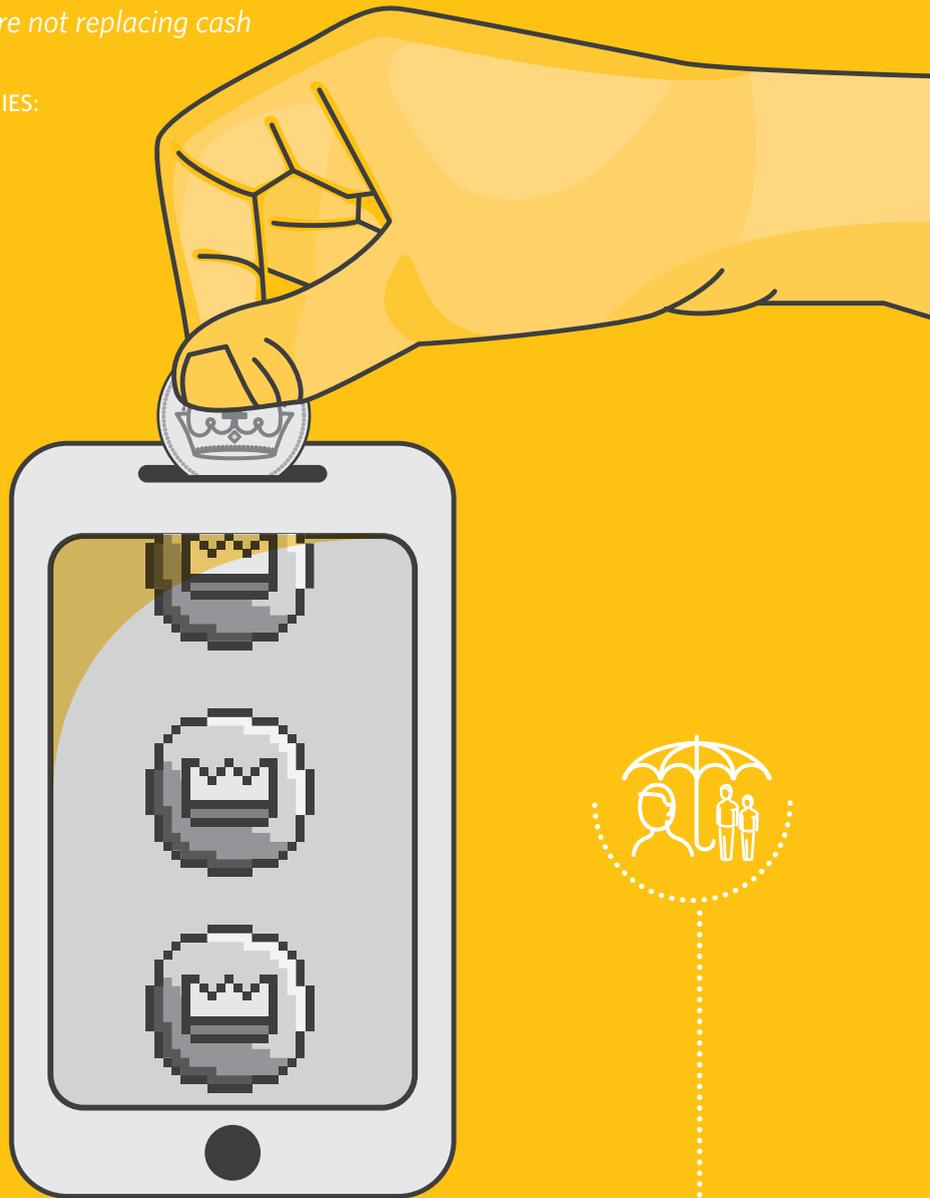


The king is (not) dead

Why digital payments are not replacing cash

MAP GLOBAL INSIGHTS SERIES:
NOTE 5 | 2016



About the Making Access Possible Programme

Making Access Possible (MAP) is a multi-country initiative to support financial inclusion through a process of evidence-based analysis feeding into a financial inclusion roadmap jointly implemented by a range of local stakeholders.

MAP was initiated by the United Nations Capital Development Fund (UNCDF) and is implemented in partnership with FinMark Trust and the Centre for Financial Regulation and Inclusion (Cenfri). In each country, MAP brings together a broad range of stakeholders from within government, the private sector and the donor community to create a set of practical actions aimed at extending financial inclusion tailored to that country.

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Series authors: *Hennie Bester, Jeremy Gray, Christine Hougaard, David Saunders and Albert van der Linden*

Series editor: *Kameshnee Naidoo*

Editing and proofreading: *Jacquie Withers*

Design and layout: *Garage East*

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About the cover

In considering why cash still reigns supreme and why digital payment options are slow to enter the succession battle in the MAP pilot countries, the cover depicts the subordinate relationship between the two: given that people currently live almost their entire financial lives in cash, digital will only gain support from the populace when encashment infrastructure becomes ubiquitous, and when points of conversion from cash to digital/digital to cash become more freely available across the entire system.

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MAP GLOBAL INSIGHTS SERIES
NOTES | 2016



The MAP Global Insights series

The MAP Global Insights series consolidates and synthesises the learnings from MAP across the MAP pilot countries. The first of the MAP Global Insights products comprises five thematic cross-country notes plus a concluding note, based on the initial round of findings from the country diagnostic studies, which have been conducted in Thailand, Myanmar, Swaziland, Mozambique, Lesotho and Malawi.



NOTE 5 focuses on cash as a payment instrument to explore the largely undiminished popularity of cash. The different payment needs of consumers are introduced, analysed and compared with regard to the use of cash versus digital instruments.



NOTE 1 unpacks the target market segmentation approach that is central to the MAP methodology of putting the client at the core of the analysis. Note 1 provides a window into the emerging cross-country segments, and the implications for providers, policymakers and donors in this regard.



NOTE 2 explores the shift in financial inclusion measurement away from focusing solely on access to more closely match the realities of how adults live their financial lives and explores the policy implications of moving away from a linear, one-dimensional view of financial inclusion.



NOTE 3 looks at the nature of informal financial services. It shows that it is the local nature of these financial services, rather than their informal nature, that makes them valuable for the majority of consumers in these countries.



NOTE 4 considers the gap between ownership and usage of bank accounts. The note queries whether bank accounts are always the appropriate product for increasing customer welfare, and argues the need for a paradigm shift away from focusing on ownership to a focus on usage in the context of a wider, systems approach.



NOTE 6 draws together the findings from this Global Insights series. It shows that the MAP evidence calls for a rethink of conventional financial inclusion assumptions, based on a consumer decision-making framework that emphasises economic incentives, cost and value.

Getting to grips with the enduring popularity of cash

The research in the first six MAP pilot countries revealed that nearly all adults make payments, and that most payments are actually made frequently, multiple times a day or week. These payments range from buying groceries or clothing, for example, to paying school fees or utility bills, and sending money to family members. Furthermore, nearly all adults rely on payments to interact with other financial services. Each time someone purchases insurance, pays back a loan or deposits their income into a savings mechanism, they make a payment. With the exception of barter, where people exchange goods and services, people make these payments using *payment instruments*.

