Government Payments Flow Diagnostic - Zambia

About United Nations Capital Development Fund (UNCDF)

United Nations Capital Development Fund (UNCDF) is the UN's capital investment agency for the world's 48 least developed countries (LDCs). With its capital mandate and instruments, UNCDF offers 'last mile' finance models that unlock public and private resources, especially at the domestic level, to reduce poverty and support local economic development. This last mile is where available resources for development are scarcest; where market failures are most pronounced; and where benefits from national growth tend to leave people excluded.

About Mobile Money for the Poor (MM4P)

Mobile Money for the Poor (MM4P) is a programme launched by UNCDF in partnership with the Swedish International Development Agency (Sida), the Australian Department of Foreign Affairs and Trade (DFAT), the Bill & Melinda Gates Foundation and The MasterCard Foundation. MM4P provides support to digital financial services (DFS) in a selected group of least developed countries (LDCs) to demonstrate how the correct mix of financial, technical and policy support can build a robust DFS ecosystem that reaches low income people in LDCs. MM4P is currently engaged in eight LDCs: Benin, Lao People's Democratic Republic, Liberia, Malawi, Nepal, Senegal, Uganda and Zambia, each of which offers unique opportunities and challenges.

In Zambia, MM4P launched its programme in March 2015 through a joint partnership with Financial Sector Deepening Zambia (FSDZ) called 'Expanding Digital Financial Services.' This partnership, funded by both MasterCard Foundation and UK Aid, is aimed at increasing active usage of DFS within the adult population from the current 3% to 15% over the next five years. Using a theory of change based on the Making Markets Work for the Poor approach, the programme seeks to work with all DFS providers, the regulators and the Government to achieve this mandate. In Zambia, MM4P is a joint programme of UNCDF and FSDZ.

About Financial Sector Deepening Zambia (FSDZ)

The United Kingdom established Financial Sector Deepening Zambia (FSDZ) in 2013 for the Department of International Development (DFID) with the mandate to increase financial inclusion in Zambia. FSDZ aims to support public and private sector efforts to develop an efficient and vibrant financial sector that offers a wide range of financial services through diverse channels to individuals, households and micro, small and medium enterprises. FSDZ provides temporary and catalytic support to key stakeholders with the ultimate goal to support the development of a financial market system that works better for lower income communities.

The Zambian financial services market operates in an information-poor environment. In particular, there is very limited understanding of demand—how low-income households manage their financial lives and the type of financial services they need—and of the resulting service and policy implications. Addressing these fundamental information constraints is at the heart of the market development challenge and therefore of the FSDZ mission. The work of FSDZ is shaped by a common, central role: knowledge generation. To this end, FSDZ seeks to provide independent, high-quality, insightful analyses on financial services (and especially financial inclusion). Specifically, it seeks to better understand demand and supply through quantitative and qualitative research.

About Better Than Cash Alliance (BTCA)

The Better Than Cash Alliance (BTCA) is a partnership of governments, companies and international organizations that accelerates the transition from cash to digital payments in order to reduce poverty and drive inclusive growth.

Based at the United Nations, BTCA has over 50 members, works closely with other global organizations, and is an implementing partner for the G20 Global Partnership for Financial Inclusion. BTCA is funded by the Bill & Melinda Gates Foundation, Citi Foundation, Ford Foundation, MasterCard, Omidyar Network, United States Agency for International Development and Visa Inc. UNCDF serves as the secretariat.

BTCA partners with governments, companies and international organizations that are the key drivers behind the transition to make digital payments widely available by

- Advocating for the transition from cash to digital payments in a way that advances financial inclusion and promotes responsible digital finance.
- Conducting research and sharing the experiences of our members to inform strategies for making the transition.
- Catalysing the development of inclusive digital payment ecosystems in member countries to reduce costs, increase transparency, advance financial inclusion—particularly for women—and drive inclusive growth.

Zambia project team

The diagnostic process involves desk research and an in-country mission by a team of experts to gather data, assess the incentives of participants in the local payment context, and survey the insights of local stakeholders. Content and data in this report are based on information gathered during the month of October 2016 and therefore represent data prior to this date. The following project team members authored the report:

MM4P team	Nandini Harihareswara, Zerubabel Kwebiiha and Charity Chikumbi
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Measurement expert	Aneth Kasebele
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Acknowledgements

The diagnostic team would like to thank Permanent Secretary Pamela Kabamba, Permanent Secretary Makuli Chikuba, and the Ministry of Finance Deputy Accountant General Tamala S. Ngoma for championing this research within the Government and to other stakeholders in the digital payment ecosystem. We would also like to thank FSDZ leadership for facilitating the data collection and engagement process with stakeholders in Zambia. Annex F lists the individuals who shared data and insights; each of their contributions was essential to the analysis presented here. Wajiha Ahmed of Bankable Frontier Associates, who wrote the BTCA toolkit on payment measurement, and Brian Loeb, who was the country director and the measurement expert for the MM4P payment flow diagnostic in Uganda, advised on the methodology for estimating payment flows.

March 2017

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Executive summary

Introduction

This diagnostic was carried out by the Mobile Money for the Poor (MM4P) programme,[1] in collaboration with the Zambian Ministry of Finance (MoF), in order to map the landscape of payments of the Government of the Republic of Zambia (GRZ) and to identify which payments are made in cash and what proportion is digitized.[2] The diagnostic used a methodology designed for the Better Than Cash Alliance that has been used in five other countries. The key objectives of this study were these:

- Provide current examples within GRZ of payments that have been digitized
- Provide baseline data from the most important sources available that can then help track changes in the shift from cash to electronic payments over time
- Recommend ways in which MoF, Bank of Zambia (BoZ), ministries and other stakeholders, including MM4P Zambia, can promote the expansion of appropriate, affordable, accessible digital payments
- Highlight the need and importance of establishing a single repository of knowledge on the evolution of digital payment policy and products in Zambia

More than 115 interviewees from 22 organizations, comprising regulators, ministries, government agencies and private-sector stakeholders, were consulted during the period of data collection between August and December 2016.

Key findings

- As part of its mandate, MoF champions the transition from cash to digital payments and has recently made policy and infrastructure amendments to enable digital payment adoption. These initiatives include the following:
  1) Development of the Integrated Financial Management Information System (IFMIS)
  2) Rollout of the Treasury Single Account (TSA)
  3) Implementation of the BoZ National Payment Systems Vision & Strategy 2013–2017
  4) Draft of the 2017 National Financial Inclusion Strategy

  Payments, whether cash or digital, are measured by value (the total amount, in Zambian kwacha) and volume (the **number of individual transactions**, simply in whole numbers). At the time of this study, 97% of value (81% of volume) of outgoing payments was digital; however, the **majority of government receipts (incoming payments) are still in cash**, cheques and vouchers, currently at 82% by volume and 67% by value.

  Of the 3.5 million transactions made to and by GRZ every month, 35% are digital (see **Error! R eference source not found.**) and represent 75% of the total value transacted (see figure II).

1 In Zambia, **MM4P** is a partnership between the United Nations Capital Development Fund (**UNCDF**) and Financial Sector Deepening Zambia (**FSDZ**).
2 ***Cash payments*** – Defined as all payments made using cash, money orders, cheques or vouchers including instruments that need paper-based authorization.
Digitized payments – Defined as all payments made using a digital channel (i.e., electronic fund transfers, real-time gross settlement, mobile banking, mobile money and all e-money services).

Figure I
Monthly volume (number of transactions) of government payments

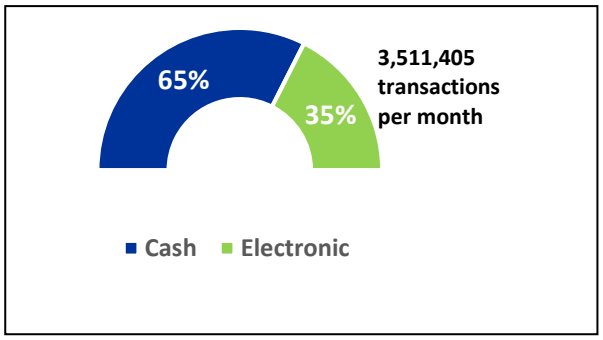
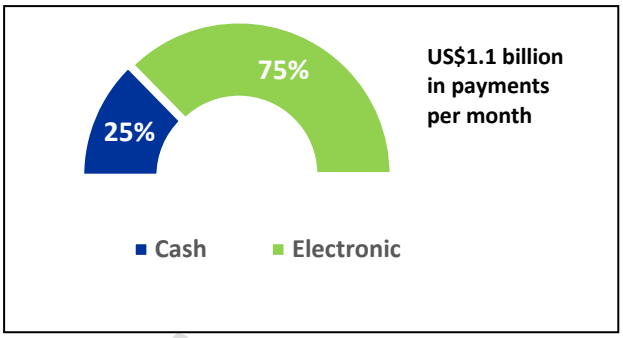


Figure II
Monthly value (total amount) of government payments

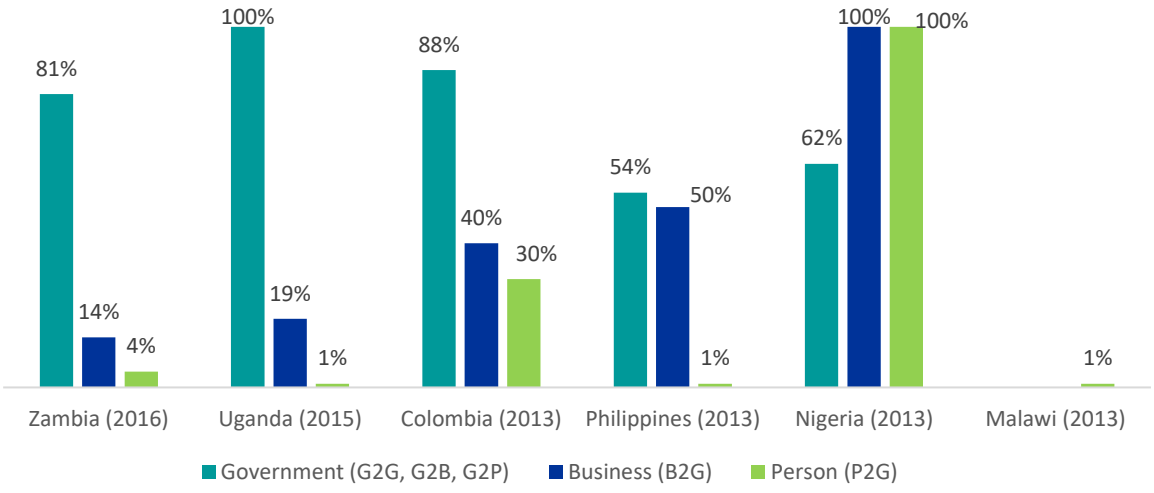


- Estimates for payments to and by GRZ are on par with estimates for five other countries where Bankable Frontier Associates and Better Than Cash Alliance have carried out payment flow diagnostics (i.e., Colombia, Malawi, Nigeria, the Philippines and Uganda). Figures III and IV compare the percentage volume and value, respectively, in Malawi and the five other countries.

By volume, school-related fees constitute about 44% (1.9 million transactions) of monthly person-to-government payments, while social cash payments constitute 21% (0.6 million transactions) of government-to-person payments.

Only 4% of person-to-government and 56% of government-to-person payment transactions are made digitally by value.

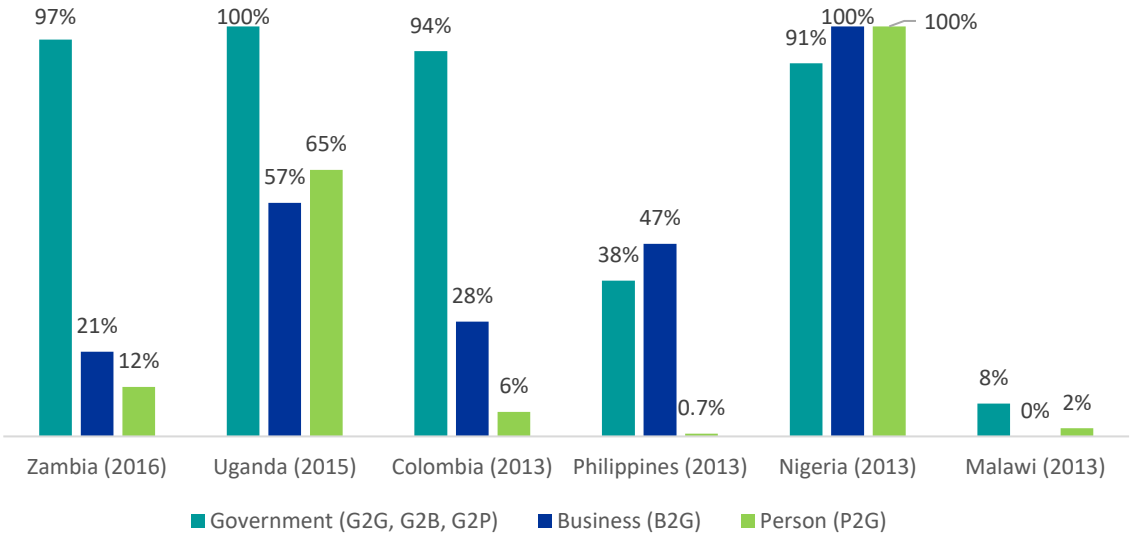
Figure III
Government payments by volume compared to business- and person-to-government payments in six countries (2013, 2015 and 2016)



Acronyms: B2G, business-to-government; G2B, government-to-business; G2G, government-to-government; G2P, government-to-person; P2G, person-to-government

Figure IV

Government payments by value compared to business- and person-to-government payments in six countries (2013, 2015 and 2016)



Acronyms: B2G, business-to-government; G2B, government-to-business; G2G, government-to-government; G2P, government-to-person; P2G, person-to-government

Figures III and IV illustrate that there has been significant progress regionally and internationally in one-to-many (government-to-government [G2G], government-to-business [G2B] and government-to-person [G2P]) digital payments, as a result of governments adopting initiatives like IFMIS, TSA, a national payment system and payment digitization (e.g., government Social Cash Transfer and farmer subsidy programmes).

The shift in many-to-one payments is yet to occur in Zambia. Individuals and businesses use cash and cheques to pay taxes, fees and fines to GRZ. GRZ has a policy framework to encourage digital payments for taxes, by authorizing the Zambia Revenue Authority to require all registered businesses to pay taxes through the e-payment system.[3]

Barriers to payment digitization

There are several factors that may undermine the efforts of GRZ to digitize G2P, business-to-government (B2G) and person-to-government (P2G) payments. These factors originate from the Government, private sector (providers) and/or individuals and include but are not limited to the following:

- High transaction fees
- Lack of adequate liquidity among agents to support transactions especially in rural areas.
- Low levels of customer awareness and protection
- Inability of customers to meet know-your-customer requirements
- Inadequate rural reach and unstable network connections
- A need to improve and understand the tendering process
- Absence of a National Financial Switch

3 The Zambian Revenue Authority is making strides in allowing businesses and individuals to pay taxes electronically. It should be noted that, while the data provided was difficult to integrate into the study, the Authority suggests that currently up to 80% of business-to-government payments in value are made electronically, with a smaller percentage in volume. The opportunity for digitization lies mainly with small and medium enterprise and individual tax payments.

Amid these challenges, there is room for further research on ways to overcome these barriers and the associated risks. As technical assistance is provided in each project, there should be an incentive and disincentive analysis conducted to better understand the barriers to digitization and appropriate mitigation measures.

Driving innovation by government leadership, in partnership with the private sector and other development partners in the ecosystem, is imperative to overcome these barriers and steer the Zambian economy towards a desired level of payment digitization and financial inclusion.

Incentives for payment digitization

Extensive engagement, workshops and interviews with payment ecosystem stakeholders provided a foundation upon which incentives for payment digitization were built (see table 1). These incentives would encourage support from the Government, private sector and individuals in the evolution of the current payment systems from cash to digital.

Table 1
Incentives to digitize payments

Government	Individuals
• Greater **transparency and efficiency** in government social safety net schemes, such as the Farmer Input Support Programme and Social Cash Transfer Programme • Broader and **more predictable tax base**, in both amount and timing • **Reduced leakages** due to syphoning and ghost beneficiaries of subsidies and cash transfers • Increased **operational efficiencies** in revenue collection from real-time reconciliation, allowing for improved risk management • Improved availability of **reliable data** with which to make evidence-based decisions • Overall **reduction in social welfare programmes' administration costs** as a result of digitization and better reconciliation	• **Improved security** and reduced risk of theft and/or fraud for government beneficiaries and salaried employees (ensured by digital encryption and biometric/one-time-password authentication) • Increased **convenience** for payments to and from the Government • Greater confidence that the **full, correct amounts** are transferred, especially to individuals • A low-barrier **on-ramp to improving familiarity** with digital payments for rural and underserved populations
Financial service providers (mobile money operators and banks)	
• Higher **revenues** from facilitating cash-out transactions • Potential technical and/or financial support or partnership to **extend agent networks in remote areas** • **Cheaper cost of customer acquisition** (particularly for rural customers) given the targeted nature of these projects • **Development of sustainable profit-sharing models** that also reduce cost of project implementation in rural areas • **Opportunity for cross-selling** other mobile network operator products and expanding new revenue	• **Maintenance of existing revenue streams** through government partnerships, including float income from facilitating government payments • Continued role in **facilitating cash-out** in remote locations, generating income from transaction charges

streams (e.g., low-cost handset sales, short message service and data sales)

Recommendations and conclusion

This report indicates that, while GRZ has made tremendous progress in the digitization of payments at a central level, payment digitization (especially P2G and G2P) is low. The report highlights **four main areas of support** that MM4P Zambia can offer to GRZ in partnership with the private sector to accelerate the shift of government payments to digital and help build an effective, inclusive and financially viable digital payment ecosystem. These initiatives should be viewed as sequenced steps on the roadmap to government payment digitization.

1. **Support to review and improve the tendering process for digital payments:** Support can be provided to the Ministry of Community Development and Social Services and the Ministry of Agriculture to review their tendering processes. This review will focus on the existing tendering processes for projects related to payment digitization in a bid to better understand the key points that have affected existing projects and with an aim to make recommendations that will strengthen the proposition of digitizing government payments for all stakeholders (i.e., government agency [payer], private sector [financial service provider] and beneficiary [payee]). **It should be noted that the World Food Programme (WFP) is currently supporting the Ministry of Community Development in a pilot to digitize social cash transfers in 10 districts across 3 provinces (Lusaka, Eastern and Central).**

2. **Support to improve existing G2P and P2G digitization programmes:** Based on key findings and proposed recommendations from the research, MM4P Zambia can support these ministries:

   - Ministry of Community Development and Social Services (Social Cash Transfers)
   - Ministry of General Education (school-related fees)
   - Ministry of Agriculture (farmer subsidy programmes)

   All three ministries have ongoing digitization efforts that require some support to build from best practices in digitization of government payments to developing communication strategies that would drive meaningful awareness about digital payments to beneficiaries. GRZ can leverage the expertise of MM4P Zambia on the local digital financial service ecosystem and global best practices around building capacity, managing agent networks and liquidity, performing high-volume digital payments and building awareness of digital finance services—expertise that has been developed in the other eight countries that MM4P has been implemented. When supporting these efforts, investment will be made in understanding the challenges of extending financial services to last-mile customers/beneficiaries and developing solutions to overcome these challenges.

