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Use of technology in delivering social protection: the case of M-PESA

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1. Introduction

The key feature of social protection is to “successfully distribute the correct amount of benefits to the right people at the right time and frequency whilst minimising costs to both the programme and the beneficiary” (Grosh et al.,2007: 156). Therefore, technologies might not be irrelevant to the social protection agenda. This chapter argues that technologies can play a central role in implementing effective social protection programmes in developing countries based on the example of M-PESA in Kenya.

Using a mobile phone to do your banking and pay for goods and services is possible in developing countries like Kenya. The case study of M-PESA helps to demonstrate how the use of technologies can help overcome infrastructural and operational limitations often faced when delivering social protection packages to vulnerable population in developing countries is concerned. Since the launch of M-PESA in 2007, nearly 100 services like it developed around the world, mainly in developing countries. The Kenyan experience revolutionises banking in the country by facilitating remittances cash transfers from urban to rural areas through virtual accounts on handsets. Key lessons can be drawn from this case study for helping national governments and development agencies develop efficient social protection delivery mechanisms.

2. Implementing social protection programmes

This section briefly overviews the most common arguments against the expansion of social protections schemes concerning their implementation limitations and delivery obstacles. In many developing countries are characterized by weak institutions and development of infrastructures which increases the number of intermediaries placed between the provider and the beneficiaries. Those intermediary processes and stages present high risks of leakages and robbery and opportune space for corruption. The required administrative support to decentralize the network, hand out the transfer and deliver the services is considerable and costly. The management of the

human resources to be deployed to implement and improve the scheme absorb high logistic outlays. In some cases, the additional supervision costs necessary to secure the benefit packages and the guarantee the safety of staff can become substantial, typically 2-4% of the grant costs (6%, Lesotho, 15% Mozambique food subsidy programme) excluding recipients costs. Because cash is liquid, the frequent handling of transfer requires a highly secured and reliable implementation strategy at minimal costs.

Questions about the implementation and the delivery of social protection do not only concern the provider of the scheme but should also give importance to the obstacles and limitations of the beneficiaries. The recipients of social protection are usually asked to travel frequently (fortnightly, monthly) to an office to collect a cash or an-kind transfer. This process involves interrupting their livelihoods, spending money and time for travelling, often facing non negligible risks (climate, conflict, safety...etc...) and sometimes paying entry fees to get access to the transfer. The implementation strategy of a social protection programme should consider the opportunity costs and risks taken it involves for its beneficiaries in the context of operation.

3. Using technology for effective delivery systems

‘Mobile money’ refers to mobile phone based money transfer services which have emerged in the previous five years, and have the potential to transform the implementation of social protection programs. At the time of writing, there are presently 137 mobile money deployments in 96 countries ¹. In developing countries, mobile money is seen to potentially provide a compelling innovation for marginal groups as it allows previously ‘unbanked’ groups to have access to services which enhance their ability to save, and reduces the risk of transferring money through the use of mobile phones. What makes mobile money particularly of interest for implementers is

¹ wireless intelligence, “GSMA Mobile Money for the Unbanked - Deployment Tracker.”

that it is already successfully deployed or under deployment in many emerging and developing economies, notably successes have come in Kenya, Uganda and Tanzania in Africa, and Philippines, Thailand and India in Asia.

3.1. M-PESA

In this chapter we draw on the case of M-PESA in Kenya. M-PESA is perhaps the leading example of a successful mobile money transfer service. It is licensed by the Central Bank of Kenya, as a ‘non banking financial service’, so whilst not subject to the regulatory oversight of a banks, the central bank still maintain some regulatory control and financial oversight of the service ²

M-PESA launched in Kenya as recently 2007, but it has rapidly grown. Recent figures indicate the service now has over 14 million registered users ³ (equating to 70% of Kenya’s 16-65 population ⁴), with 85bn Kenyan Shillings (Ksh) (~\$1.02bn, £637m) moved in the system in April 2011 ⁵. Sample surveys suggest that whilst the service was first adopted by more affluent groups, it is increasingly growing in use amongst less affluent users ⁶

Availability for customers of M-PESA revolves around the presence of local agents, who locally provide M-PESA cash-in and cash-out services (see next section for details). As of April 2011, M-PESA had 27,899 agents in Kenya ⁷, with presence of such agents growing into less affluent

² AFI, *Enabling Mobile Money Transfer: The Central Bank of Kenya’s Treatment of M-PESA*.

³ Safaricom, “M-PESA Customer and Agent Numbers.”

⁴ KNBS, *Population Statistics: Kenya Population and Housing Census*.

⁵ CBK, *Kenyan Monthly Economic Review: April 2011*.

⁶ Jack and Suri, *The Economics of M-PESA: An Update*; Jack and Suri, *The Economics of M-PESA*.

⁷ Safaricom, “M-PESA Customer and Agent Numbers.”

areas including increasing agent presence in the urban slum areas, and more remote rural sub-districts.

Hence M-PESA provides a fully scaled example of mobile money services, which can provide insight into the advantages and problems related to using mobile money transfer systems in social protection programs.