Across the first six MAP countries (Thailand, Myanmar, Mozambique, Lesotho, Swaziland and Malawi), cash was found to be overwhelmingly the most common payment instrument used.

While the six MAP pilot countries can be classified as 'lower-income developing', reliance on cash is also popular in emerging markets. For example, in Mexico, 90% of all consumer payments are still made in cash, accounting for 75% of the value of consumer payments (Fletcher School 2014a). And in India, 87% of all payments are cash based (Fletcher School 2014b). Even in the UK, 48% of all transactions are carried out in cash (Payments UK 2015).

Globally, the financial inclusion agenda has focused on migrating consumers, providers and governments to digital payment instruments, in a bid to reduce the cost of payments and to allow for the digitisation of other services for which payments are required (e.g. savings, credit and insurance). Global advocacy groups have emerged and are supporting and guiding governments on their path to digitisation. However, despite the increasing focus on and availability of digital or electronic payments, very few adult consumers in the six MAP countries are using digital instruments to meet their payment needs.

This note draws on the evidence from the six MAP pilot countries to understand why consumers still use cash, despite the availability of digital payment instruments and despite the energetic advocacy efforts for the adoption of digital options. In doing so, Note 5 introduces the different types of payments for which people require payment instruments, and estimates the proportion of these payment needs that are satisfied through the use of cash rather than digital instruments. The note analyses why cash is ultimately preferred to digital, but also demonstrates where digital payments are gaining ground. Finally, there are suggestions for why digital payment providers are struggling to respond in a manner that will migrate more cash payments to digital channels, and discussion of the implications for providers, policymakers and donors.



Focus on cash as a payment instrument

This note focuses on cash as a *payment instrument* only and not as a store of value. Note 4 showed that, across the six MAP pilot countries, people overwhelmingly use cash as an instrument to store value or save in a safe place at home (under the proverbial mattress). ‘Home savers’ make many small deposits and withdrawals into and from their cash stored at home. The cost of these payments is minimal, as there is no requirement to convert the cash into digital value and vice versa.

Note 5 does not deal separately with the preference for storing value in cash rather than digital, but only as a preference for use as a payment instrument to fulfil payment needs.



Defining digital payments and different payment needs

In this note, digital payments are defined as transfers of value that are initiated and/or received using electronic devices and electronic channels to transmit the instruction. For the data analysis section of the note, every instrument other than cash is regarded as ‘non-cash’ and therefore digital, since each usually takes a digital form at some stage in the transfer of value. However, in-kind payments or payments in goods and services (i.e. barter) are not considered in this analysis.

All payments involve the transfer of value from one person to another. Nevertheless, not all payments serve the same customer needs. Sometimes a person requires no more than transferring value to a corner merchant for purchasing a kilo of maize or rice. Yet, the same person may at another time want to transfer value to a parent living 300 kilometres away in a rural area, or pay a municipal electricity bill. That person might want to transfer value to a sibling living across the border in another country. And very often, the person might want to exchange value held electronically into cash and vice versa, which entails transferring value to a financial institution or intermediary and receiving the same value, minus the cost of the transaction, in return. These different types of payments have different technical and legal characteristics, and identifying these can take us some way towards explaining the ‘stickiness’ of cash in relation to some payments and not others. We use three parameters to create different categories of payments:

- *Physical presence vs distance*: Whether or not the payer and final payee are in each other’s physical presence for the payment.

- *Required vs unrequired*: Whether the payment is required or unrequired; that is, whether or not the payer makes the payment in return for a good or service (i.e. owes payment to the payee).
- *Domestic vs cross-border*: Whether or not the payment involves sending money across a national border, which requires conversion into a different currency.

Based on these parameters, we can define four different payment needs that are generic to all consumers and societies and can be performed either digitally or in cash:

- *Local payments*: These are payments where the payer makes payment to the final payee and both are physically present at the same location at the moment of the payment: for example, buying a loaf of bread over the counter, or a parent handing over cash to a child to spend as he or she deems fit. The payment may be *required* or *unrequired* (i.e. may or may not be owed to the payee).
- *Required transfers*: These are payments where the payer needs to transfer value over distance to the payee situated at another location *in return for a good or service received* (i.e. the payment is owed to the payee). This type of payment is often also referred to as a ‘bill payment’ – for example, paying your electricity account at the local post office, or buying airtime online – although we prefer the generic term ‘required transfer’, since not all required transfers over distance are made in response to the receipt of an invoice or bill.
- *Unrequired transfers*: These are payments where the payer wants to transfer money over distance to a payee to whom he or she *owes nothing*. Remittances fall into this category. From both a practical and a legal perspective, there are differences between local unrequired transfers and cross-border ones.
- *Encashment*: People need this type of payment when they want to *convert* cash into digital value, issued by a financial institution, or vice versa. Having an account with a financial institution is not a prerequisite for encashment, as many non-account-based remittance services testify. Encashment is an important need to state explicitly due to its role in the evolution of digital payments.

The above needs and definitions are summarised in Table 1.

The remainder of the note evaluates what payment instruments people use to fulfil these payment needs across the six MAP pilot countries, looking specifically at the use of cash compared to digital payment instruments.

	Physical presence	Distance	Required	Unrequired	Domestic	Cross-border
Local payments	X		X	X	X	
Required transfer		X	X		X	X
Unrequired transfer		X		X	X	X
Encashment	X		X		X	

TABLE 1: Summary of needs and definitions in terms of three parameters

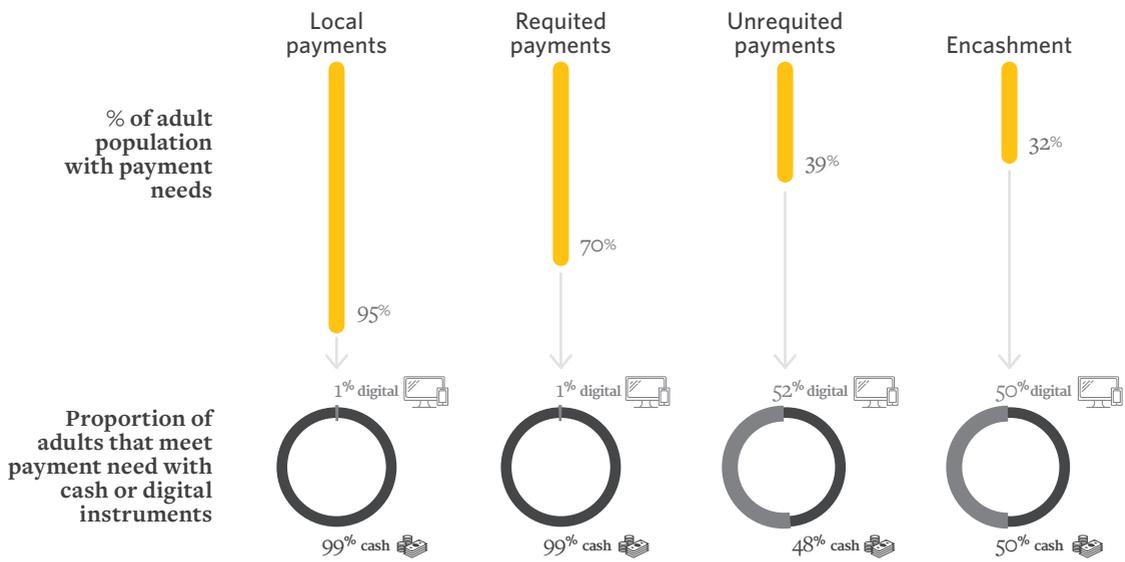


FIGURE 1: Percentage of adults that report payment need across the six MAP countries, and whether they use digital or cash instruments to meet it
Source: FinScope Consumer Surveys.