3. **Support for ministry database infrastructure:** Development of a 'Payments Dashboard' for the Ministry of Agriculture would provide additional visibility to the Farmer Input Support Programme on farmer-related activities:
   - Inputs received (from authorized input providers) by each farmer
   - All payments made to each farmer as subsidies
   - Produce (output) of each farmer based on harvest sales made by each farmer

- Financial transactions (i.e., savings and expenditures made by each farmer off their accounts)

Doing so would enable the Ministry to develop data on the financial trends and behaviours of farmers that would in turn allow the farmers to gain access to additional financial solutions to expand their farms and improve their livelihoods.

4. Support for financial interoperability: Findings of the diagnostic indicate that the absence of interoperable and shared payment system infrastructure has resulted in increased transaction costs and low usage of existing disparate digital payment solutions, such as mobile money, point-of-sale (POS) devices and card-less transactions at automated teller machines (ATMs).

   Cognizant of these challenges, BoZ has been working towards implementation of a National Financial Switch (NFS), which is aimed at interconnecting various payment streams such as ATMs, POS devices and mobile payments, among others, through a shared payment system infrastructure. This level of interoperability has the potential to accelerate the transition to digital payments, with consumers having multiple choices at their disposal.

   Zambia Electronic Clearing House Limited (ZECHL) has been designated to house NFS and manage the project. Implementation of NFS will facilitate interoperability between and among various financial service providers in Zambia, thereby increasing access and reducing cost of financial services due to shared infrastructure.

   ZECHL, represented by the Office of the Chief Executive Officer and his team, has expressed interest to partner with Financial Sector Deepening Zambia to support implementation of NFS. Support would entail finalizing the rules and interchange fees for NFS, reviewing the testing of an ATM and POS device module, on-boarding mobile money operators and other financial service providers under the NFS project pilot, and providing information on global best practices to drive transaction volumes and interoperability for bank accounts, mobile wallets, cards, ATMs and POS devices.

1 Introduction: Government of Zambia Efforts to Digitize Payment Flows

This payment flow diagnostic describes the efforts and achievements of the Government of the Republic of Zambia (GRZ) as well as the challenges it faces shifting payment flows from cash and cheques to digital instruments, as outlined in the National Payment Systems Vision & Strategy 2013–2017. These payment flows include all the internal fund transfers GRZ makes, the payments disbursed to individuals and vendors, the tax and non-tax revenue collected. Because these flows directly touch the Government, they are the most susceptible to influence from policymakers. Depending on how GRZ manages the process and what options it provides to both recipients and payers, digitizing these payment flows could have spill-over effects to the wider payment system, making certain services commercially viable and sensitizing everyday Zambians to a formal, digital economy.

1.1 Objectives of the payment flow diagnostic

This study provides estimates of government payment flows, quantifying the number (volume) and the value (amount) of payments made in cash and digital form. Significantly, it also evaluates the availability and quality of data related to payments and identifies knowledge gaps. In addition, it highlights opportunities and barriers for further digitization of payment flows in Zambia. A goal of this diagnostic is to enable GRZ, through the championship of the Ministry of Finance (MoF) and the Bank of Zambia (BoZ), to prioritize digital payments and to coordinate efforts with other stakeholders in the payment ecosystem to shift towards digital payments. Specifically, this diagnosis aims to achieve the following:

- Provide current examples within GRZ of payments that have been digitized
- Provide baseline data from the most important sources available that can help track changes in the shift from cash to electronic payments over time
- Generate knowledge and enable the development of evidence-based policies and business models to increase digitization
- Highlight the need and importance of establishing a single repository of knowledge on the evolution of digital payment policy and products in Zambia

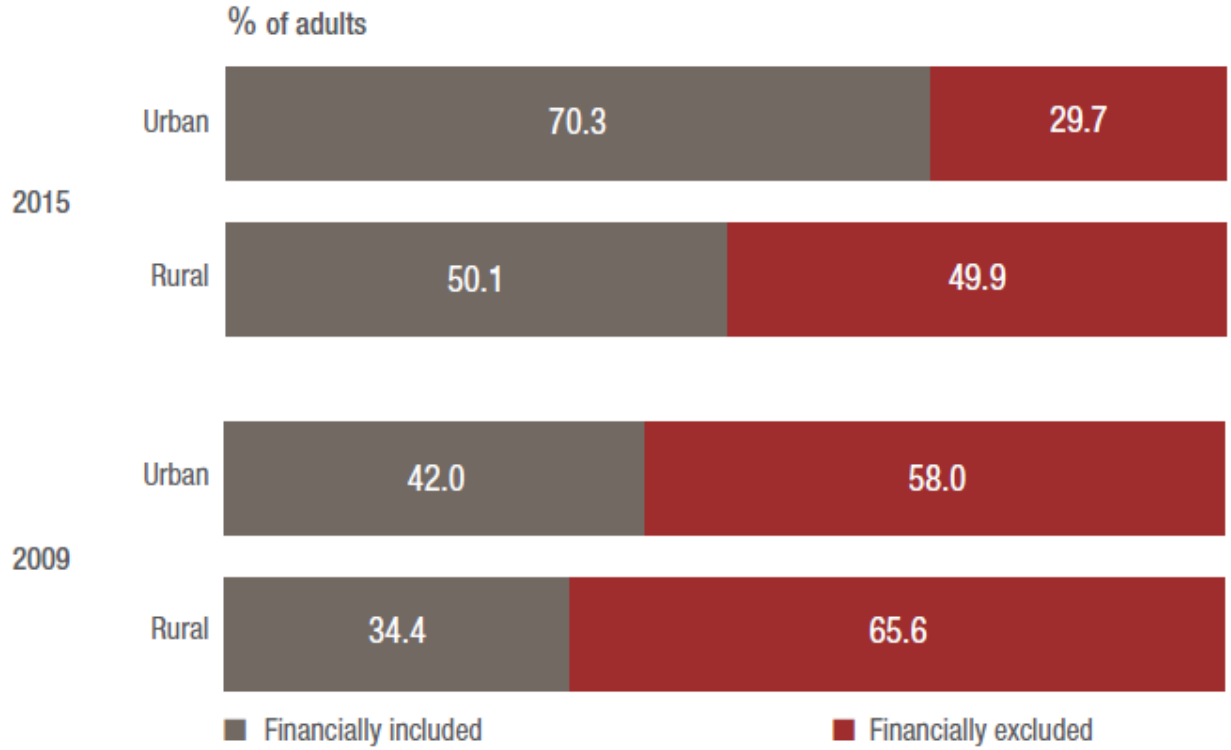
The diagnostic also aims to help Mobile Money for the Poor (MM4P) Zambia identify and prioritize areas for support to GRZ. MM4P Zambia hopes to pilot certain concepts based on the evidence in this report and will seek out partners who are prepared to seize some of the opportunities discussed.

The researchers used a combination of desk review and expert interviews with stakeholders in Zambia, particularly policymakers and their colleagues responsible for data and statistics. Annex F lists the sources consulted. These stakeholders were selected based on their role in the government payment ecosystem and their positive response towards the diagnostic study, as shown by their participation in a diagnostic orientation session in August 2016. As the sub-sections below detail, some parts of the payment ecosystem went underexplored in this study due to the government emphasis. As MM4P Zambia moves forward in engaging with various partners, it should and will broaden its outreach and learning activities.

1.2 Status of financial access and inclusion

FinScope 2015,[4] the most recent national financial inclusion survey in Zambia, shows a significant increase in usage of formal financial services since 2009. Still, the use of both formal and informal financial institutions is skewed towards urban areas, adults from middle and higher income households, and salaried workers and business owners (see). The rural, poor and casual worker populations are the most excluded groups within Zambia.

Figure V
Financial inclusion strands by urban/rural split



Source: Figure from Financial Sector Deepening Zambia, 'FinScope Zambia 2015,' brochure, p. 8. (Lusaka, n.d.).

The survey found that a major deterrent to financial inclusion is the high cost of providing financial services, particularly in rural areas and to poorer populations. While various banks, mobile money operators (MMOs) and other third-party providers in Zambia have launched digital financial services (DFS), adoption remains relatively low. This situation represents potential growth opportunities for digital means of store of value and payments once demand inhibitors are understood and overcome.

Zambia has a diverse and competitive DFS market, primarily focused on payment services. The policy, regulatory and infrastructure initiatives undertaken in the last decade by GRZ and BoZ have vastly improved the potential for expanding DFS provision and financial inclusion in Zambia.

Mobile phone penetration is growing, as is airtime sharing, even in rural areas. The growing popularity of alternative cash transfer and payment services, such as Zoona, has also demonstrated that users of these financial services are willing to try new technologies, if the service is convenient and has other benefits.

FinScope 2015 demonstrates that a large portion of Zambians are aware of and want the benefits from formal financial services. Consumers use informal financial channels because of proximity, availability and comfort. Yet most of the employed (42% of salaried Zambians) are paid digitally, including some of the

4 FSDZ, 'FinScope 2015' (Lusaka, n.d.). Available from http://www.fsdzambia.org/finscope-2015/

more disadvantaged consumer groups (lower income, rural, women).[5] Close to half (47%) of adults are hesitant to carry cash, and there is an interest in remitting payments for goods and services through digital channels. The survey shows that 86% of Zambians are ready to learn new technology, and 'those who are aware of mobile money want to be able to use their phone to pay utility bills, pay for goods or services and put away money.'[6]

In this context, GRZ led efforts to modernize and reform the payment system that it touches most directly, as a maker and as a receiver of payments: it has embarked on both an Integrated Financial Management Information System (IFMIS) project and a Treasury Single Account (TSA) project. These efforts, though limited in their reach, have begun to normalize digital payment mechanisms for many Zambians.

Integrated Financial Management Information System project

Like in most developing countries, public financial management in Zambia was based on manual and semi-computerized accounting and financial systems. This approach led to delayed, unreliable data on revenue and expenditure, making it difficult to make evidence-based policy decisions on budget planning, monetary issues, financial crime and many other areas. GRZ experienced a build-up of large arrears, excessive borrowing, and a general misallocation of resources and undermining of the effectiveness and efficiency of service delivery.

As part of its wider Public Expenditure Management and Financial Accountability Programme, MoF piloted IFMIS in 2010. The project aimed to improve the acquisition, allocation, utilization and conservation of public financial resources.

The IFMIS project centralizes and automates processes for budget execution and accounting, with future plans to include budget formulation, at the various line ministries and other spending agencies. It also secures communication with other key institutions such as the Zambia Revenue Authority (ZRA), BoZ and commercial banks operating in Zambia. It has increased the ability of GRZ to monitor its cash position and expenditure, to easily access financial information and to improve internal controls.

At the time of this study, IFMIS had been rolled out to 46 ministries, provinces and other spending agencies (MPSAs), covering the bulk of GRZ revenue and expenditure. The rollout to the remaining 7 MPSAs is scheduled for FY2017. IFMIS has been an enabler in digitizing the bulk of GRZ outgoing payments to other government agencies, businesses and individuals.

Treasury Single Account project

On its own, implementation of an IFMIS does not imply that actual payment flows are digitized; rather, it means recordkeeping and payment instructions are centralized and digitized. Those instructions could still lead to physical cash and cheque payments. On the other hand, a TSA is a unified structure of government bank accounts that gives a consolidated view of a government's cash resources and implies that at least outgoing payments are made digitally directly into beneficiaries' accounts. Most incoming payments may be digital as well, because they are processed by commercial banks, though the initial payer (individual or business) may make the payment over the counter in cash.

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5 InterMedia, 'Consumer Behaviors in Zambia: Analysis and Findings,' February 2016. Available from http://www.intermedia.org/wp-content/uploads/2016/03/zambiaintermedia_consumerbehaviours.pdf
Note: All statistics cited in this paragraph are from this helpful summary source.
6 Colleen Learch and Nandini Harihareswara, 'Opportunities Abound: Zambian Consumers Want and Need Digital Financial Services,' 24 February 2016. Available from http://www.intermedia.org/opportunities-abound-zambian-consumers-want-and-need-digital-financial-services/

MoF reported that in the absence of a TSA, GRZ has had a limited aggregate view of its cash balances, which often results in idle balances being maintained in several commercial bank accounts held by MPSAs. Further, payment disbursement requires funds to be transferred from the control account of a given MPSA, maintained at BoZ, to the mirror accounts of the MPSA maintained with multiple commercial banks, and then onward to the end beneficiaries by bank transfer or other instruments. This process not only is subject to delays but also incurs high bank charges and makes reconciliation between banking and accounting data difficult.

In 2014, MoF launched a TSA project and has since been reaching MPSAs. At the time of this study, the Office of the Accountant General – Treasury Services rolled out TSA to seven of the MPSAs covered under the IFMIS project. MoF also undertook the development of detailed TSA project manuals to support rolling out TSA to the remaining MPSAs, which is scheduled for FY2017.

Although IFMIS helps GRZ centralize and digitize the bulk of its outgoing payments, TSA ensures that account-to-account payments, made directly from TSA to beneficiaries' accounts, are digitized, thus improving efficiency and minimizing divergence of funds.

1.3 Focus by Bank of Zambia on supporting infrastructure

BoZ recognizes that cash and cheques are the dominant payment instruments in the country. While users may see these instruments as cheap and efficient, BoZ sees these as real costs to the economy.

In line with the National Payment Systems Vision & Strategy 2013–2017, BoZ is implementing straight-through processing for all retail electronic payments with Zambia Electronic Clearing House Limited (ZECHL) and commercial banks. This automation will guarantee faster and more reliable interbank transfers than what is offered to customers today, increasing trust in electronic interbank transfers.

To encourage financial service providers to offer quality products and services, BoZ recently issued a circular to increase the transaction and balance limits for money transfer businesses and electronic money issuers. Also, BoZ reduced the item value limits for cheques but increased them for electronic fund transfers (EFTs).

Lastly, BoZ has been working with the Bankers Association of Zambia and other stakeholders to implement the National Financial Switch (NFS). NFS is a shared payment system infrastructure that is aimed at interconnecting various payment streams such as automated teller machines (ATMs), point-of-sale (POS devices and mobile payments, among others.

Implementation of NFS will expedite interoperability between various financial service providers in Zambia, thereby increasing access and reducing cost of financial services. ZECHL has been designated to house NFS and manage the project. ZECHL has been able to source capital for the NFS from BoZ and all 19 commercial banks operating in Zambia. In the first phase, ZECHL will set the rules and interchange fees for NFS and test the ATM and POS device module. The second phase will include mobile money transactions and other payment streams. NFS is expected to be fully operational by Q4 FY2017.

1.4 Digitization by Zambia Revenue Authority of government tax collections

ZRA introduced an electronic tax payment (e-payment) platform for both domestic taxes and customs in 2014. This action was part of its enactment of a 2014–2016 strategic plan whose objective is to ensure

that 90% of tax payments are made digitally.[7] The shift by ZRA to an e-payment system was motivated by a desire to increase efficiency in the tax payment process and further mitigate collection misallocation risks, to allow quick flow of funds to the treasury. With the e-payment system, taxpayers can pay ZRA directly from their bank accounts.

ZRA sequenced its migration to the e-payment system by first shifting banks as 'taxpayer' and then businesses with access to internet banking platforms and real-time gross settlement (RTGS). Following slow uptake and usage of the e-payment system by the corporate sector, ZRA issued a public notice on the discontinuation and replacement of cash, cheques and RTGS payment mechanisms with EFTs for large and medium taxpayers on 7 October 2016.[8] This migration, which began on 1 November 2016, is in line with the BoZ National Payment Systems Vision & Strategy 2013–2017. ZRA has partnered with 13 approved banks to establish the e-payment system,[9] and it plans to launch a mobile payment system to enable digitization of small value transactions by the end of 2016.

1.5 Outline of this report

Section 2 of this report provides existing data and calculations that quantify the volume and value of payments made in each cell of the government payment grid in Zambia, as well as the percentages of payments made by electronic means. Section 3 analyses the potential for digitizing payments through the lens of two specific use cases: bulk payments (or one-to-many payments) and remote bill payments (or many-to-one payments). Section 4 summarizes initiatives that relevant stakeholders such as MM4P Zambia whose support and technical expertise the GRZ can consider in its efforts to digitize government payments in Zambia.

7 Alfred Tembo, 'Zambia Revenue Authority petitions its corporate clients,' 26 September 2016. Available from http://www.zbusinessmail.com/view_article.php?story=49

8 Zambia Revenue Authority, 'Migration of Large & Medium taxpayers from RTGS to ZRA e-payment,' 7 October 2016.

9 These include Access Bank, BancABC, Cavmont Bank, Citibank, Ecobank, Finance Bank, First Alliance Bank, First National Bank, Indo Zambia Bank, Investrust Bank, Stanbic Bank, Standard Chartered Bank and Zambia National Commercial Bank.

2 The State of Data on Government Payment Flows in Zambia

As policy and process developments expand within GRZ, decision-makers need reliable information and evidence to gauge progress and shift course if needed. This section captures the available data on government payment flows, given the constraints of the study. Where necessary, the researchers used heuristics, figures from other countries and other assumptions to compensate for gaps in the data. This section explains those assumptions and provides an overall assessment of the data's reliability. Improving the coverage and quality of data is essential. When this study is repeated, future researchers should conduct new measurement exercises to complement the existing sources.

