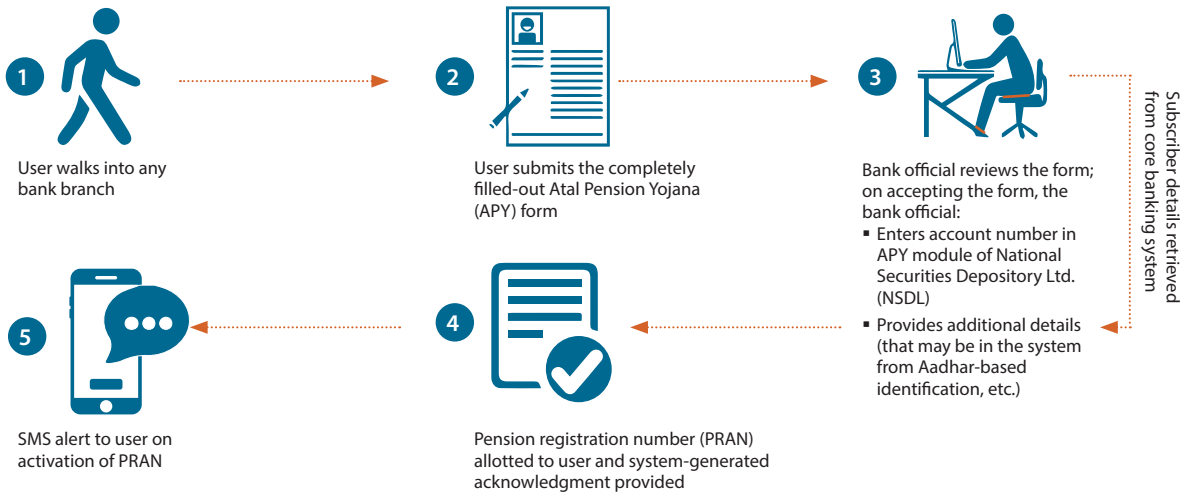
The government provided incentives for those who signed up early. Eligible subscribers are entitled to receive a co-contribution of 50% of the total contribution (up to a max of INR 1,000 per annum) from the central government for five years.[76]

The programme is being delivered in partnership with banks responsible for registering subscribers. They frequently work banking correspondents, MFIs, and non-bank aggregators to identify, educate, and enrol subscribers. Exhibit 16 describes the enrolment process.

75. The figures in Exhibit 16 are indicative, not exact. New payers in the system may have a higher/lower contribution based on when they enrol.
76. Eligible subscribers are adults aged 18–40 who joined APY before 31 December 2015, are non-income tax payers, and are not covered by any statutory social welfare scheme.

EXHIBIT 16

APY's sign-up process



While the programme has helped more than 2.75 million citizens enrol in a formal pension plan, it is also an important use case for reducing dormancy in the newly opened bank accounts.

Benefits to government

- Enhance financial inclusion by going beyond bank account ownership. While the programme has helped more than 2.75 million citizens enrol in a formal pension plan, it is also an important use case for reducing dormancy in the newly opened bank accounts. Use cases such as APY and the insurance schemes linked to these bank accounts have helped the government reduce the number of dormant accounts under the new PMJDY initiative to 24.5% (government of India 2016c).[77]
- Centralised data tracking. The adoption of, and payments related to the product provide significant additional data on the banking and financial habits of payers. This data can be used for further research or to develop products better tailored to the unbanked/underbanked.

Benefits to consumers

- Access to a financial product that enables long-term financial health. The product helps millions of payers, particularly unorganised sector workers for whom the programme was designed, access a formal pension product. A government co-payment scheme further incentivises the product's adoption.
- Digital payment provides efficiency and convenience. The direct debit feature allows users to save time on each transaction in terms of both travel and queues at the bank. In addition, the digital payment method allows users to track their payments regularly through bank statements and SMS messages.

77. This report is updated regularly. The figure in the text is correct as of 20 July 2016.

C. Business Model

Business model overview

The APY programme is partially subsidised by the government. The subsidies include:

- Incentives to banks for marketing and enrolment. The government incentivised banks with INR 100 for initial registration per user and INR 20–50 for promotional efforts for new accounts opened that year (depending on the number of APY subscribers with each bank). Banks are also offered an additional INR 100 per subscriber per year as an incentive and for the development of APY. Banks can mobilise other agents such as banking correspondents and MFIs and can share the incentive as per their individual negotiation (government of India 2016d). Given that APY has more than 2.7 million registered users to date, we estimate that the government has already spent roughly USD 10 million on this incentive.
- Fees for account maintenance and record-keeping services. The fees are INR 15 (USD 0.23) for opening an account and INR 40 (USD 0.61) for account management per annum. This is paid by the government unless customers default or cancel the scheme.

Apart from this, customers are responsible for fees for investment management and custodian services, (0.01% and 0.0075% of the assets under management, respectively).

These charges, much lower than fees typically charged in other countries, are not actually binding. That is, the government pays the difference if the customer makes the required contributions but net-of-fees returns do **not** deliver the required income. However, if net-of-fee returns yield the guaranteed income, the consumer pays the charges and the government does not top up the accounts.

Key infrastructure requirements and costs

The government's primary expenses for this programme were **awareness campaigns, enrolment camps, and agent training.** The government ran awareness and enrolment camps directly or in conjunction with local agencies and banks. Potential users were given information and product details by representatives of public sector banks. These events allowed citizens to ask questions and sign up for the product.

For delivery, the government is using the existing extensive network of public sector banks to open the accounts. In addition, the government has engaged existing remote delivery agents such as banking correspondents and MFIs to generate awareness and provide enrolment details on the programme.

There were no significant back-end costs given that the programme was built on top of an existing pension infrastructure system—the National Pension Scheme (NPS).

> "Today it is a Modi account and Modi is running this pension programme. Tomorrow, when Modi goes away and the next government comes, what happens to our money?"
>
> *- APY user*

D. Design and Implementation Timeline

APY was announced in the union budget, 2015/16 and rolled out beginning June 2015. Uptake in the first year was slower than expected (Vikram 2016). Key reasons include a lack of awareness and the product's limited perceived relevance. The government has taken additional steps to push product uptake, including extending the co-payment benefit—originally available only to users who signed up by December 2015—to those who had signed up by March 2016.

E. Challenges

For consumers

- Limited awareness and misconceptions around the product. Both anecdotal evidence and our field research show that a large percentage of the population is still not aware of the programme, and more critically, does not understand how a pension or a co-contribution programme works.
- Limited perceived relevance. The target population is largely composed of those with irregular incomes and expenses. Many people in this group place limited value on saving now for something that will yield a small sum of money (USD 15–75 a month) 20–30 years in the future.
- Limited trust in the government. Many consumers we spoke to said they did not fully trust the promise of receiving a payout so far in the future. The concern was related to their limited trust in the formal banking system with which they had limited, and often challenging, interactions. Interestingly, some users also cited the perception that given that the product is branded under the name of a former prime minister who belonged to the current ruling party, a change in government could mean that they would lose their money.
- Perceived need for branch-based payment negates the promise of convenience. Surprisingly, many of the users we spoke to were not aware of the direct debit facility and believed that they had to visit the bank branch in person each month to deposit money they had set aside for their pension contribution. This ultimately negates the convenience of offering a direct debit.
- Customers are not aware of penalties or implications of not paying or dropping off. While all the users we spoke to said they were not charged to sign up for the programme, most were unsure of what would happen if they dropped out or stopped paying, including rules around penalties.

F. Looking Forward: Next Steps

The government is focused on two key areas:

- Improving adoption across both urban and rural areas through targeted advertising campaigns. The government is currently working with an expert team from the World Bank on improving programme adoption by modifying product design and augmenting communication efforts. The underlying belief is that bundling pensions with other products that have more immediate perceived relevance may also improve adoption. In addition, the government is looking to improve distribution channels and make the product available through post offices.
- Minimising programme attrition. One of the ways to promote continued payment into the accounts has been through creative policy interventions. For example, a new rule (as of March 2016) allows a spouse to continue paying into the scheme should the main beneficiary die prematurely.

CASE STUDY 4

JOMOPAY AND EFAWATEERCOM

JoMoPay is the national payment switch created by the CBJ to provide access to financial services for the unbanked/underbanked in Jordan through a mobile-based platform. CBJ has also partnered with private providers (MNOs) to provide mobile wallets and with technology providers (MadfooatCom and EMP) to create a digital bill payment platform called eFAWATEERcom. The objective is to enable any-to-any payments, including P2G, at low cost and across an interoperable network.

Key Outcome

Launched in February 2016, JoMoPay already has 10,000 live wallets on its platform. P2G payments via mobile wallets were enabled in March 2016.

A. Overview of the Initiative

Year launched	2016
Location	Jordan
Payment purpose	Any-to-any payments, including various P2G payments such as utility bills, government documents, and contributions for social benefits.
Payment method	**Channel:** Mobile phones, PCs/laptops **Instrument:** EFTs, cards (debit/credit) **Store of value:** Bank accounts, electronic wallets
Payer Residents and citizens of Jordan	**Payee** Forty-five billers (both government and private) providing 115 different services
Providers ▪ Umniah and Zain (MNOs providing the mobile wallets) ▪ MadfooatCom (private partner for the design and management of the P2G platform) ▪ EMP (private partner that hosts the payment gateway) ▪ Visa/MasterCard (card processors) All major banks (provide settlement for digital transactions)	**Key policy and regulatory entities** ▪ CBJ (regulatory body for payments) ▪ National Payment Council (NPC)
Target consumer profile	The unbanked/underbanked in Jordan (both urban and rural), though the solution is available to all Jordan residents and citizens.

Relevance for financial inclusion

Current state of financial inclusion in Jordan. As of 2014, ~75% of Jordan's adult population was unbanked and most banking facilities were concentrated in urban areas with poor physical reach in rural areas. In addition, the country currently hosts ~2 million refugees with no access to financial services and only ~16% of women in the country are banked.[78] However, Jordan has seen remarkable growth in mobile penetration (as measured by connections per capita) from 78% in 2006 (Oxford Business Group 2016) to 147% by the end of 2015 (Ghazal 2014). Jordan also had a high smartphone adoption rate (65%) in 2015 (Venture 2015). The mobile phone-related statistics point to the potential of improving access to financial services through digital methods.

78. Expert estimates from CBJ and Umniah Mobile.

The initiative's potential impact. The initiative has been launched with the objective of providing access to financial services for the large unbanked/underbanked population of Jordan.

Relevant trends in digital finance and e-governance

Digital finance. Recognising the need for a national payments system, the CBJ and NPC have been working with key stakeholders to create a strong ecosystem for a national payment system. This was evidenced by the 2012 launch of a new national payment strategy for 2013–2017. The initiatives to launch JoMoPay and eFAWATEERcom are part of this strategy. A key priority for policymakers has been to ensure full interoperability across providers and with the support of bank and MNO actors.

E-governance. Jordan has had an e-governance strategy since 2001. Today, there are 85 e-services that are available on the national government portal and three services offer online payments through the Jordan payment gateway (separate from JoMoPay) (Government of Jordan 2013).

Context

Today, only 25% of Jordan's population has access to banking services. People often need to travel long distances to make basic utility or social security payments. Despite the need for greater financial services, the banks and traditional financial institutions in Jordan currently do not have the financial appetite or ability to expand into rural and remote areas fast enough to meet the needs of the underserved. In addition, almost 95% of all payments in Jordan are cash based, which is very expensive and complex for collection agencies (Ghazal 2015).

Thus, the CBJ has two objectives. to meet the needs of the underserved and bring the 75% of the population that is unbanked into the formal economy. The CBJ sought to partner with the private sector to take advantage of existing infrastructure and the latest technology.

B. The Proposed Solution

Launched in 2016, JoMoPay is a CBJ/NPC initiative to provide financial services, particularly to the unbanked/underbanked, through the creation of a national mobile payment switch that will allow consumers to do any-to-any transactions through their mobile phones. The role of the switch was envisaged to include, through an interoperable platform, the following:

- Managing MNO registration, monitoring, and control;
- Granting real-time payment clearing and end-to-end reconciliation and settlement with banks;
- Providing settlement system integration;
- Setting and monitoring transactional limits;
- Gathering transaction data;
- Managing potential risks associated with these transactions and assisting in dispute resolution.

The CBJ worked with multiple private sector partners, such as MNOs, IT service providers, and banks, to create the digital payments ecosystem.

There are currently two main mobile wallets in Jordan—Mahfazti by Umniah and Zain Cash by Zain. Due to mobile and smartphone penetration rates, the CBJ believes mobile wallets can serve as an important channel for providing financial services to the unbanked in Jordan.[79] Users can cash in and cash out of their wallets at any mobile agent, and can make transfers at low rates—in some cases as low as 0.5% of the transaction.

CBJ has also developed an electronic bill presentment and payment (EBPP) system called eFAWATEERcom operated by MadfooatCom, a private technology provider that focuses on solutions for electronic payments. The platform allows users to view and pay all kinds of bills and make other payments electronically through multiple channels: bank branches, Internet banking, ATM machines, mobile banking, IVR, and mobile phones (through mobile wallets such as Mahfazti).

The mobile wallets are interoperable across networks, linked to the eFAWATEERcom system for payment services, and come with PIN-based security systems and end-to-end encryption.

The CBJ is aiming for a fully interoperable, real-time payment system through eFAWATEERcom. Exhibit 17 describes the ecosystem as envisioned by the CBJ.

79. Dalberg interview with Umniah executive.

EXHIBIT 17

Envisioned ecosystem for national payments in Jordan

Payer	Payment methods provided by mobile network operators	Front-end payment platform developed by MadfooatCom and owned by the Central Bank of Jordan (CBJ)	National payment switch owned and run by CBJ	All member banks of CBJ	Payees

** P2B = person-to-business*

The platform and wallet were designed to be inclusive of illiterate users and those uncomfortable with digital platforms.

Benefits to government

- Reduced cost of collection. Digital collection is expected to reduce the cost of collection for the government by reducing the need for physical collection centres and staff, and security and liquidity costs.
- Improved ability to manage national budgets. The CBJ also believes that centralised payment flows and collections will help improve revenues. In turn, this will allow the Central Bank to better manage its annual budget in terms of allocating subsidies and the direct transfer of benefits to the poor.
- Opportunity to monitor payment flows. One of the CBJ's key objectives in creating a national payment switch is to be able to track the flow of funds across the country and track illegal payments.

Benefits to providers (MNOs and technology providers)

- Opportunity to build and retain a new customer base. Both MNOs and technology partners feel this is a strong opportunity to build, retain, and grow revenues from a large, untapped user base.
- Use customer data for further innovation. The industry is still nascent and providers are keen to collect and analyse customer data that can help them improve the design of existing products as well as innovate further with new products.

Benefits to consumers

- Targeted design for new users of digital payments. Conversations with providers inform us that the platform and wallet were designed to be inclusive of illiterate users and those uncomfortable with digital platforms. They are accessible through both USSD and IVR platforms on feature phones, through a smartphone app, and through an online portal in Arabic and English.

- Low cost of access. Utility payments and most government payments are free on eFAWATEERcom; the cost of transacting through the wallet is 0.5%—relatively low compared to fees on traditional electronic payments such as credit cards (approximately 2.5%).

Flexibility to cash out. The wallet provides users with the option to easily cash in and cash out, based on their needs. Based on previous experience, MNOs saw this ease of use as an important precursor to building trust and encouraging adoption.

C. Business Model

Business model overview

The CBJ, MadfooatCom, and EMP share revenues in the ratio of 2:1:1 in the eFAWATEERcom business model.

The platform does not charge anything for utility payments, but charges JOD 0.5 (USD 0.7) for social security payments and JOD 0.5–5 (USD 0.7–7) for any payment greater than JOD 2,000 (~USD 2,800) for customs departments, among other payments. For other services, the transaction cost is borne either by the biller or the MNO.

Currently, neither the payment nor settlement bank is charging any fees in this system. However, customers who use a credit card on the online platform have to pay a higher fee of 2.5%.

MadfooatCom started service in 2015 and expects to break even by 2017.

Key infrastructure requirements and costs

The three main costs in this initiative are associated with (i) setting up and running the payment switch, (ii) setting up and running the eFAWATEERcom platform, and (iii) marketing and awareness campaigns related to the platform and programme.

Marketing and awareness raising for mobile-based payments are currently being undertaken jointly by the MNOs and the CBJ. While the CBJ is conducting a nationwide campaign on the need for, and benefits of digital payments, the MNOs are focusing on promoting the convenience and security aspects of digital solutions. They are also promoting mobile payments at their outlets, as well as investing in setting up a wide agent network to provide coverage for cash-in. Currently, they are absorbing the cost for their marketing and distribution as they believe these investments will help them attract new consumers.

D. Design and Implementation Timeline

There were three main phases in the development of the overall national payment system:

Phase 1: Developing an overall policy and regulatory ecosystem

- In April 2010, the CBJ released a circular to banks allowing coordination with MNOs to provide electronic wallets and mobile payments;
- In 2011, the CBJ and NPC adopted a strategic initiative to set up a national payments switch—JoMoPay. The CBJ and the NPC developed a framework in 2012 with the participation of all stakeholders, allowing both banks and non-banks (mainly MNOs) to provide digital payment services. This framework describes the respective roles of the various parties as well as measures to protect the customer, such as cash-in/out through agent networks.