FIGURE 2: Percentage of banked adults residing in urban areas who use cash vs digital instruments for local payments: Thailand, Myanmar, Lesotho, Swaziland, Malawi
Source: FinScope Consumer Surveys.

What are we finding? Use of cash predominates over digital payments

This section draws on the findings from the FinScope Consumer Surveys in the six MAP pilot countries to highlight the extent of cash usage compared to digital payment usage for the four payment needs identified above.

Cash remains king. While digital instruments are being used to satisfy some of the payment needs identified above, this comprises a very small proportion of total payments, and cash remains the preferred method of payment across the six MAP countries. For example, as stated in Note 4, in Malawi, the Better Than Cash Alliance (BTCA) estimates that 99.7% of all payments are conducted in cash (BTCA 2013).

Not all payments are equal. Above we introduced the four most common payment needs identified across the six MAP pilot countries. However, the degree to which people fulfil these payment needs differs. Figure 1 shows the percentage of people across the six MAP pilot countries that make local, requited, unrequited and encashment payments, respectively. Furthermore, it shows the proportion of these needs that are met by cash compared to digital payment instruments.

It is important to note that the data in Figure 1 does not take into account the frequency of usage of the different payment mechanisms. If this analysis were done on a volume-of-payments basis rather than on the basis of

percentage of adults, local payments would even further dwarf the other payment needs. For example, BTCA (2013) estimates that 95.8% of all payments made in Malawi are person-to-business payments, which would fall into our category of local payments.

Local payments

In terms of payments, local payments dominate. As Figure 1 shows, nearly all adults in the six MAP pilot countries reported that they make local payments. (Local payments include expenditures for running one's dwelling, expenses for transport, food and other groceries, clothes, education and school fees, expenses for agriculture/farming, expenses for one's business, and so on.)

Local payments almost exclusively in cash. Across the MAP pilot countries, 99% of adults make local payments almost exclusively in cash. Furthermore, Figure 2 shows that this does not change for adults that already have bank accounts with transactional functionality and live in urban areas, where digital infrastructure is better. Therefore, in those countries, even among consumers in proximity to digital payment infrastructure and already owning the tools to make digital payments, the use of cash for local payments is pervasive.

It is also worth noting that even large business payments still happen in cash. For example, although Mozambique is not included in Figure 2 (because the question was not included in FinScope), in that country fuel stations still pay their suppliers in cash (as discussed in more detail in Box 1).

Box 1: Extent of cash payments in Mozambique

Reliance on cash is entrenched not only in individual consumer behaviour but also in business behaviour. This is demonstrated by the case of fuel company Petromoc. Some of its fuel stations have electronic payment capabilities, but people mostly still pay for wholesale fuel in cash. Cash is the predominant means of transacting in the broader economy, and therefore it follows that consumer-driven payments tend to gravitate to the common transaction medium, which in turn requires businesses to deal with large amounts of cash. This means that Petromoc's filling stations, some of which are independently

owned franchises, tend to have cash on hand for payment of petrol deliveries, and are not in a position to make real-time or verifiable electronic funds transfers. Furthermore, due to connectivity issues, slow interbank transfers and poor interoperability in the payments system, Petromoc tends to prefer payment in cash (and, in a few instances, by cheque), as truck drivers can verify payment immediately and then either deposit collections into Petromoc's bank account at the nearest BCI (*Banco Comercial e de Investimentos*) branch, or return with the payments to one of Petromoc's depots.

Cash payments also better accommodate petrol sales being made on the spot, as truck drivers make sales based on the petrol

physically available in the truck or the float levels of the holding tanks. This reduces the logistical burdens of monitoring how much petrol is available for delivery and matching this with payments made in advance.

Such business practices have evolved out of the dominance of physical cash or cheque transactions throughout the economy, coupled with the non-availability of real-time, verifiable wholesale payment modalities, accessible and reliable enough to reduce payment risk at the point of delivery. A change in behaviour, therefore, will require that consumers, businesses, parastatals, banks and governments evolve in tandem.

Source: MAP Mozambique (2015).

Required transfers

Big need for required transfers. As Figure 1 shows, required transfers are the second largest payment need, with 70% of the adult population across the MAP pilot countries reporting that they make a required transfer. In this analysis, required transfers are limited to bill payments. (Salary payments are also considered required transfers – but for the government or employer who is paying for the service, not the consumer. However these do give rise to important payment needs for consumers, because the people who receive them need to encash them. This is dealt with in the section on the encashment payment need.)

Bill payments include payments for airtime and telephone bills, loan repayments and insurance payments. The largest and most frequent bill payments across the MAP pilot countries are airtime and telephone bills, with 59% of adults making these payments. Payment of required transfers in cash are typically completed either by the sender self-delivering the cash or, for example, by using existing informal channels such as taxi or bus drivers, or informal payment brokers, to physically deliver the cash on behalf of the sender.

Required transfers occur in cash, but digital payments for airtime growing. Across the six MAP pilot countries, 99% of required payments occur in cash. However, the use of digital payment instruments for airtime is on the rise. Figure 3 shows that in Swaziland, where out of all the six countries the use of mobile money is most pervasive, there is some use of mobile money for airtime purchases. This was also confirmed in the supply-side consultations with mobile money providers in Lesotho (MAP Lesotho 2014) and Malawi (MAP Malawi 2015), which indicated that between 40% and 50% of mobile money transactions were used for airtime payments.

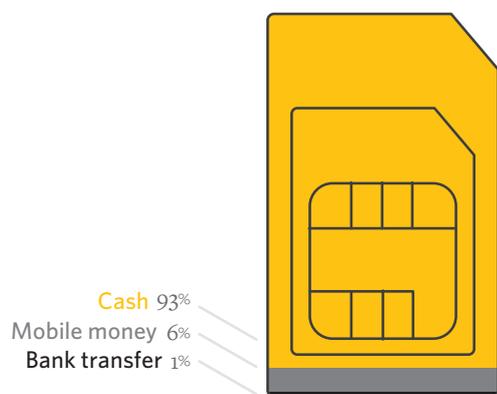


FIGURE 3: Payment instruments used for airtime purchases by mobile money users in Swaziland
 Source: FinScope Swaziland 2014.