2.1 High-level indicators for government payment flows

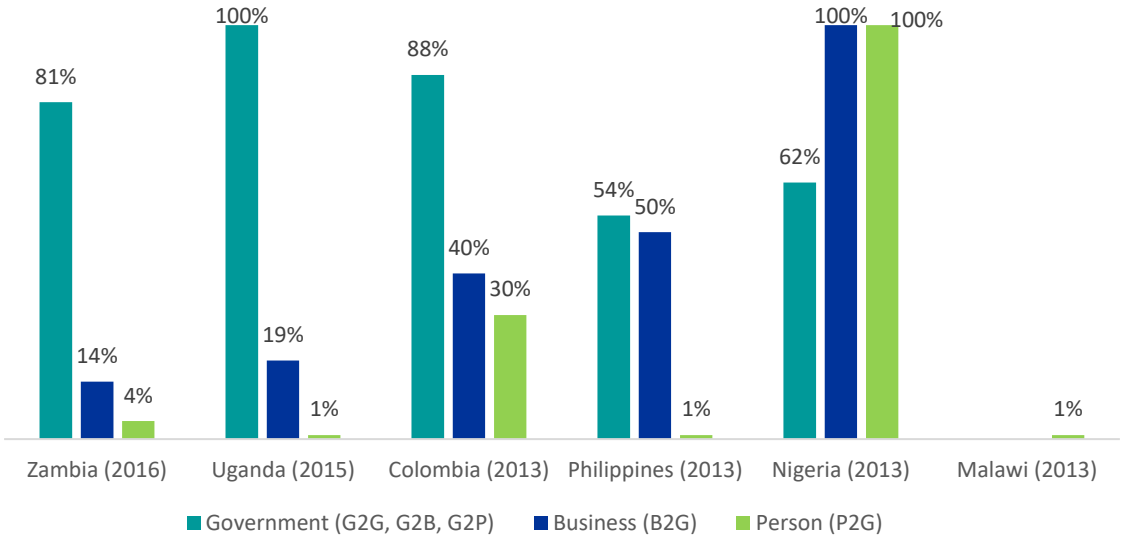
Available data and estimates on payments related to the central government in Zambia suggest that digital payments make up about 97% of the value of outgoing payments. This finding represents the average based on all estimated payments originating from GRZ, including payments from MoF to other ministries (called government-to-government [G2G]), payments to vendors (government-to-business [G2B]), and salaries, pensions and other transfers (government-to-person [G2P]). Bank transfers, through EFT/direct debit and credit clearing (DDACC) and RTGS, are the main mode of digital payments by GRZ. Cash and cheque payments make up the remaining 3% from GRZ by value.

Note that once payments are transferred electronically to MPSAs, last-mile payments to suppliers and/or recipients are sometimes made in cash or cheque. Detailed statistics about how payments are disbursed once transferred from the central government to MPSAs were not centrally available; hence, these figures may overestimate the proportion of digitized government payments in the country. Government payments in Zambia are on par in comparison to similar payments of five other countries for which there is a payment flow diagnostic – Columbia, Malawi, Nigeria, the Philippines and Uganda.

Figures VI and VII show the estimated statistics by volume and value, respectively.

Figure VI

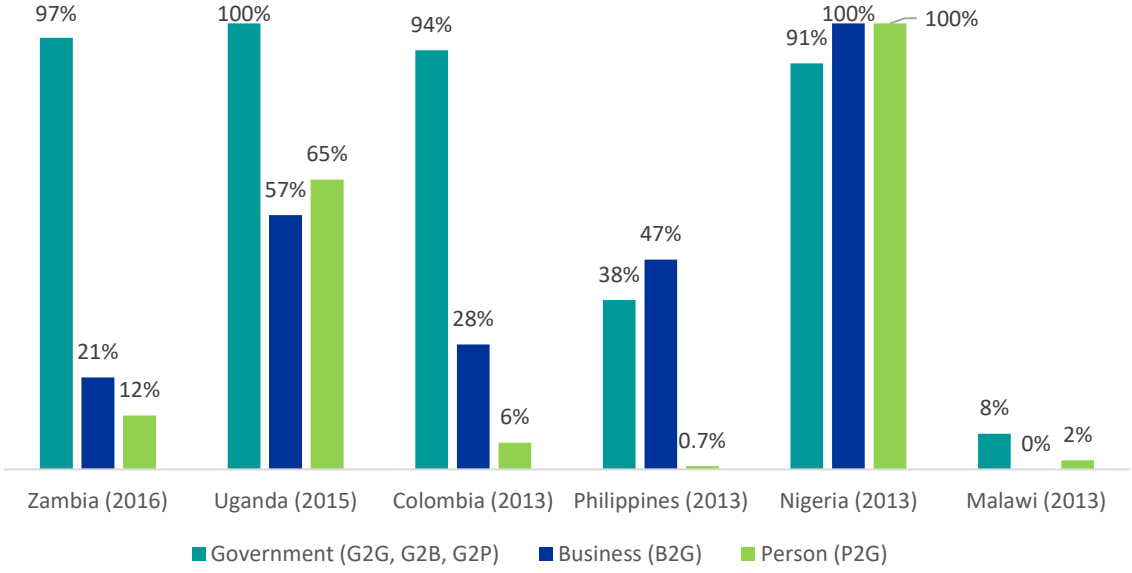
Government, business and person payments: A comparison on percentage of volume made of each by digital means in six countries (2013, 2015 and 2016)



Acronyms: B2G, business-to-government; G2B, government-to-business; G2G, government-to-government; G2P, government-to-person; P2G, person-to-government

Figure VII

Government, business and person payments: A comparison on percentage of value made of each by digital means in six countries (2013, 2015 and 2016)



Acronyms: B2G, business-to-government; G2B, government-to-business; G2G, government-to-government; G2P, government-to-person; P2G, person-to-government

On the revenue side, most payments from businesses and individuals are still in cash or cheque. As ***Error! Reference source not found.*** *shows, only about 21% of business-to-government (B2G) and 12% of person-to-government (P2G) payments by value are made electronically.* Table 2

Payments by payer

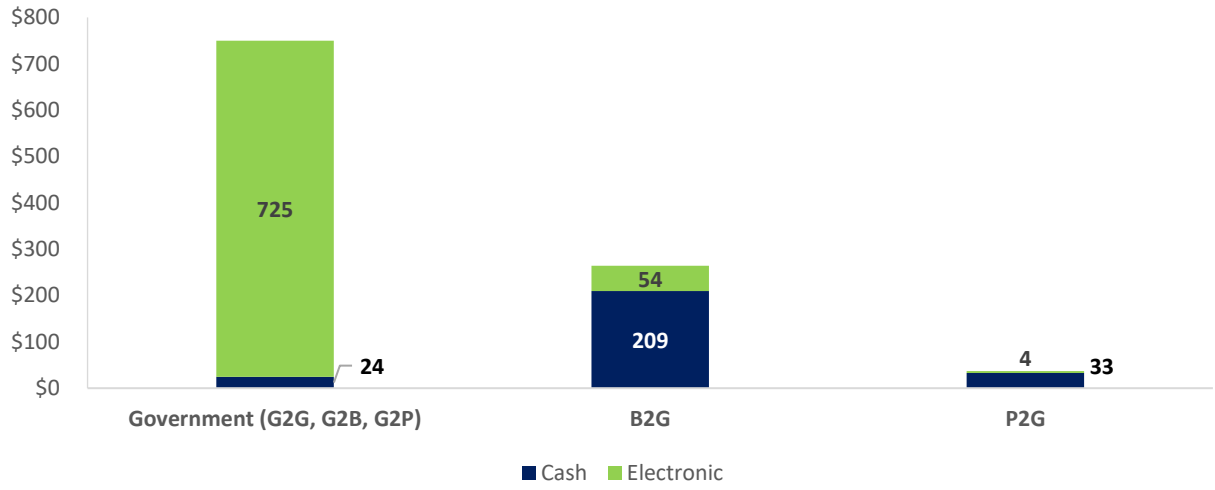
	Total number of payments per month	Percentage electronic of volume	Total value per month (K mil)	Total value per month (US$ mil)	Percentage electronic of value
Government[a] (G2G, G2B, G2P)	1 377 482	81%	7 265	750	97%

	Total number of payments per month	Percentage electronic of volume	Total value per month (K mil)	Total value per month (US$ mil)	Percentage electronic of value
Business (B2G)	184 331	14%	2 557	264	21%
Person (P2G)	1 949 592	4%	359	37	12%
Total	3 511 405	35%	10 181	1 051	75%
Total annual	42 136 859	—	122 177	12 609	—

a The total value covered by this data is much greater than the GRZ 2015/2016 budget (US$5.5 billion) because this analysis follows payment streams through multiple transactions.
Acronyms: B2G, business-to-government; G2B, government-to-business; G2G, government-to-government; G2P, government-to-person; P2G, person-to-government

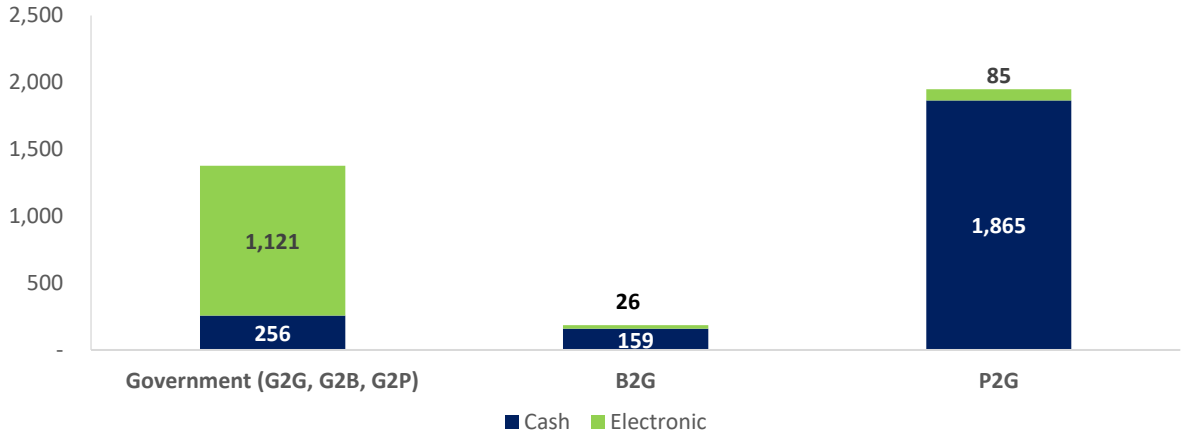
In the payment flows covered by this study, there is an estimated cash pool of US$266 million in monthly payments that is not converted to digital payments. Of this amount, businesses pay about $209 million, individuals about $33 million, and G2P flows about $24 million in cash **every** month (see figure VIII). A greater proportion of businesses use cheques to pay for taxes, licence fees and fines incurred. Figure IX highlights the fact that P2G payments are high volume and low value.

Figure VIII
Estimated monthly value of cash transactions (US$ millions)



Acronyms: B2G, business-to-government; G2B, government-to-business; G2G, government-to-government; G2P, government-to-person; P2G, person-to-government

Figure IX
Estimated monthly volume of cash transactions (in thousands)



Acronyms: B2G, business-to-government; G2B, government-to-business; G2G, government-to-government; G2P, government-to-person; P2G, person-to-government

2.2 Estimates for the payment grid

This diagnostic follows the approach developed for the Better Than Cash Alliance (BTCA) country diagnostics and the BTCA toolkits on ecosystem diagnostics and measuring national payments. Unlike the previous diagnostics, it focuses solely on government payment streams:

- Government-to-government (G2G) transfers: Transfers made by GRZ through MoF to MPSAs, withholding tax components of payments made by MPSAs to suppliers and contractors, contributions to pension and funeral schemes on behalf of civil servants,[10] and personal levy transfers to city councils on behalf of civil servants
- Government-to-business (G2B) disbursements: Payments from government entities to contractors and suppliers, utilities and vehicle maintenance as well as other third parties such as payments to commercial banks and other credit providers for civil servants' loan payments
- Government-to-person (G2P) disbursements: Salaries, allowances, Social Cash Transfers (SCTs), farmer subsidies, crop purchases and pension payments to retired civil servants
- Person-to-government (P2G) payments: Taxes, fines and fees, including to schools and for government services
- Business-to-government (B2G) payments: Taxes, fines and fees, including purchases of tender documents from MPSAs

According to available data, the payment flow with the largest volume of monthly transactions is P2G with nearly 2 million transactions, which represent 56% of all government payments (see table 3). Taxes and school-related fees make up the largest share of P2G payments at 55% and 44%, respectively.

10 Pension and funeral schemes are counted as G2G transfers because they are transferred to government-owned entities. These contributions add to G2P payments in the form of pensions at a later date.

Table 3
Monthly volume of payments

		Payee		
		Government	Business	Person (Individual)
Payer	Government	612 432	196 899	568 151
	Business	184 331		
	Person (Individual)	1 949 592		

However, P2G payments are of comparatively low value. Table 4 shows that the monthly value of P2G payments ($37 million) represents only about 4% of the value of payments to GRZ.

Table 4
Monthly value of payments (US$ millions)

		Payee		
		Government	Business	Person (Individual)
Payer	Government	$504	$118	$127
	Business	$264		
	Person (Individual)	$37		

As the BTCA toolkit on payment measurement explains, there are two main choices when considering digital payments:

1. Whether to consider cheques as cash or non-cash:
    a. Paper versus non-paper: Instruments that rely on a paper-basis for authorization, such as cheques, traveller's cheques and money orders, are regarded as 'non-electronic' and all other instruments are regarded as 'electronic.'
    b. Cash versus non-cash: Every instrument other than cash is regarded as 'non-cash' since they usually take an electronic form at some stage in the transfer of value.
2. How to classify payments where payments are executed digitally but not initiated or received digitally, such as in these scenarios:
    a. Payer (only) uses an electronic channel to authorize payment: The payer, such as a national government, may issue an electronic pre-paid card to the payee, a recipient. The payee uses an ATM to 'cash out' the funds on the card.
    b. Payee (only) receives a payment initiated by paper: An EFT may start with the payer completing and submitting a paper form over the counter at a bank. The payment is then credited electronically to the payee's account.
    c. Neither party uses electronic channels: No party (neither payer nor payee) uses electronic means to either send or receive a payment. This scenario can include money transfers if the terminal points of the payment (payer/payee) are cash. For example, a client sending money may hand over cash to an agent who electronically credits another agent's account (e.g., by mobile phone). The recipient receives notification that he/she can cash out at the other agent—hence, the transaction is 'cash to cash' but with an electronic transaction in the middle.

Following the previous BTCA diagnostics, the payment flow diagnostic for Zambia considers cheques to be non-digital payments. Though cheques require the payer to have a bank account and provide for better recordkeeping than do cash payments, they take longer to process, especially in Zambia where it can take

up to two days for a deposited cheque value to reflect in the payee's account. Also, this diagnostic considers any payment that is digital on the payee's end to be a digital payment (even if the payer had to submit a paper form to make an EFT, for example).

Efforts to centralize payments by GRZ resulted in nearly full digitization of G2G transfers (100%), G2B (98%) and G2P (56%), as shown in table 5. Note that G2G payments do not reflect payments to parastatals and local government authorities that are not tracked centrally by the Office of the Accountant General at MoF, signifying that the level of digitization for G2G transfers is likely to be overestimated if transfers not captured in this study are processed by cheques. MoF reported that transfers to parastatals (state-owned enterprises) are not frequent, suggesting a minor degree of overestimation in the percentage of digitization of these payments.

Table 5
Percentage of payments made digitally by volume

		Payee		
		Government	Business	Person (Individual)
Payer	Government	100%	98%	56%
	Business	14%		
	Person (Individual)	4%		

Although a higher proportion of payments from GRZ **by value** are made electronically, there is an opportunity to digitize payment collection from businesses and individuals. Currently, only 21% of B2G and 12% of P2G payments are made digitally, as per table 6.

Table 6
Percentage of payments made digitally by value

		Payee		
		Government	Business	Person (Individual)
Payer	Government	100%	98%	82%
	Business	21%		
	Person (Individual)	12%		

2.3 Data quality and remaining knowledge gaps

These payment flows are estimated based on a range of data sources, including 1) data on actual payments as provided by the Office of the Accountant General, 2) statistics on assumptions for payment grid inputs as derived from secondary data, and 3) benchmarks from comparable countries.

Process and assumptions for estimating payment flows

This sub-section provides details on the compositions, sources and assumptions made to illustrate the complexity of using available data to estimate government payment flows in Zambia.

Government to government (G2G)

The Office of the Accountant General provided the average monthly volume and value of the listed payments except for the withholding tax data, which was estimated based on data obtained from the Ministry of Local Government and Housing (MLGH). The average monthly volume and value of withholding

taxes from MLGH was extrapolated for the 52 MPSAs plus the 5 MPSAs operating on the old financial management system.[11]

Except for the withholding taxes reported to be paid to ZRA by cheque, all other components of G2G transfers are made electronically. As noted, EFTs to MPSAs that are not yet on TSA are initiated by a backing sheet to MoF instructing BoZ to move a specified amount from the control account of an MPSA at BoZ to a mirror account at a commercial bank. These transfers represent a significant portion of payments to MPSAs, and they are considered to be digital payments in this study.

Government to business (G2B)

The volume and value of monthly government payments to third parties on behalf of civil servants was obtained from the Office of the Accountant General. However, the volume and value of monthly payments to contractors was extrapolated from average estimates provided by MLGH and MoF, respectively. MoF aggregates payments for utilities and motor vehicle maintenance. This report uses the same categorization, even though a proportion could be considered G2G transfers since utility companies in Zambia are government owned. Nonetheless, the monthly volume (3,330) and value ($65,029) of these payments are relatively small to show any significant impact on the overall G2B estimates.

Though third-party payments for civil servants and utility payments are made monthly, it is unlikely that all suppliers and contractors are paid on monthly basis. Thus, the estimate in this report masks the varying frequencies of payments to vendors. High-value payments to contractors and suppliers are processed through EFTs (98%), while only 12% of these payments by volume are digital.

Government to person (G2P)

The Office of the Accountant General provided data on total monthly volume and value of salaries and allowances for all central and local government employees. The volume and value data do not include parastatals or Defence Force employees. The volume and value of pension payments was estimated based on data provided by the National Pension Scheme Authority (NAPSA) and secondary data on pension payments from the Public Service Pensions Fund (PSPF).[12,13,14]

The Ministry of Community Development and Social Services (MCDSS) and the Ministry of Agriculture provided the volume of beneficiaries, payment amounts and frequency for the SCT Programme and the Farmer Input Support Programme (FISP), respectively. The value of payments to farmers through the Food Reserve Agency was estimated from secondary data and the volume was estimated based on assumptions of the percentage of farmers selling crops to the Food Reserve Agency on an annual basis.

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11 The five entities operating on the old financial management system include the Anti-Corruption Commission, Electoral Commission, National Assembly, State House (Office of the President) and Security Intelligence Services (Office of the President). and. These entities still receive their transfers electronically despite the fact they operate outside IFMIS.

12 Due to data unavailability, pension payments do not include those paid by the Local Authorities Superannuation Fund, which serves retired employees of local authorities, ZESCO, water utilities and the National Housing Authority.

13 'NAPSA is a compulsory scheme that covers regularly employed persons in the private, parastatal sectors and all employees who joined public service and/or local authorities on or after February 1, 2000. … Civil service and local authority employees engaged before the establishment of NAPSA have continued to be members of the other two statutory schemes [Public Service Pensions Fund and Local Authorities Superannuation Fund] that were initially to be converted into fully fledged occupational schemes for workers from the sectors covered.' *Source:* International Labour Organization, 'Zambia: Schemes—National Pension Scheme Authority (NAPSA).' Available from http://www.ilo.org/dyn/ilossi/ssimain.viewScheme?p_lang=en&p_geoaid=894&p_scheme_id=240

14 Not all pension payments are made on monthly basis. According to NAPSA data, about 9% of payments by volume are one-off lump-sum payments. Data on the proportion of lump-sum payments by value were not provided. Therefore, by including volume and value of lump-sum payments in monthly payments, volume and value of monthly pension payments presented may be overestimated.