Phase 2: Bringing in stakeholders

- Beginning in 2011, the CBJ worked with Zain and Umniah to create a mobile wallet that would be linked to the payment switch. The set-up and integration with the government payment systems and JoMoPay took about four years.
- In 2012, the CBJ established a partnership with MadfooatCom and EMP to develop and manage an online front-end platform that could be used across mobile phones and PCs.
- The CBJ tried to launch the service in 2014, but despite full interoperability, there was very little interest from the private sector due to concerns around the business model's sustainability and the government's ability to follow announced timelines.
- Between 2014 and 2016, CBJ conducted multiple workshops and meetings to gain the cooperation of key private sector players and bring them on board the national payment strategy. In these workshops, the CBJ emphasised both the need for the various stakeholders to cooperate with each other in order to set up a viable system and the importance of

"Our biggest lesson was that there is a need to experiment a bit to really develop the product. The Central Bank was very flexible and didn't put forward regulations from the first day; rather, it allowed us to learn from the market and other countries".

- MNO representative

ensuring competition so that market forces could generate the lowest costs for everyone. The CBJ and the providers also decided to jointly subsidise transaction costs for a period of two years, at which point the market would be free to determine the price for these services.

Phase 3: Launch and programme scale-up

- The eFAWATEERcom platform was launched in 2015. It currently offers P2P and P2B bill-pay services through debit/credit cards, and online payment facilities.
- Mobile wallets were launched in January 2016; P2G payments and wallet integration on the eFAWATEERcom platform were launched in April the same year.
- All key stakeholders—MNOs, eFAWATEERcom, and the CBJ—are planning intensive marketing and awareness campaigns through 2016 to encourage users to get onto the platform.

E. Challenges

n/a (the initiative was just being launched as we were conducting the study).

F. Looking Forward: Next Steps

JoMoPay and eFAWATEERcom are still in their initial phases of rollout. As they build the system, the key next steps for all stakeholders are:

- Adding payments for additional services relevant to consumers, such as driving licenses, other permits and licenses, passports, ID cards, education, etc.
- Conducting awareness and marketing campaigns with the support of other stakeholders in the ecosystem, to encourage a broader population to adopt digital payments. Stakeholders are planning three different types of campaigns:
  - » Awareness campaigns to educate potential users about the digital payment platforms and their benefits. This is being led mainly by the CBJ.
  - » Marketing campaigns about wallet products that focus on the uses of mobile wallets and highlight their convenience and security.
  - » Promoting use and training via kiosks and agents sponsored by MadfooatCom and MNOs, to help educate customers on the platform and encourage them to try it. The sponsors are also exploring other avenues for customer education, such as universities, where they can target youth, who are likely to be heavy users of the service.

CASE STUDY 5

E-CHALLAN

A first-of-its-kind payment solution in Pakistan for traffic violation tickets *(challans)*, e-challan allows people to pay their traffic fines at EasyPaisa to OTC agents instead of at the bank, which often requires waiting in long queues.

Key Outcome

Nearly 13,000 transactions are recorded per day; this volume is expected to double within six months. Revenues collected through this system increased by 45% from 2009 to 2015 in Khyber Pakhtunkhwa (KP), indicating reduced collection leakages.

Note: This initiative falls outside our definition of digital P2G payments as agents conduct digital transactions on behalf of customers. There are plans to integrate digital payments (via debit/credit cards and mobile wallets) in the future, though progress to date has been limited.

A. Overview of the Initiative

Year founded	2009 (KP), 2015 (Sindh)
Location	20+ districts, including Peshawar, KP and Karachi, Sindh
Payment purpose	Fines for traffic violations
Payment method	**Channel:** POS devices **Instrument:** Cash **Store of value:** Cash
Payer Any traffic violator	**Payee** Police or traffic police department
Payment providers	**Key policy and regulatory entities**
The Telenor EasyPaisa network of POS agents receives and settles payments to the traffic police department bank account A2Z E-payments provides the software, hardware, operational and maintenance costs, e.g., software troubleshooting, and agent network to accept payments.	Sindh and KP provincial finance department, police departments (both provide oversight and approval for the system)
Target consumer profile	Public and private vehicle drivers in Sindh and KP provinces, across all types of income categories

Relevance to financial inclusion

Current state of financial inclusion. According to the World Bank's Global Financial Inclusion Database, only ~13% of Pakistan's adult population has an account at a formal financial institution. The number is less than ten percent when defining access beyond just access to a formal savings account, but a full suite of financial services (Rashid 2015). The use of accounts, however, is low—as of 2014, only 1.4% of adults used an account to receive wages and 1.8% used it to receive government transfers.

The initiative's potential impact. According to A2Z e-payments, 80% of repeat offenders are public transport providers with little or no access to formal

financial services. This solution could help improve their financial health given the high costs and time needed to transact at the bank, though this needs to be further tested.

Relevant trends in digital finance and e-governance

Digital finance. Despite a highly competitive market for mobile money (as many as eight live mobile money providers as of 2015), cash transactions dominate the market, representing 88% of customer transactions by volume (Rashid 2015). Pakistan launched its National Financial Inclusion Strategy (NFIS) in May 2015 to expand formal financial access to at least 50% of all adults by 2020, including women and youth (Pasha 2016). The government is exploring digital payments through its flagship G2P programme, the Benazir Income Support Programme (BISP). Building on this, it also joined the BTCA in September 2015 to expand digital payments nationally. More recently, it announced that passport fee payments would be accepted through mobile OTC payments to the private provider, JazzCash (Government of Pakistan 2016).

E-governance. The government of Pakistan is currently undertaking an e-governance initiative to digitise the processes of 13 government agencies after which the remaining 24 at the federal level will also be digitised. The provinces will have the opportunity to replicate the e-governance model upon completion of national digitisation.

Context

Provincial traffic police departments have struggled to reach annual revenue targets for fine collection. Some estimates suggest these are short by 20–40% of their annual targets. This shortfall is thought to be due to:

a) Leakages due to cash payments to traffic officers. Offenders often pay bribes to police officers to avoid tarnishing their driving records and potentially forfeiting their licenses. The bribe is typically smaller than the actual fine and does not reach the government.

b) Inconvenient payment processes for offenders. Even those choosing the formal payment route need to pay at designated bank branches which are limited in number and often require offenders to travel long distances. Bank hours usually coincide with work hours, and offenders face long queues once they get there. The process can take several hours, end-to-end.

c) Poor internal accountability mechanisms and incentives for police. Police officials self-report through handwritten receipts with little oversight. This provides ample opportunity for police to pocket cash payments. The department distributes performance-based bonuses but the amount is usually nominal and therefore not enough to deter such behaviour.

In addition, there is a heavy administrative burden associated with managing paper tickets (e.g., manually recording tickets, checking for payments, managing inventory of confiscated documents, etc.) that results in significant lost time for police departments.

To address these challenges, particularly on the payment system for consumers, EasyPaisa and A2Z E-payments launched the Traffic Ticket Management System (TTMS) in December 2015 in Karachi. Part of their corporate responsibility programmes, the initiative aims to reduce cash mismanagement across the payments value chain. This system is built on the existing system (2009) in 22 of 25 districts in KP. It is managed independently by A2Z E-payments.

The initiative supports the government's 2008 goal of introducing a modern traffic ticket management system and removes barriers to the provincial-level tax collection process.

EXHIBIT 18

Traffic fines schedule (updated April 2016)[80]

Traffic offence	PKR (USD)
Disobeying traffic signals	PKR 400 (~USD 3.75)
Tinted car windows	PKR 1,000 (~USD 10.00)
Driving on the wrong side of the road	PKR 500 (~USD 4.75)
Not wearing a helmet (for two-wheelers, e.g., motorcycles)	PKR 300 (~USD 3.90)
Speeding	PKR 400 (~USD 3.80)
Driving an unregistered vehicle	PKR 500 (~USD 4.75)

80. Provided by A2Z E-Payments Limited. Note that per capita income in Pakistan is USD 1,314 (at current rates, as of 2014). Assuming that an average fine is ~PKR 500 (USD 4.75), a traffic fine payment would represent ~five percent of monthly income for someone with the median per capita income.

"The Traffic Ticket Management System (TTMS) is a unique online and modern IT-based system in Pakistan that will pave the way for implementation of e-governance policies with zero cost to the government of Sindh. We have successfully implemented the system in Peshawar, too. We are very pleased to collaborate with EasyPaisa".

– Shakir Ullah, CEO, A2Z E-payments (ProPakistani 2016)

"There was a strong drive by the government and traffic department to initiate something that would help them to collect fees efficiently as the process was tiresome and cumbersome for them".

- Faisal Rauf, Financial Inclusion Head, EasyPaisa

B. The Proposed Solution

A2Z E-payments and EasyPaisa (a mobile money service offered by Telenor-owned Tameer Microfinance Bank) collaborated to solve the traffic ticket distribution and collection problem for the Karachi traffic police department.

The new system allows the *challan* to be issued digitally and paid for via a cash-in agent. Police issue the *challan* on a digital handheld device. Offenders can pay for their tickets with cash at any of the agents available across the province. Offenders pay a flat fee of ~PKR 20 (USD 0.2) per *challan* as a convenience charge to the agent. A mobile receipt is issued to the offender immediately, along with a physical receipt provided by the agent. Offenders can bring the receipt to the traffic police department to collect their confiscated documents—usually the driver's license or vehicle authorisation papers. If payment is not received within 20 days, the confiscated papers are transferred to the local judicial court for settlement.

Potential benefits to government

- Greater accountability for police officers. Officers are provided with handheld devices that can then be tracked from issuance to payment completion, eliminating potential for *challans* to be "privately" issued and payments pocketed. This system does not eliminate the full possibility that cash payments can be made to the official directly in lieu of the issue of the *challan* (e.g., the police officer can still choose to take a lower cash bribe); the traffic police department is actively looking into solving this challenge. For example, the head of the Karachi police department announced that the department is looking to link financial incentives for the traffic officers based on (a) number of *challans* issued (b) *challans* paid once issued (the ticketing officer could receive up to 15% of the amount paid).
- Increased transparency. Once a *challan* is issued electronically, the police department can track it through a unique reference ID number. Associated details such as time, date, and location of issuance, as well as payment date and time, are also monitored. Anecdotally, initial reviews indicate that the time to collect and monitor, as well as errors in input, are all lower than with the paper-based system.
- Part of long-term road safety strategy. The traffic police departments plan to introduce a "driving license penalty point" system to track repeat offenders and encourage safer roads.

Potential benefits to consumers

- Time and cost savings. With the ease of making the payment at virtually no extra cost, traffic offenders no longer lose 3–4 hours of time queuing up at the designated bank branch. The additional charge of PKR 20 (USD 0.2) to pay through the EasyPaisa agent is too small to be a relevant barrier for payment through this channel. Offenders also benefit from making payments directly at kiosks stationed at key traffic locations in the city, eliminating the need to commute to an agent altogether. However, there is a chance that some customers might continue to pay cash bribes if the option were still available since the new system requires an additional service fee of up to 6.7% of the fine.

- Issues resolution. In the case of payment at an EasyPaisa agent, customers can track and verify receipt of the payment through a customer service number.
- Reduced risk of lost documents. Specifically in Karachi, the document management system also enables traffic offenders to collect confiscated documents in a timely manner and without the risk of losing their documents every time there is an offence.

The digital payment process dramatically reduces the time that offenders need to spend to pay for tickets, offering greater accessibility and flexibility. Exhibit 19 describes the time and cost savings of such a solution in detail.

EXHIBIT 19

Consumer journey for paying traffic fines through OTC channels

Payment at bank branch *before* e-challan initiative

Scenario1: Informal payment Scenario 2: Formal payment



		Transit		Transit		
	Challan issued to traffic offender on written note		Queue in bank (Bank of Punjab) branch, receipt collected		Confiscated documents collected	
Time	*15–30 mins*	*30+ mins*	*30–60 mins*	*30+ mins*	*10–20 mins*	*115–170 mins*
Costs	*n/a + cash bribe PKR 300–1,000*	*Transport costs PKR 100+*	*Fine amount PKR 300–1,000+ zero extra fees*	*Transport costs PKR 100+*[1]	*n/a*	*PKR 400–2,200+*

Payment at traffic zone agent or EasyPaisa agent *after* e-challan initiative



		Transit No transit[2]		Transit No transit[2]		
	Digital *challan* issued to traffic offender		Cash paid to agent, receipt collected		Confiscated documents collected	
Time	*10 mins*	*0–30 mins*	*10 mins*	*0–30 mins*	*10 mins*	*30–90 mins*
Costs	*No fines collected*	*Transport cost PKR 0–100*	*Fine amount PKR 300–1,000+ PKR 20*	*Transport cost PKR 0–100*	*n/a*	*PKR 320–1,220*

Note: Both scenarios assume that the individual already has the cash amount for the fine.
(1) Transport costs include average cost (public transport and fuel cost)
(2) There is also an opportunity for users to pay directly at key traffic spots, eliminating the commute back and forth to an agent.

C. Business Model

The digital payment process dramatically reduces the time that offenders need to spend to pay for tickets, offering greater accessibility and flexibility.

Business model overview

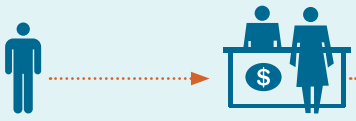
The TTMS was set up by EasyPaisa under a contract with A2Z E-payments. As the e-payments solutions provider, A2Z E-payments designed the end-to-end software solution to accept payments through the network of existing EasyPaisa POS terminals, and software to track ticket issuance and payment. A wide network of roughly 80,000 EasyPaisa agents nationally can accept such payments.[81]

Once the payment is made via the OTC channel (payees hand cash over to EasyPaisa or A2Z agents to facilitate electronic transactions on their behalf), the funds are typically remitted to EasyPaisa. The consolidated receipts across the agent network are reconciled with the designated bank account of the traffic police department within one or two working days. A2Z software provides updates on the collection status throughout the process. A2Z and EasyPaisa bear the cost of setting up and managing this system, including marketing costs.

The platform currently processes ~3,000 transactions a day (up from 30 transactions a day in December 2015). The companies are optimistic that transactions will increase, especially for repeat offenders. The model is expected to break even in the next one to two years.

EXHIBIT 20

E-challan business model overview



	Traffic offender (Individual)	EasyPaisa/A2Z payment agent	A2Z/EasyPaisa (as applicable) E-payment providers	Traffic police department Traffic police bank account
Flow of payments	▪ Receives *challan* with reference ID number, amount, and due date	▪ Visits cash-in agent (either at the traffic zone or EasyPaisa agent) ▪ Agent enters reference ID number and amount into point-of-sale device ▪ Payment receipt issued to user and agent	▪ Funds remitted to A2Z/ EasyPaisa who reconciles by end-of-day ▪ Information of payment made is received within seconds ▪ Pays agents' commission per month	▪ Funds collected by traffic police department ▪ Tracks and monitors individual *challans* in real time; updates provided immediately
Charges (if any)	▪ n/a	▪ Convenience fee of PKR 18 + taxes = ~PKR 20 paid to agent	▪ n/a	▪ No payments or fees paid to A2Z or EasyPaisa for the system
Timeline	▪ Immediately receives *challan* issued through a digital handheld device by the police officer	▪ Needs to visit the agent to make the fine payment within 20 days of offense or risk losing official documents altogether	▪ Reconciles with bank account of the traffic police department at end of working day	▪ Receives funds within one working day from EasyPaisa

81. Data collected as of March 2016.

Customers are charged a flat fee of ~PKR 20 (USD 0.2) per transaction, which is roughly equal to 2–7% of a typical fine payment. The private players are currently subsidising the cost of operating the system to keep fees relatively low for customers. This is part of a corporate responsibility initiative by both firms. The ultimate viability of this model is still being tested and there are concerns about replicability (further details in "Looking Forward: Next Steps").

Key infrastructure requirements and costs

Major costs include:

- Hardware and infrastructure, including the digital handheld units, computers, and POS machines (incremental to those already in EasyPaisa's network) to accept payments;
- Software development, testing, maintenance, and technical support;
- Training police department staff to manage the system;
- Setting up and enabling independent agents to accept payments;[82]
- Marketing to users (limited, because this is the only payment method allowed by the police in both provinces).

A2Z E-payments incurs the majority of costs associated with this system.

EXHIBIT 21

Implementation timeline

	Phase 1: Early rollout	Phase 2: Testing and further iteration on system design	Phase 3: Early rollout and implementation
	November–December 2015	January–December 2016 (planned)	June–December 2016 (planned)
Description	▪ 27 ticketing officers trained and issued with handheld units (three ticketing officers from each of the nine traffic sections)[83] ▪ EasyPaisa launches the challan payment facility through its network of agents across the Sindh and KP provinces ▪ Construction of automated document cell in nine traffic sections	▪ 120 ticketing officers trained and issued with handheld units (three ticketing officers from each of the 40 sections) ▪ Newly trained ticketing officers issued handheld units Development of automated document cells in 40 traffic sections	▪ Adding two new payment facilities: (1) debit/credit-card-enabled payments (2) mobile money payments ▪ Plans to expand this system to two additional cities
Outcome	Introduced the ticketing system across two key districts in Karachi and Peshawar	Operationalise and troubleshoot the system; provide ongoing support as needed	Potential to expand to more locations (e.g., Islamabad, Lahore) and introduce further payment solutions

D. Design and Implementation Timeline

Exhibit 21 shows a phase-by-phase implementation of the process. To date, the system remains cash-based. There are plans to offer digital payment solutions later this year, but progress has been slow.