Unrequited transfers

Unrequited transfers small and infrequent. Figure 1 shows that unrequited transfers are the second smallest of the four payment needs identified across the MAP countries. Only 39% of the adult population make unrequited transfers. As mentioned, unrequited transfers are typically person-to-person remittances made over distance, either domestically or cross-border. While more adults (34%) make domestic unrequited transfers of value, there is still a large cross-border payment need (11% of adults), for migrants that have left the country in search of better work but wish to send money home to their friends and family. (Given that the sample for the FinScope Consumer Survey is only adults that currently reside in that country and that migrants are thus excluded, we use the percentage of adults that receive remittances from abroad as a proxy for the percentage of adults that have this payment need.)

Unrequited transfers is payment need most satisfied through digital. Of adults making unrequited transfers, 52% use digital instruments, of which bank transfers are the most common channel. However, such digital payments differ slightly for unrequited transfers made domestically and those made cross-border:

- *Bank transfers for domestic unrequited payments are effectively cash payments.* Of those that make domestic unrequited transfers, 41% make them through bank accounts, representing 87% of all unrequited domestic transfers through digital channels. However, most of these unrequited domestic transfers can be considered over-the-counter payments, which is effectively a cash payment; the payer pays the person behind the counter in cash to convert to digital value and then do the payment on their behalf.

For example:

- In Myanmar, 55% of all domestic remittances sent were through bank transfers; however, only 5% of adults reported having access to or owning a bank account (MAP Myanmar 2014). The majority of these payments are through branches of the state bank, where people can walk in and send funds to any other branch within the bank’s very extensive network. Given that it is expensive to travel to self-deliver cash, it makes sense to rely on the state bank, which also does not charge for moving cash. Furthermore, people do not need to own an account in order to send money; they need only present their national identity document. (See more about the Myanmar government’s subsidising of cash reticulation in Box 4.)

- *Bank transfers are largest digital instrument for unrequited cross-border payments – but cash remains*

more popular. Similar to the case with domestic unrequited payments, bank accounts are the most common payment channel for digital cross-border transfers: 46% of those wishing to make cross-border transfers use bank transfers to do so. However, cash remains the most popular cross-border unrequited payment channel, used by 50% of those needing to make payments across borders; this can be attributed to the stringent eligibility requirements payers must meet in order to access digital payment instruments for making cross-border payments.

Encashment

Remittances, salary payments give rise to encashment need. As explained, encashment refers to the need to transfer electronic value into physical cash (and vice versa). While the FinScope Consumer Survey did not elicit exact numbers of people in each of the MAP pilot countries that specifically indicate that they convert electronic value into cash, this can be estimated via two different mechanisms: where there is a salary payment that is electronic, and where there is a remittance payment that is electronic. The encashment need is based on the assumption that a substantial part of this transfer will be withdrawn at some point – an assumption that is borne out by the overwhelming prevalence of cash as the means of transacting across the MAP countries. Figure 1 shows that although encashment is the smallest of the four payment needs identified across the six MAP countries, it is still a significant need.

Encashment by definition is digital, but different providers used for different purposes. By virtue of the fact that encashment is the process of converting digital value into cash (and vice versa), it is considered a digital payment process. In Figure 1, digital and cash have each been awarded a ‘score’ of 50%, to reflect this relationship. Currently, banks meet the majority of encashment needs. Nearly half of salaried workers receive their income through bank channels, with the rest receiving their income in cash. And as things stand, the majority of those that receive remittances through digital channels use banks to meet this need. However, unlike the case with salary receipts, increasingly the need to receive remittances is met by mobile money providers or non-bank formal alternatives.

Overwhelming preference for cash. The analysis in this section has shown that cash is still overwhelmingly used for payments, even where customers have access to the infrastructure required for digital payments. While digital is making inroads into payments over distance (both required and unrequited), these digitised payments are used primarily as a way for people to move their cash around.

Why do people prefer cash to digital payments?

The MAP evidence presented in this note highlights the fact that despite the effort to migrate consumers away from cash and towards digital payment instruments, cash remains the preferred payment instrument for most in the six MAP pilot countries. This section focuses on the customer perspective to unpack why people prefer cash to digital instruments to meet their payment needs. The MAP evidence suggests that there are four drivers for this preference (these drivers serving simultaneously as *barriers* to the use of digital payment instruments):

1. Access.
2. Cost.
3. Convenience.
4. Trust.

The drivers and related points are explored further below.

1. Access

Regulation creates absolute barriers to digital payments. All providers of retail electronic payments, namely banks and mobile money providers, require at least some documentation for consumers to open an account. As a minimum, people are required to prove who they are and where they live – already a significant challenge in many developing countries. And most providers set more onerous documentation requirements:

- In Swaziland, banks often require proof of employment and proof of address. However, only 21% of adults are formally employed and four out of every five Swazi adults are not able to provide proof of address (MAP Swaziland 2014).
- In Lesotho, opening a bank account requires proof of income and/or proof of employment. There are no exemptions for low-value accounts. This restricts access to the few that can comply (primarily salaried workers), and creates a substantial barrier for most of the population.

‘They asked me how much my income was and they wanted a pay slip; and I left the building as if my feet were on fire.’ (Mhlume, Swaziland, male, aged 41–55)

In some of the MAP pilot countries, banks and mobile money operators reduce the requirement for people to open certain types of payment accounts and also allow them to use alternative means to prove who they are. However, even these reduced requirements can be problematic:

- In Malawi, people are allowed to use a voter's registration card as proof of who they are, but this still presents a barrier for many Malawians.

'No, I just heard about it [electronic money transfer] but I have never used it. However, there was a time that my father was sick in the village, and then I decided to send money through Mpamba [bank]. But when I went to open an account with the service provider, I was told to produce a voting registration card. So with the belief system of my denomination, Jehovah's Witness, we don't vote, so they told me to produce a passport or driver's licence to register. But I don't have any of those. The only ID I have is from my workplace, so I failed to use Mpamba. Then I reverted to the only way I use to send money where I send through a bus.' (Malawi, male, aged 57, salaried employee)

For cross-border payments, the requirements are usually even more onerous. Migrants wishing to remit money to their home countries must, in addition to the traditional documentation identified above, prove that they have legal permission to be present in and work in the country of employment.

Cash payments have no such associated barriers.

Limited infrastructure keeps digital payments out of reach for most. Even in cases where people are eligible, they tend not to take up accounts with digital functionality. Across the six MAP pilot countries, only 35% of adults reported having an account with either a mobile money provider or a bank. This means that 65% of adults across the MAP countries do not have financial services with digital payment functionality. That is to say, even those who are able to comply with the eligibility requirements identified above do not see the need to take up these accounts. For example, as highlighted in Note 4, in Swaziland, 64% of adults believe that they can live their life without a bank account – which reflects the high reliance on cash in Swazi society.