3.2. The process of mobile money transfer

In order to clearly discuss the issues related to mobile money it is important to clearly lay out the typical processes and interactions that are involved. Here we particularly focus on the case of M-PESA to outline the core processes of mobile money transfer⁸.

Mobile money transfer services provide an *infrastructure* to transfer money through simple messaging, by way of sending virtual e-cash through mobile phone messaging. Such services tend to be run by telecoms operators or banks, with services integrated into the phone network. Service providers additionally provide *conversion services* for conversion between virtual e-cash and real money.

In terms of M-PESA, *infrastructure* is provided by Kenya's leading mobile operator Safaricom, allowing transfers from mobile phone numbers on the Safaricom network through mobile messaging and SMS. Initially, the core design of M-PESA was towards person-to-person transfers (P2P) under the tagline 'send money home'⁹, with a particular focus towards promoting

⁸ This description can be seen as a general outline of mobile transfers, and whilst other services are likely to see some variation in operation according to the specific implementation and regulatory rules, these will be minor.

⁹ Hughes and Lonie, "M-PESA: Mobile Money for the 'Unbanked' Turning Cellphones into 24-Hour Tellers in Kenya."

internal urban-to-rural remittances to work in complementarily with common patterns of rural migration in Kenya ¹⁰. However, over time Safaricom has increasingly looked towards wider payment and transfer facilities (including social transfers) which can enhance the service.

In M-PESA *conversion services* are run by ‘agents’, independent but officially authorised stores such as petrol stations, shops but also located in less affluent areas in more informal kiosks and containers. Agents provide account registrations, and cash-to-virtual cash conversion for users. An agent runs their service through a phone with special agent activated sim card, making a business through receiving of commissions for each transaction. The key processes of mobile money are outlined in Figure 1 and discussed in detail below.

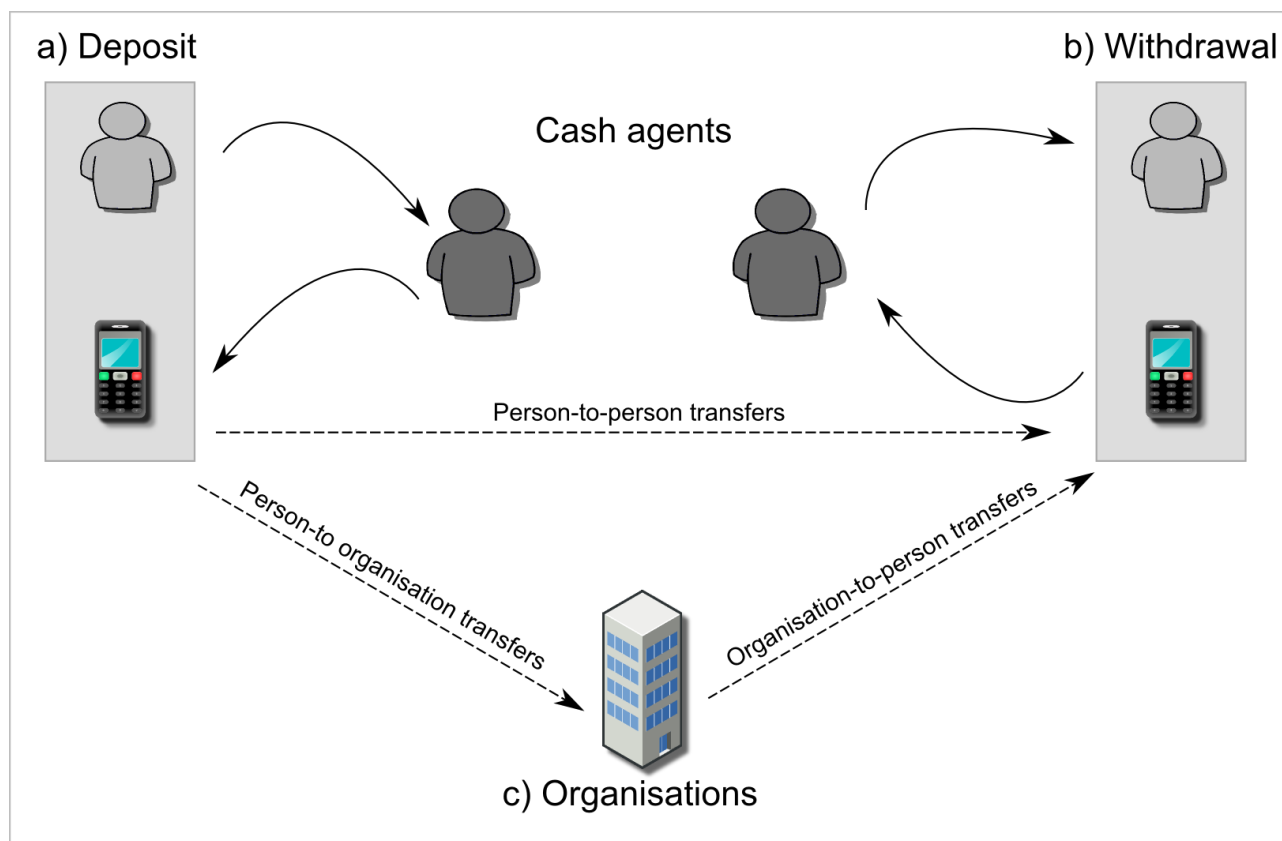


Figure 1: Outline of processes of mobile money transfer

¹⁰ Morawczynski, "Surviving in the 'dual System'."