82. In addition to EasyPaisa agents, there is a small set of independent agents, typically stationed near police stations that A2Z also owns, manages, and operates. EasyPaisa pays them a daily salary and provides POS devices.
83. Traffic sections are administrative zones in each city that require support.

More than 80% of the total value of tickets issued during the period 1 December 2015–29 February 2016, were paid.[84]

E. Challenges

For government

- Resistance within the traffic police department. Several police officials resisted this system in the initial stages of rollout, particularly the individual monitoring and tracking aspect, as this implies a direct loss of additional income through the bribery system.
- Limited technical capacity to maintain the new system. In smaller cities, there is no designated traffic police team and few dedicated IT staff members to manage the system.
- Need for training. Traffic departments' technical capacity to monitor, track, and troubleshoot the system is limited.

For consumers

- Continued time and cost challenges as the full end-to-end system is not digital. The process of paying the fine still requires a physical visit to the agent and the traffic department, making it prone to the risks of cash handling and additional charges.
- Low awareness. Anecdotally, most drivers are still unaware of this solution and the private players behind the solution choose to rely on word-of-mouth rather than invest widely in promotional offers or marketing. Consumers can still be charged a cash bribe without a formal *challan* if ignorant of the system.

F. Looking Forward: Next Steps

The solution needs to demonstrate proof of concept before being considered for other P2G payments in Pakistan. Providers are optimistic that such an OTC-based solution can be valuable for other types of P2G payments. However, given the subsidy to consumers, the longer-term viability needs to be demonstrated—there is the risk that the full costs associated with the system could be too high for customers to bear even if they begin to see the benefits.

Building on this initiative and another existing P2G initiative focused on utility payments (which has grown 300 times within 4–6 months of the service's national launch), EasyPaisa could consider other relevant P2G payments such as excise, passport fees, and land revenue payments. However, providers are still testing viability and potential.

84. Self-reported data by A2Z E-Payments Private Ltd.; estimates of leakages were ~40%.

CASE STUDY 6

BAYADLOAD

Smart e-Money Inc. ("SMI" or Smart) launched Bayad Load (bayad means payment) which allowed users to pay monthly premiums for social welfare programmes through a mobile wallet that could be loaded from any of the ~1.2 million Smart airtime agents across the country offering Smart airtime top-ups.

Key Outcome

The pilot was launched in 2013 with ~300 users, but shut down within three months. Smart intends to relaunch the service later in 2016 with a revised business model and reduced fee structure.

A. Overview of the Initiative

Year launched	2013
Location	The Philippines
Payment purpose	Co-payment for social benefits
Payment method	**Channel**: Mobile phones **Instrument:** EFTs **Store of value:** Electronic wallets
Payer ▪ Domestic and informal sector workers eligible under the "Kasambahay law"[85] ▪ Employers of domestic workers[86] Self-employed individuals such as doctors and lawyers	**Payee** ▪ Social Security System (SSS) ▪ PAG-IBIG (national home development mutual fund) ▪ PhilHealth (national health insurance)
Payment provider ▪ SMI (Smart subsidiary that provides e-money services) ▪ Smart and its subsidiaries, Talk 'N Text and Sun Cellular (provider of agent network for load) ▪ Voyager (Smart subsidiary that provides technology design and development)	**Key policy and regulatory entities** ▪ BSP (regulator/licensor for e-money products) ▪ Land Bank (bank responsible for the settlement of transactions and banker to government agencies)
Other partners	USAID - SIMM (helped facilitate early conversations with government officials)
Target consumer profile	While the service could be used by all Smart customers, it was particularly targeted at ~2.5 million domestic workers and their employers across rural and urban locations (Shrader 2013).

Relevance for financial inclusion

- Current state of financial inclusion. According to the World Bank's Global Financial Inclusion Database, only ~28% of the adult population in the Philippines has an account at any financial institution.[87] This percentage

85. Or, the Domestic Workers Act—described in more detail later in this section.
86. Premium payments or contributions are to be shouldered by the employer. However, if domestic workers receive wages of PHP 5,000 or more a month, they must make a payment or contribution proportionate to that made by the employer.
87. World Bank, Global Financial Inclusion Database, World Bank, 2014.

is even lower (~24%) for the rural adult population.[88] As of June 2014, ~34% of municipalities (most of which are situated on rural and remote islands) in the Philippines did not have a bank branch (GSMA 2014). Given the low access to financial services, small entrepreneurs mostly depend on MFIs and banks for financial services (Llanto 2015). Similarly, the Philippines has just ~13 million (~21% of the adult population) registered mobile money users despite being the first country to launch mobile money in 2001 and having a nationwide mobile penetration rate of 115% (Buenaventura 2014).[89]

- The initiative's potential impact. The product offered significant scope for both financial inclusion and health as it allowed its customers access to an e-money account (especially those in the informal sector, and therefore, likely to be without access to formal banking services). In addition, the product itself allowed them to access other financial products for a more resilient future, such as social security and health insurance.

Relevant trends in digital finance and e-governance

- Digital finance. While the Philippines has historically lagged in the adoption of digital payments, there have been a number of recent efforts to improve the ecosystem and impact consumer uptake of DFS and drive financial inclusion. At the national level, the BSP has been working with the private sector to implement the NRPS, a regulatory framework that will help enable any-to-any payments within the Philippines, with the goal of moving at least 20% of payments to digital channels by 2020. A key priority is to encourage interoperability across banks and MNOs, though overall progress is still in its early stages (limited to an interoperability announcement by the two major telecom players in 2016).
- E-governance. Progress related to e-governance has historically lagged in the Philippines. However, the government launched the E-Government Master Plan (EGMP) in 2013 in an effort to improve the trajectory. Today, the Philippines is not specifically targeting digitising P2G payments, but it does allow government bodies, including LGUs that collect taxes from small businesses, to accept digital payments (Government of the Philippines 2013; Development Alternatives, Inc. 2014). In addition, LGUs are working to simplify overall collection processes to promote the adoption of digital payments.

88. Ibid.
89. We used World Bank population estimates from 2014.

Context

The Philippines enacted Republic Act No. 10361, the "Kasambahay law" or the Domestic Workers Act in 2013. The Act aims to extend basic welfare services to ~2.5 million domestic workers. Under the Act, workers and their employers are required to remit monthly membership contributions to the Home Development Mutual Fund (Pag-IBIG Fund), premium payments to the Philippine Health Insurance Corporation (PhilHealth), and to the SSS.[90]

The contributions, which average PHP 200 (USD 4) a month, are usually made by cash at local bank branches, or authorised payment centres such as Bayad Centres, or the respective government offices. This process—travel, queuing, posting payment—can be costly and takes up to four hours. Most employers delegate the task of making payments to their employees or hire accountants who can charge up to PHP 3,000 (USD 66) a month.

B. The Proposed Solution

SMI launched Bayad Load in 2013 to allow domestic workers and their employers to make contributions towards government benefits programmes via their mobile phones. Users self-registered via an STK menu.[91] They could purchase "load" or a store of value similar to e-money from local retailers. Their load was directed to a closed-loop wallet, meaning the balance could only be used for specified government payments and not for SMS, voice, or data, or be cashed out.

The payments were processed in near-real time[92] and credited to the government agency at the end of the day by Land Bank which served as the settlement bank for the transaction (and which serves as banker to all government agencies in the Philippines). The users received a receipt immediately upon payment. Users were able to fund their benefits contributions via ~1.2 million airtime agents rather than having to visit a government office. They paid a 12% convenience fee for the service.

90. Domestic Workers Act/Batas Kasambahay 2013 (Republic of the Philippines), http://www.gov.ph/2013/01/18/republic-act-no-10361/.
91. STK (or SIM toolkit) provides a set of commands that allow applications to interact and operate with a mobile client that supports the specific commands required by the application. Applications can be securely downloaded to the SIM with the STK (http://www.gsma.com/personaldata/faqs/sim-toolkit-sat-or-stk).
92. A widely accepted definition of "real-time transfer" or "near-real-time transfer" is a total of five seconds or less time elapsed between payment initiation to confirmation. See Accenture (2015).

Benefits to provider

- Opportunity to attract and retain a new segment of customers. Smart was able to tap into a new customer segment: domestic workers and their employers who need to pay for social benefits each month under the new law. This base was important given Smart's reach among low- and middle-income consumers.

Benefits to government

- Improved payment options for co-payment schemes, especially from the ~2.5 million low-income domestic workers who would otherwise find it difficult to pay for such programmes.
- Reduced cost of collections, as the government leveraged an extensive and established cash-in network developed by the MNO and eliminated costs associated with cash logistics.
- Increased visibility/transparency afforded by being able to track digital payments. However, the actual scope and extent of this are relatively less known.

Benefits to consumers

- Time and cost benefits. Paying via a mobile wallet meant that customers did not have to visit any government office and saved up to four hours on each monthly transaction. This wallet required a one-time registration and could be loaded at any of the ~1.2 million airtime retailers as compared to only ~10,000 Smart money agents across the Philippines. Exhibit 23 highlights the convenience offered by the product.

Source: Smart

- No expiry date. The money in the wallet did not expire and there were no penalties for inactive wallets.

EXHIBIT 22

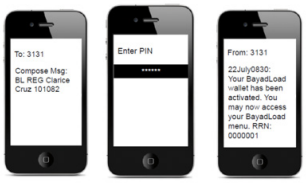
Typical payment process before Bayad Load

1. User visits a government office or any other payment centre, such as a Bayad Centre
2. User submits the payment along with the required form
3. Bank official reviews the form; Official reviews the form, collects the payment, and provides a receipt for the payment made

EXHIBIT 23

Registering and using the Bayad Load electronic wallet

STEP 1: REGISTER

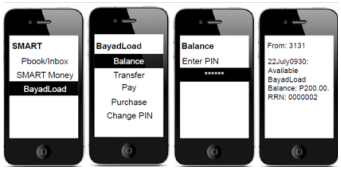


- Users registered their SSS*, PhilHealth, and Home Development Mutual Fund accounts by sending a message in a pre-defined format
- Next, they received a message to set a security PIN for the wallet
- Once they set the PIN, they received a confirmation of wallet activation

STEP 2: LOAD WALLET

- Users could go to Smart airtime retailers and load their wallets with cash
- They received a confirmation message every time they loaded their wallets

STEP 3: TRANSACT



- Users could make the payment using a simple SIM application toolkit menu by sending an SMS to a particular number
- Users then chose "Pay" and entered the amount
- Users then entered their PINs to validate the payment request, and sent it
- Users immediately received confirmation of payment made through a message
- Users could also check their balances by selecting "Balance" instead of "Pay"

* SSS = Social Security System

C. Business Model

Business model overview

Users were charged a 12% fee on each transaction to use the STK-based service. While the average ticket size of a transaction was PHP 200, individual payments were anywhere from PHP 100 to PHP 500 (USD 2 to 11), resulting in fees of up to PHP 60 (USD 1.27) per transaction. Since the workers themselves could be paying for three different benefit products, the charges could be a few hundred pesos per month. For employers paying for multiple employees, this could result in fees over many thousands of pesos per month.

The fee charged to the customers was on account of the incentives provided to the airtime retailers to sell the load for the wallet. The agents normally earned a 12% commission from selling airtime and required the same commission for Bayad Load.

The agents normally earned a 12% commission from selling airtime and required the same commission for Bayad Load.

Initially, Smart approached the government agencies to subsidise or absorb this cost, but government agencies did not have a budget provision to pay for the service fees. Moreover, while the product had a license and support from the BSP, not all the related government agencies bought into the value of mobile-based payments, citing challenges with the business model and technical integration.

As a result, Smart decided to charge the consumers a convenience fee (Exhibit 24). The company believed that customers could absorb the cost as the fee was cheaper than the alternatives. For example, at 12%, the fee for an average payment of PHP 200 is PHP 24, while travelling to a government office could cost a customer up to PHP 50 in addition to the opportunity costs of spending time en route and in line. Government officials did not want to charge consumers this fee and the product was discontinued within three months of its launch.

EXHIBIT 24

Bayad Load business model

INDIVIDUAL	BAYAD LOAD WALLET/ SETTLEMENT BANK	GOVERNMENT AGENCIES
▪ Users registered their SSS*, PhilHealth, and Home Development Mutual Fund accounts by sending a message in a pre-defined format ▪ Once registered, they loaded their Bayad Load wallets through any load agent and received a confirmation SMS ▪ Users were charged an overall 12% transaction fee for every transaction authorised through the wallet	▪ The payment was deducted from the Bayad Load wallet ▪ Smart aggregated all payments received in a day. It reconciled all the payments received at the end of the day and sent a report to Land Bank and government entities ▪ Based on the report, Land Bank checked and credited the amount to the payee government agency	▪ Payee agencies reconciled the accounts based on the amount received from Land Bank as well as the report received from Smart, and posted the amount to the payer's account ▪ Government agencies updated their system and sent an update to the customer either via an SMS or by posting it on their website

* SSS = Social Security System

Smart made upfront investments in training, marketing, and campaigns targeted at the low-income population base.

D. Design and Implementation Timeline

Initiated in 2012, the concept and design phases of the product took about a year to complete. The BSP recognised the potential reach of the product and the opportunity it presented to advance financial inclusion and health, given that most of the intended users would not have access to banking services; the bank granted the license within a month of the new law being passed.

The pilot for the product took place in July 2013 in Quezon City and Batangas City. These two sites were selected by USAID as cities that were most likely to be interested in implementing innovative digital solutions, e.g., cities that had won awards for implementing new government solutions or had been previously recognised for the ease of doing business.

The pilot gathered ~300 users within three months, after which it was discontinued due to a lack of buy-in from government agencies.

E. Challenges

For providers

- Obtaining buy-in from government agencies. One of the key challenges for Smart was to convince the three government agencies of the value proposition of the product and to share the costs of transactions. Lack of buy-in ultimately led to the product being shelved within months of launch.

For consumers

- High transaction fees. Users incurred the high 12% fee on each monthly payment, which, for this segment, meant paying PHP 12–240 (USD 0.2–5). This variable fee was equivalent to the airtime sales commission enjoyed by existing retailers in the value chain, including regional and provincial dealers.
- Limited to Smart subscribers. The service was available only to customers of Smart and its subsidiaries, Talk N' Text and Sun Cellular. It excluded customers of Globe Telecom, which has a 40% market share (Waring 2015).
- Closed-loop system. Bayad Load was a separate wallet linked to a mobile phone and could only be redeemed for payment to an identified payee—in this case, SSS, Pag-IBIG, and PhilHealth. The wallet funds could not be cashed out.

F. Looking Forward: Next Steps

Over the last two years, Smart has also launched digital G2P payment products using Bayad Load. The company believes that G2P payments can support the adoption of P2G payments.

Smart plans to relaunch the Bayad Load product later this year and expand its scope by allowing Bayad Load balances to be used for other government services such as utility payments, birth certificates, securing passports, and traffic fines. The company is optimistic about the adoption of the product—which will still have a separate wallet—this time around due to reduced fees, planned interoperability with Globe, and more supportive government agencies and with the advent of the new administration. The key challenge, the friction cost (incentive for retailers), has now been reduced to approximately nine percent. Smart's current focus is to help consumers understand the product's value proposition and opportunity costs.

CASE STUDY 7

Small Business REGISTRATION AND TAX PAYMENTS through Mobile Phones

Solution to enable small and microbusinesses to make registration and tax payments via e-money.

Key Outcome

The initiative is still in its early stages, so progress has been limited. There are currently no mobile-based users in Batangas City and Valenzuela City, and only 2–3 users in Quezon City.

A. Overview of the Initiative

Year launched	2014 (Batangas City), 2014–2015 (other cities)
Location	Batangas City, Quezon City, Valenzuela City
Payment purpose	Payment of business registration and taxes for small and microbusinesses
Payment method	**Channel**: Mobile phones (USSD platform) **Instrument**: EFT **Store of value**: E-money
Payer Urban small and micro-sized businesses with fewer than ten employees	**Payee** LGU (city level)
Payment provider G-Xchange (a wholly owned subsidiary of Globe Telecom) – provider of mobile money and remittance services under the "GCash" brand	**Key policy and regulatory entities** ▪ LGU – e.g., city government of Batangas City ▪ COA (regulator and auditor, government entities) ▪ BSP (regulator/licensor for e-money products)
Other partners	USAID - SIMM programme
Target consumer profile	Small and microbusiness owners across the Philippines with up to ten employees, such as shop owners, grocers, home businesses, etc. Eligible businesses: 4,000 in Batangas City; 65,000 in Quezon City; 14,000 in Valenzuela City.

Relevance for financial inclusion

- Current state of financial inclusion. According to the World Bank's Global Financial Inclusion Database, only ~28% of the adult population in the Philippines has an account at any financial institution.[93] This percentage is even lower (~24%) for the rural adult population.[94] As of June 2014, ~34% of municipalities (most of which are situated on rural and remote islands) in the Philippines did not have a bank branch (GSMA 2014). Given the low access to financial services, small entrepreneurs mostly depend on MFIs and banks for financial services (Llanto 2015). Similarly, the Philippines has just ~13 million (~21% of the adult population) registered mobile money users despite being the first country to launch mobile money in

93. World Bank, Global Financial Inclusion Database, World Bank, 2014.
94. Ibid.

2001 and having a nationwide mobile penetration rate of 115% (Buenaventura 2014).

- The initiative's potential impact. The product enables small businesses to access a financial service, thereby serving as an entry point for users into the formal economy. There is potential for the development of entrepreneurs' financial health by allowing them to use this product to make other business-related payments, but results remain to be seen.