While some people across the MAP pilot countries technically have access to digital payment instruments, the limited infrastructure means that in reality most have little opportunity to use them. For example, as was depicted graphically in Note 4:

- In Malawi, there are only 1.9 POS devices per 100,000 people, compared to the OECD average of 2,155 POS device per 100,000 adults.
- In Mozambique, there are 34 POS devices per 100,000 people, and 62% of them are situated in the city of Maputo.

- In Lesotho and Swaziland, respectively, there are 52 POS devices per 100,000 people.

These devices are almost exclusively restricted to urban areas; and hence large swathes of the population, living in rural areas, would only be able to make digital payments using bank cards if they travelled substantial distances – clearly not an option for the majority of daily payments.

The reach of mobile money is greater than banks' reach, but is still restricted to urban areas:

- In Malawi, the country's two mobile network operators (MNOs) report a total of 18,000 mobile money agents, equating to 1 mobile money agent per approximately 1,000 adults (although only about a third of the agents are estimated to be active). Furthermore, the majority of these agents are situated in or close to urban areas because they remain reliant on access to encashment.
- In Swaziland, MTN, the country's sole MNO, reports only 130 active agents out of 422 registered nationally, and 60% of these are situated in urban areas.

The limited reach of the digital payment infrastructure effectively restricts the potential market for these products to urban customers, who might at least have the option of using a payments mechanism other than cash.

2. Cost

Perceived cost of using digital exceeds cash. The marginal cost of using cash for the customer is zero, as there are no fees charged to consumers when they make a cash transaction. Customers only experience costs for transacting in cash when they convert their cash into electronic value through a digital instrument or vice versa, as well as when they make a subsequent payment using that digital instrument.

Table 2 compares the cost of using cash with the cost of using digital instruments for person-to-person payments and merchant payments, respectively, in the four African MAP pilot countries. It shows that consumers in those countries are faced with the choice of using cash to make a payment, which incurs no additional cost, or using a digital payment instrument, which incurs additional cost. Where no indirect costs are present, such as in the case of local payments, this acts as a major barrier to the use of digital instruments.

Cost of converting cash to digital is high. Even those who would prefer to transact primarily through digital payments need to convert their cash into electronic

Country and provider	Cost of person-to-person payment (sending money to a registered user) (US\$)	Cost of merchant payment (Payments for goods and services at merchants that are mobile money agents is usually charged as a cash out. This would be equivalent to using a card with payment functionality from a bank to pay for goods and services with a POS device.)
Vodacom Lesotho	US\$0.10–US\$0.76	0.2%–4.5%
EcoNet Lesotho	US\$0.20–US\$1.50	0.3%–2%
FNB Lesotho POS		US\$0.34
Vodacom Mozambique	US\$0.10–US\$0.83	0.3%–8%
POS Mozambique		0 (Banks are not legally permitted to charge consumers a fee for POS transactions.)
Airtel Malawi	US\$0.08	4%–8%
TNM Malawi	US\$0.08	4%–8%
MTN Swaziland	US\$0.30–US\$0.50	0.5%–5.5%
Standard Bank Swaziland POS		US\$0.80
Cash	0	0

TABLE 2: Cost of using cash vs digital instrument for payments offered by selected mobile money providers and banks
Source: MAP country diagnostics.

value, and vice versa. However, this can be very expensive. As mentioned, infrastructure for banks across the MAP countries to meet this encashment need is severely underdeveloped and significantly increases the cost of use. This was depicted graphically in Note 3, which showed that by the time additional costs are taken into account, the total cost of using a bank account is frequently far higher than the bank account fees. The monthly cost of using the encashment infrastructure required to convert cash to electronic value in Malawi is nearly a fifth of the average working person's monthly salary, with almost 90% of this cost being the cost of accessing the infrastructure (MAP Malawi 2015).

Limited mobile money infrastructure keeps costs high. Furthermore, as already noted, mobile money agent infrastructure, which could expand the reach of encashment infrastructure thus making access more affordable, is still limited to urban areas and is, at times, unable to fulfil the mobile money encashment function due to inactivity, liquidity or lack of reliability of the networks.

Cost of using cash starts to increase for consumers as physical movement is involved. While the high cost of encashment serves as a driver for the preference for cash, it is noteworthy that the cost of using cash increases and starts to compete with encashment costs

when cash needs to be moved over distance. Consumers can move money over distance by self-delivering the cash, using an existing informal channel (e.g. informal payment brokers in Southeast Asia, or buses or taxis in Africa) or using a digital channel such as a bank or mobile money provider.

Table 3 compares the cost of these different options for a person in Swaziland remitting US\$50, and shows that for transactions that need to happen over distance it is cheaper to use digital alternatives.

Provider	Cost to remit US\$50	Percentage cost
FNB eWallet (send and withdraw)	US\$1.40	2.8%
MTN Mobile Money (send and withdraw)	US\$0.50	3.0%
Banks (deposit and withdraw)	US\$2.50	5.0%
Taxis	US\$5.00	10.0%

TABLE 3: Cost of transacting over distance by different provider types (Swaziland)
Source: MAP Swaziland (2014).

3. Convenience

Cash is more versatile than digital. Within the existing environment for the majority of consumers across the MAP pilot countries, cash is the only payment instrument that can satisfy all of the identified needs for payment. Cash can be used to make local payments for groceries, pay for airtime top-ups, or pay a person on the other side of the country. By contrast, digital instruments struggle to meet even some of the payment needs and fail to meet the most frequent payment needs: local payments and required payments. In many of the MAP pilot countries, such as Malawi and Mozambique, banks and mobile money operators alike have limited interoperability, with the result that even where there is digital payment infrastructure present, it can only be used by account holders of the institution that owns the infrastructure.

Cash payments are quick, convenient and simple. Making a payment by navigating a mobile money menu or even swiping a card and inserting a pin takes far longer than paying in cash. In this sense, digital payments are a hassle for the consumer, and are even more problematic for merchants as they lengthen queues, diminish the customer experience and reduce the number of customers that merchants can serve in a given time period. This acts as a disincentive, for merchants, to accepting digital payments, in the process shrinking the digital payments ecosystem. Furthermore, mobile money menus are often complicated and challenging to navigate and require consumers to recall pin numbers. A major concern for users is that they might incorrectly conclude a payment by selecting the wrong option. By contrast, cash is very simple to use and requires only the ability to differentiate between denominations.

When digital payments are not as easy to use as cash, it makes sense that people choose to transact in cash.

4. Trust

People trust cash more than digital. Compared to digital, cash payments are immediate and reduce information asymmetry between parties. This increases the trust people have for cash payments. When a payment is made in cash, the transfer of value is tied directly to the physical transfer of the cash. Clearing and settlement are completed implicitly as part of the payment. As the transfer of value is immediate, there are no concerns about the reliability of the payer; trust is immaterial because the transaction is concluded. By contrast, in the absence of real-time settlement infrastructure, an electronic payment takes place in stages. Clearing and settlement are usually done separately. In practice this means that the recipient of an electronic payment must trust the bank's verification that the payer is able to

make the payment, they must trust that the payment system is able to process the transaction correctly, they must trust that the payer's bank will honour the payment and settle the payment with their bank and they must trust their own bank/payments provider to accurately credit their account and then provide them with access to these funds. In other words, consumers and merchants must have a high level of trust in the institutions in order to use digital payments.