Business to government (B2G)

MoF staff identified payments from individuals and businesses that were used to estimate non-tax payments by value. They also provided an average monthly volume of transactions by payment mode but not an average monthly value. Based on the types of fees and fines provided, the authors estimated that about 46% of these payments by value are digital and the remaining are completed mostly by cash or cheque.

The value of business tax payments was estimated by taking the difference between total tax revenue and individual taxes, as calculated in the P2G sub-section below. The number of business tax payments was estimated by multiplying the average number of tax payments a business entity makes in a given year by the number of businesses paying taxes. The number of businesses paying taxes was estimated on the assumption that all registered businesses pay taxes and that 5% of informal business pay taxes, based on observations from Uganda. This estimate was adjusted to reflect the dynamics of the Zambian market.

The estimated proportions of overall B2G payments that are digital by value and volume are 21% and 14%, respectively. These estimates are reasonable given only about 17% of taxpayers (businesses and individuals) in Zambia were paying their taxes using the e-payment platform.[15] Note that pension contributions and penalties from businesses to the statutory pension schemes, which are publicly owned, are not included, which might underrate the value and volume of payments processed by this estimate.

Person to government (P2G)

Based on data from the Office of the Accountant General, as explained in the B2G sub-section above, the authors assumed that individuals are likely to pay for visa and road-toll fees through non-digital means. Therefore, the proportion of payments made digitally by individuals for non-tax collections, both by volume and value, was assumed to be negligible based on the types of fees and fines identified.

The value of individual tax payments was estimated based on the average total tax revenue collected by GRZ for three years, including 2016.[16] The authors assumed that 8% of total tax revenue is from individuals, based on comparable benchmarks such as Malawi. Further, the authors estimated the percentage of individuals paying taxes at about 19% of the employed population (17 years and older), based on assumptions of the proportion of formally and informally employed individuals who are likely to pay the different types of taxes. Taxes were assumed to be paid monthly at the national level; however, no estimates were made for tax payments to local authorities, where the likelihood of cash payments could be sizeable. Though income tax deductions for private and public sector employees are paid monthly, it is unlikely that self-employed individuals under a self-assessment regime would report their owed taxes on a monthly basis. The authors estimated the proportion of electronic payments by volume and value at 8% and 20%, respectively, based on observations from other comparable markets.

Data quality index

A data quality index provides an at-a-glance indication of the quality (completeness and reliability) and availability of payment data; hence, the index displays the country team's confidence in the overall estimates.

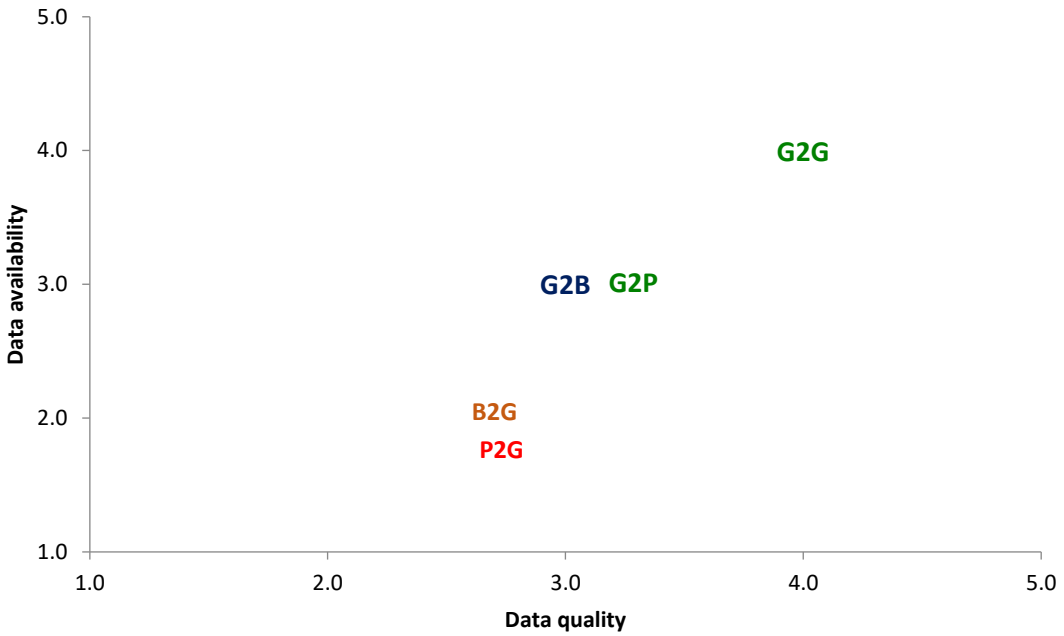
Figure X shows how the data quality index differs across the various government payment flows covered by this study (see table 7 for an explanation of the ratings.)

15 Tembo, 'Zambia Revenue Authority petitions its corporate clients.'

16 Tax revenue data for 2014 are actual while data for 2015 and 2016 are based on projections completed by the International Monetary Fund.

Except for G2G payments and a portion of G2P payments that are centralized, complete and current data on payments processed by GRZ are challenging to obtain. Available data are held and processed by different individuals within a particular institution or by different institutions altogether. Thus, data collection is time consuming, as data points must be collected from multiple custodians.

Figure X
Data quality index ratings



Acronyms: B2G, business-to-government; G2B, government-to-business; G2G, government-to-government; G2P, government-to-person; P2G, person-to-government

Table 7
Data quality index rating descriptions

	Data quality	Availability
5	Complete, recent and from credible sources	Available from one or few up-to-date websites or online publications
4	Recent and from credible sources; one to two components of estimate based on expert opinion or assumptions	Available from disparate websites or from a combination of scholarly and popular publications
3	Incomplete, recent and based on expert opinion or available data; a few assumptions required	Available in person through simple record requests or interviews with public officials
2	Incomplete and/or outdated, and informed by local sources, ad-hoc research and international heuristics; some assumptions required	Available from proprietary sources through non-disclosure agreements
1	Incomplete and/or outdated, and informed by local sources, ad-hoc research and international heuristics; multiple assumptions required	Additional measurement activities required to capture meaningful data

Overall, it is not surprising that the ratings for Zambia are in line with those from other diagnostic countries. In the previous countries studied using the payment diagnostic methodology, the government payment flows were the easiest to measure. What are most difficult to quantify are the payment flows dominated

by cash (e.g., P2P payments and payments at merchants) and those dominated by cheques (e.g., business-to-business payments), where no single entity has a broad view of payments across the economy.

Information on how funds are disbursed once they are transferred to MPSAs was not available at a central level. Estimates on revenues and outgoing payments that are not centralized, particularly at the local level, could provide additional insights on the extent of digitization of government payments. However, the scope of this study did not allow for detailed data collection from those institutions.

Further study on other payment matrices, beyond government payments, to understand the scale of payments in Zambia and the extent of digitization at the end-customer would be beneficial in the economy-wide shift to electronic payments.

3 Incentives and Prospects for Digitizing Government Payment Flows in Zambia

This section explores two particular categories of payments that are important in driving the shift towards digitization:

- **Bulk payments, or one-to-many payments**: Payments from one large payer, in this case GRZ, to many recipients, such as businesses and individuals, through a single payment instruction
- **Remote bill payments, or many-to-one payments**: Payments from many payers, in this case businesses and individuals, to a single recipient, such as GRZ

Table 8 summarizes the available information on bulk payments from GRZ.

Table 8
Government bulk payment flows

Payment stream	Description	Payment mechanism	Av. no. of monthly payments	Percentage digital by volume	Percentage digital by value
G2B	Contractor and supplier payments	Some are executed by EFT via the IFMIS platform and some are paid by cheque	4 705	12%	98%
	Third-party payments (employee's salary for loan repayments)	Executed by EFT via the IFMIS platform	192 194	100%	100%
G2P	Salary and pension payments	Executed by EFT via the IFMIS platform for civil servant salaries and EFT from pension funds to beneficiaries	265 756	100%	100%
	Travel allowances	Paid in cash or cheque	3 672	0%	0%
	SCTs	Paid in cash	121 000	0%	0%
	FISP subsidies	Some paid through the e-Voucher system and the remaining through distribution of physical inputs to beneficiaries	133 333	38%	18%
	Crop purchases	Paid in cash	40 000	0%	0%

Note: Monthly SCTs and FISP subsidies were estimated by dividing the 1.5 million and 1.6 million annual transactions by twelve, respectively.
Acronyms: EFT, electronic fund transfer; FISP, Farmer Input Support Programme; IFMIS, Integrated Financial Management Information System; SCT, Social Cash Transfer

Table 9 shows available data on flows to GRZ.

Table 9
Government remote bill payment flows

Payment stream	Description	Payment mechanism	Av. no. of monthly payments	Percentage digital by volume	Percentage digital by value
B2G	Fines and licence fees	Paid by direct deposit, EFT, cheque and some cash	9 771	66%	46%
	Purchases of government tender documents	Paid in cash	469	0%	0%
	Taxes	Paid by direct deposit, EFT, cheque and some cash	174 092	11%	20%
P2G	Fines and licence fees	Mostly paid in cash	20 666	0%	0%
	Taxes	Mostly paid in cash and by direct deposit	1 077 420	8%	20%
	School-related fees	Paid in cash	851 506	0%	0%

Acronym: EFT, electronic fund transfer

Both types of payment flows are executed through a mix of RTGS, EFT/DDACC, direct deposits, cheques and cash. In interviews, stakeholders highlighted the following challenges with the existing payment mechanisms:

- Slow cheque processing following an increase in volume of transactions through ZECHL
- 'Current 3% to 4% average interchange fees charged in Zambia … higher than the Africa average interchange fee for a debit card transaction (0.44%) and credit card transaction (1.48%)'[17]
- Low adoption of mobile wallet payments and market preference for over-the-counter services, limiting growth in remote bill payments and affecting financial providers' perceptions of market potential
- Long payment and receipt turn-around time, limiting the effective use of RTGS
- Unstable (and in some areas lack of) mobile network connectivity, particularly in rural areas
- Significant logistical challenges of delivering large sums of cash to villages for distribution of cash transfer programmes
- Large security risks for transaction recipients and staff who must travel to remote villages with cash

Some of these challenges have begun to be tackled. For instance, following the public notice requiring large-value transactions to be processed digitally,[18] ZRA is planning to invest in additional information and communication technology, such as a very small aperture terminal, and construction of a data centre. **Across the payment flows in this study, stakeholders seem to be presented with consistent incentives for digitization**, as highlighted in table 10.

17 Mia Messina, 'US$1.5 billion revenue from mobile financial services in Africa,' 4 July 2016. Available from http://arcmediaglobal.com/index.php/about-amg/amg-pressroom/item/69-mobile-financial-services-africa
18 Zambia Revenue Authority, 'Migration of Large & Medium taxpayers from RTGS to ZRA e-payment,' 7 October 2016.

Table 10
Stakeholder incentives to digitize payments

Government	Individuals
• Greater **transparency and efficiency** in government social safety net schemes, such as the Farmer Input Support Programme and Social Cash Transfer Programme • Broader and **more predictable tax base**, in both amount and timing • **Reduced leakages** due to syphoning and ghost beneficiaries of subsidies and cash transfers • Increased **operational efficiencies** in revenue collection from real-time reconciliation, allowing for improved risk management • Improved availability of **reliable data** with which to make evidence-based decisions • Overall **reduction in social welfare programmes' administration costs** as a result of digitization and better reconciliation	• **Improved security** and reduced risk of theft and/or fraud for government beneficiaries and salaried employees (ensured by digital encryption and biometric/one-time-password authentication) • Increased **convenience** for payments to and from the Government • Greater confidence that the **full, correct amounts** are transferred, especially to individuals • A low-barrier **on-ramp to improving familiarity** with digital payments for rural and underserved populations
Financial service providers (mobile money operators and banks)	
• Higher **revenues** from facilitating cash-out transactions • Potential technical and/or financial support or partnership to **extend agent networks in remote areas** • **Cheaper cost of customer acquisition** (particularly for rural customers) given the targeted nature of these projects • **Development of sustainable profit-sharing models** that also reduce cost of project implementation in rural areas • **Opportunity for cross-selling** other mobile network operator products and expanding new revenue streams (e.g., low-cost handset sales, short message service and data sales)	• **Maintenance of existing revenue streams** through government partnerships, including float income from facilitating government payments • Continued role in **facilitating cash-out** in remote locations, generating income from transaction charges

These incentives provide a background to examine possible actions that could be taken to advance digital payments in Zambia. The prioritization of payments for digitization is based on the Government's expressed need, ease of implementation and likely impact on the shift towards digitization.

3.1 Bulk payment flows

As cited earlier, 82% of G2P payments by value and 56% by volume are digitized. The relatively high digitization in payments by value is due to digitization of salaries and pension payments, which make up 81% of all G2P payments. **Yet, agricultural subsidies, crop purchases and SCTs, which constitute about 52% of all G2P payments by volume, are the least digitized.**

Infrastructure and a policy framework, which are preconditions for the pervasive use of electronic payments, are progressing positively. However, low adoption of DFS, particularly in rural areas where most subsidy and cash transfer beneficiaries are located, is likely to lead to slow, incremental progress towards a full shift in G2P payments.

Charges associated with digital payments—for instance, the average 4% cash-out charge for amounts between K51 ($5.26) and K150 ($15.48)[19]—act as deterrents. If those charges are reduced, adoption of DFS payments might increase. Beyond a reduction in charges for customers, a commission incentive for providers might also have an effect: experience from India suggests a 2%–3% (up to 3.5% in very remote places) commission incentive to providers to deliver cash at the village level.[20] Therefore, understanding providers' cost of delivering similar SCTs in Zambia is important for developing the appropriate incentives for providers to seize the opportunity.

GRZ is highly motivated to digitize welfare and subsidy programmes due to the expected cost reduction to the treasury from implementing these programmes and the pressure to promote financial inclusion by paying beneficiaries in simplified digital means. Cost statistics on cash-based payments for these programmes were not available at the time of this study. However, estimating these costs would be important for quantifying the savings gain to the treasury from digitizing these payments.

Farmer Input Support Programme

The Ministry of Agriculture is currently implementing an e-Voucher pilot for FISP. Begun in 2015, the e-Voucher pilot expanded to 600,000 beneficiaries at the time of this study. All beneficiaries were approved under the programme and provided with an e-Voucher card. GRZ plans to issue e-Voucher cards to nearly 1.2 million remaining beneficiaries within the next three years.

FISP was launched in 2002 to improve access of small-scale farmers to inputs, enhancing the participation and competitiveness of the private sector in the supply and distribution of agricultural inputs expediently and adequately. Under the conventional FISP, the Ministry of Agriculture distributes fertilizers and seeds to small-scale farmers.

The key objective of the FISP e-Voucher programme is to enable small-scale farmers to have timely access to a variety of subsidized agricultural, livestock and fishery inputs from a range of agro dealers and input suppliers. Unlike the conventional FISP, the FISP e-Voucher programme is aimed at promoting crop diversification and increasing the participation of the private sector in agricultural input marketing.

Under the new scheme, agro dealers and input suppliers, participating in FISP through a national tender, stock agricultural, livestock and fishery inputs in their respective outlets in their districts at their own cost. These agro dealers and input suppliers are required to maintain a minimum of one POS device at their outlets to facilitate card transactions. Interested farmers are selected through their respective farmer organizations and are approved to benefit from the FISP e-Voucher programme by the Camp Agriculture Committees.

FISP, in collaboration with the Zambia National Farmers Union, prints and distributes e-Voucher cards with a determined value to selected and approved beneficiary farmers. The total amount of money loaded on the card is K2,000 ($206), of which the beneficiary farmer is required to make a 'farmer contribution' of K400 ($41) to get the card activated for use.

Beneficiary farmers can then use the e-Voucher card to purchase agricultural, livestock or fishery inputs equivalent to the total value on the card at the outlets of agro dealers/input suppliers. If the value of the inputs purchased is more than the value on the card, the farmer needs to pay the balance to the agro dealer/input supplier.

19 These amounts are estimated from on-us withdrawal tariffs charged by two MMOs and banks at the agent POS.
20 CGAP, 'Linking Electronic Payments and Social Cash Transfers in India,' 3 December 2013.

The programme is monitored by the FISP National Steering and Technical Committees, Provincial Agricultural Coordinator's Office, District Agriculture Committees and Camp Agriculture Committees.

The Ministry of Agriculture has partnered with five financial service providers (commercial banks) to implement the FISP e-Voucher programme. Under the current arrangement, the cost of printing and issuing the e-Voucher cards is borne by the Ministry of Agriculture while the utilization cost (the interchange fee and merchant discount rate) is borne by the agro dealers/input suppliers.

Based on the current total number of beneficiaries, completion of the e-Voucher enrolment programme would potentially digitize about 1.2 million payments valued annually at about K1 billion ($112 million). GRZ has opted for Visa-enabled cards to allow for other functionality in the future. Beneficiaries with an e-Voucher card will be able to have another account linked to the same card, where they can receive payments from selling crops to GRZ.

The Ministry of Agriculture considers the existing management information system a challenge to implementing the e-Voucher pilot. The system does not capture information either on agro-dealer/farmer transactions or on the type of input redeemed. This situation makes it difficult to understand the demand for various inputs by location. Yet, it provides an opportunity for engaging with the Ministry of Agriculture to develop a 'Payments Dashboard' that would allow the programme to predict input needs based on collected data.

Social Cash Transfer Programme

For its SCT Programme, MCDSS has concluded negotiations with Zambia National Commercial Bank (ZANACO) for a prepaid card solution. The World Food Programme (WFP) is currently supporting the Zambian Ministry of Community Development in a pilot to digitize social cash transfers. Launched in February 2017, this pilot will distribute social cash transfers to 34,000 households enrolled on the scheme in 10 districts across three provinces (Lusaka, Eastern, Central) electronically. This pilot is planned for a scale-up to 27 districts within the three provinces mentioned by end of 2017. Beneficiaries will receive between 180-360/Kwacha every two months, depending on their category (disabled and non-disabled households.)

About 1.5 million transactions valued annually at K224 million ($23 million) are currently cash based.

Selected beneficiary households receive the benefits once every two months, in a payment of K140 ($14). Households with disabled members receive K280 ($29). Currently, the programme covers 242,000 households spread across 78 districts. According to the 2017 budget, GRZ plans to scale up the programme to 500,000 beneficiary households in all 105 of the country's districts and to increase the monthly financial benefits by 28%. This expansion represents about 3 million transactions valued annually at K591 million ($61 million), which is more than twice the current share of volume and value of transfer payments.