Relevant trends in digital finance and e-governance

- Digital finance. While the Philippines has historically lagged in the adoption of digital payments, there have been a number of recent efforts to improve the ecosystem and thereby impact consumer uptake of DFS and drive financial inclusion. At the national level, the BSP has been working with the private sector to implement the NRPS, a regulatory framework that will help enable any-to-any payments within the Philippines, with the goal of moving at least 20% of payments to digital channels by 2020. A key priority is to encourage interoperability across banks and MNOs, though overall progress is still in its early stages (limited to an interoperability announcement by the two major telecom players in 2016).
- E-governance. Progress related to e-governance has historically lagged in the Philippines. However, the government launched the EGMP in 2013 in an effort to improve the trajectory. Today, the Philippines is not specifically targeting digitising P2G payments, but it does allow government bodies, including LGUs that collect taxes from small businesses, to accept digital payments.[95] In addition, LGUs are working to simplify overall collection processes to promote the adoption of digital payments.

Context

Business registration and tax payments in the Philippines are time-consuming and costly for small and microbusinesses,[96] particularly in peri-urban and rural areas. These payments—even for large transactions, sometimes up to a million pesos—are made OTC in cash at city halls, according to complex processes requiring multiple documents and clearances. For example, in Quezon City, the process of renewal and tax assessment requires the payer to visit five different windows at city hall with eight different documents (local government of Quezon City 2016). In addition, the government requires annual renewal of business permits for all businesses and mandates that the renewal permit be collected in physical form. The permit must be displayed at the location of business. Friction in this process delays time to collection. In some cases, small business owners opt to not make payments altogether, resulting in a loss of revenue for the city administration.

B. The Proposed Solution

The concept was initially introduced by USAID's SIMM programme which supported local city governments in improving their collection revenues and efficiency by digitising payment and collection systems. Initially launched in Batangas City in 2014, the programme was expanded to five additional locations including Quezon City and Valenzuela City. To provide an e-money-based service, the cities chose G-Xchange Inc. through a competitive selection process (Development Alternatives, Inc. 2016).

While the documentation and assessment steps of renewing local government registration remain unchanged and must be completed at city hall, the programme allows users to fund business registration and tax payments through a USSD-based application. Users access details of taxes owed and immediately complete payments through the USSD menu. The payment is processed through a GCash mobile wallet which is integrated with the local government's existing payment system architecture.

Benefits to government

- Reduced cash handling at local government offices. This reduces the need to keep additional counters open for cash collection and provide security and other measures required to collect large volumes of cash.
- Reduction in leakages and corruption. Digitising these payments may help reduce bribery or leakages associated with cash payments.

Benefits to provider

- Opportunity to attract and retain a new segment of customers. This solution offered Globe the opportunity to attract small and micro-entrepreneurs as regular customers and possibly build on the existing service to offer more products in future.

95. COA circular 2013-007 allowed national and local government agencies to collect fees and taxes using electronic payments on 18 September 2013. See Development Alternatives, Inc. (2014).
96. Defined as those with fewer than ten employees.

- Opportunity to improve revenues through increased use of value-added services such as mobile money and data.

Benefits to consumers

- Time and transport cost savings. Overall, small and microbusiness entrepreneurs can potentially save between two hours and two days that would be spent in traffic or queues at government offices. This is particularly relevant for small businesses since they either pay an agent or accountant (who can charge up to PHP 3,000 [USD 66] per month to manage this) or end up spending their own time.
- Convenience and flexibility to make payments anytime. The mobile platform allows users to make payments from anywhere once the assessment is completed at city hall. This is particularly relevant for small businesses as they typically send an agent or accountant to complete the formalities on their behalf. Once they are satisfied that the process is complete, they can make the payments from their own mobile phones.

C. Business Model

Business model overview

In the current business model, Globe subsidises transaction costs as an investment in testing the product and understanding customer pain points. The company's current focus, given that the project is still in its early stages, is to build and retain a strong consumer base. Globe plans to finalise the business model once it has ironed out the product design and achieved significant scale.

Exhibit 25 details the current role of Globe and other players in the business model.

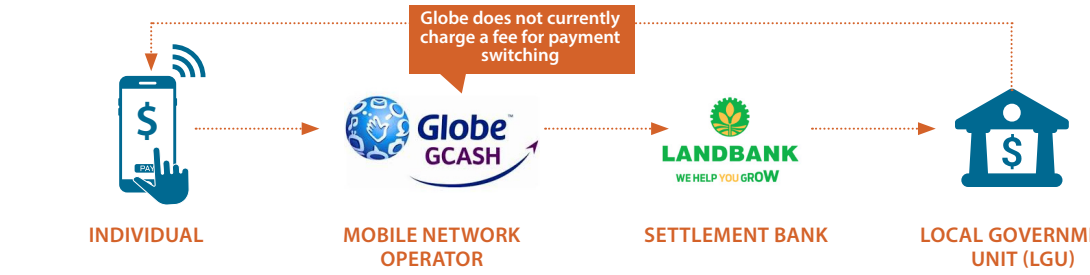
Key infrastructure requirements and costs

All the stakeholders contributed to setting up the required infrastructure for the initiative:

- Globe invested in the creation of the USSD-based front-end application. This expense covered the time for one developer over a 30-day period. Globe did not have additional costs beyond this as it was able to leverage the existing mobile payments infrastructure.

EXHIBIT 25

Business model – Small business registration and tax payments via mobile phones



INDIVIDUAL	MOBILE NETWORK OPERATOR	SETTLEMENT BANK	LOCAL GOVERNMENT UNIT (LGU)
▪ Users cash in at any of the authorized GCash cash-in points (not necessary if the user already has sufficient balance on her mobile wallet) ▪ User makes payments through an unstructured supplementary service data (USSD)-based service and the amount is deducted from the wallett	▪ Money collected from all users is aggregated in the LGU's "wallet" account ▪ Customer instantly receives notification of deduction from Globe ▪ Globe aggregates all payments received up to midnight and sends the reconciled report to Land Bank which then makes an equivalent transfer of money from the Globe account to the LGU account on the day following the transaction (T+1) ▪ Globe resets the LGU wallet to zero, again	▪ Land Bank checks the reports from Globe and transfers an equivalent amount of money from the Globe account to the LGU account the next day ▪ Land Bank charges PHP 5–25 per transaction which is usually charged to its users (Globe and LGU)	▪ On the same day or the next, the LGU reconciles the amount received from Land Bank with the payment records received from Globe and updates the payer's records ▪ The city government provides an update to the customer through an SMS

- USAID made two key investments:
  - » Initial assessment and support to the city government to set up the required back-end infrastructure;
  - » Awareness and customer education campaigns to help promote the adoption of the initiative.
- LGUs invested in setting up the back-end infrastructure to receive digital payments and its integration with the front-end mobile application. For example, the Valenzuela City government spent ~USD 1.2 million to set up a fully integrated back-end system including servers, APIs to integrate with Globe, and a security system. However, this system allows them to digitise other payments and collections as well, apart from just P2G.

D. Design and Implementation Timeline

The business registration programme took roughly two years to launch from inception (see Exhibit 26 for key milestones).

The USAID SIMM programme was launched in 2012 with the objective of increasing financial inclusion by boosting the adoption and usage of mobile money. The programme's strategy was to reach out to city-level governments (particularly those that would be interested in digital solutions), understand critical pain points in their P2G and G2P payments, and help them overcome them through the use of mobile money.

For the business registration and tax payment initiative, USAID first approached Batangas City officials in August 2012 to understand the challenges related to the collection of taxes. This process uncovered gaps in the existing policy framework that did not permit government entities to accept e-payments.

USAID, therefore, worked with the COA and local cities to create a policy framework to accept e-payments and clarify the questions posed by the COA. The COA issued a circular in 2013 permitting e-payments and set out guidelines for collecting payments through electronic means. The circular also allowed providers to charge a convenience fee for these services.

Over the next year, USAID supported the LGU in developing the digital infrastructure. First, USAID and the LGU co-developed an RFP to find a service provider. Through this process, the LGU selected Globe as the partner to develop the USSD-based solution. USAID also supported the LGU with the development of the back-end systems. A USAID technical expert helped the LGU assess and upgrade its systems to facilitate integration with the provider's front-end system.

The small business registration and tax payment service was launched in Batangas City in March 2014 and consequently in Quezon City (2014) and Valenzuela City (2015). The SIMM project ended in 2014; the USAID team has since launched the E-PESO programme with the objective of developing the overall national payment ecosystem to increase the use of electronic payments. This programme is focused on all electronic payments beyond just mobile money and is providing technical assistance to the government of the Philippines to improve digital adoption for both P2G and G2P payments. A key component of this effort is to scale the existing P2G initiatives and focus on marketing and awareness.

Exhibit 26 summarises the design and implementation process.

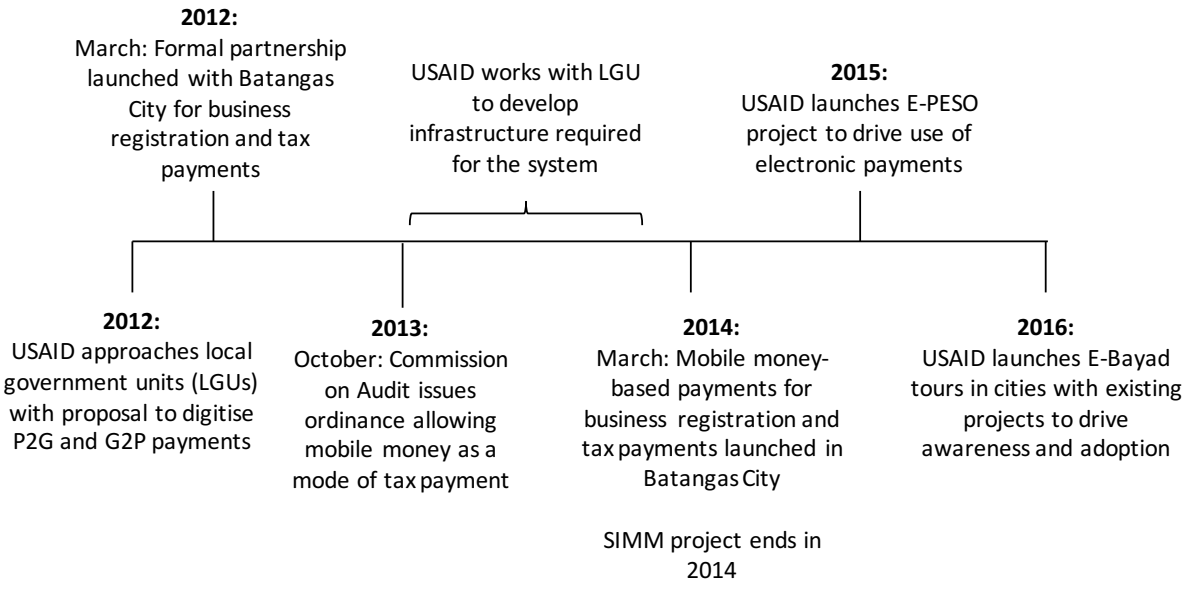
E. Challenges

For government

- The solution does little to reduce congestion at local government offices. Currently, only the payment step has been digitised; this is just one of the five steps in the process of obtaining or renewing business registration permits and making payments. Users still need to visit government offices to complete the other steps. There are long queues and wait times at government offices, particularly on the days leading up to payment deadlines.
- Lack of trust in the government. Experts across government offices and non-users mentioned that they are not sure if the mobile-based platform is an accepted form of payment, and if it will count as a legitimate payment. Business owners prefer to deal in cash and ensure payment is done properly, especially since the permits require them to obtain physical (stamped) receipts that they need to display at their shops or business locations. Some non-users also mentioned that there are frequent inspections where they are required to produce a receipt and they were not sure if the SMS or digital receipt would be accepted in such cases.

EXHIBIT 26

Design and implementation timeline



The key challenge is actually the tax assessment which requires users to stand in multiple queues and can take anywhere between two hours and two days.

For providers

- Uncertainty around the viability of the business model. Currently, Globe is absorbing the cost of the transactions as it is still trying to build a steady base of users and develop the customer proposition. However, this is not a commercially viable or sustainable model, especially as the company scales up across cities. Globe is actively considering ways to develop a revenue model for this product.

For consumers

- The mobile-based solution does not result in significant time savings. Rather, it adds an additional step to the process. Interviews with consumers suggested that making the payment at the counter is a small, and relatively easy part of a larger process. The key challenge is actually the tax assessment which requires users to stand in multiple queues and can take anywhere between two hours and two days. Allowing consumers to make mobile-based payments does not simplify the process, nor does it eliminate the need to go to city hall and stand in long lines. Rather, adding a mobile-based payment necessitates an additional visit to city hall after the payment is done to collect the business permit document, a physical copy of which is required to be displayed in offices and shops. Exhibits 27 and 28 describe the process before and after the launch of mobile-based payments.
- Lack of awareness. The majority of people we interviewed had not previously heard of this initiative. Both Globe and USAID highlighted low consumer awareness as a critical barrier, as well.
- Mistrust of digital platforms. Most users do not trust digital payment methods for fear of fraud or previous poor experiences.

- Reduces flexibility of challenging or negotiating tax amounts. Many non-users said that they would not want to pay digitally even if the entire process was made digital, simply because they felt that they could challenge the payment amounts at city hall and have their payments reduced in case there were issues with the assessments.
- Challenges with poor network infrastructure. Users also mentioned challenges with the network that hampered their ability to use the services. In our user tests, we saw the network fail even on a basic USSD-based application which requires less than 2G connectivity. Given the poor network, non-users are further dissuaded from conducting financial transactions on the phone since they are not sure if the payments will actually go through.

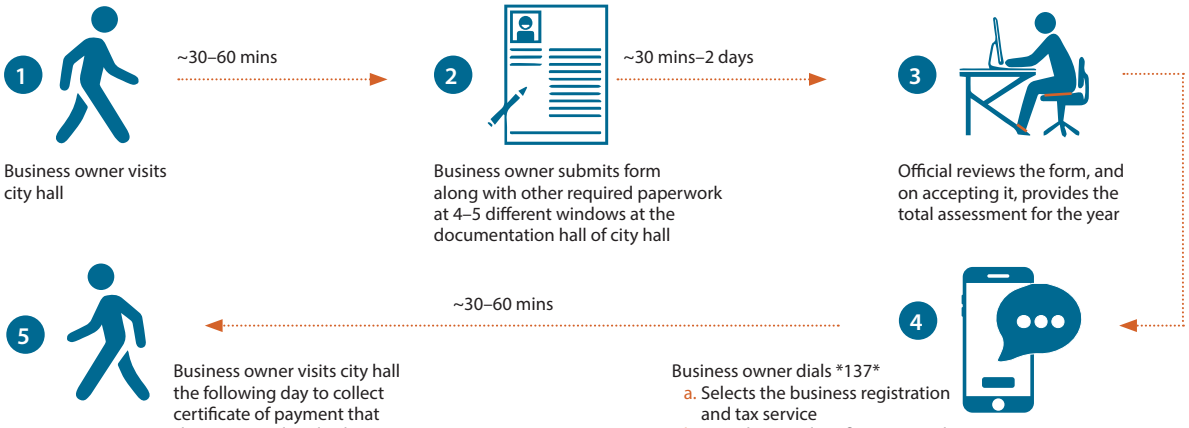
EXHIBIT 27

Process *before* the launch of mobile-based payments

Business owner visits city hall	Business owner submits form along with other required paperwork at 4–5 different windows at the documentation hall of city hall	Official reviews the form, and on accepting it, provides the total assessment for the year Business owner pays the amount at a separate counter in the same building Business owner collects the documents and permit that she is required to display at the shop

EXHIBIT 28

Process *after* the launch of mobile-based payments



1. Business owner visits city hall
2. Business owner submits form along with other required paperwork at 4–5 different windows at the documentation hall of city hall
3. Official reviews the form, and on accepting it, provides the total assessment for the year
4. Business owner dials *137*
   a. Selects the business registration and tax service
   b. Provides tax identification number
   c. Pays money through GCash wallet
   d. Receives SMS receipt
5. Business owner visits city hall the following day to collect certificate of payment that she is required to display at the shop (physical copy)

F. Looking Forward: Next Steps

The USAID team is working with the key stakeholders, the LGUs and Globe, to focus on the following aspects that are crucial to improving service adoption:

- Improve awareness and facilitate trials. USAID and Globe have recently launched 'E-Bayad' tours in order to improve awareness and educate consumers about digital payment methods. These tours are usually held at city halls and allow users to try the service on their own. The tours were launched in February 2016 and have already been conducted in four cities (Cagayan de Oro, Iloilo, Quezon City, and Batangas City). More stops are planned for later in 2016. The response so far has been encouraging with more than PHP 4 million (~USD 90,000) being collected from mobile-based payments—real property tax, business registration, and taxes—over a period of four days in Quezon City alone.
- Completely digitise the process. USAID is also working with other city governments on digitising the entire process so that users can also e-submit the necessary documents to get an assessment and receipt online. USAID has piloted this in another city (Cagayan de Oro) and hopes to use lessons from there to expand to other cities.

CASE STUDY 8

TAP&GO SMART CARD

Tap&Go allows KBS riders to pay bus fare with a cashless smart card. The solution aims to reduce "cash leakages" caused by theft or mishandling, as well as alleviate delays associated with taking cash payments. Note: the public bus service is currently provided by private bus companies. This example is included for lessons applicable in countries where transportation is run by the government, and may be applicable in Rwanda after the current transportation lease ends.