Unreliable network further undermines trust. A further challenge faced by users of digital payments is an unreliable network. Even where both parties' payment tools are interoperable, it is not possible to conduct digital payments when the telecommunications or electricity network is down. In countries with infrastructural challenges, this is a frequent occurrence.

'Well, sometimes the time you want money is the exact time their network is down or sometimes you go to an agent and they tell you there is no money.'
(Malawi, male, aged 27, salaried employee)

'Sometimes you don't get the money on time because of the [mobile] network.'
(Swaziland, female, aged 25–40)

The unreliability of electronic payments makes them inconvenient but also undermines users' trust in them. In Malawi, uncompleted mobile money payments were cited as a major reason for users feeling unable to trust electronic payments and therefore ceasing to use them.

**'Why did you stop [using mobile money]?'
It once happened that I had sent K4,000 [US\$9,60] but the person did not receive it.'**
(Malawi, male, aged 29)

Cash payments require no external infrastructure or network to complete the payment.

Where are digital payments gaining ground, and why?

While the MAP evidence presented thus far shows that overwhelmingly the majority of payment needs are met through using cash, specific payment needs have seen at least some migration towards digital instruments. Broadly, these fall into two categories:

- Payments made by *bulk payers* – including salaries and social transfers.
- Payments made by *individuals* – specifically remittances and airtime purchases.

This section explores the reasons why these specific payment types have experienced at least some shift towards digital mechanisms.

Bulk payments

Digitising bulk payments driven by efficiency gains for governments and employers. Bulk payers are single entities that make payments to multiple individuals. Governments are the largest bulk payers in any economy, making both salary and grant payments on a regular basis. Shifting towards digital transactions can enhance efficiency and dramatically reduce the costs of these payments for the payers, but does not constitute any kind of widespread adoption of digital payments. As Note 4 explores in some detail, recipients of such payments are effectively forced to use electronic channels to receive their incomes, and most encash this income immediately and use the cash to carry out all their other transactions.

The shift towards digitisation of salary payments and social transfers is therefore a function of the cost and efficiency incentive of the payer, combined with the high degree of bargaining power these payers have over the recipients of these payments. Making these payments digitally means that the costs of transporting the cash are partially passed on to the payment providers but also, in many cases, to the recipient. As shown in Note 4, many salary and social transfer recipients reside in rural areas and are required to travel long distances to retrieve their income in cash from the closest bank infrastructure or mobile money agent.

Salary payments and social transfers increasingly digitised. Across the six MAP pilot countries, 48% of salaried workers receive their salaries through bank accounts. In many countries the shift towards paying salaries digitally has, at least by government, been a deliberate policy. In Swaziland, 93% of government salary recipients have migrated to digital channels, while in Malawi the government has stated that it will migrate payments to bank accounts once the country's Real Time Gross Settlement (RTGS) system is fully operational. As with salaries, the payers of social transfers such as welfare grants can more affordably make these payments by using digital channels. In Lesotho, for example, as things stand the government is forced to fly cash by helicopter to make grant payments in some remote communities. In Malawi, it is estimated that 79% of the social grant payments made by donors are done through electronic channels (BTCA 2013), and the Malawian government intends to follow suit.

Payments made by individuals – remittances

Digitising remittances driven by value to consumer. The MAP evidence presented earlier and illustrated in Figure 1 indicates that remittances (unrequited transfers) have the largest proportion of adults using digital instruments (52%). Unlike the case of bulk payments, with remittance payments the decision to use digital channels is made voluntarily by the consumer. This decision is largely driven by the fact that digital remittances are cheaper, more reliable and more convenient than cash alternatives.

Digital remittances are cheaper. Prior to the availability of digital alternatives, payments over distance such as remittances were typically made by physically moving cash through a variety of informal channels. These included sending cash with taxi or bus drivers, using informal payment brokers, or transporting the cash oneself or with friends or family. As indicated earlier and set out in Table 3, the relative 'cost' of all of these options is often higher than digital alternatives.

Taxi or bus drivers as well as informal payments brokers typically charge users between 10% and 20% of the value being transferred (Truen & Chisadza 2012). Funds sent electronically via mobile money cost a relatively small fee, with the bulk of the cost being incurred from cashing out the funds. Those consumers that transfer the funds themselves, or send them via family or friends, will incur both transport and opportunity costs, making it unlikely to be cheaper than digital options. Table 4 estimates the comparative direct costs of using informal cash channels (e.g. taxi/bus drivers) versus mobile money to transfer US\$20 over distance across four of the MAP countries (Malawi, Mozambique, Swaziland and Lesotho, respectively).

Country	Informal cash channels (assuming an average cost of 15%)	Mobile money channels (calculated as cost charged to transfer funds + cost of encashing funds, averaged across providers in cases in which there is more than one provider)
Lesotho	US\$3.00	US\$0.48
Malawi	US\$3.00	US\$2.88
Mozambique	US\$3.00	US\$0.33
Swaziland	US\$3.00	US\$1.20

TABLE 4: Cost of sending US\$20 over distance by informal cash channels vs mobile money channels
Source: MAP country diagnostics.

Digital remittances are more reliable. A common risk of using taxis and informal payment brokers, which was cited by MAP pilot country focus group discussants, was that of the person absconding with the money. Even when the money is not stolen, taxi drivers are often not able to complete the transfer as they cannot find the recipient or the recipient does not arrive at the right time to take possession of the money. There is also the risk of funds being given to the wrong recipient. Transporting the cash oneself also runs the risks of theft and falling victim to violence.

‘There are also problems with informal methods of remitting money. I have relatives who are dependent on their children who work in South Africa. They receive remittances through individual business people – amounts that range between ZAR1,000 [US\$82.50] and ZAR2,000 [US\$165]. A few cases have been observed where this money was never delivered to them. It is common that the businessmen do not always deliver. Such cases have been reported to the police. The senders are forced to change business people.’
(Malawi, male, aged 26, salaried employee)

Digital remittances are more convenient. It is highly inconvenient, particularly if the recipient requires the funds urgently, to rely on taxis to transport the funds. It is even less convenient and less reliable to rely on friends, family or oneself for the transfer. The funds can only be transferred through these channels at times when a journey is already planned, which could be problematic in the face of a risk event. Furthermore, informal transfers usually take some time to reach the recipient as the cash is physically transported over the distance. Electronic transfers make the funds available to the recipient almost immediately, provided that there is the required encashment infrastructure proximate to the recipient.