In the current payment process, MCDSS headquarters disburses the funds to the bank accounts of designated District Social Welfare Offices (DSWOs). It usually takes two to three working days for the funds to be credited into the bank accounts of the DSWOs. District Social Welfare Officers encash the funds in the form of cheques, within two to three working days, which are then provided to Pay-Point Managers. These Pay-Point Managers are civil servants, identified from within the community and appointed by the District Welfare Assistance Committee (the highest authority for the programme at the district level), to make payments to beneficiary households linked to their respective DSWO.

Pay-Point Managers then withdraw the funds against the cheques from a bank branch at the district level, where the account of their particular DSWO is maintained, and carry the physical cash to their respective

pay-points—usually schools or rural health centres. It usually takes two to three days for Pay-Point Managers to reach their pay-points with the cash. Payments are made in cash by the Pay-Point Managers at the selected pay-points to the main recipient of the beneficiary household or an appointed deputy who collects the payment on behalf of the main recipient if he/she is unable. The main recipient or the deputy is required to furnish a National Registration Card (NRC) for identification, provide his/her signature or thumbprint in the physical payments record sheet, and verify the amount received before leaving the designated pay-point.

This process of manual payments is completed within a window of five days in the presence of the Community Welfare Assistance Committee, comprising volunteer members of the community it covers. In case the main recipient or the deputy is unable to visit the pay-point within the stipulated time, the beneficiary household forfeits the payment for that two-month period. Pay-Point Managers submit the physical payments record sheet to the District Social Welfare Officer after a two-month period while collecting the cheques for the next SCT payment cycle. The payments records are then updated for the respective DSWO and then submitted to MCDSS headquarters.

This process creates many challenges for GRZ:

- Long turn-around time of 7–14 days, from the disbursal of funds by MCDSS headquarters to the receipt of benefits by beneficiary households at pay-points
- High cost incurred by MCDSS in transportation and distribution of cash, including cost incurred in issuance of cheques by DSWOs
- Cost for allowances paid to Pay-Point Managers to carry and distribute the cash as well as charges paid to Community Welfare Assistance Committees for assisting the payment process
- Risk of theft arising from the physical movement of cash from DSWOs to designated pay-points
- Risk of syphoning of funds (leakages and ghost beneficiaries) due to physical identification and record keeping process at the time of payment to beneficiaries
- Challenges in accountability, auditability and reconciliation of funds (tracking and record keeping) due to the two-month gap in DSWOs receiving the physical payments record sheet from Pay-Point Managers
- Hassle factors and costs faced by beneficiaries due to limited accessibility to pay-points along with the risk of missing the five-day payment window to collect the benefits

Aware of the challenges, MCDSS entered into an arrangement with one of the leading commercial banks in Zambia to transition the payment process from cash to digital. Under the proposed arrangement, MCDSS will share the list of beneficiaries with the bank and the bank will issue a pre-paid card to each beneficiary.

Beneficiaries will then use the pre-paid card to withdraw funds through an ATM or a POS device at the bank's agent outlet. The cost of withdrawals will be borne by MCDSS under the proposed arrangement with the bank. Given the large number and geographical spread of beneficiaries, digitization of SCT payments will be carried out in phases starting in Q1 2017.

MCDSS has been ineffective in digitizing these payments due to financial providers' capacity constraints. Going forward, GRZ will need to better understand providers' existing capacity to deliver disbursements to rural areas and their incentives to expand their access point coverage.

With government efforts to digitize high-volume G2P payments underway, there has been somewhat less attention on many-to-one payments such as B2G and P2G streams.

3.2 Remote bill payment flows

Business-to-government tax payments

As mentioned earlier, only 21% of B2G payments by value and 14% by volume are digitized[21]. This situation may be due to the fact that a large proportion of businesses in Zambia operate informally. One study indicates that about 97% of micro, small and medium enterprises (MSMEs) in Zambia are informal.[22] Digitizing this payment stream may help formalize the sector and increase both tax and non-tax revenue collections from the business segment.

The Government, through ZRA, is already working towards digitizing high-value B2G payments and is also exploring ways to partner with MMOs to capture low-value payments from the informal business sector and individuals. Digitization efforts by ZRA are important given the volume and value of payments that could potentially be digitized. About 1.9 million annual transactions, valued at K24 billion ($2.5 billion), remain in cash. The average amount of these transactions is K14,329 ($1,479). However, this must be also done in a way that is sensitive to the businesses' perception of tax impact on the revenues.

Person-to-government tax payments

P2G payments are the least digitized of all the payment streams studied, with only 12% by value and 4% by volume of payments digitized. ZRA could potentially digitize a huge proportion of tax payments from individuals once integration with MMOs is fully implemented. The estimated annual cash pool in individual tax collection is about K2.1 billion ($217 million), for about 12 million payments.). However, this must be also done in a way that is sensitive to the public's perception of tax impact on personal income and daily life.

ZRA can learn from the experience of the Tanzania Revenue Authority in designing appropriate incentives for providers to support the shift towards digital payments (see box 1).

[21] The Zambian Revenue Authority is making strides in allowing businesses and individuals to pay taxes electronically. It should be noted that, while the data provided was difficult to integrate into the study, the Authority suggests that currently up to 80% of business-to-government payments in value are made electronically, with a smaller percentage in volume. The opportunity for digitization lies mainly with small and medium enterprise and individual tax payments.

22 Manju Kedia Shah, 'The Informal Sector in Zambia: Can it Disappear? Should it Disappear?' Working Paper (London, International Growth Centre, June 2012).

Box 1

Digitization experience of the Tanzania Revenue Authority

In FY2013/2014, the Tanzania Revenue Authority (TRA) launched the Revenue Gateway System (RGS). RGS 'simplifies the tax payment process for millions of customers' and minimizes 'the potential of fraud and leakage through an automated and transparent process.'[a] The payment gateway became fully operational in 2015 and is acting as an interface between TRA, the Bank of Tanzania, all commercial banks and other financial service providers like mobile network operators (MNOs).

'The Revenue Gateway System accepts three types of payments:

- **Large Value or Tanzania Interbank Settlement System (TISS) payments** Large taxpayers (i.e., those filing tax payments higher than TZS 5 million per month, or US$2,285) … .
- **Small value or retail tax payments** These payments are made through banks and deposited directly into bank-specific TRA collection accounts. Most tax payments that are below TZS 5 million (US$2,285) are collected and held in TRA accounts with designated commercial banks that act as TRA agents. In these types of payments, banks are required to remit taxes collected three times a week to the Bank of Tanzania.
- **Mobile money payments** The RGS can accept mobile money payments. The payments are collected in pooled TRA accounts of MNO partner banks and remitted to the Bank of Tanzania three times a week.'

'The Tanzania Revenue Authority directly compensates banks that act as collection agents. Banks receive from 0.4% and above of the value transferred, depending on their deposit base and reach. By not requiring banks to remit taxes daily, the TRA also provides a form of indirect compensation' since banks can use these funds to generate income.

a Rashmi Pillai, 'Case Study—Person-to-Government payments: Lessons from Tanzania's digitization efforts,' p. 42 (New York, Better Than Cash Alliance, September 2016). *Note:* All quoted text in this box is from this source.

Person-to-government fee payments

There is no evidence of ongoing or planned initiatives to digitize fines or fees, such as for schools and licences, from individuals.

- School-related fees

While tuition at the primary school level is officially abolished, there is evidence that about 50% of schools charge fees for tuition, parent-teacher association dues and other needs, such as lunches and exams.[23] These payments are mainly in cash, presenting an opportunity to digitize about 10 million annual payments valued at about K832 million ($86 million).

As table 11udes colleges and universities.

Table *11* indicates, the Zambian education system is structured in the following tiers: early childhood education (3–6-year-olds), primary education (grades 1–7 for 7–13-year-olds), secondary education (grades 8–12 for 14–18-year-olds) and professional or tertiary education, which includes colleges and universities.

Table 11

Number of students by tier

Type of school/institution – by agency	No. of schools/institutions	No. of students	No. of staff
Primary			
Government/Grant-aided	5 699	2 605 311	61 046
Private/Church	699	124 515	6 209
Community/Unknown	2 406	458 936	7 981

23 Work Bank, *Education Public Expenditure Review in Zambia* (Washington DC, 2016). Licence: Creative Commons Attribution CC BY 3.0 IGO

Type of school/institution – by agency	No. of schools/institutions	No. of students	No. of staff
Secondary			
Government/Grant-aided	664	750 667	20 335
Private/Church	95	34 914	2 260
Community/Unknown	16	16 720	204
Tertiary			
Government/Grant-aided	19	30 392	1 717
Private/Church	11	1 572	52
TOTAL	**9 609**	**4 023 027**	**99 804**

Table 12 shows the types of fees these students pay.

Table 12
School fee types and amounts

Types of fees – by education tier	Amount (K)	Comments
Primary		
Tuition fees	Nil	—
Parent-teacher association fees	22	Annual charges
Secondary		
Centre fee	100	Paid at time of registration for examinations for grade 12
Practical subject fees	50	Paid per subject at time of registration for examinations for grade 12 and for a maximum of four subjects
Tuition fees	50	Paid per subject per term for three terms in a year and a maximum of eight subjects
User fees		
Boarding schools	700–1000	Paid per term for three terms in a year
Day schools	250–500	Paid per term for three terms in a year

The fees at schools run by local communities are usually lower than the fees charged by public and grant-aided schools. The fees are not standard and vary based on the location of the school and the overseeing community. On the other hand, the fees charged by private/church-administered schools are usually higher than that prescribed for public and grant-aided schools and are not standardized across the country.

Students at all types of schools at all levels make payments directly to the institution in cash or cheque, or they make a deposit into the institution's bank account at a bank branch. This process for fee payment often requires significant time and resources at the institution's end, resulting in delays in fee collection and increased costs for the payer while raising accountability and reconciliation challenges due to physical payment records and other hassle factors.

The benefit of digital payment solutions for parents and students is the reduction in cost, time and security risk from making the transaction in person. For schools, digital payments enable greater transparency and more predictable revenues, helping them manage cash flows more effectively. Aside from potential revenue from offering this service, providers might have an incentive to drive regular usage by providing value-added services that are layered on top of their basic offerings (see box 2 for an example from Ghana).[24]

Box 2
A mutually beneficial partnership between MTN and the Government of Ghana on school fee payments

24 Dalberg Global Development Advisors, *Global Landscape Study on Digitising P2G Payments* (n.p., Karandaaz Pakistan, 2016).

The partnership by MTN with the Government of Ghana in the 'Back to School' programme catalysed regular usage of its mobile money service, built relevant high-quality user experiences for customers, and met the immediate needs of the Government to reach scale quickly and meanwhile met the objective of MTN to 'get more money flowing through (and ultimately staying in) electronic wallets.'[a] Nonetheless, MTN 'instituted a small consumer fee (approximately $0.50) instead of offering this 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.'

a Dalberg Global Development Advisors, *Global Landscape Study on Digitising P2G Payments*, pp. 72, 73 (n.p., Karandaaz Pakistan, 2016). *Note:* All quoted text in this box is from this source.

- Other fees

Fines and licence fees for government services are largely paid by individuals in cash,[25] presenting an opportunity to digitize about 250,000 transactions that are valued annually at around K876 million ($90 million). These cash-based payments impose costs of missed revenue and leakage on GRZ.

3.3 Environmental readiness for digitization

The significant increase in financial inclusion to 59% (4.8 million) of adults and the drop in financial exclusion to 40% (3.3 million) of adults, as of 2015, is an important factor for facilitating many-to-one payments in Zambia.[26] However, adoption of electronic bill payments has been slow, which may limit this shift in the short term.

In general, the low adoption rate may be a result of a general lack of trust in electronic payments. Zambians have experienced problems such as unsuccessful transactions, misunderstandings about fees and unreliable connectivity, which discourage them from regularly using electronic means to make payments. This situation is further complicated by the high cost of providing and maintaining payment platforms such as POS devices by providers, the absence of interoperable and shared payment infrastructures, inadequate agent distribution networks, low levels of customer literacy (both alphanumeric and technological), low levels of meaningful awareness and consumer protection, difficulties for customers to meet know-your-customer (KYC) requirements, and the cost of effecting transactions.

In addition, progress made in digitizing payments is already revealing the inadequacy of payment infrastructures such as ZECHL for scaling up real-time P2G payments. The development of NFS is essential to allow for instant, interoperable payments at scale in Zambia.

The potential efficiency gains and cost savings from shifting fee payments from cash to digital are likely to be significant, not only for GRZ but also for other remote billers such as private utilities and merchants—all of whom benefit from the ability to provide immediate account reconciliation. Therefore, understanding Zambians' readiness to digitize and quantifying the potential value and volume of transactions for digitization to providers would be a necessary first step in facilitating the shift for G2P and P2G payments. Payment stakeholders with resources for research could facilitate a study to compare costs between the traditional cash-based approach and alternative methods for distributing social welfare payments and collecting fees in Zambia, similar to a study conducted by MM4P on digitizing social security allowances in

25 Records at the Accountant General Office show that, for the first two quarters, fines and licence fees were collected for services from the following MPSAs: Judiciary; Ministry of Agriculture; Ministry of Commerce, Trade and Industry; Ministry of Community Development and Social Services; Ministry of Energy and Water Development; Ministry of Fisheries and Livestock; Ministry of Foreign Affairs; Ministry of Home Affairs; Ministry of Information and Broadcasting Services; Ministry of Labour and Social Security; Ministry of Lands and Natural Resources; Ministry of Mines and Minerals Development; Ministry of Tourism and Arts; Ministry of Transport and Communications; Ministry of Works and Supply; Office of the President – North-Western; and, Police Force (Ministry of Home Affairs).

26 FSDZ, 'FinScope 2015.'

Nepal,[27] which would help quantify potential efficiency gains and cost savings for GRZ in order to underpin the investment.

27 MM4P, 'Digitizing social security allowances in Nepal,' Research Highlights: Insights into Action (n.p., UNCDF, November 2016).

4 Opportunities for Government and Digital Payment Stakeholders in Zambia

One of the primary goals of this payment flow diagnostic is to recommend ways GRZ, BoZ and other stakeholders, including MM4P Zambia, can promote the expansion of appropriate, affordable and accessible digital payments. The overarching message of this diagnostic is that a shift towards digital payments is more likely if done so with a holistic approach that addresses stakeholders' incentives as well as barriers to widespread availability and affordability of digital payment channels for Zambians, particularly the rural poor population.

A carefully sequenced set of activities, coordinated across many institutions, impels consensus around the advantages of shifting towards digital payments. This section intends to catalyse strategic thinking and planning through a set of projects and activities designed to further the shift towards digital payments in Zambia.

Each of the project concepts below includes a brief narrative about the context and stakeholders' motivation, the expected objectives and outcomes, the key stakeholders, the support (resources or technical assistance) that may be needed, and an explanation for the sequencing of the project concept.

4.1 Dissemination and further research

Disseminating this diagnostic within Zambia

Findings of this diagnostic indicate that a transition to digital payments can yield a number of positive results for stakeholders in the payment ecosystem. These insights could stimulate stakeholders to take a forward-looking approach to create an enabling and conducive environment for acceptance of electronic payments.

Objective	Disseminate findings of the payment flow diagnostic for government payments in Zambia to key DFS stakeholders
Outcomes	Launch of payment flow diagnostic report (formal publication) Workshop on outcomes of payment flow diagnostic
Key stakeholders	Lead stakeholders – MoF, MM4P Zambia, Financial Sector Deepening Zambia (FSDZ) Other stakeholders – GRZ, BoZ, ZECHL, ZRA, MCDSS, Ministry of General Education (MoGE), Ministry of Agriculture, DFS/other financial service providers
Support required	Active participation in the workshop on outcomes of payment flow diagnostic to discuss the way forward to accelerate digitization of government payments and further inclusive growth in Zambia
Timeline	Q1 2017

Support to review and improve the tendering process for digital payments.

GRZ as a payer and payee has embraced electronic payments through initiatives such as the IFMIS and TSA projects. While most payments to public and private institutions and individuals are made electronically by GRZ, a significant amount of last-mile payments are still in cash and cheques.

Support can be provided to the Ministry of Community Development and Social Services and the Ministry of Agriculture to review their tendering processes. This review will focus on the existing tendering processes for projects related to payment digitization in a bid to better understand the key points that have affected existing projects. This review will further aim to make recommendations that will strengthen the proposition of digitizing government payments for all stakeholders (i.e. government agency [payer], private sector [financial service provider] and beneficiary [payee

Objective	Support the Ministry of Community Development and Social Services & Ministry of Agriculture to review and improve the tendering process for digital payments that can be adopted by other ministries.
Outcomes	Demand-side market insights on awareness and readiness of last-mile customers/beneficiaries to adopt digital payment solutions, including mobile money, POS transactions, EFTs, etc. for the following: • Review the existing tendering processes. • Identification of any improvements to the tendering process that can be adopted by the ministries and other government agencies. • Develop Propositions for the government (payer), private sector (Financial Service provider) and beneficiaries for using digital payments.
Key stakeholders	MM4P Zambia, GRZ, ZRA, DFS/other financial service providers
Support required	• Technical assistance to GRZ, ministries and DFS/other financial service providers to support the demand-side research • Active participation in the discussions about research outcomes and in the testing of suitable DFS solutions developed on the basis of the research
Timeline	Q2 2017

4.2 Support to improve existing government-to-person and person-to-government digitization programmes.

One of the key objectives of this diagnostic is to identify smaller-scale payment streams for digitization in a pilot project. The following payment streams have been identified under the diagnostic along with the key drivers to shift the payments from cash/cheque to digital.

Government-to-person payments

One group of key constituents of the high-volume cash payments made by GRZ is individuals and households who receive benefit payments under the SCT Programme. The main challenges highlighted by MCDSS in the proposed digitization process include these:

- Poor deployment of ATMs and POS devices in rural areas where the majority of beneficiaries are located (ATMs and POS devices are highly concentrated in Lusaka and other urban areas of Copperbelt and Livingstone)
- Limited availability of active banking agents, owing to sparse population density coupled with latent demand for branchless banking/DFS transactions in rural areas (with the exception of cash-out services), which translates into a non-viable business case for agents
- Lack of access to adequate finance at the agent level to maintain sufficient liquidity (cash) to honour the payment of cash-outs, and long distances to reach a rebalancing point
- Limited communication measures coupled with low awareness by beneficiaries in regards to the use of cards and other DFS, owing to limited interaction and experience with formal financial services
- Issues related to capacity-building of MCDSS staff at the district level to administer the transition of payments from cash to digital

Furthermore, with the proposed increase in the beneficiary base and the geographical spread of beneficiaries, it is imperative for MCDSS to explore partnerships/arrangements with DFS/other financial service providers in the country.

MCDSS, represented by the Office of the Director – Policy, Planning and Information and his team, has expressed interest to partner with the UN (WFP and UNCDF) to leverage expertise of the programme on the Zambian DFS ecosystem and key learnings from global best practices around building capacity, managing agent networks and liquidity, performing high-volume digital payments and building awareness of DFS. MM4P can bring its relationships with the larger DFS ecosystem to support existing efforts as well as helping to scale existing efforts.