Key Outcome

The system boasts nearly 70,000 active smart cards as of March 2016, accounting for ~20% of the bus transport market in Kigali.

A. Overview of the Initiative

Year launched	December 2015
Location	Kigali, Rwanda
Payment purpose	Fees for public bus transportation
Payment method	**Channel:** Radio frequency identification (RFID)-enabled terminals on public buses **Instrument:** Prepaid, contactless smart cards **Store of value:** Stored value account associated with the smart card
Payer Public bus transport users in Kigali (estimated 350,000 daily commuters)	**Payee** KBS, main bus operator
Payment provider AC Group (local company that designs, operates, and maintains smart card solutions)	Key policy and regulatory entities RURA regulates all transport, including buses The city of Kigali provides approval and added oversight
Note: In 2013, private bus operators were awarded five-year contracts by the government to provide public bus services. RURA regulates the service, setting upper limits on ticket tariffs, regulating advertising activities, designating bus routes, etc. RURA collects a regulator fee of 0.8% of annual turnover from bus operators.	
Other partners	RDB's ICT department and the Ministry of ICT and Youth provide oversight and policy recommendations.
Target consumer profile	Public transport users in Kigali

Relevance to financial inclusion

- Current state of financial inclusion in Rwanda. According to the World Bank's Financial Inclusion Database, 23% of all adults in Rwanda have mobile money accounts of which 17% are active account holders. Some 61% of the total active account users are located in rural areas and 72% live on less than USD 2.50 a day (CGAP 2016).
- The initiative's potential impact. Though the solution in its current form does not target unbanked/underbanked consumers specifically, bus transport is typically used by those without their own vehicles who cannot afford moto-taxi fares. In the future, once the service is mandated on all bus routes, even poor consumers will need to purchase and use the card frequently. The upfront hardware cost of USD 0.65 (the equivalent of 2–3 rides) and the minimum top-up value of USD 0.65 could pose a challenge for some consumers, especially those who prefer the flexibility of paying on a per-ride basis.

Relevant trends in digital finance and e-governance

- Digital finance. Rwanda's digital payments ecosystem has been rapidly evolving in recent years. The uptake of electronic payments increased dramatically during 2008–2015 with flows equivalent to 20% of the country's GDP in 2015. The number of players (banks, MNOs, microfinance banks) in the payment system expanded from 9 banks to 20 different players (Government of Rwanda 2015). Separately, interoperability across all financial institutions is a key priority for the government, though this effort is still in its early stages.
- E-governance. According to a UN survey, Rwanda ranks first in e-governance development among all "least developed countries" as of 2014 (United Nations 2014). Since 2000, with the launch of Vision 2020, the government has planned and invested in developing Rwanda as an ICT hub or "knowledge-based" middle-income country, including ICT initiatives such as developing a data centre, laying a national fibre optic network, and launching Irembo, the flagship all-in-one government services portal. Vision 2020 also aims to achieve 90% financial inclusion by 2020.

Context

Nearly 60% of Kigali's population uses public bus transport. Transport is provided by three main operators, namely KBS, the Rwanda Federation of Transport Cooperatives (RFTC), and Royal Express. The bus services had been reporting significantly lower revenues than expected, with actuals coming in from 20–50% below target. The key problem cited by the city's largest operator, KBS, was "cash leakages" during the collection process as bus drivers and conductors frequently pocketed a portion of the collections and then underreported the earnings.

Bus operators were eager to reduce leakages and sought alternative ways to increase revenue. Regulations limited their options, preventing them from charging higher fees, while traditional advertising opportunities such as billboards on the sides of buses required an often-lengthy regulatory approval process. As a result, **bus operators were receptive to a proposed digital solution that claimed to offer them full visibility into fare collections.** KBS was the first to launch an "automated fare collection" solution in December 2015 with the contactless smart card system.

> "Earlier, the government had no understanding of bus operator revenues for tax purposes. This new solution allowed them to track earnings and deduct taxes accordingly...they want to mandate it on all bus transport now"
>
> *– IT consultant, KBS*

> "By the time it gets to the company, there are so many hands it has gone through (from the conductor to the bus drive, to the person collecting it, to taking it to finance and the bank account) you have lost maybe 40–50% of your revenue by the end".
>
> *– Philip Ngarambe, COO, AC Group (local smart card company providing the service)*

B. The Proposed Solution

KBS and AC Group spent a year and a half piloting the Tap&Go system starting in 2014. The pilot phase enabled KBS and AC Group to iterate on the design to make it as user-friendly as possible. They rolled out the full service in December 2015.

How it works for the customer

- On-bus experience. The prepaid smart card allows customers to "tap" the validation machine once in a quick and convenient manner as they enter the bus. The validation machine immediately displays the card balance after deducting the fare amount. A payment takes less than five seconds.

- Cashing-in. Cash-in agents are located at the main city bus parks. The company had approximately 45 agents as of March 2016 but planned to engage 50 or more by the next month. The company is also actively exploring other digital top-up methods such as mobile money and debit/credit cards. Today, topping up the card through an agent takes 4–5 minutes.
- Pricing. Paying by smart card costs the same as paying by cash, excluding any special promotional deals. For example, KBS launched a promotion offering the Tap&Go card for RWF 12,000 (USD 15.5) for up to 200 rides in the first month of use—effectively a ~60% discount on the normal fare, assuming full usage of the 200 rides at a typical ~RWF 150 (USD 0.19) per ride. This offer helped KBS achieve a circulation of 40,000 cards in the first two months of operation. There are no immediate plans to have permanently cheaper fares, though there may be loyalty programmes instituted in the future.

As of March 2016, KBS had penetrated an estimated 20% of the total bus commuter market in Kigali.

Potential benefits to bus operators

- Greater transparency in collections to reduce leakages. Bus operators receive a log of payments made on a monthly basis from the smart card company, which includes information such as fare amount and location, date, and time of payment. Just by tracking the total number of "taps" (tickets sold), operators are able to identify which bus routes have had the most leakage by comparing historical and current revenues (only for the few routes that have already gone 100% cashless). Greater transparency can also aid operators in reducing leakages even along cash-based routes by indicating where greater oversight or staffing changes are needed. KBS revenues increased from RWF 5 million (USD 6,500) in January 2016 to RWF 12 million (USD 15,600) in February 2016.

  In the future, the benefits of added transparency through detailed payment information could also help bus operators in other important aspects of management—for example:

- Predicting cash flows. Bus operators can monitor, evaluate, and predict cash flows more effectively;
- Tracking advance sales, i.e. informing pricing schemes for weekly or monthly passes;
- Informing pricing strategies, i.e. exploring options to offer differentiated pricing or fare adjustments (e.g., discounts for particular customer segments such as elderly or regular customers) as a way to further induce loyalty; and
- Improving route management. KBS plans to use traffic data to inform bus allocation and timings.

Note: Bus operators and the government regulator recognise that systems like Tap&Go will take a few years to set up, particularly because bus routes are heavily regulated. The success of these digital payment systems will depend on their ability to remain operational during the first few years of gradual uptake.

Potential benefits to government

Increased tax revenues (future). Regulators are confident that reduced skimming by bus conductors and drivers will result in greater tax revenues. Early evidence of increased revenues for KBS (e.g., a more than 100% increase in February 2016 over the previous month) has implications for similar increases in tax collected from bus operators, who are charged on their annual turnover. RURA announced in February 2016 that all bus transport companies should go "cashless".

Potential benefits to consumers

- Cost savings. When paying cash, customers were subject to "added fees" for the evening or bad weather. This ad hoc addition imposed by bus conductors could add RWF 50 (USD 0.06) to a typical fare of RWF 150+, leading to variable pricing. Such ad hoc pricing is more difficult to impose with the smart card because the digital prices are pre-set. Cash users also risk facing conductors who do not have sufficient change, which can either add time to their journey (they travel until the conductor has the change needed) or result in financial loss when they forego their change.
- Time savings. The bus boarding process is faster when customers do not need to negotiate cash payments with the conductor. The reduced fare collection time (on cashless routes) may even mean considerable time savings (up to 20 minutes) on each bus route.
- Special privileges with card use. Currently, smart card customers are allowed to board the bus first. However, this benefit will disappear once the card is mandated.
- Promotions with card purchase. As noted earlier, a monthly pass promotion was introduced that offered substantial discounts to those who used most or all of the 200 rides included.

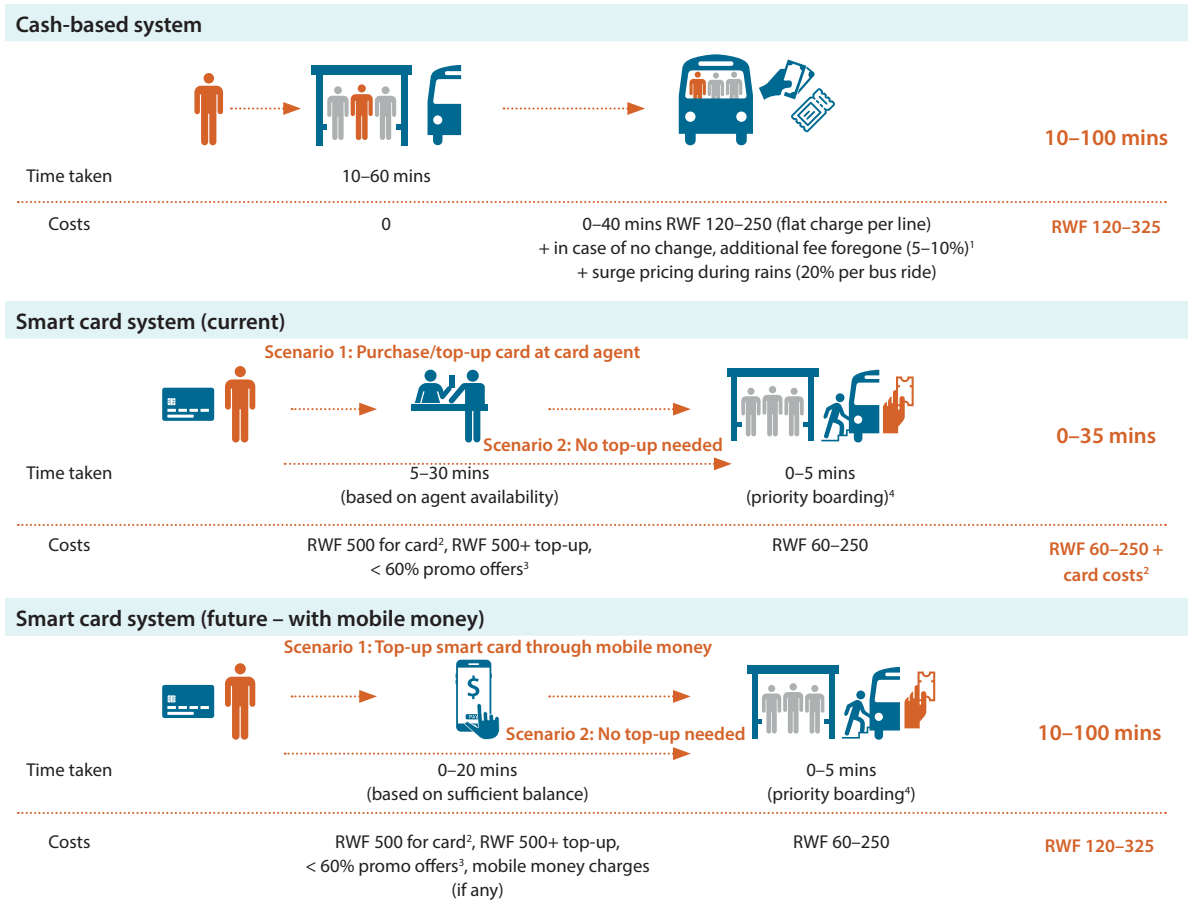
- Simplicity. The card is anonymous and has no expiry date. The card balance is displayed on the validation machine every time the customer taps it. It is also designed such that if a customer taps consecutively by mistake, the balance is not deducted from the second tap. A second fare (for a second person) can be deducted by tapping again about half a minute later. If in future, the card is registered to specific individuals, AC Group can also electronically 'kill' the card within seconds of being reported lost or stolen.
- Potential for uses beyond bus transport in the future. While this would require regulatory approval, payments for other services beyond bus transport could be added to the smart card over time (similar to the Octopus Card in Hong Kong).

Exhibit 29 highlights the new system's potential, including the future of using mobile money to top up the card value.

> "[The benefit of the card] is knowing how much money you've used up already...that's really important [to consumers]"
> *– Patrick Buchana, CEO, AC Group*

EXHIBIT 29

Consumer journey for using the Tap&Go card in Kigali, Rwanda



(1) Customers are forced to forego their change in case the bus conductor does not have any. This can be particularly challenging for poor customers as there is no way of collecting the value foregone at a later date and this accumulates over a period of time.
(2) RWF 500 is charged once upfront and at the time of loss of card.
(3) A promotional offer of RWF 12,000 for 200 rides up to one month was offered at the time of launch (and is still offered, as of March 2016).
(4) Smart card users can jump the line and board the bus first, allowing them preferred seating on crowded buses. For bus rides that are still not yet 100% cashless, customers still wait for non-smart card users to collect their paper tickets first and then board the bus.

C. Business Model

AC Group contracts with the bus operator to develop the end-to-end smart card solution, including hardware (cards, validation machines), software (back-end system to collect, store, and share information), and associated marketing needs.

AC Group retains five percent of the bus operator's total smart card fare collection. It further pays one percent of its earnings from the bus operator to its independently-contracted agent network, or PivotAccess agents. AC Group also earns interest on an escrow account that holds the pool of "untapped" funds.

EXHIBIT 30

Tap&Go business model overview

	Smart card user	Top-up agents/channels	Smart card company	Bus transport company
Flow of payments	▪ Cash payment to agent to top-up the card in case of low balance (minimum balance 1 trip worth) ▪ [No top-up transaction needed in case of sufficient card value]	▪ Total funds collected, transferred to card company, AC Group	▪ Collects payments end-of-day from all agents	▪ Kigali Bus Services (KBS) receives lump sum payments once a month from AC Group after a charge of 5% is deducted on the total revenue collected
Payment service charges (if any)	▪ No transaction charge, 100% cash-in amount reflected on card balance	▪ 1% earnings on each tap recorded on the card validation machine (shared with earnings from AC group)	▪ 4% earnings on each tap recorded on the card validation machine (+ any additional interest earning on card loading escrow account)	▪ KBS earns 95% of the amount on every ticket tapped on the smart card system
Costs	▪ One-time, upfront charge of RWF 500 to purchase the card (and if the card is lost or stolen outside of the promotional offer)	▪ Training and integrating the payments acceptance onto point-of-sale devices	▪ Purchases, operates, and maintains all hardware and software associated with running the smart card system, and with acquiring and training agents	n/a

Flow of funds for the payment of the service
Flow of funds for revenue sharing and repayments

Note: "Payment service charges" include any charges incurred or charged to receive (in the case of the user) or provide the service (in the case of the top-up agents, smart card company, and bus transport company). These are associated with each payment made on the system. "Costs" include longer-term business/operational costs to receive or provide the service.

Key infrastructure requirements and costs

The main costs associated with the system are as follows (specific details provided where available):

a) **Hardware and infrastructure.** Card validation machines and individual cards (USD 1.2 each), as well as the connectivity infrastructure required to settle transactions and do reporting;

b) **Software development and testing.** Development of the software required to run transactions and collect data; server management, etc.;

c) **Technical support.** Programming card validation machines to accept route-specific fees;

d) Agent network. Developing and training a robust agent network to enable customers to top up in convenient locations;

e) Marketing. Advertising on television, radio, etc. (USD 50,000 per month).

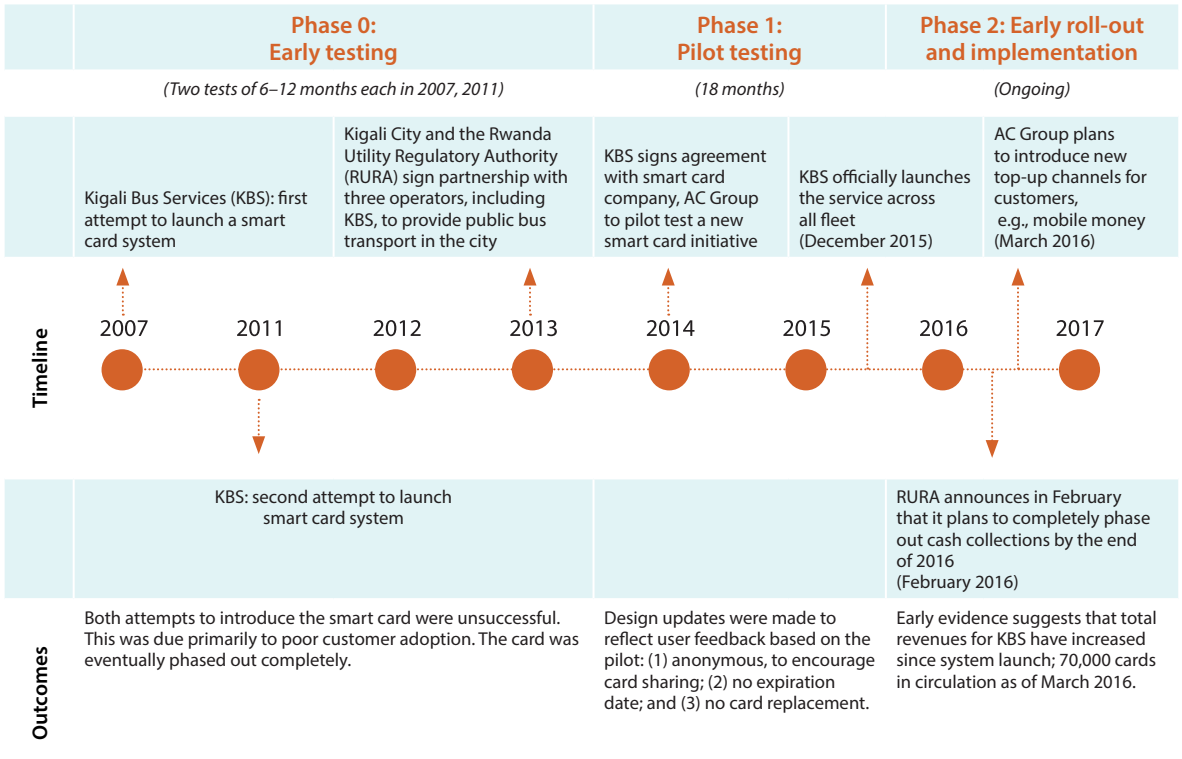
AC Group took the initiative to set up this programme and covered the USD 580,000 upfront fixed cost.[97] The cost includes the hardware and software components of the smart card system. The bulk of the ongoing costs will go towards acquiring and training dedicated agents to accept payments.