‘Mobile banking is good because we can send money to our relatives that are very far away from us and our relatives can also send money to us easier.’
(Malawi, male, aged 41, salaried employee)

Payments made by individuals – airtime

Airtime still mainly purchased in cash, but use of digital instruments increasing. The evidence from MAP shows that while cash remains the preferred method for airtime purchases, digital payment instruments are gaining ground. This was confirmed by supply-side consultation with mobile money providers. Airtime top-ups are one of the most common uses of mobile money found in the MAP pilot countries. For example:

- In Lesotho, 51% of all mobile money transactions were for airtime top-ups (MAP Lesotho 2014).
- In Malawi, 39% of all mobile money transactions were for airtime top-ups (MAP Malawi 2015).

This trend is largely driven by promotions; in both countries, MNOs offered generous incentives, in the form of an airtime bonus, for signing up.

Use of digital instruments for airtime increasing thanks to lower cost. MNOs make substantial savings from selling airtime through electronic channels rather than by using cash. This obviates the need to pay for printing scratch cards and eliminates the commissions paid to airtime agents. In order to encourage users to purchase airtime through their mobile money channel, MNOs frequently offer discounts to make it cheaper than cash alternatives. The greater efficiency and associated cost savings for recipients of multiple bill payments of receiving these digitally rather than in cash, similarly mean that they may offer cost-saving incentives to encourage payers to use digital channels. For example:

- In Lesotho, initial uptake of Vodacom Mpesa far exceeded expectations, partially driven by the fact that Vodacom had offered generous airtime bonus incentives for signing up (MAP Lesotho 2014).
- The example of TNM Malawi (Box 2) shows the extent of the incentive for MNOs to encourage the purchase of airtime using mobile money (MAP Malawi 2015).

Box 2: An illustrative example of the airtime business case from TNM Malawi

TNM in Malawi accounts for about 45% of market share. The direct cost of selling airtime (including agent commissions and discounts, cost of recharge vouchers and the direct marketing development costs) accounts for 28% of operational costs and constitutes 37% of net profit for the 2013 financial year. Hence, if airtime agents are paid an average of 5% commission (or can buy airtime at a 5% discount), then by shifting all airtime sales to mobile money (agents are paid 2% commissions for cash-in), TNM could theoretically reduce operational costs by 25% and increase net profit by 30%.

Source: MAP Malawi (2015).

Use of digital instruments for airtime increasing thanks to convenience. For adults that receive e-money into their mobile money wallets, it is more convenient to pay for their airtime and other bills directly using this e-money rather than cashing out at an agent, which entails both a cash-out cost and the need to travel to the agent.

Why aren't providers able to overcome the cash adoption threshold?

Prevailing market and regulatory conditions provide little room for digital payment providers to change their operations.

Business model restrictions undermine potential payment providers. Non-bank financial services providers, such as mobile money providers, are severely limited in their available revenue-earning channels. Regulation across countries restricts these institutions from intermediating the funds that they hold in return for e-money circulating on their platforms. Thus, charging transaction fees constitutes their primary source of revenue. However, none of the mobile money operators (the largest non-bank digital payment providers) in the countries discussed in this note are able to fully recoup their costs from this revenue. Therefore, matching the marginal cost of cash to consumers – which is zero – is not feasible for these providers.

A conundrum is that banks have the potential to cross-subsidise the costs of processing payments – by earning a margin on intermediating deposits through extending loans – but, even if incentivised to do so, typically lack the systems and reach to effectively process mass transactions cheaply. By contrast, mobile money providers, which have the systems and footprint to effectively process high volumes of low-value transactions, are legally barred from raising additional revenue through offering alternative financial services, such as credit, to cross-subsidise their payment operations.

Convergence is one approach to overcoming business model restrictions. While Zimbabwe is not among the six MAP pilot countries, an example from Zimbabwe, where MAP is currently working, is instructive. EcoCash in Zimbabwe provides a powerful example of the impact of these business model restrictions. EcoNet, the MNO behind EcoCash, purchased a local bank, thereby enabling it to leverage the systems and footprint of EcoCash while also intermediating deposits collected through Steward Bank. This allows EcoCash to offer a credit product (described in Box 3), and shows that while the bank licence of Steward Bank enables the provider to intermediate deposits collected, consumers interact with the product only through the EcoCash mobile phone interface.

Box 3: The EcoNet model

EcoNet Wireless in February 2013 acquired 100% shareholding in Steward Bank (then known as TN Bank). The acquisition of the bank as an EcoNet subsidiary enabled the company to extend credit through EcoCash, the company's mobile money payments platform. By 2014 the EcoCash loan account had more than twice as many credit clients as the country's entire banking sector.

In December 2014, EcoNet Wireless registered an insurance licence to offer funeral insurance products using its EcoCash customer interface and payments network.

The combination of these licences means that EcoNet Wireless has engineered the legal back-end to offer consumers a comprehensive and seamless product offering to cover a range of their financial product needs. The acquisition of these alternative revenue streams will also eventually enable EcoNet to subsidise the payments business, which is commercially unviable on its own.

Source: MAP Zimbabwe (forthcoming).

Cash reticulation function primarily the preserve of banks. Across the six MAP pilot countries, banks are almost exclusively responsible for reticulating cash throughout the country. This is the norm. For example, in India, of the US\$3.5 billion that it costs banks and the government to reticulate cash, 86% falls on commercial banks (Fletcher School 2014a). In some cases, regulation restricts non-banks from transporting large amounts of cash, usually restricted above a specified threshold. This restriction usually falls within anti-money laundering regulation. Even where other providers are not restricted by regulation, banks are still the main reticulators of cash for two major reasons:

- Banks have direct access to national currency from the central bank, and access this currency by drawing down on their central bank currency account. In most cases, non-banks are not permitted direct access.
- Banks usually have the relevant infrastructure and systems for moving cash around.

This makes all non-bank payment providers, including mobile money providers, for the most part reliant on banks to reticulate cash. This in turn means that their agent network must remain proximate to the banks' encashment infrastructure. Liquidity is a major challenge for many agents. Improved

management by individual agents can improve their liquidity over time and reduce instances of required rebalancing of either cash or electronic money; but there will always be occasions when they have insufficient liquidity to match consumer needs and must therefore draw on cash. Super-agents can help to extend this distance, but only to a limited extent, as the super-agents too need to remain proximate to encashment infrastructure. (As defined by the GSMA 2010, a super-agent is 'a business, sometimes a bank, which purchases electronic money from an MNO wholesale and then resells it to agents, who in turn sell it to users'.)

Banks unable to recoup costs of cash reticulation. As explained above, banks must bear the bulk of the cost of reticulating the cash upon which mobile money models rely. However, banks are unable to fully recoup these costs. For example:

- In Mozambique, banks are prohibited by regulation from charging for the cost of cash.
- In Swaziland, Malawi and Lesotho, moral suasion has kept consumer encashment costs similarly low.

Implicitly, this leads banks not to regard payments as a means of extending the client base, but simply as a convenience factor for high-end clients, which in turn impacts upon banks' strategies regarding where to roll out POS devices. The result is an underdeveloped encashment network that struggles (or fails) to even meet existing requirements, never mind the requirements for growing usage. According to MAP calculations, in Mozambique, for example, even if one assumes 100% network up-time, the average ATM would need to operate an estimated 10–18 hours per day non-stop just to accommodate the transaction needs of the current banking client base.