Objective	Support MCDSS, WFP, DFS and / other financial services providers and development partners to scale the transition of SCT payments from cash to digital in Zambia
Outcomes	• Support the MCDSS to review the existing tendering process with an aim of improving it and using it as a case study for other government ministries and agencies that are shifting to digital payments. • DFS transition strategy based on global best practices around building capacity, managing agent networks and liquidity, performing high-volume digital payments and building awareness of DFS • Scale-up strategy to digitize SCT payments for other beneficiaries across all districts in Zambia
Key stakeholders	MM4P Zambia, MCDSS, DFS/other financial service providers, development partners.
Support required	• Technical assistance to MCDSS to review the tendering process and make recommendations for updated tendering guidelines. • Technical assistance to MCDSS, partner bank(s) and DFS/other financial service providers to support the design and implementation of pilot tests • Active participation in the discussions about findings/lessons learned from the pilot tests to develop a scale-up strategy to digitize SCT payments for other beneficiaries across all districts in Zambia

Timeline	Q3 2017

Person-to-government payments

One group of key constituents of non-tax/revenue collections for GRZ is the schools, colleges and universities that receive payments of education fees administered under the aegis of MoGE.

MoGE, represented by the Office of the Permanent Secretary and his team, is aware of the challenges described in this study and has expressed interest to partner with MM4P Zambia to test the digitization of education fee payments. This kind of project could help gauge the real demand for digital payment solutions.

Given the low levels of adoption and regular usage of DFS in Zambia, the volume and value of transactions for education fee payments could also help in building a viable business case for DFS/other financial service providers in the country.

Objective	Support MoGE and DFS/other financial service providers to pilot test the digitization of education fee payments in Zambia
Outcomes	• Pilot tests to digitize education fee payments with a limited number of secondary schools and tertiary institutions administered by MoGE • Scale-up strategy to digitize education fee payments for other schools and institutions across Zambia
Key stakeholders	MM4P Zambia, MoGE, DFS/other financial service providers
Support required	• Technical assistance to MoGE and DFS/other financial service providers to support the design and implementation of pilot tests • Active participation in the discussions about findings/lessons learned from the pilot tests to develop a scale-up strategy for education fee payments across other schools and institutions in Zambia
Timeline	Q1 2018

4.3 Infrastructure support

Results of this diagnostic indicate that the key barriers to the expansion of digital payments on the infrastructure side are the lack of a real-time, interoperable, multi-party clearing switch and the lack of a real-time reporting and reconciliation system.

Supporting implementation of the National Financial Switch

Findings of the diagnostic reveal that the absence of an interoperable and shared payment system infrastructure has resulted in increased transaction costs and low usage of existing disparate digital payment solutions, such as mobile money, POS devices and card-less transactions at ATMs.

Cognizant of these challenges, BoZ has been working towards the implementation of NFS, which is aimed at interconnecting various payment streams such as ATMs, POS devices and mobile payments, among others, through a shared payment system infrastructure. This level of interoperability has the potential to accelerate the transition to digital payments, with consumers having multiple choices at their disposal.

ZECHL has been designated to house NFS and manage the project. Implementation of NFS will facilitate interoperability between and among various financial service providers in Zambia, thereby increasing access and reducing cost of financial services due to shared infrastructure.

ZECHL, represented by the Office of the Chief Executive Officer and his team, has expressed interest to partner with FSDZ to support implementation of NFS. Support would entail finalizing the rules and interchange fees for NFS, reviewing the testing of an ATM and POS device module, on-boarding MMOs and other financial service providers under the NFS project pilot, and providing information on global best practices to drive transaction volumes and interoperability for bank accounts, mobile wallets, cards, ATMs and POS devices.

Objective	Support BoZ and ZECHL in implementation of NFS in Zambia
Outcomes	• Finalized rules and interchange fees for NFS • Review of the testing of the ATM and POS device module • Global best practices around on-boarding MMOs and other non-banking financial institutions to drive transaction volumes and interoperability for bank accounts, mobile wallets, cards, ATMs and POS devices in Zambia
Key stakeholders	FSDZ, BoZ, ZECHL, MM4P Zambia, DFS/other financial service providers
Support required	Technical assistance to BoZ, ZECHL and DFS/other financial service providers to support implementation of NFS
Timeline	Q1 2018

Supporting a 'Payments Dashboard' for the Farmer Input Support Programme

GRZ is committed to the liberalization of agricultural markets in order to create opportunities for the private sector to provide agricultural services in the country. While there are some positive developments, such as increased out-grower schemes and contract farming, crop diversification, and changes in land management strategies, the private sector has provided only limited input and output marketing services.

Aware of the challenges discussed above, the Ministry of Agriculture has expressed interest to partner with MM4P Zambia to develop a 'Payments Dashboard' for the FISP e-Voucher programme. Doing so would enable the Ministry of Agriculture and other institutions to monitor real-time implementation of the programme in terms of number of farmers selected and approved, number of cards printed and issued to beneficiary farmers, total contributions received from beneficiary farmers, number of cards activated, and value and volume of card transactions. The dashboard could be expanded to allow analysis of the nature and timing of inputs bought by farmers and to collect information on outputs produced by farmers in the longer term. This functionality would require linking the e-Voucher card to a mobile phone number for easier flow of information on input, usage, performance and eventually payments, which is line with DFS plus initiatives.

Objective	Support the Ministry of Agriculture to design and implement a 'Payments Dashboard' for the FISP e-Voucher programme in Zambia
Outcomes	• 'Payments Dashboard' designed, tested and implemented for the FISP e-Voucher programme • Real-time monitoring of implementation of the programme
Key stakeholders	MM4P Zambia, Ministry of Agriculture, partner financial service providers
Support required	Technical assistance from the Ministry of Agriculture and partner financial service providers to design and implement the 'Payments Dashboard' for the FISP E-Voucher programme in Zambia
Timeline	Q2 2018

For all of these initiatives to occur, the appropriate set of partners, including GRZ, businesses and end-users, need to be involved in discussion as well as implementation. The roles for the coalition of partners must be clearly defined, and partners' active engagement must be appropriately incorporated to get

different perspectives on the feasibility of the proposed initiatives. Although a wide array of stakeholders has been listed above, it should be understood that not all listed entities need to be involved in each and every step. Only by engaging the right kinds of partners at the appropriate stages will meaningful progress towards payment digitization be achieved.

Annexes

A. List of acronyms and abbreviations

Table 13
Acronyms and abbreviations

ATM	automated teller machine
B2G	business to government
BoZ	Bank of Zambia
BTCA	Better Than Cash Alliance
CTS	Cheque Truncation System
DDACC	direct debit and credit clearing
DFS	digital finance service(s)
DSWO	District Social Welfare Office
EFT	electronic fund transfer
FISP	Farmer Input Support Programme
FSDZ	Financial Sector Deepening Zambia
G2B	government to business
G2G	government to government
G2P	government to person
GRZ	Government of the Republic of Zambia
IFMIS	Integrated Financial Management Information System
IVL	item value limits
K	Zambian kwacha*
MCDSS	Ministry of Community Development and Social Services
MLGH	Ministry of Local Government and Housing
MM4P	Mobile Money for the Poor
MMO	mobile money operator
MoF	Ministry of Finance
MoGE	Ministry of General Education
MPSA	ministries, provinces and other spending agencies
MTS	Money Transmission Services
NAPSA	National Pension Scheme Authority
NFS	National Financial Switch
NPSA	National Payment Systems Act
P2G	person to government
PMTA	Payments and Money Transfer Association
POS	point of sale
PSPF	Public Service Pensions Fund
RTGS	real-time gross settlement
SCT	Social Cash Transfer(s)
TSA	Treasury Single Account
UNCDF	United Nations Capital Development Fund
US$	United States dollar*
ZECHL	Zambia Electronic Clearing House Limited
ZIPSS	Zambia Interbank Payments and Settlement System
ZRA	Zambia Revenue Authority

***Currency symbols and exchange rate: UNCDF uses the currency symbol 'K' for the Zambian kwacha and 'US$' or just '$' for the United States dollar. Unless otherwise noted, the exchange rate used was K9.69 to US$1.00, as of 31 October 2016, from http://www.oanda.com/.

B. Detailed payment grid

Table 14

Government of Zambia measurement grid

	No. of payments per month	Percentage volume electronic	No. of payments electronic	Total value per month (K)	Total value (US$)	Total Value Electronic (K)	Total Value Electronic (US$)	Percentage value electronic
G2P								
Employees salary (MPSAs)	192 194	100%	192 194	656 880 189	67 789 493	656 880 189	67 789 493	100%
Employees' salary advances	4 389	0%	-	3 687 633	380 561	-	-	0%
Travel allowances	3 672	0%	-	16 396 563	1 692 112	-	-	0%
Pensioners (NAPSA)	15 722	100%	15 722	46 669 661	4 816 270	46 669 661	4 816 270	100%
Pensioners (PSPF)	57 840	100%	57 840	293 325 833	30 270 984	293 325 833	30 270 984	100%
Social programmes, e.g., CCT	121 000	0%	-	18 634 000	1 923 013	-	-	0%
Subsidy programmes, e.g., FISP	133 333	38%	50 210	110 347 901	11 387 812	20 083 333	2 072 583	18%
Food Reserve Agency (purchase of crops from farmers)	40 000	0%	-	87 083 333	8 986 928	-	-	0%
G2P Total	**568 151**	**56%**	**315 966**	**1 233 025 113**	**127 247 174**	**1 016 959 016**	**104 949 331**	**82%**
G2B							-	
Contractors & Suppliers	1 374	12%	171	844 359 302	87 137 183	826 910 134	**85 336 443**	98%
Utilities and motor vehicle maintenance	3 330	12%	409	630 134	65 029	77 385	**7 986**	12%
Third-party payments for civil servants (loans deductions)	192 194	100%	192 194	299 896 528	30 949 074	299 896 528	**30 949 074**	100%
G2B Total	**196 899**	**98%**	**192 774**	**1 144 885 963**	**118 151 286**	**1 126 884 046**	**116 293 503**	**98%**
G2G							-	
Transfers to MPSAS	3 686	100%	3 686	4 658 969 009	480 801 755	4 658 969 009	**480 801 755**	100%
Transfer to Pension Schemes (for Civil Servants)	192 193	100%	192 193	110 103 000	11 362 539	110 103 000	**11 362 539**	100%
Transfer to ZRA (Civil Servants PAYE)	192 194	100%	192 194	108 881 721	11 236 504	108 881 721	**11 236 504**	100%
Transfer to Funeral Scheme (for civil servants)	192 194	100%	192 194	7 469 844	770 882	7 469 844	**770 882**	100%

	No. of payments per month	Percentage volume electronic	No. of payments electronic	Total value per month (K)	Total value (US$)	Total Value Electronic (K)	Total Value Electronic (US$)	Percentage value electronic
Personal levy transfer to city councils (for civil servants)	32 032	100%	32 032	233 333	24 080	233 333	**24 080**	100%
Withheld taxes (payments to ZRA)	133	0%	-	1 324 760	136 714	-	**-**	0%
G2G Total	**612 432**	**100%**	**612 299**	**4 886 981 667**	**504 332 473**	**4 885 656 907**	**504 195 759**	**100%**
B2G							**-**	
Fines and fees	9 771	66%	6 451	62 479 440	6 447 827	28 814 386	**2 973 621**	46%
Govt tender documents purchase	469	0%	-	240 667	24 837	-	**-**	0%
Taxes	174 092	11%	19 078	2 494 528 889	257 433 322	498 905 778	**51 486 664**	20%
B2G Total	**184 331**	**14%**	**25 529**	**2 557 248 996**	**263 905 985**	**527 720 164**	**54 460 285**	**21%**
P2G							**-**	
Fines and fees	20 666	0%	-	72 992 806	7 532 797	-	**-**	0%
Taxes	1 077 420	8%	84 742	216 915 556	22 385 506	43 383 111	**4 477 101**	20%
School fees	851 506	0%	-	69 365 043	7 158 415	-	**-**	0%
P2G Total	**1 949 592**	**4%**	**84 742**	**359 273 405**	**37 076 719**	**43 383 111**	**4 477 101**	**12%**

Note: Exchange rate used is US$1.00 to K9.69, as of 31 October 2016, via http://www.oanda.com/.

C. Key players in the Zambian payment ecosystem

Bank of Zambia

The existing legal framework gives the Bank of Zambia (BoZ) clear authority to set and enforce rules governing payment systems, businesses and providers. BoZ is the sole regulator and supervisor of payment systems, with a mandate set in the National Payment Systems Act, 2007 (NPSA).

The Bank of Zambia Act, 1996 further reinforces this mandate, stating that BoZ *'shall promote efficient payment mechanisms.'* In addition, BoZ is the regulator and supervisor of financial institutions that may participate in payment systems or provide payment services, as per the Banking and Financial Services Act, 1994. According to NPSA, BoZ may:

- Regulate entry criteria of participants into a payment system;
- Issue and vary guidelines to participants with respect to payment orders;
- Prescribe rules and arrangements relating to the operation of payment systems; and
- Give directives to participants to ensure integrity, effectiveness, efficiency and security.

Zambia Electronic Clearing House

Zambia Electronic Clearing House Limited (ZECHL) is a non-profit joint venture between BoZ and a consortium of commercial banks. It was established in 1999 as a national inter-bank clearing facility. Its mission is to provide efficient, reliable, secure and cost effective inter-bank clearing services to the banking industry in Zambia. Upon the enactment of NPSA in 2007, ZECHL became a designated Payment System Institution.

The main services currently offered by ZECHL are Cheque Truncation System, an image-based cheque clearing system and interbank electronic fund transfers (EFTs) through a direct debit and credit clearing (DDACC) system.

ZECHL in conjunction with BoZ and the Bankers Association of Zambia is in the process of implementing a National Financial Switch (NFS). The switch will process transactions on Automated Teller Machines (ATMs), Point of Sale (POS) devices, Mobile and Internet Banking, Bank Branch Banking, Cheque Truncation System and EFTs through DDACC networks.

Zamlink e-switch

Zamlink is a privately owned and operated switch to facilitate ATM withdrawals, electronic airtime vending, and a Visa Gateway (an interface platform with Visa International) for member banks wishing to offer Visa cards. Zamlink is owned by Loite Transactions Services (50%) and Finsbury Investments (50%) and is licensed by BoZ as a payment system.

Zamlink processes an average of 450,000 monthly transactions (total value of K76 billion) although it has, reportedly, capacity to process over 2 million monthly transactions, at about 1,000 transactions per second. Membership is limited to six banks namely Finance Bank, Indo Zambia Bank, Investrust Bank, Intermarket Bank, Access Bank, Natsave and BancABC.

Visa and MasterCard

Visa and MasterCard act as a switch for the majority of the card transactions in Zambia using the clearing infrastructure outside the country while BoZ acts as the settlement agent. The absence of a common switch to facilitate interoperability among the different payment systems has resulted in

growth of disparate payment solutions backed by Visa and MasterCard along with the commercial banks in Zambia.

Bankers Association of Zambia

The Bankers Association of Zambia represents and advocates for the interests of the banking sector. It is quite active and involved in the discussions about payment systems and broader financial sector development, and is in constant contact and negotiation with BoZ.

Payments and Money Transfer Association

The Payments and Money Transfer Association (PMTA) was established in 2012 as a merger of the Money Transfer Association and the Payment Systems Association to provide its members with educational and networking opportunities and to lobby on their behalf to create an enabling environment to achieve the PMTA Vision.

The PMTA Vision, established in its bylaws is to*, 'Be the leading organisation dedicated to expanding financial access and improving the quality of life in Zambia through mobile payments and transactions.'* With the merger between the two previous associations, PMTA now has broad membership, including money transferors such as Airtel Money and MTN Mobile Money. However, the Association is not as active as the Bankers Association of Zambia and hence has had difficulty in achieving traction and sustainability to advocate for the interests of its members.

D. Overview of the payment policy and regulatory framework in Zambia

National Payment Systems Act, 2007 and related regulations

NPSA, enacted in 2007, is an overarching law that provides a strong basic framework for the modernisation of retail and wholesale payment systems. NPSA is broad with respect to the types of entities that can participate in payment systems, allowing the participation of nonbanks.

NPSA furnishes BoZ with clear authority to license, regulate and supervise payment systems, payment system businesses and participants in the payment systems. It also permits BoZ to issue directives, investigate and adopt corrective measures related to implementation of the payment systems. BoZ has issued multiple regulations setting minimum entry requirements for designated payment systems, participants in these system, and payment system businesses, including minimum risk management standards.

NPSA lays out standard provisions for risk management in payment systems and clearing houses such as the requirement for collateral from clearinghouse participants; finality and irrevocability of settlements; requirement for failure-to-settle arrangements; and rules for using collateral in case a participant is wound-up. It also permits electronic transaction records, which is very relevant to enable cost-effective electronic transactions.

Although payment instruments are not defined in NPSA, as they are defined in the Money Transmission Guidelines, NPSA furnishes BoZ with clear authority to create other definitions in regulations and guidelines, when necessary.

To summarise, NPSA and other related regulations/guidelines do not form a barrier for the development of innovative business models that could cater to the underserved population. These laws and regulations, including several application forms, are made available on the BoZ website, bringing transparency and certainty for new entrants and the general public.

Money Transmission Services Guidelines

The Money Transmission Services (MTS) guidelines administer local and international money transfer operators and their agents, and authorize BoZ as the 'designator and the regulating authority' for implementing these guidelines. MTS is defined as a service *'financial service that accepts cash, cheques, other monetary instruments or other stores of value (monetary value evidenced by an electronic record) in one location and pays a corresponding sum in cash or other form to a beneficiary in another location by means of a communication, message, transfer or through a clearing network to which the money/value transfer service belongs.'* The individual transaction limits are not set in these guidelines, but MTS transactions must comply with the limits set by BoZ for Anti-Money Laundering/Combating the Financing of Terrorism controls.

An MTS provider needs to obtain a prior authorization from BoZ to set-up, conduct and expand its money transfer operations, after meeting the entry standards and requirements specified in the guidelines. It is not necessary to seek prior approval for every agent, but providers are required to keep an updated list of agents at all times, and provide this list (with the number and location of agents) to BoZ, every quarter.

MTS providers are required to report financial statements quarterly, audited statements annually, and all receipts and payments together with a list of outstanding transfers, monthly. Furthermore, the providers are required to keep records (for at least six years) of each instrument sold; their general ledger; outstanding payment instruments and stored-value obligations; and list of designated agents.

The record keeping requirements are not perceived as an obstacle by the providers, in terms of costs, as there is no prohibition to use electronic files instead of paper. The guidelines set out various consumer protection rules that, if enforced, could help encourage the adoption of formal remittances services in Zambia.