D. Design and Implementation Timeline

The AFC smart card system was piloted in 2014 with AC Group and select KBS fleet. The pilot lasted 1.5 years before finally launching across the entire KBS fleet in December 2015. The key priorities of the pilot were to (a) test the user experience of using the card, (b) design the technology, and (c) inform operational solutions for incorporating the card into the new payments collection process. KBS tried rolling this system out in 2007 and 2011, but met with limited success in customer adoption. The timeline in Exhibit 31 highlights each of the key phases.

EXHIBIT 31

Design to implementation process



97. Personal communication (interview), Patrick Buchana, CEO, AC Group.

E. Challenges

For bus operators

- Resistance from bus conductors and drivers. These employees benefit a great deal from the cash system. The new system takes away the supplemental income they received from pocketing some of the bus revenue and risks making conductors redundant. KBS said it is looking into alternative employment for these workers (BBC 2016).
  The smart card system is in early stages of implementation and bus operators are still operationalising the system across the entire fleet. Only once this is complete will bus operators focus on advertising the full benefits of the card.

For consumers

- Lack of interoperability across bus lines. Currently, the card is limited to the fleet operated by KBS and within Kigali only.
- Lack of flexibility in card use. There are currently 45 agents operating across the city, mainly at bus parks rather than at each bus stop. This set up can be challenging for customers who want more locations where they can top up the card. The card can never be cashed out at any stage.
- (Current) lack of replacement options for card loss or theft. Despite initial promotional offers that claimed customers could replace lost or stolen cards for free, the current system does not allow customers to register their unique identification against the card. Customers losing their cards will lose both the stored value and the cost of the card.

F. Looking Forward: Next Steps

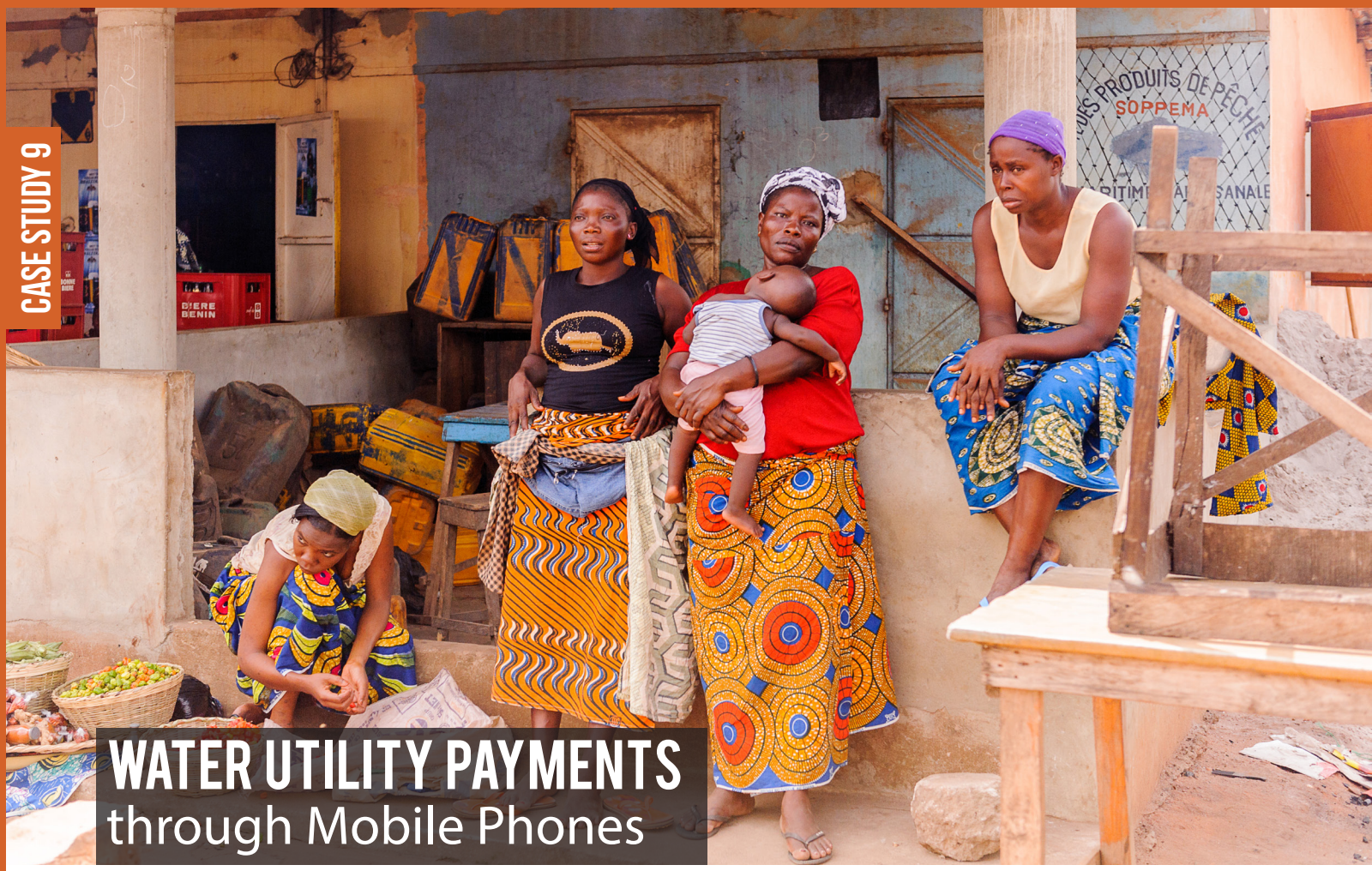
AC Group is interested in expanding the customer base to reach all 350,000 daily public transport users in the city. Its goals include:

- Expanding smart card coverage to all bus transport companies. Many consumers use a mix of bus operators to reach their destinations, particularly when travelling to the city from rural areas. The other two bus operators in Kigali, Royal Express and RFTC, also announced plans in May 2016 to implement the smart card.
- Expand top-up channels. The agent network is only available at main bus parks, making it difficult for users boarding at other bus stops to top up in case of insufficient balance. Other ways of topping up the card through agents (e.g., local vendors) and other digital means (e.g., mobile money) need to be explored to enable more convenient top-ups.
- Capture data on consumer usage to (a) inform pricing strategies for consumers, and (b) track usage by segment to ensure none are excluded from the bus service as a result of the shift to digital payments.

The card company is also exploring bundling other services such as payments for groceries and other products sold at local stores with the smart card as a way to add value for consumers. However, this goal is an extremely long-term one and not a priority focus in the next 1–2 years.

RURA is keen to ensure the smart card system is launched across all bus operators within the year, resulting in both bus operators and AC Group ramping up efforts to operationalise this system.

CASE STUDY 9



WATER UTILITY PAYMENTS through Mobile Phones

DAWASCO was the first urban water utility in sub-Saharan Africa to offer mobile-enabled payments for water utility bills through multiple mobile-based payment solutions, including mobile money services and mobile banking channels, as well as the networks of wireless pay points throughout the city.

Key Outcome

There were more than two million users of mobile-based payments in Dar es Salaam within two years of launch.

A. Overview of the Initiative

Year founded	2009
Location	Dar es Salaam, Tanzania
Payment purpose	Payment for water utility bills
Payment method	**Channel:** Mobile phones **Instrument:** EFTs **Store of value:** Bank accounts, electronic wallets
Payer Customers of DAWASCO	**Payee** DAWASCO
Payment provider ▪ MNOs (for mobile money and banking services) ▪ Banks – Akiba Commercial Bank (ACB), Exim Bank Tanzania (EBT), National ▪ Microfinance Bank (NMB), Tanzania Postal Bank (TPB), and "SIM banking" (banks whose services are available on mobile platforms) ▪ Aggregators: Selcom and Maxcom (aggregators who manage agent networks)	**Key policy and regulatory entities** DAWASCO (water utility company that collects payments) EWURA
Other partners	n/a
Target consumer profile	All DAWASCO users in Dar es Salaam, including low- and middle-income users.

Relevance to financial inclusion

- Current state of financial inclusion. Tanzania is one of the most successful case studies of mobile money adoption globally with 34% of adults maintaining an active mobile money account—second only to Kenya (with 58%) (CGAP 2015b). The number of mobile money accounts has quadrupled between 2009 and 2014: from 4.2 million to 38 million (CGAP 2014). By contrast, access to financial services via a formal financial institution remains low at ~20% of the adult population.[98]
- The initiative's potential impact. It is possible that this product is helping improve financial health. According to research by Oxford University, payments for water utilities made through digital/mobile means are lower in value than those made at water offices. This means that customers may be using mobile options to split bills into smaller payments that more appropriately match their income streams (Hope et al. 2011).

98. Data from the World Bank. See World Bank (2014).

Relevant trends in digital finance and e-governance

- Digital finance. The Bank of Tanzania launched its National Financial Inclusion Framework (NFIF) in December 2013 with an objective of achieving 50% financial inclusion by 2016. The definition of financial inclusion included in this framework incorporates the use of mobile money services as part of its plan (di Castri and Gidvani 2014). The Tanzania Revenue Authority launched tax collection through mobile within three years of the launch of mobile money in the country. Tanzania was one of the first countries in Africa to allow mobile-based collection of bills for both electric and water utilities in 2003 and 2009, respectively.
- E-governance. Tanzania does have an e-governance portal. To date, this portal is limited to providing information about government services to citizens and has not yet integrated digital form submissions or payments for government services.

Context

Historically, OTC water payments in DAWASCO offices were considered extremely challenging due to long travel times, the cost of reaching DAWASCO offices (whose hours of operation largely coincided with most peoples' work hours), and high incidences of corruption. Urban water utilities in East Africa were losing up to USD 500 million annually due to ineffective billing and leakages from payment collection accounts (Hope et al. 2011).

B. The Proposed Solution

To counter the challenges with manual collections, DAWASCO began digital collections in 2009. DAWASCO consumers can pay their bills using three mobile-based platforms: i) mobile money, ii) mobile banking, and iii) wireless POS devices. All of these services are provided in partnership with key MNOs such as Vodacom, Airtel, and Tigo, as well as participating banks. Services through POS agents are provided by aggregators—Selcom and Maxcom—who have a wide network of agents (in Selcom's case, more than 16,000) across the country and are open more than 100 hours a week.

Both mobile money and mobile banking offer fully electronic payments in which the bill amount is transferred from the account of the payee to DAWASCO. Mobile banking can also be done through mobile banking agents.

Payment at wireless pay points occurs differently. First, Selcom agents pay Selcom cash in exchange for electronic money (known as a float) on their devices. When a consumer makes a cash payment to the agent, the agent's float is deducted and the agent gets to keep the cash that the consumer has paid. Selcom then passes on the appropriate funds to DAWASCO (using part of the upfront cash that the agent has already paid to Selcom).

Despite high levels of mobile and mobile money penetration in Tanzania, the preferred method of payment is OTC at POS agents. In 2011, while 1% of payments came through mobile-only-based methods, 11% came through wireless pay points. By the end of 2011, 88% of mobile-enabled payments were being made through wireless pay points.

When a consumer makes a cash payment to the agent, the agent's float is deducted and the agent gets to keep the cash that the consumer has paid.

Benefits to government

- Improved collection efficiencies. DAWASCO believes its collection rates have increased as a result of mobile water payments and reported ~85% collection efficiency in Dar es Salaam. In addition, data from Oxford University shows that customers who used POS pay points and mobile money made an average of 7.6 and 6.4 payments per year, respectively in 2011, compared with 6.1 for those who used water offices (Hope et al. 2011).
- Increase in payment collections. Adoption of mobile-enabled methods contributed to a 13.4% increase in water utility revenues per customer.
- Reduced leakages. Studies by Oxford University in Tanzania and other east African countries show that mobile-based innovations have reduced petty corruption by reducing cash movement in the payment channels, and improved transparency in the system by generating reliable data (Krolikowski et al. 2013; Hope et al. 2011).

Benefits to providers

Mobile-based bill payment has allowed providers to build a strong user base on their platform.

- Digital payments for utilities have served as a critical entry point for providers to expand revenue opportunities. Mobile-based bill payment has allowed providers to build a strong user base on their platform. For example, aggregators are adding up to 200,000 new customers a month from just the POS-based platform for utility payments, which shows that utilities are as a critical entry point for digital payments. Given this strong growth in the user base, providers have expanded their service offerings to P2B payments, as well, for which they are able to charge customers TZS 1,000–5,000 (USD 0.46–2.3).

Benefits to consumers

- Saved time and costs. Digital payment methods have resulted in significant time and cost savings for customers due to a reduced need to travel long distances to DAWASCO offices and queue there. In a survey by Oxford University with users of mobile-based water utility payments, "avoiding queues" and "convenience" were the top reasons for using mobile money and POS-based payment methods (Hope et al. 2011).
- Improved financial management tools. Mobile-based payments have allowed consumers to pay smaller amounts when they can, which more appropriately matches their irregular incomes (Hope et al. 2011).

C. Business Model

Business model overview

The government currently subsidises the payment solution, i.e. the transaction cost is borne by the government and the customer pays no additional amount over the billed amount to pay using mobile-based methods.

Agents are paid 1–3% in the case of mobile money or wireless payment points. In addition, the government pays the provider—aggregator or MNO—approximately three percent. Commissions depend on market conditions and can fluctuate from time to time. In the case of mobile banking,

the government does not provide any incentives to the banks, but the aggregators share the percentage they receive from the government with the banks for the settlement services.

The cost of this transaction for the government is currently offset by the increase in revenues (reported as 13.4%).

Key infrastructure requirements and costs

The costs were not significant for either aggregator (Selcom and Maxcom) or the MNOs, which used existing payment infrastructure, including their agent networks, to deliver this service. However, there is a set-up fee incurred and absorbed by the aggregator for placing a server at DAWASCO.

D. Challenges

For consumers

- Reliance on agent networks. Despite high access to mobile phones and mobile money, users continue to rely on wireless pay points where consumers make payments in cash and agents transact on their behalf. This means that the transaction is not entirely digital.
- Lack of awareness. Consumers are often unaware of the different mobile channels available and continue to make the more familiar cash-based payments to POS agents.
- Difficult-to-use USSD interfaces. Mobile money uses text-heavy USSD platforms which illiterate consumers find difficult to use; they find the assisted POS agent-based model easier to use.

Despite high mobile money penetration, customers continue to prefer cash-based payments at wireless pay points.

For providers

- Stickiness to cash-based payments to POS agents. Despite high mobile money penetration, customers continue to prefer cash-based payments at wireless pay points. This is the most expensive model for providers, especially aggregators, as it requires them to incentivise agents. Aggregators believe this is due to high illiteracy levels and difficult-to-use USSD menus.
- Low awareness of digital payment methods. Despite years of existence, most users remain unaware of the full breadth of payment methods available and continue to use cash-based wireless pay points only for utility payments. Aggregators believe this is due to a lack of investment in marketing and customer education by all participants, particularly the government.

E. Looking Forward: Next Steps

While the service has grown significantly, aggregators and MNOs continue to expand services through existing channels—particularly by adding more agents. In addition, they are also exploring other payment channels such as prepaid cards. This is particularly relevant to providers from a cost perspective because managing and incentivising a large agent network is a major expense.

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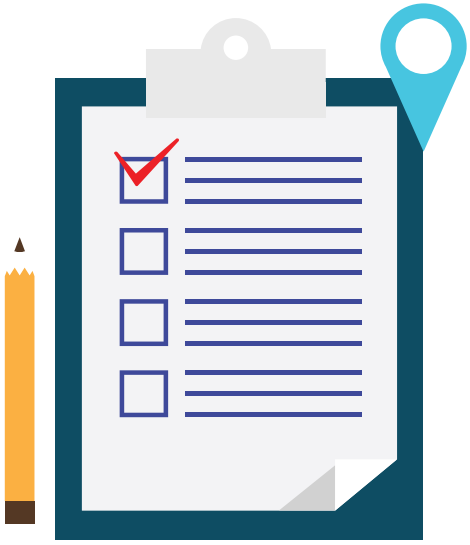

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ANNEX 1:
Overview of Methodology for Estimating the Market Size of P2G Payments

The value of all P2G receipts at a global and regional level is estimated based on a top-down methodology primarily using data from:

- The World Bank's Public Sector database;
- The Organisation for Economic Co-operation and Development (OECD) statistics database;
- BTCA's country diagnostic reports.