Due to the high cost of cash reticulation, some countries subsidise this cost. This is exactly what happens in one of the MAP pilot countries – Myanmar – as alluded to earlier and as illustrated in Box 4.

Merchants face limited incentives to accept digital payments. When accepting certain types of digital payments, in particular card payments, merchants are required to pay a merchant discount. Smaller merchants, which predominate across developing countries, have limited bargaining power with the card providers. Anecdotal evidence indicates that many of these merchants are charged merchant discounts of up to 5% of the value of their received payments. This acts as a major disincentive, for merchants, to accepting card payments and is thus a barrier to the growth of the digital payments ecosystem.

Box 4: **The role of the state in cash reticulation – the case of Myanmar**

By 'cash reticulation' is meant the network of encashment points within a country, which facilitates the distribution of cash through the economy.

In Myanmar, as part of its objective of serving rural adults with financial services, the government plays a substantial role in subsidising the cost of cash reticulation. The government drives cash out to rural areas to disburse credit to farmers through their MADB (Myanmar Agricultural Development Bank) branch network. The government also incurs the cost of moving cash around the country via the branch network of another state provider, MEB (Myanmar Economic Bank), whose large, subsidised network constitutes just under 30% of total branches in Myanmar. This enables extensive coverage of the country to serve those who qualify for government disbursements.

The case of Myanmar illustrates the powerful link between who pays the cost of cash reticulation and financial inclusion. In Myanmar, rural adults are better served by formal and informal financial services than urban adults are: 30.6% of rural adults have access to a regulated financial service, compared to 28.8% of urban adults. Furthermore, only 17.5% of rural adults are financially excluded, compared to 22.9% of urban adults. Rural take-up is largely driven by the two state providers: MADB provides subsidised agricultural credit to rural farmers (14.5% of all adults in the country), and MEB facilitates non-account based remittance payments across the country (6.4% of all adults in the country).

Source: MAP Myanmar (2014).

Implications for providers, policymakers and donors

The evidence presented in this note points to three conclusions with potentially significant implications for how governments, donors and the private sector approach financial inclusion, especially digital financial inclusion:

- *Cash is the water within which digital payments swim.* People in these six MAP pilot countries live either their entire financial lives or most of them in cash. Any migration from cash to digital payments must perforce start from a cash foundation. Considering the pervasive use of cash for most daily transactions, points of conversion from cash to digital payments need to be made available across the entire ecosystem. The deeper the cash pool – i.e. the more ubiquitous and the cheaper the ability to convert digital value into cash, and vice versa – the more easily the digital transactions will ‘swim’.
 - *Consumers act entirely rationally to prefer cash, given the environment in which they conduct their financial lives.* In all six of the MAP pilot countries, cash is more convenient, more versatile, more trusted and cheaper to use for transactions than digital alternatives. Customers act rationally to choose against digital alternatives time and time again. It is only in quite specific cases of need, such as remittances and, to a very limited extent, airtime purchases, that customers themselves, as opposed to the government or their employers, choose to use digital alternatives. Again, the choice is driven by sound economic incentives.
 - *Digital payment providers face business model constraints.* In the six MAP pilot countries, digital payment platforms are offered by banks and non-bank operators alike (the latter primarily MNOs). Both face distributional and regulatory hurdles that lock them into marginal business models when it comes to retail digital payments. Non-banks have a powerful distribution footprint and a built-in ‘switch’ (MNOs, in particular, already having the capacity to interconnect subscribers’ communications, and thus the potential to use similar technology to interconnect payments). However, non-banks can make revenue solely from transaction fees, which is often not sufficient to cover their costs and can discourage usage. They are also reliant on banks for access to cash. Banks, on the other hand, have more expensive distribution infrastructure, and often limited interoperability with other banks, but the ability to intermediate deposits and thus to cross-subsidise transaction fees. The sweet spot would seem to lie in convergence between these models.
- If these findings are correct, as the evidence from the six MAP pilot countries would suggest, at least the following implications can be drawn:
- *To follow a digital financial inclusion strategy, understand cash.* If cash is the medium through which digital payments will be advanced, it is unwise to embark on a digitisation strategy without understanding at least the cost of cash, the cash infrastructure, the business models of those responsible for cash reticulation, and the regulatory framework that determines cash reticulation in the country concerned.
 - *Find ways to reduce the cost of cash reticulation.* Cash remains the financial lifeblood of households in all the MAP countries. How can governments, donors and financial institutions cooperate to make converting cash into digital as cheap and convenient as handing over a wad of cash to my neighbour? There are a number of possibilities: the state can carry more of the burden, or banks and MNOs can find ways to work together, or banks can cooperate to distribute cash to their branch networks rather than each covering the entire country. And ironically, the more banks are able to charge for the true cost of cash, the greater the likelihood that they will extend encashment infrastructure. So imposing price controls on encashment transactions is likely to have exactly the opposite impact of what the regulator intends.
 - *Reduce the cost of digital payments.* This is not only about extending infrastructure, but indeed about reducing the per transaction costs of digital payments. It is clear that business model changes, enabled by regulatory changes as outlined above, will be required in many markets. Other countries have instituted tax incentives for merchants and customers alike to incentivise digital transactions, recognising the large cost of cash for an economy. For example, in South Korea, the government offers a 2% value-added tax reduction on all card transactions for merchants and 20% of total card spending for individuals (where fiscally deductible). These measures doubled the number of card acceptance terminals at the POS— from 6 million in 1999 to 12 million in 2001—and drove up card transactions by 101% in 2001 and 69% in 2002 (Denecker, Istace & Niederkorn 2013).
 - *Be more realistic about consumer education.* Many digitisation initiatives promote financial education and financial literacy as a core activity to teach ‘unknowing’ customers the use and value of digital payments. As it turns out, those customers are acting entirely rationally, and no amount of financial ‘education’ is likely to convince them to the contrary until the underlying economic incentives change.

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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.

UNCDF's financing models work through two channels: savings-led financial inclusion that expands the opportunities for individuals, households, and small businesses to participate in the local economy, providing them with the tools they need to climb out of poverty and manage their financial lives; and by showing how localised investments – through fiscal decentralisation, innovative municipal finance, and structured project

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By strengthening how finance works for poor people at the household, small enterprise, and local infrastructure levels, UNCDF contributes to SDG 1 on eradicating poverty with a focus on reaching the last mile and addressing exclusion and inequalities of access. At the same time, UNCDF deploys its capital finance mandate in line with SDG 17 on the means of implementation, to unlock public and private finance for the poor at the local level. By identifying those market segments where innovative financing models can have transformational impact in helping to reach the last mile, UNCDF contributes to a number of different SDGs and currently to 28 of 169 targets.



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UN Capital Development Fund

Two United Nations Plaza
New York, NY 10017

info@uncdf.org | www.uncdf.org

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