BoZ may carry out inspections in any place where the MTS business is conducted and an inspection at agent premises upon prior notice to the MTS provider or without notice if BoZ believes the agent is engaging in unsafe and unsound practices. Offsite examinations may be conducted quarterly based on regular returns. BoZ has the power to revoke a designation if an agent violates the guidelines or does not collaborate with the BoZ inspections, making the provider effectively liable for the agent's activities.

E. Key milestones related to payment systems in Zambia

The payment systems in Zambia are categorized as –

1. Systemically Important Payment Systems, which include
    - **Zambia Interbank Payments and Settlement System (ZIPSS)**: the real-time gross settlement (RTGS) system run by BoZ
    - **Cheque Truncation System (CTS)**: the Image-based cheque clearing system implemented by ZECHL
    - **Direct debit and credit clearing system (DDACC)**: the electronic interbank fund transfer system implemented by ZECHL

In compliance with the 'Principles for Financial Markets Infrastructures' issued by Bank for International Standards in 2012,[28] these payment systems have been identified 'as systemically important' based on the value of payments settled, market share, cross-border relevance and provision of services to other infrastructures. A failure of these systems could potentially endanger the operation of the whole economy.

2. Retail Payment Systems or Widely Important Payment Systems, which include
    - ATMs and POS devices
    - Payment Systems Business
        - Money Transmission Service (remittance services)
        - Mobile Money Services

Zambia Interbank Payments and Settlement System

ZIPSS – the RTGS system was launched in 2004 as part of the national payment system modernization process that also included the passing of NPSA in 2007. ZIPSS is managed and operated by BoZ. It rides on the SWIFT messaging infrastructure and since its launch; has managed the large value payments (wholesale payments) in the country.

In 2014, BoZ (in conjunction with the commercial banks and other stakeholders) implemented a second-generation RTGS system and Central Securities Depository, based on the Montran RTGS system. The integration of these systems improved operational resilience and efficiency and helped to achieve Delivery versus Payment for government securities trading.

The purpose of creating ZIPSS was to reduce credit and settlement risks in the banking sector by working on a real time and pre-funded basis. In line with other RTGS systems around the world, the transfers through ZIPSS are honoured immediately, against sufficient available funds at the banks' settlement accounts held at BoZ. Membership to ZIPSS is limited to commercial banks with a 'clearing bank' status, but a non-bank is allowed to use ZIPSS through a sponsorship arrangement with a member bank.

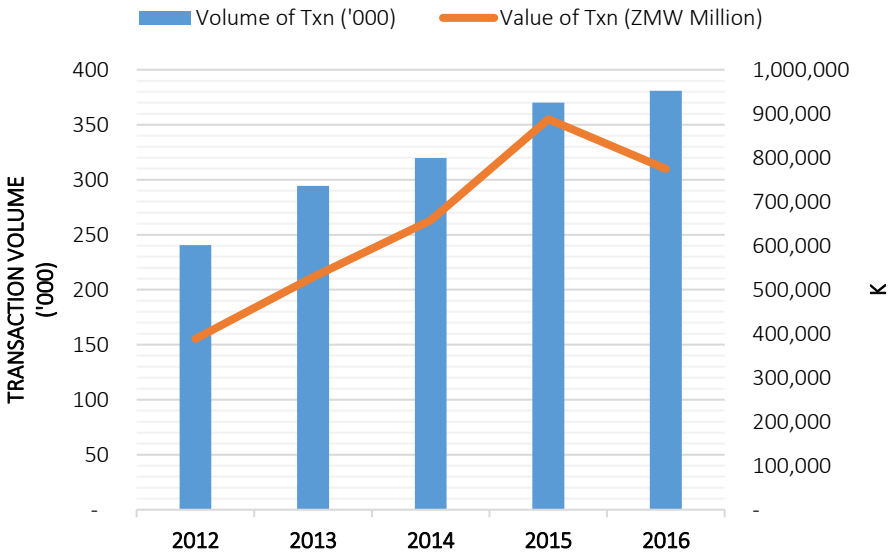
As a typical RTGS system, ZIPSS is designed to handle relatively low volumes of high-value transfers on a gross basis (i.e., individual transactions). However, bank account holders can make transfers of any value using ZIPSS, by issuing a specific instruction to their banks and paying a fee freely determined by each bank. Such transactions are usually settled faster than using the credit and debit transfer instruments that need to pass through the clearinghouse. However, institutional clients of banks largely

28 Bank for International Settlements and International Organization of Securities Commissions, *Principles for financial market infrastructures* (n.p., April 2012).

use ZIPSS for large value transfers mostly in urban areas of Lusaka and Copperbelt province given the limited awareness about this service among retail customers (individuals).

Another possible deterrent for using ZIPSS for smaller value interbank transfers may be the high fees charged by some banks. This is despite the fixed low charges imposed by BoZ on banks. BoZ fees are not based on cost recovery, but are rather meant to promote the use of the system.

Figure XI
ZIPSS (RTGS) transactions – value and volume



As depicted above, the total number of RTGS transactions has increased by 12% while the total value of these transactions has increased by 19% during the period 2012–2016. Further, the average value of an RTGS transaction increased from K1.61 million to K2.40 million during the period 2012–2016. Extrapolating to the end of FY2016, the total volume of RTGS transactions was 380,808 while the total value of these transactions was K774,240 million.

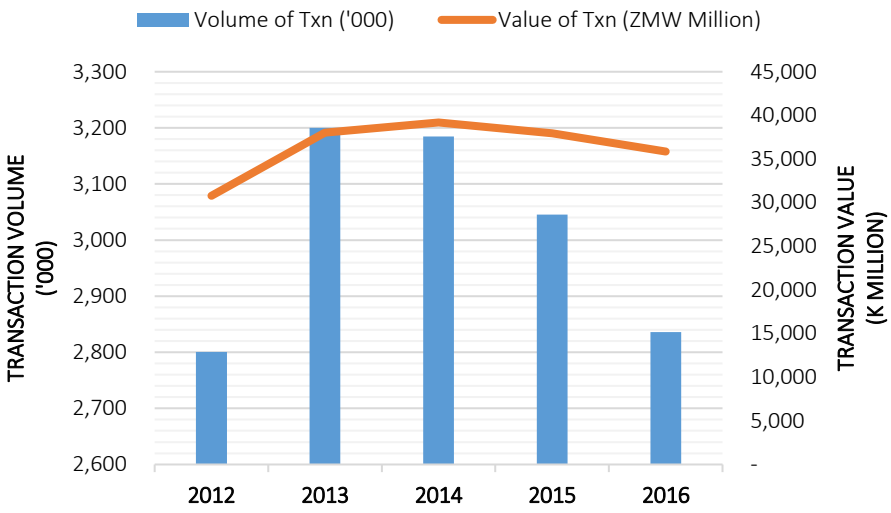
ZIPSS has significantly helped GRZ and other institutions (public and private) to transition high-value payments from paper-based to digital payment instruments.

Cheque Truncation System

Cheque Truncation System (CTS) was introduced in 2013 by BoZ in conjunction with the Bankers Association of Zambia, for faster clearing of cheques. ZECHL is responsible for implementing CTS through a Cheque Image Clearing process. It involves sending an electronic image of the cheque together with its 'Magnetic Ink Character Recognition (MICR)' data, and other relevant fields such as date of presentation, presenting bank's name etc. The implementation of CTS has improved the flow and availability of funds in the economy and given way to greater benefits such as –

- Elimination of the time-consuming and expensive process of physical presentation of cheques, resulting in cost savings; and
- Shortening of the clearing period and standardising it across the country to T+1 days (cheque value will be provided one day after it has been deposited in a bank account).

Figure XII
Cheque transactions – value and volume



As depicted above, the total number of cheque transactions has increased by 0.31% while the total value of these transactions has increased by 3.89% during the period 2012–2016. Further, the average value of a cheque transaction increased from K10,992 to K12,644 during the period 2012–2016. Extrapolating to the end of FY2016, the total volume of cheque transactions was 2,836,084 while the total value of these transactions was K35,860 million. Payments through cheques initially witnessed an increased uptake since the implementation of CTS as it takes only two days for the payee to receive the value. However, the use of cheques has reduced over the last two years mainly on account of the increase in non-cash payment instruments such as direct debits and standing payment orders. Furthermore, the usage of cheques is skewed towards the urban and peri-urban areas owing to the availability of bank branches. Another possible deterrent to using cheques for the rural population is the low penetration of bank accounts. Also, a number of financial service providers have reported instances of fraudulent transactions involving the use of cheques as well as unpaid cheques.

In order to promote electronic payment methods, BoZ has revised item value limits (IVLs) on cheques in October 2016.[29] The IVL for 'Local Kwacha Cheques' cleared through ZECHL has been reduced from K100,000 to K25,000 while the IVL for 'Local Cheques' presented over the counter has been increased from K0 to K25,000. The revision in the IVL will significantly reduce the dependence on cheques and promote other electronic payment methods such as EFT (DDACC), and electronic transfers/mobile money payments.

Direct Debit and Credit Clearing System

Along with the cheques, ZECHL is also responsible for clearing electronic interbank fund transfers through a DDACC system. These transactions include direct debit transactions, direct credit transactions, wire transfers, and online payment services among others.

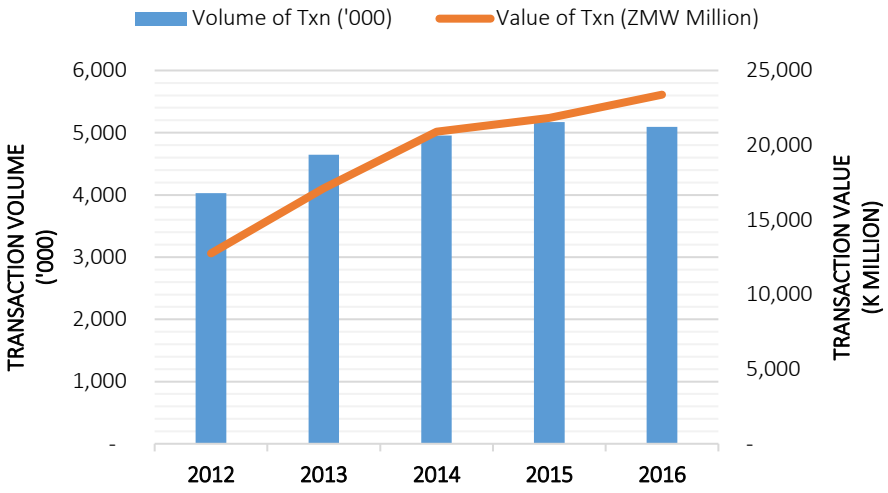
Although, interbank transfers are supposed to be cleared by ZECHL and settled at ZIPSS on the same day, the timing may vary depending on the efficiency of the processing. Specifically, the timing depends on the file exchange between banks and ZECHL, and between ZECHL and ZIPSS. ZECHL has one daily

29 Bank of Zambia, 'Revision of Item Value Limits on Cheques and Electronic Funds Transfers,' CB Circular No. 06/2016 (Lusaka, October 2016).

interaction with ZIPSS and the process requires manual intervention, which gives room for errors and delays. The file transfer from banks to ZECHL is also manual, creating the same potential problems.

Although the value and volume of electronic interbank fund transfers have increased over the last five years owing to usage by GRZ and other institutions, they are still perceived as an unattractive payment system owing to the longer transaction time, inefficient processing, and lack of a bank switch. BoZ is cognizant of these inefficiencies and is implementing straight-through processing with ZECHL and banks, without any manual intervention. This automation would guarantee faster and more reliable finalization of interbank transfers than what is offered to customers today, increasing trust in electronic interbank transfers.

Figure XIII
DDACC (EFT) transactions – value and volume



As depicted above, the total number of DDACC transactions has increased by 6% while the total value of these transactions has increased by 16% during the period 2012–2016. Further, the average value of a DDACC transaction increased from K3,166 to K4,588 during the period 2012–2016. Extrapolating to the end of FY2016, the total volume of DDACC transactions was 5,096,225 while the total value of these transactions was K23,381 million.

The surge in the use of DDACC transactions is largely due to the increase in online bill payments and purchases. However, the surge is largely skewed towards the urban areas owing to the lower concentration of bank branches and lower penetration of bank accounts in the peri-urban and rural areas.

Also, in order to promote electronic payment methods, BoZ has revised IVLs on EFTs in October 2016.[30] The IVL for 'Direct Debits' has been increased from K50,000 to K75,000 while the IVL for 'Direct Credits' has been increased from K100,000 to K500,000.

ATMs and POS devices

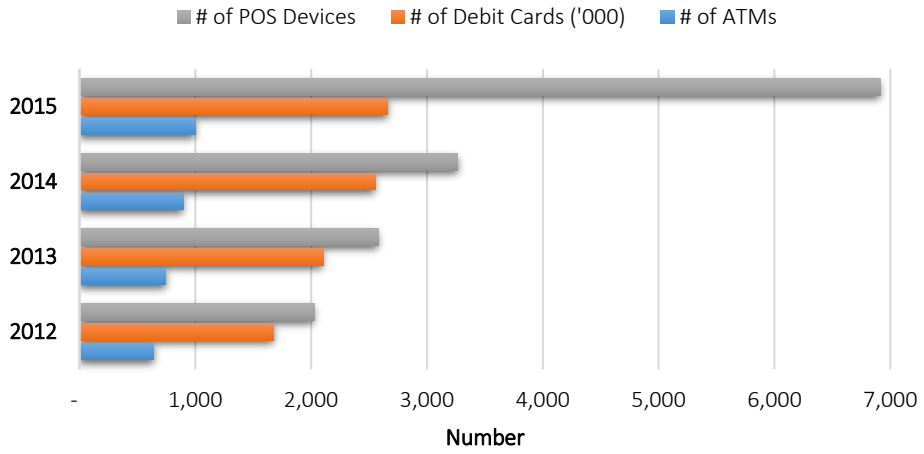
The numbers of ATMs, POS and debit cards in Zambia have witnessed a significant growth during the 2012–2015 period (ATMs-11.67%; Debit Cards-12.22%; POS-.35.94%). Despite having increased in

30 Ibid.

numbers, the ATMs and POS remain highly concentrated in Lusaka and other urban areas of Copperbelt and Livingstone.

FinScope 2015 findings indicate that 56.4% of the Zambian adults cannot reach a bank branch/ATM within an hour. This barrier is significantly skewed towards rural areas (where it affects more than 75% of adults) and adults from low-income households (PPI 1 and 2, which affects more than 60% of adults).

Figure XIV
Number of ATMs, POS devices and debit cards

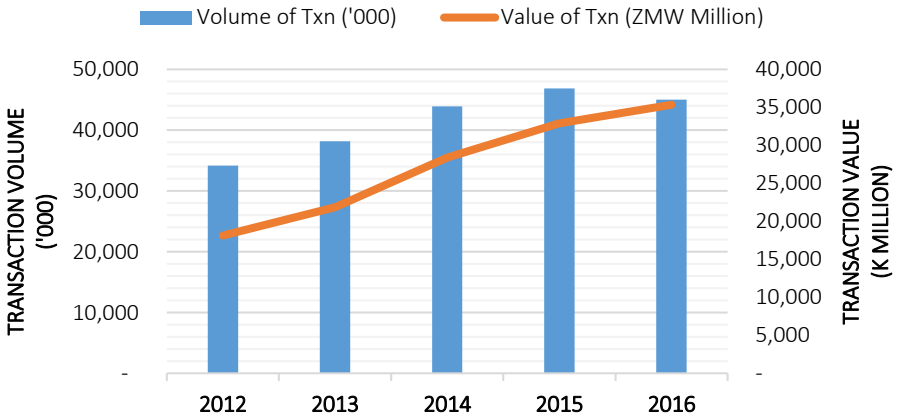


Automated Teller Machines (ATMs)

ATMs are usually available to the existing bank customers only, as most of the services available at an ATM require a bank card to conduct transactions. Most of the ATMs are proprietary to individual banks and do not interconnect between different banks, with the exception of the 40 ATMs connected to Zamlink, a local switch. For banks not using Zamlink, interoperability for withdrawals is only possible using Visa and MasterCard switching outside Zambia, which makes withdrawals considerably more expensive.

ATMs are overwhelmingly used for cash withdrawals as majority of the retail payments in Zambia are based on the exchange of cash between the transacting parties.

Figure XV
ATM debit card transactions – value and volume



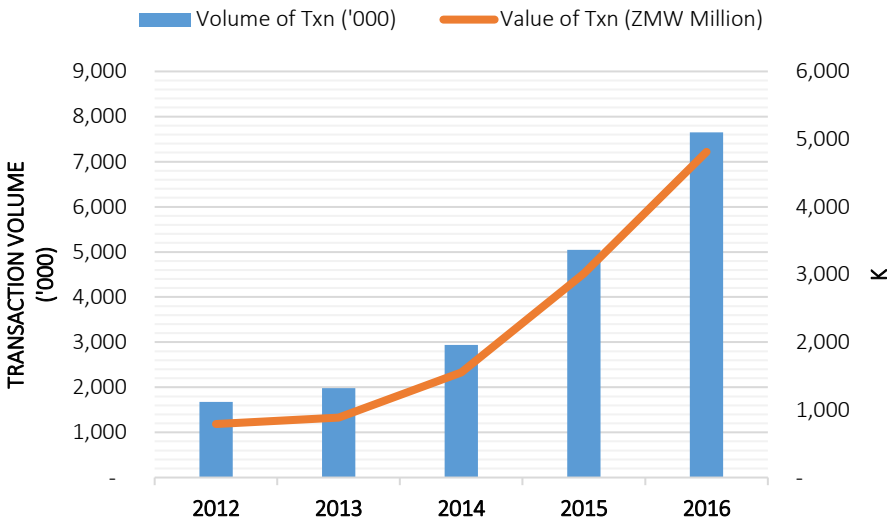
As depicted above, the total number of ATM-Debit Card transactions has increased by 7% while the total value of these transactions has increased by 18% during the period 2012–2016. Further, the average transaction value has increased from K531 to K785 during the period 2012–2016. Extrapolating to the end of FY2016, the total volume of ATM-Debit Card transactions was 45,028,829 while the total value of these transactions was K35,342 million.

POS devices

POS devices facilitate increased accessibility to customers' funds and allow transactions to occur immediately, eliminating the need to walk into a bank branch or to an ATM machine to withdraw cash. However, like the ATMs, the POS machines in Zambia are available to existing bank customers only, as most of the services available require a banks card to conduct transactions.

Visa and MasterCard enabled POS devices were introduced in Zambia to promote card-based electronic merchant payments. While most of the 19 commercial banks operating in Zambia have introduced debit and/or credit cards to their customers, only four banks have rolled-out Visa and/or MasterCard enabled POS devices to merchants. The uptake of the POS device rollout by the commercial banks may also be attributed to the in interest exhibited by GRZ in using these POS-based services for receiving payments. When GRZ started the procurement exercise in 2012, only one bank had Visa/MasterCard POS devices. However, with growing interest by GRZ in using these services, three other banks pushed ahead their Visa acquirer accreditation to roll out POS devices.