We also used reported national-level statistics for our focus countries, India, the Philippines, and Rwanda.

The market size for P2G payments as of year-end 2014 is estimated to be total government receipts from payments made by individuals. To calculate this figure, we subtracted our estimates of business payments (which we have assumed are primarily taxes) from World Bank estimates of total government receipts, which include receipts from businesses and individuals. Exhibit 32 provides additional details on the methodology and assumptions used to arrive at the figures presented in our report. All data is reported in USD.

EXHIBIT 32

Methodology for calculating P2G receipts

Total P2G payments (USD) = total government receipts – total tax receipts + individual tax receipts
Or stated differently
Total P2G payments (USD) = Total government revenue – business tax payments

	Data used	Calculations and assumptions
Total government receipts (USD)	▪ Revenue, excluding grants (% of GDP): Cash receipts from taxes, social contributions, and other revenues such as fines, fees, rent, and income from property or sales. ▪ GDP (World Bank): At market prices in current USD.	▪ Total revenue as a share of GDP * GDP. ▪ Assumptions: » Total receipts includes tax receipts from both businesses and individuals. » Business taxes include both direct (corporate income tax) and indirect taxes (excise and sales tax).
Total tax receipts (USD)	▪ Tax revenue (% of GDP) (World Bank): Compulsory transfers to the central government for public purposes. Excludes certain transfers such as fines, penalties, and most social security contributions. ▪ GDP (World Bank): At market prices in current USD.	▪ Taxes as a share of GDP * GDP.
Individual tax receipts (USD)	▪ Individual taxes (Better Than Cash Alliance [BTCA], central banks reporting): Taxes on income, profits, and capital gains of individuals. ▪ GDP (World Bank): At market prices in current USD.	▪ Individual taxes as a share of GDP * GDP. ▪ Assumptions: » Individual receipts as a share of GDP are based on average of OECD countries for high- and upper-middle-income countries, and average of five countries (Rwanda, Malawi, India, Nigeria and the Philippines) for low- and lower-middle-income countries.
Extrapolate to 2014	▪ P2G receipts: Extrapolated using compounded annual growth rate (CAGR) for GDP for 2010–2014. ▪ GDP (World Bank): At market prices in current USD.	▪ Calculation: (total revenue – total taxes + individual taxes) * CAGR for GDP. ▪ Assumptions: » P2G receipts increase year-on-year at the same rate as GDP.

This methodology, of course, has its limitations. First, taxes are not likely to be the only business payments to governments (although they will likely represent the vast majority of them); based on existing macroeconomic data, we were not able to adjust for these. Second, we had to rely on proxy data to calculate the share of individual vs. business tax receipts as individual estimates for each country were not available in key global databases with macroeconomic indicators. Third, the data calculates overall P2G value but does not break it out by individual use cases (beyond individual tax payments) as these figures are not readily available. The figures in this report should, therefore, be used to understand the market size of P2G payments at a high level. Detailed calculations and figures for individual countries would require added research and country-level reporting.

ANNEX 2:
List of Interviewees

	Name	Title	Organisation	Country
1	**Abdul Majeed Rufai**	Manager	Mobile Telephone Network (MTN) Ghana	Ghana
2	**Ajay Kaushal**	Founder and Director	Billdesk	India
3	**Ajay Shrivastava**	Head of Business Development, Financial Inclusion and Rural Banking	Tata Consultancy Services	India
4	**Albert Kinuma**	Senior Director, Emerging Markets Digital	Visa Inc.	Rwanda
5	**Alex Karenzi**	Mobile Money Corporate Accounts Supervisor	MTN Mobile Money	Rwanda
6	**Alex Ntale**	Executive Director	Private Sector Federation – Rwanda ICT Chamber	Rwanda
7	**Alfredo (Fred) Abella**	Chief Information Officer, Web Management, Development, and Maintenance	Quezon City Hall	Philippines
8	**Alistair Muhire**	Communications Manager	RwandaOnline Platform Ltd. (ROPL)	Rwanda
9	**Alok Jain**	Client Partner	Tata Consultancy Services	India
10	**Amr R. Ahmad**	Oversight of Payment and Settlement Systems	Central Bank of Jordan (CBJ)	Jordan
11	**Anatoly (Jing) Gusto**	E-Payment Ecosystem Advisor	E-PESO (USAID initiative)	Philippines
12	**Anthony P. Petalcorin**	Interim Chief of Party	E-PESO (USAID initiative)	Philippines
13	**Aristeo (Aris) P. Zafra, Jr.**	Executive Vice President and COO	BancNet	Philippines
14	**Bibhav Srivastav**	Ex - Executive Director	Corporation Bank	India
15	**Bobson Rugambwa**	CEO	MVEND	Rwanda
16	**Brooke Patterson**	Digital Development Regional Advisor, Asia	USAID	n/a
17	**Brendan Maguire**	Managing Director	Kigali Bus Services (KBS)	Rwanda
18	**Carolyn Ann Reyes**	Information Systems Project Management Service	Bureau of Internal Revenue (BIR)	Philippines
19	**Christopher Ray C. Manguera**	Head of Strategy and Innovations	Mynt (Globe)	Philippines
20	**Chris Williamson**	Senior Commercial Manager, Mobile Money for the Unbanked Programme	Groupe Speciale Mobile Association (GSMA)	n/a
21	**Clarice D. Cruz**	Prepaid Products and Social Payments Solution Manager	SMART Communications	Philippines

	Name	Title	Organisation	Country
22	**Crisente G. Cayabyab**	Office In-charge	Pagtutulungan sa Kinabukasan: Ikaw, Bangko, Industria at Gobyerno (Pag-IBIG) Fund	Philippines
23	**Daniella Odette Mukayrianga**	Programme Manager In Charge of Payments	RwandaOnline Platform Ltd. (ROPL)	Rwanda
24	**David Lubinski**	Senior Program Officer	Bill and Melinda Gates Foundation	n/a
25	**Donato Pua**	Digital Infrastructure and Interoperability Specialist	E-PESO (USAID initiative)	Philippines
26	**Doreen Niinsima**	Chief, Operations	MVEND	Rwanda
27	**Emmanuel Nzeyimana**	Country Program Manager	Digital Opportunity Trust	Rwanda
28	**Emmanuela Katabarwa**	Head of Transport Department	Rwanda Utility Regulatory Authority (RURA)	Rwanda
29	**Faisal Rauf**	P2G Financial Institutions, Corporate Solutions, Financial Services	Telenor	Pakistan
30	**Fred Karara**	Business Analyst	Rwanda Revenue Authority (RRA)	Rwanda
31	**Gabriel Baleos**	Program Manager (Open Government and Public Finance)	Department of Budget and Management	Philippines
32	**Gautam Bharadwaj**	Pension Expert	-	India
33	**Gordon Kalema**	Principal, Technologist - Government Services	Ministry of Youth and ICT	Rwanda
34	**Herbert Asiimwe**	Director of Banking And Non-Banking Unit (Financial Sector Development Directorate)	Ministry of Finance and Economic Planning	Rwanda
35	**Jean Bosco Sebabi**	Deputy Director General In Charge of Fund Management	Rwanda Social Security Board	Rwanda
36	**Jean Claude Gaga**	Head of Commercial	R. Switch	Rwanda
37	**Jennifer Frydrych**	Analyst, GSMA Mobile Money Programme	Groupe Speciale Mobile Association (GSMA)	n/a
38	**Joel Layson**	Senior Vice President, IT Management Group	Social security system (SSS)	Philippines
39	**John Karamuka**	Director of Payment Systems	National Bank of Rwanda	Rwanda
40	**John Owens**	Former Chief of Party	E-PESO (USAID)	Philippines
41	**Justin Morgan**	Country Director	Oxfam Philippines	Philippines
42	**Kasim Ggombe**	Rwanda Country Economist	International Growth Centre	Rwanda

	Name	Title	Organisation	Country
43	**Lilia C. Guillermo**	Deputy Commissioner, Information Systems Group	Bureau of Internal Revenue (BIR)	Philippines
44	**Lito Villanueva**	Vice President and Head of Innovation	SMART Communications	Philippines
45	**Lucy Mbabazi**	Country Manager	Visa Inc.	Rwanda
46	**Maha Bahou**	Executive Manager, Payment Systems and Domestic Banking Operations Department	Central Bank of Jordan (CBJ)	Philippines
47	**Mamerto Tangonan**	Former Chief of Party	Scaling Innovations in Mobile Money (SIMM) (USAID)	Philippines
48	**Manu Srivastava**	Vice President	eGovernments Foundation	India
49	**Maria Olivia V. Bernardo**	Taxpayer Service Systems Division	Bureau of Internal Revenue (BIR)	Philippines
50	**Martin Gasasira**	Trade Promotion Specialist	Rwanda Development Board (RDB) (Trade)	Rwanda
51	**Mohammad Beides**	VAS and Mobile Financial Services Manager	Umniah	Jordan
52	**Nasser Saleh**	CEO and Founder	MadfooatCom	Jordan
53	**Nico Paulo Mendoza**	Project Manager	Philippines Clearing House Corporation	Philippines
54	**Nikole Ma. Nimfa Alicer**	Head of Business Development	Mynt (Globe)	Philippines
55	**Oliver Ghihana**	Director Legal Services	RwandaOnline Platform Ltd. (ROPL)	Rwanda
56	**Pablo Arehety**	Regional Representative for Latin America and the Caribbean	Consultative Group to Assist the Poor (CGAP)	n/a
57	**Pascal Nyagahene**	CEO	MobiCash	Rwanda
58	**Patrick Buchana**	CEO	AC Group	Rwanda
59	**Paula Ingabire**	⁋ External Support Division Manager	Rwanda Development Board (RDB) (ICT)	Rwanda
60	**Pia Roman**	Head of Financial Inclusion	Bangko Sentral ng Pilipinas (BSP)	Philippines
61	**Prince Addai**	Channel Products, Mobile and SMS Banking, Mobile Money and POS Banking, E-Banking Sales Department	Fidelity Bank	Ghana
62	**Randy Montesa**	Head of Card and Electronic Banking Group	Land Bank	Philippines
63	**Randy Sison**	Head of Information Technology	Valenzuela City Hall	Philippines
64	**Raymond Estioko**	Deputy Director, National Retail Payment System	Bangko Sentral ng Pilipinas (BSP)	Philippines

	Name	Title	Organisation	Country
65	**Regina A. Samson**	Head of Communications Coordination Centre	Quezon City Hall	Philippines
66	**Reynaldo Malaya**	Vice President, Fund Management Group	Pagtutulungan sa Kinabukasan: Ikaw, Bangko, Industria at Gobyerno (Pag-IBIG) Fund	Philippines
67	**Samuel Yesashiwme**	Programme and Community Manager	Digital Opportunity Trust	Rwanda
68	**Sarah Mohamed**	Business Analyst	Selcom	Tanzania
69	**Shakir Ullah**	CEO	A2Z E-Payments Private Ltd.	Pakistan
70	**Sharif Hashim Banamwana**	Product Specialist	Tigo Cash	Rwanda
71	**Shweta Banerjee**	Senior Consultant	World Bank	India
72	**Srivatsa Krishna**	Secretary to the Government - Department of Information Technology, Biotechnology, and Science and Technology	Government of Karnataka	India
73	**Sudershan Dharmapuri**	Senior Vice President, Product Management	IMI Mobile	India
74	**Sultan Kashoura**	New Revenue Streams Manager	Zain	Jordan
75	**Syed Abid Rizvi**	Manager, Mobile Accounts	Telenor	Pakistan
76	**Teresita Espenilla**	Mission Director, Philippines	USAID	Philippines
77	**Theogene Kayumba**	Director, ICT	Ministry of Education (MINEDUC)	Rwanda
78	**Thomas Lammer**	Senior Payments Systems Specialist	World Bank	n/a
79	**Usman Kokab Khan**	Utility Bill Payments Team	Telenor	Pakistan
80	**Vanessa Umutoni**	Software Product Manager	PivotAccess	Rwanda
81	**Vicente (Vice) Catudio**	Digital Infrastructure and Interoperability Advisor	E-PESO (USAID initiative)	Philippines
82	**Violette Uwamutara**	Country Director	Digital Opportunity Trust	Rwanda
83	**Vishwanath Alluri**	Founder and CEO	IMI Mobile	India
84	**William Joseph Price**	Senior Financial Sector Specialist	World Bank	n/a
85	**Yvon Gilbert Nishimwe**	Electronic Banking Manager	Bank of Kigali	Rwanda
86	**Zorodzai Mhlanga**	ſ Switch Applications Manager	R. Switch	Rwanda

ANNEX 3:

List of Initiatives Scanned

We conducted a rapid scan of 61 P2G and quasi-P2G initiatives, after which we formally defined our approach and P2G definition. The scan served to inform our early hypotheses and to identify additional initiatives for further research. The information below is based on desk research and relies on the latest information that was available online (except for the initiatives that were selected for case studies or where we gathered additional information through in-country research). We have highlighted (in blue text) initiatives in emerging markets that are mobile-based and have the potential to reach the unbanked/underbanked.

	Initiative	Payment method	Country	Digital payment method			Description
				Channel	*Instrument*	*Store of value*	
1	**MyGov**	Income tax	Australia	Branch, PC	Debit/ credit cards, electronic funds transfer (EFT)	Bank account	Australian citizens can use the MyGov portal to pay their income taxes online and engage with several government agency services such as Medicare, JobSearchers, e-Health record, etc. Businesses can also file and pay various charges or taxes online.
2	**Centralised information system on mass payments (CISMP)**	Utility bill	Azerbaijan	Branch, PC	Debit/credit cards, EFT	Bank account	The CISMP was created to provide a centralised e-subscriber base for utilities and other mass service entities, allowing subscribers to both inquire about their payments with any financial entity linked to the system, and to make payments using cash, payment cards, bank transfers, and Internet banking.
3	**Azerpost modernisation project**	Multiple	Azerbaijan	Branch, PC	Debit/credit cards	Bank account	The Azerpost modernisation project was implemented over a five-year period and provides three types of payments: (1) financial services – electronic payments for benefits, social allowances, utility payments, deposits, other saving services, remittances, issuance of some non-cash payment instruments (e.g., debit cards); (2) e-government services – issuance of various certificates and business and personal documents by local and central executive powers, collection of different taxes, duties, fines and other payments; and (3) e-business services, such as e-trade, creating e-mail addresses, Internet access, information and electronic databases.
4	**Trust Bank P2G payments**	Multiple	Bangladesh	Branch, mobile phone, PC	Debit/credit cards, EFT	Bank account, electronic wallet	Trust Bank, in partnership with several government agencies such as the Department of Immigration and Passports, Bangladesh Navy, Bangladesh Army etc., allows its customers to digitally pay for services such as Bangladesh Navy recruitment fee payments, passport fee payments, cadet college admission and tuition fees, and Bangladesh Army recruitment fees.
5	**Mobile Tax**	Property tax	Cameroon	Mobile phone	Mobile money	Electronic wallet	Cameroon's government has partnered with mobile operators, Mobile Telephone Network (MTN) and Orange to launch a tax service called 'Mobile Tax' to allow millions of taxpayers in the country to pay their property taxes via mobile money.

	Initiative	Payment method	Country	Digital payment method			Description
				Channel	*Instrument*	*Store of value*	
6	**Service Canada**	Multiple	Canada	Branch, PC	Debit/credit cards, EFT	Bank account	Service Canada is an integrated e-governance initiative established in 2005 to serve as a gateway for government services and information, making them available through multiple channels, including mobile outreach centres for remote areas.
7	**Pagos Seguros en Línea**	Multiple	Colombia	Branch, PC	Debit/credit card, EFT	Bank account	Pagos Seguros en Línea (Secure Online Payments, or PSE for its abbreviation in Spanish) is an online payment platform in Colombia which allows businesses and consumers to authorise electronic payments directly from their bank accounts to other agencies. The platform was developed by a private clearing house, ACH Colombia, with strong support from the Colombian government who mandated government agencies accept online payments to social security operators (for health insurance and pensions, among others).
8	**n/a**	Income tax	Estonia	PC	Debit/credit cards, EFT	Bank account	Estonia has a near-automated process for e-tax payment and filing, tagged to citizens' digital payment trails throughout the year. For example, when employers report employment taxes every month, their data entries are linked to people's tax records. Similarly, charitable donations reported by non-profits are recorded as deductions for the giver in the same fashion. Tax deductions on mortgages are registered from data interchange with commercial banks.
9	**n/a**	Public transport (bus)	Estonia	Card readers at stations	Prepaid card	Prepaid card	Smart card is a "fare card" or payment smart card launched by the city government of Tallinn City for its public transport system. Users can add more credit from smart card kiosks, over an online portal, or by phone.
10	**Ghana Electronic Payment Platform (GEPP)**	Utility bills (electricity)	Ghana	Mobile phone, PC, agent	Mobile money, EFT	Electronic wallet, bank account	The government of Ghana announced the launch of the GEPP in December 2014, facilitating digital payments for government services through an e-services portal. Citizens could pay online or through their banks or mobile money services like Airtel Money for various government services like passports, business registration, tax administration, and police search reports. Citizens in Ghana can also pay monthly electricity bills via mobile money through MTN services.
11	**Mobile school fees**	School fees	Ghana	Mobile phone	Mobile money	Electronic wallet	School fee registration can be paid via MTN's mobile money payments service. The service has started receiving payments from 30 senior high schools, and 3 tertiary institutions from the southern part of Ghana are also expected to expand, enrolling more schools from other parts of the country.
12	**MyGovHK**	Multiple	Hong Kong	Mobile phone, PC, point-of-sale (POS)	Mobile money, debit/credit card	Bank account, prepaid card, online transfer	The government of Hong Kong launched MyGovHK in December 2010 as a personalised portal through which citizens enjoy integrated access to various government service accounts and information. The portal allows citizens to request and receive government information of their choice and is linked directly to users' government records (such as existing eTAX accounts).

	Initiative	Payment method	Country	Digital payment method			Description
				Channel	*Instrument*	*Store of value*	
13	**Octopus Card**	Multiple	Hong Kong	Mobile phones, POS (physical kiosk), PC	Prepaid card	Prepaid card	The Octopus card was launched in 1997 as a transport smart card and later expanded to many other services. The card can be used on all forms of public transport and its contactless card system can also be used at cinemas, sports grounds, hospitals, car parks, vending machines, and in most retail stores in Hong Kong. The card can be recharged at kiosks, shops, transportation stations, and online.
14	**n/a**	Passport fee payments	India	PC, mobile phone	Debit/credit card, EFT	Bank account	The application fee for passports (creation or renewal) can be paid through an online portal via debit/credit card, Internet banking, or a bank branch through the State Bank of India.
15	**n/a**	Water utility bills in Navi Mumbai	India	PC, mobile phone	Debit/credit card, EFT	Bank account	The city administration of Navi Mumbai allows citizens to make payments for monthly water bills via an online portal.
16	**n/a**	Maharashtra business licence fees	India	PC, mobile phone	Debit/credit card, EFT	Bank account	The Maharashtra state government's Finance Department allows e-payments in addition to the conventional methods of payment at government offices for business licence fees and renewal fees. Maharashtra state's taxes (e.g., sales tax, goods tax, etc.) can be paid through the Internet portals of various banks (net-banking).
17	**Official web portal - government of Rajasthan**	Rajasthan utility bills	India	PC	Debit/credit card, EFT	Bank account	The Rajasthan government, as part of India's larger e-governance plan, has started to accept payments for water, electricity, telecom/landline bills online via an electronic payment gateway/portal.
18	**Indian Railway Catering and Tourism Corporation (IRCTC)**	Railway ticket purchases	India	PC, mobile phone	Debit/credit card, EFT	Bank account	IRCTC pioneered Internet-based rail ticket bookings in India through its website, as well as from mobile phones via GPRS or SMS. In addition to e-tickets (which are booked and delivered electronically via SMS or e-mail), IRCTC also offers e-tickets that work like regular tickets except that they are booked online and delivered by post.
19	**Brihanmumbai Electric Supply and Transport (BEST) online payments**	Electric bills and transport passes	India	PC, mobile phone	Debit/credit card, EFT	Bank account	The BEST website allows users to pay their electric bills or purchase local transport passes online using their debit/credit cards or by making online bank transfers (net-banking) through their bank accounts.
20	**Traffic fine (challan) payments**	Traffic fines	India	PC, POS machine	Debit/credit card	Bank account	Starting in January 2016, traffic violation fees in Mumbai can be paid using debit or credit cards, or using E-challan POS machines. The key aim is to curb corruption in the process of paying traffic fines.
21	**MobileOne**	Multiple	India	POS agent	Debit/credit card	Bank account	MobileOne is a mobile based e-governance platform that provides Karnataka state residents access to ~1,000 state and national government services and ~3,000 private services. The services can be accessed via an application, on SMS, USSD, interactive voice response (IVR), and a website.
22	**Customer self-care**	Telecommunication bills	India	PC, mobile phone	Debit/credit card, EFT	Bank account	Mahanagar Telephone Nigam Ltd., a national phone service provider, allows phone bills (landlines and mobiles) to be paid online using cards and online banking.

	Initiative	Payment method	Country	Digital payment method			Description
				Channel	*Instrument*	*Store of value*	
23	**Atal Pension Yojana (APY)**	Co-payments for pensions	India	Bank branch	EFT (direct debit)	Bank account	The APY was launched by the government of India in June 2015 as a small-ticket contributory pension product, particularly targeted at workers in the unorganised sector. The government made a limited period co-contribution to incentivise uptake.
24	**Delhi Metro**	Payment for transport	India	Physical kiosk at station	Prepaid card	Prepaid card	Travellers on the Delhi Metro can pay using prepaid smart cards, which can be recharged at any station.
25	**Mobile money school fees**	School fees	Côte d'Ivoire	Mobile phone	Mobile money	Electronic wallet	The country's education ministry made it mandatory for secondary education students to pay school registration fees digitally via one of the four accredited mobile money providers. According to a report published by the Groupe Speciale Mobile Association (GSMA), 99% of school registration fee payments were made digitally in 2014–2015.
26	**n/a**	Income tax	Japan	PC, mobile phone	Debit/credit card, EFT	Bank account	The Japanese government accepts income taxes from individuals through an online payment system portal. Taxpayers can make electronic payments to the government via PCs, ATMs, and mobile phones. The Japan Multi-Payment Network Management Organisation runs this system.
27	**JoMoPay**	Multiple	Jordan	PC, mobile phone	Debit/credit card, EFT, mobile money	Bank account, electronic wallet	JoMoPay is the national payment switch created by the Central Bank of Jordan (CBJ) to provide access to financial services for the unbanked/underbanked in Jordan through a mobile-based platform. The CBJ has also partnered with private providers—MNOs for providing mobile wallets and technology providers MadfooatCom and Emerging Market Partners (EMP) to create a digital bill payment platform called eFAWATEERcom. The objective is to enable any-to-any payments, including P2G, at low cost and across an interoperable network.
28	**n/a**	Driving licence renewals	Kenya	Mobile phone	Mobile money	Electronic wallet	Kenyan mobile money users can pay for the renewal of driving licences using mobile money transfer services.
29	**iTax**	Income tax	Kenya	PC, bank branches, mobile phone	EFT, mobile money	Bank account, electronic wallet	The Kenya Revenue Authority (KRA) and Equatorial Commercial Bank have announced a partnership to roll out the online tax remittance system dubbed iTax. In addition, a partnership between Airtel and KRA allows Airtel Money customers to pay their taxes via the mobile money platform.
30	**M-Akiba**	Government bond purchases	Kenya	Mobile phone	Mobile money	Electronic wallet	The government of Kenya announced a plan in October 2015 to sell government bonds exclusively via mobile phones. The platform known as M-Akiba is delivered through all major mobile money services and the objective is to increase retail participation in government bond issuance.
31	**n/a**	Parking fees	Kenya	Mobile phone	Mobile money	Electronic wallet	The City Council of Nairobi has introduced cashless payments and digital receipts for seasonal parking and preprinted receipt booklets for daily parking services.
32	**Faini Chap Chap**	Court fines	Kenya	Mobile phone	Mobile money	Electronic wallet	Faini Chap Chap is an initiative to allow traffic offenders to pay court fines via mobile money to improve collection efficiency and reduce corruption.

	Initiative	Payment method	Country	Digital payment method			Description
				Channel	*Instrument*	*Store of value*	
33	**n/a**	Water utility payments	Kenya	Mobile phone	Mobile money	Electronic wallet	Nairobi City, Kisumu, Nakuru, Eidornet, and Nzoia provide water utility payments via mobile money.
34	**Mobile money school fees payment service**	School fees	Liberia	Mobile phone	Mobile money	Electronic wallet	In 2013, Ecobank, Lonestart Cell, and MTN launched mobile money-based school fee payment facilities in Liberia. Ten schools have signed up so far.
35	**n/a**	Income tax	Mauritius	Mobile phone, ATMs, PC, POS	Debit/credit card, EFT, mobile money	Bank account, electronic wallet	In March 2014, Mauritius Telecom partnered with the Mauritius Revenue Authority and the State Bank of Mauritius to allow income tax payments via mobile money for Orange Money customers. Payers can also pay their taxes using direct debit (EFT), Internet banking, debit/credit cards, and ATMs.
36	**M-Pay**	Income tax	Moldova	PC, bank branch	Credit card, EFT (Internet banking)	Bank account	In 2013, the Government of Moldova, in collaboration with the Ministry of Finance and the National Bank of Moldova, implemented the Governmental Service of Electronic Payments, called M-Pay. This service enables people to pay for public services such as taxes, police fines, medical insurance, and visas with digital payment instruments such as Internet banking and credit cards.
37	**E-challan**	Traffic fines	Pakistan	OTC agent	Cash	Cash	A first-of-its-kind payment solution in Pakistan for traffic violation tickets *(challans)*, the E-challan system allows people to pay their traffic fines to EasyPaisa OTC agents instead of at the bank which often requires waiting in long queues.
38	**Bayad Load**	Co-payments for social benefits	Philippines	Mobile phone	E-money (airtime load)	Electronic wallet	Smart e-Money Inc. launched Bayad Load (bayad means payment) which allowed users to pay monthly premiums for social welfare programmes through a mobile wallet that could be loaded from any of the ~1.2 million Smart airtime agents across the country offering Smart airtime top-ups. The pilot launched in 2013 with ~300 users and shut down within three months. Smart intends to relaunch the offering later in 2016 with a revised business model and reduced fee structure.
39	**Business registration and tax payments through mobile**	Payment of business registration and taxes for small and microbusinesses	Philippines	Mobile phone	Mobile money	Electronic wallet	This mobile-based solution enables small and microbusinesses to pay for registration and tax payments via mobile money. The concept was initially introduced by the USAID SIMM programme, which supported local city governments in improving their revenue collection and efficiency by digitising payment and collection systems. The cities chose G-Xchange Inc. (a Globe subsidiary) through a competitive selection process to provide an e-money-based service.
40	**n/a**	Income tax payments	Philippines	Mobile phone, ATM, PC, POS	Debit/credit card, EFT, mobile money	Bank account, electronic wallet	The Bureau of Internal Revenue (BIR), in partnership with USAID and Globe, has launched digital income tax payments. Citizens can pay taxes using mobile money, online transfers, and debit/credit cards.
41	**n/a**	Income tax and utility payments (water/electric)	Rwanda	Mobile phone	Mobile money	Electronic wallet	MTN Rwanda allows users to make various government payments – such as income tax payments and water/electric utility payments through mobile money. They have partnered with the relevant government agencies for this.

	Initiative	Payment method	Country	Digital payment method			Description
				Channel	*Instrument*	*Store of value*	
42	**Tap&Go Smart Card**	Public bus transport payments	Rwanda	Agent kiosk	Prepaid contactless smart card	Prepaid card	Tap&Go enables Kigali Bus Services (KBS) riders to pay with a cashless smart card. The solution aims to reduce "cash leakages" due to theft or mishandling, as well as alleviate delays associated with taking cash payments.
43	**Irembo**	Multiple	Rwanda	PC, mobile phone	Credit card, mobile money	Bank account, electronic wallet	Irembo allows citizens to pay for government services. These include issuing birth certificates, registering for driving tests, obtaining trading licences for profit-oriented activities, and trading licences for VAT registered companies. Irembo acts as a one-stop shop for all government services.
44	**n/a**	School fee payments	Rwanda	Mobile phone	Mobile money	Electronic wallet	MTN Rwanda has launched a mobile money-based school fee payment facility. So far, 21 schools are enrolled to receive payments using mobile money.
45	**EZ-Link**	Public transport payments	Singapore	POS/smart card readers on transport and at stores	Prepaid card	Prepaid card	The EZ-Link card is a contactless smart used for the payment of public transportation fares in Singapore. It can be used on the local metro transportation service and buses, and has also been expanded to be used for other payments such as school fee payments and payments at Singapore McDonald's outlets, and serves as an identity card for many government services.
46	**Online Business Licensing Service (OBLS)**	Business licence fees	Singapore	n/a	n/a	n/a	The Ministry of Trade and Industry in Singapore created the OBLS platform – a one-stop shop online platform for all the licensing needs of small- and medium-sized businesses in Singapore.
47	**eCitizen portal**	Multiple	Singapore	PC, mobile phone	Debit/credit card, EFT	Bank account	The Singapore government portal and accompanying mobile platform offer citizens an online portal to make applications and payments for various fines, fees, taxes, licenses, etc.
48	**n/a**	Business licence fees	Tanzania	Mobile phone	Mobile money	Electronic wallet	The Tanzania Revenue Authority (TRA) and Vodacom Tanzania have partnered to allow individuals to pay road licence fees through M-Pesa.
49	**n/a**	Income tax	Tanzania	Mobile phone	Mobile money	Electronic wallet	The Tanzania Revenue Authority (TRA) allowed citizens to make tax payments over mobile money for property taxes and personal income taxes. One year later, around 15% of the tax base was using mobile money.
50	**Mobile-based water utility payments**	Utility bill payments (water)	Tanzania	Mobile phone, PC	Debit/credit card, EFT, mobile money	Bank account, electronic wallet	The Dar es Salaam Water and Sewerage Corporation (DAWASCO) was the first urban water utility in sub-Saharan Africa to offer mobile-enabled payments for water utility bills through multiple mobile-based payment solutions, including mobile money services and mobile banking channels, as well as the networks of wireless pay points throughout the city.
51	**n/a**	E-passports	Thailand	n/a	n/a	n/a	Citizens can apply and pay for e-passports through an online portal.

	Initiative	Payment method	Country	Digital payment method			Description
				Channel	*Instrument*	*Store of value*	
52	**GÜMKART**	Income tax	Turkey	Government offices	Prepaid card	Prepaid card	Turkey developed an electronic payment collection system to allow customers to pay customs duties digitally. Taxpayers use a dedicated debit card called GÜMKART (customs electronic payment card) at POS terminals installed in the Customs Accounting Units at the Ministry of Finance. The system was developed by the General Directorate of Public Accounts and the Customs Department, the two main stakeholders, in association with Vakıfbank. Card issuance, POS terminal installation and maintenance, and programme support are all managed in a public-private partnership (PPP) form.
53	**n/a**	Income tax	Uganda	Mobile phone	Mobile money	Electronic wallet	The Uganda Revenue Authority partnered with Orient Bank and Warid Telecom to launch mobile money-based tax payments.
54	**n/a**	Utility bill payments (water)	Uganda	Mobile phone	Mobile money	Electronic wallet	Uganda's National Water and Sewerage Corporation partnered with MTN to allow customers to pay their water utility bills using mobile money.
55	**n/a**	Multiple	Uganda	Mobile phone	Mobile money	Electronic wallet	A partnership between the Kampala Capital City Authority and MTN Uganda enabled members of the public and businesses to pay for various city authority taxes and levies.
56	**n/a**	Income tax	UAE	n/a	n/a	n/a	UAE citizens can file and pay their income taxes online via a payment portal.
57	**Oyster Card**	Public transport	UK	POS machines at stations	Prepaid card	Prepaid card	The Oyster card, a stored value contactless smart card, allows its users to pay for local transport (the Underground, buses, trams, ferries, and trains) in London.
58	**n/a**	Multiple	UK	PC	Debit/credit card	Bank account	The government of the UK allows citizens to make certain payments online. These include court fines, passport and visa fees, parking fines, heavy goods levies, etc.
59	**Pay.gov**	Multiple	USA	PC	Debit/credit card, EFT	Bank account	Pay.gov is a convenient and fast way to make secure electronic payments to federal government agencies. Many common forms of payment are accepted, including credit cards, debit cards, and direct debits.
60	**n/a**	Utility bills (water)	Zambia	Mobile phone	Mobile money	Electronic wallet	MTN Zambia has partnered with the Lusaka Water and Sewerage Company to allow users to pay their water utilities via mobile money.
61	**Nettcash**	Utility bills (electricity)	Zimbabwe	Mobile phone	Mobile money	Electronic wallet	Mozido, a digital payments solution provider, partnered with NettCash, a Zimbabwe-based mobile wallet company, to offer a range of payment solutions, including prepaid utility services. The service had more than 250,000 customers in just four months.

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Karandaaz Pakistan, a Section 42 company established in August 2014, promotes access to finance for small businesses through a commercially directed investment platform, and financial inclusion for individuals by employing technology enabled digital solutions. The Company has financial and institutional support from leading international development finance institutions; principally the United Kingdom Department for International Development (DFID) and the Bill & Melinda Gates Foundation.

The Company has three work streams:

- **Digital Financial Services (DFS):** The DFS line of business focuses on expanding the poor's access to digital financial services in Pakistan by working across the ecosystem with all stakeholders including regulators, policy-makers, government departments, businesses and researchers and academics with activities arranged in four key work areas – Policy and Regulation, Seeding Innovation, Experimentation and Solutions Development, and Scale and Outreach.
- **Corporate Investment and Credit (CIC):** The CIC line of business provides wholesale structured credit and equity-linked direct growth capital investments in small and mid-size enterprises with compelling prospects for sustainable growth and employment generation in Pakistan
- **Knowledge Management and Communications (KMC):** The KMC line of business supports the company's core financial inclusion goal by developing and disseminating evidence based insights and solutions to influence markets and the financial ecosystem.

Karandaaz Pakistan is sponsored and governed by eminent Pakistanis, and is managed by an experienced team with core expertise in international investment management and digital finance.

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