Figure XVI
POS device transactions – value and volume



As depicted above, the total number of POS device transactions has increased by 46% while the total value of these transactions has increased by 57% during the period 2012–2016. Further, the average transaction value has increased from K471 to K629 during the same. Extrapolating to the end of FY2016, the total volume of POS device transactions was 7,650,331 while the total value of these transactions was K4,812 million.

Despite the increase in transactions, the use of POS devices is still low compared to other payment mechanisms such as cheques, DDACC and ATM withdrawals. Moreover, the POS devices are mostly concentrated in urban areas and are rarely used in rural areas, except at tourist attractions. Two of the key demand-side deterrents to the use of POS devices are the low penetration of bank accounts and

the fact that POS are regarded to be unreliable. Frequent problems such as unsuccessful transactions, misunderstanding about the fees, and lack of connectivity also dissuade customers from regularly using POS devices to make payments.

On the supply-side, the major deterrent to use of POS devices is the high costs involved comprising of the interchange fees and discount rate. Card-based transactions attract an interchange fee, which is paid by the acquirer banks (banks which issue POS devices to merchants) to the issuer banks (banks which issue cards to the customers). The issuer bank in a payment transaction deducts the interchange fee from the amount it pays the acquiring bank that handles a credit or debit card transaction for a merchant. The acquiring bank then pays the merchant the amount of the transaction minus both the interchange fee and an additional fee for the acquiring bank, which is often referred to as a discount rate. Due to the limited number of acquirer banks in comparison to issuer banks, the cost of maintaining a POS device is higher in Zambia than in many other markets. As a result, merchants do not encourage card-based electronic payments at their outlets. Also, in most of cases, this cost is passed on to the customers over and above the transaction amount, which is prohibited by BoZ. This further discourages the use of debit and/or credit cards among the customers.

BoZ is cognizant of the challenges associated with the usage of ATMs and POS devices and has been working with the Bankers Association of Zambia and other stakeholders to implement NFS (see above). Implementation of NFS will facilitate interoperability between various financial service providers in Zambia, thereby increasing access and reducing cost of financial services due to its shared infrastructure.

Kazang Zambia (Spagris Zambia), operational since 2007, is a leading electronic micro payment and is a distributor of POS devices to a large range of retailers, the post office and even banks. Kazang has more than 2,500 active POS devices spread across 62 towns in Zambia offering mainly bill payments, airtime top ups and (soon) money transfers. Kazang has integrated its system with Zambia National Commercial Bank, Barclays Bank, Finance Bank Zambia Limited, Investrust Bank Plc, Cavmont bank, Natsave bank, Access bank, Stanbic, Standard Chartered, First Capital bank, BancABC, First National Bank, MTN Mobile Money and Airtel Money.

It is interesting to observe that a non-bank entity such as Kazang has successfully deployed the POS devices throughout the country, while the banks are yet to scale-up their POS deployments and are waiting for NFS to operationalize.

Payment Systems Business

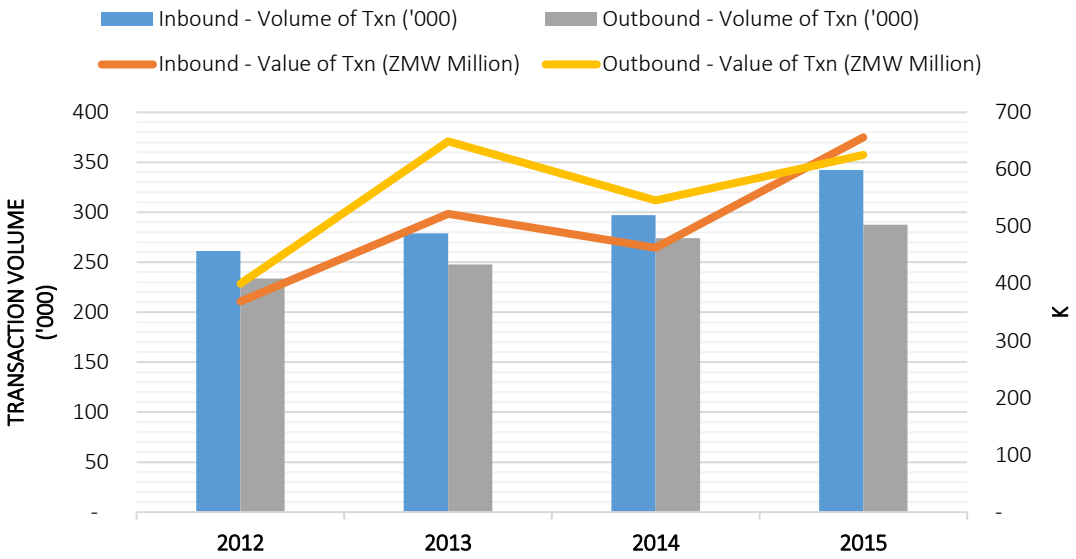
There are a number of bank and non-bank payment service providers, or payment system businesses, as formally defined by the National Payment Systems Act of 2003, that are in *'the business of providing money transfer or transmission services or any other business the Bank of Zambia may prescribe as a payment system business.'* BoZ licences are based on the type of payment system business in which these providers are engaged – Money Transmission Service and/or Mobile Money Service.

Money Transmission/Remittance Service

Most licensed MTS providers, i.e., banks and nonbanks are agents of remittance service providers such as Western Union and MoneyGram. This category does not differentiate traditional remittances services from e-money or mobile money services such as those provided by MTN Mobile Money. Remittance providers are free to price remittance services without any regulatory intervention. As it occurs in some of other countries, the exchange rate used by Western Union and MoneyGram agents are not revealed to the sender, raising transparency concerns. Banks, in addition to being agents for

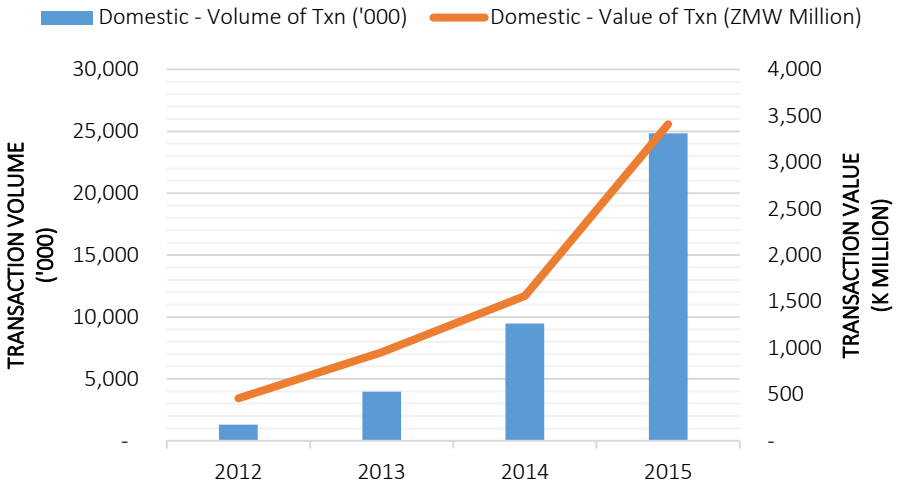
money remitters, also offer telegraphic transfers, which can, in most cases, only be made when both senders and beneficiaries are banked.

Figure XVII
Inbound and outbound remittance transactions – value and volume



As depicted above, the total number of inbound remittances has increased by 7% while the total value of these inbound remittances has increased by 16% during the period 2012–2015. Further, the average transaction value has increased from K1,411 to K1,917 during the same period. The total number of outbound remittances' transactions has increased by 5% while the total value has increased by 12% during the period 2012–2015. Further, the average transaction value has increased from K1,711 to K2,177 during the same period.

Figure XVIII
Domestic remittance transactions – value and volume



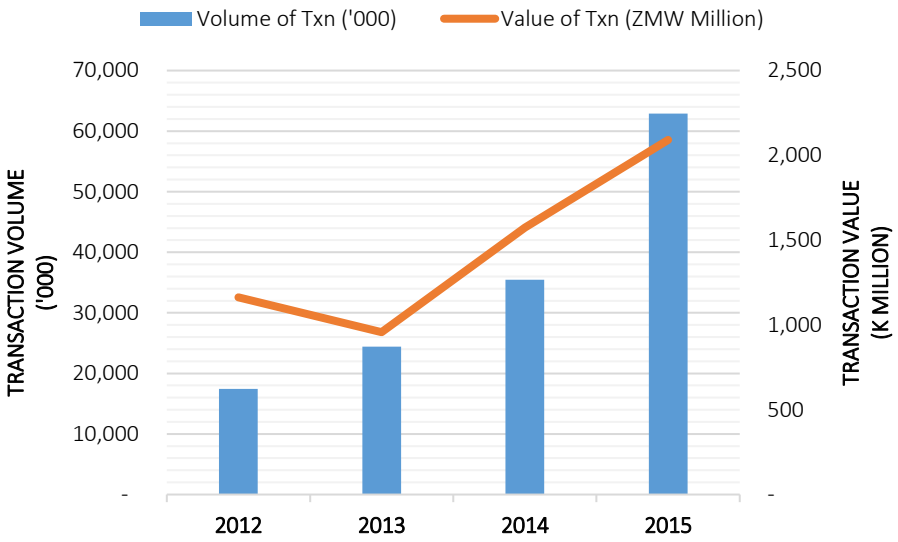
As depicted above, the total number of local/domestic remittances has increased by 109% while the total value of these local/domestic remittances has increased by 65% during the period 2012–2015. However, the average transaction value has decreased from K348 to K137 during the same period.

Mobile Money Services

In a bid for financial inclusion and specifically targeting the unbanked and underbanked, telecommunication service providers such as Airtel and MTN launched their mobile money services, Airtel Money and MTN Mobile Money, in Zambia in 2011 and 2012 respectively, as a 'Payment System Business' regulated by BoZ under the National Payment Systems Act, No. 1 of 2007. Airtel Money and MTN Mobile Money offer the following services to its customers –

- Money transfer service (P2P, P2U and P2B) and cross-border remittance service;
- Utility Bill payments for electricity and water;
- Top-ups for airtime, satellite TV;
- Insurance premium collections on behalf of insurance companies;
- Bulk payments for corporate customers for payments to employees and suppliers; and
- Credit services for mobile money customers.

Figure XIX
Mobile money transactions – value and volume



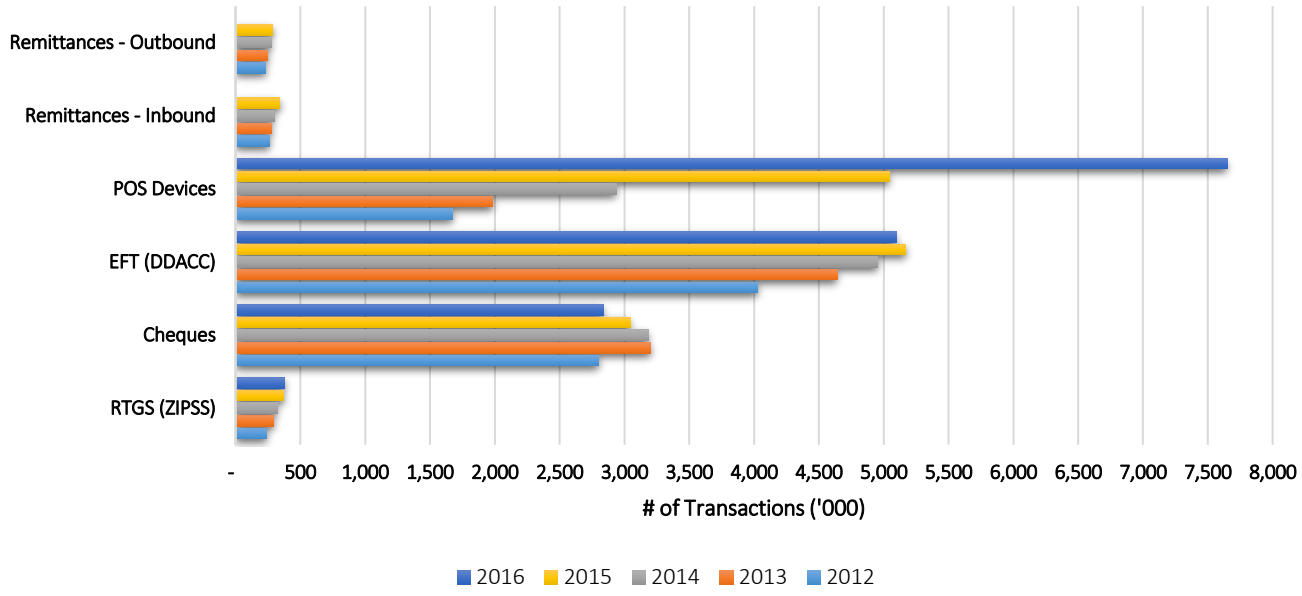
As depicted above, the total number of mobile money transactions has increased by 53% while the total value of these transactions has increased by 22% during the period 2012–2015. However, the average transaction value has decreased from K67 to K33 during the same period. The increase in domestic remittances transactions may be attributed to the growing increase in the financial services access points, enabled by mobile money service providers' agents network.

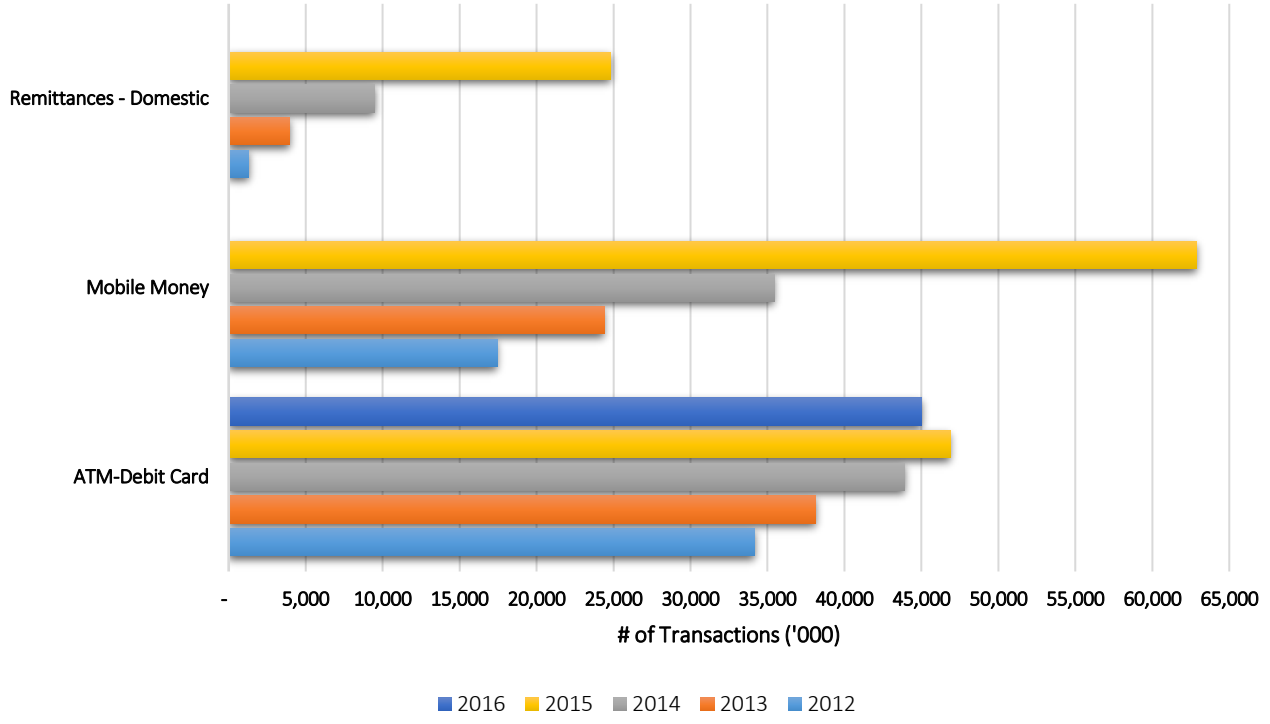
Similar to money transfer services, charges for mobile money services are tiered with lower charges up to an amount of K150, which has also contributed in the reduction of the average transaction value.

The increase in mobile money transactions has significantly reduced the dependence on cash and other paper based payment instruments among the Zambian adults for high-volume and low-value

transactions. With the expected increase in the penetration of these services in the country, the share of electronic /digital transactions is expected to increase over the next few years

Figure XX
Payment systems business – transaction volume summary





F. Sources

The analysis presented in this document draws on public and proprietary data, documents and interviews with staff at institutions across the payment ecosystem.

Interviews

Table 15
List of institutions and individuals consulted

Institution	Individuals
Ministry of Finance (MoF)	Ms Tamala S. Ngoma, Deputy Accountant General – Treasury Services Levy Mwanza, Chief Accountant Brighton Simutowe, Principal Accountant Hector Sampa, Principal Accountant Albert Musukwa, Accountant Caroline Kabanga, Accountant
Bank of Zambia (BoZ)	Miriam Kamuhuza, Assistant Director – Payments Systems Division Waza Nguni, Analyst – Payments Division Jimmy Couvaras – Payments Division Brenda Mwanza, Assistant Director – Economics Department Jacob Lungu, Senior Economist-Economics Department
National Pension Scheme Authority (NAPSA)	Asa Msusa, Distribution Manager Edwin M. Kankutula, Revenue Accountant Kalaba Mwimba, Contributions Manager Eltone Makaliki, IT Manager
Ministry of Local Government and Housing (MLGH)	Machawi Cecilia Litaka, Senior Accountant Moria Mwewa, Accountant Celana Janet Mwanza, Assistant Internal Auditor
Zambia Electronic Clearing House Limited (ZECHL)	Linda Mazokera NFS Project Manager Morgan Chishala, NFS Project Team Member Mary Phiri, NFS Project Team Member
Zambia National Commercial Bank (ZANACO)	Francis Musonda, Head of Public Sector Banking
Central Statistics Office	Batista Chilopa, Principal Statistician
Centre of Excellence for E-Gov and ICT - E Government Division	Regina Mwishabati, Senior Systems Analyst Chisola Simasiku, Senior Systems Analyst – Project Manager
Zambia Revenue Authority (ZRA)	Brigitte N. Muyenga, Commissioner Finance Chiseche Ng'oma Chellah, Assistant Director Treasury Finance
Ministry of Community Development and Social Services (MCDSS)	Simmy Chapula, Director – Policy, Planning, and Information Kennedy Mumba, Chief Social Welfare Office Ellison Siansimbi, Chief Community Development Officer
Ministry of Health	Robert Mvula, Principal Accountant
Gesellschaft für Internationale Zusammenarbeit (GIZ)	Megan Gray, Advisor

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