3.2.1. Registration

This process will begin when a cash sender goes to an agent. To use the service, the sender will need to register to have an M-PESA account, presenting a form of identification and filling in some personal details at the agent. Additionally, a sender will need to be connected to the Safaricom mobile network, via an appropriate mobile 'sim card'. The phone number of this sim card is used as the identifier of the M-PESA account, and is needed in M-PESA transfers. In addition to a sim card, a user will also need a mobile phone when they are making transfers. It should be noted that owning a mobile phone is not necessary as an M-PESA account links not to a specific mobile phone but rather to the sim card. Indeed, in less affluent areas in Kenya, agents tend to have a spare phone which they lend to users without phones to plug in their sim card and use the service.

Registration is completed by the agent. Using their agent enabled mobile phone they will send details of the new user, and register the new M-PESA account. This means that registration is near instantaneous for users when they visit the agent, and they are now ready to send money through the M-PESA network.

3.2.2. Cash Deposit

Figure 1(a), shows the method of 'depositing' e-cash into a M-PESA account. The now registered sender will need to put some e-cash into their M-PESA account before they can make any transfers. This is done by giving cash to the agent, verifying their identity, and giving their mobile number to the agent (which identifies their M-PESA account). The agent once satisfied with identification will use their mobile to send a mobile message, which transfers e-cash from the M-PESA account of the agent to the M-PESA account of the sender. Once the conversion is

complete, the sender will now receive a SMS message confirming the deposit, with a summary of the updated balance of their account.

3.2.3. P2P Transfers

The sender can now make a P2P transfer to another individual, the receiver. To transfer e-cash from the senders account to the receivers account, the sender will need to have sufficient funds in their account, and will need to know the mobile number of the receiver. To make the P2P transfer, the use will enter this information (receivers number, amount for transfer) into their mobile, and send a mobile message to make the transfer.

Once the transfer has been verified by the system, this will result in a transfer of e-cash away from the senders' to the receivers' account. Whilst the sender needs to be registered, the receiver may or may not have an M-PESA account. Additionally, M-PESA provides some level of interoperability across different mobile networks in that the receivers' mobile number need not be on the same mobile network as the provider, Safaricom. In the case where receivers have an M-PESA account, on receipt of the transfer, their M-PESA account balance is adjusted to include the new transfer, and the user is informed of this in the SMS. Alternatively for unregistered and off-network receivers, they are informed that they have received an M-PESA transfer and to redeem this, they need to go to an agent

3.2.4. Cash Withdraw

In M-PESA, a cash withdraw occurs when a user decides convert their virtual e-cash back into real money. Users are not obliged to do this immediately on receipt of transfers, rather M-PESA account acts somewhat similar to a 'lite' bank account, where a user can choose to store money over an extended period of time if they wish without any charge.

Cash withdrawal will occur when a user goes to a cash agent. Assuming the user is already registered with M-PESA, at the agent they will show their identification, and then send a message from their mobile phone entering the amount of cash they wish to withdraw and the identifier of the agent they are interacting with (which is displayed at all agent stores). Provided the user has sufficient funds for the withdrawal, the agent will receive an approval SMS from the system, and they can provide the cash to the user. In this process, the e-cash is hence transferred from the users account to that of the agent.

Unregistered users undertake a slightly different process. If they take their identification to the agent and show the received text message, after verification the agent they will directly redeem the message as cash. As unregistered users are often first time receivers of transfers, it is common that a user will also choose to register for the M-PESA service during such a visit.

3.2.5. *Organisations and M-PESA*

The original strategy of M-PESA focussed on such P2P transfers, and recent research suggests that these continue to be the core of M-PESA, particularly amongst less affluent users¹¹.

However, Safaricom is increasingly pushing to promote a range of other transfers involving organisations including businesses, non-profit and public sector organisations as shown in Table 1.

Type of organisation	Transfers
Business	Very much growing but mainly focussed on more affluent users <ul style="list-style-type: none"> • Bill payments (water, electricity) • Banking services • Payment in some shops

¹¹ Stuart and Cohen, *Cash In, Cash Out Kenya: The Role of MPESA in the Lives of Low Income People*.

Civil Society	<p>Growing interest, particularly in use amongst NGOs</p> <ul style="list-style-type: none"> • MFI loans and repayments (sometime occurs informally) • Small Pension payments for groups (e.g informal workers) • Crop insurance and payout scheme for farmers
Government	<p>‘Last frontier’ of organisations to adopt, generally ad-hoc</p> <ul style="list-style-type: none"> • School fees (ad-hoc) • National Health Insurance Fund (NHIF) • Public hospital payments

Table 1: Typical organisations transfers

With organisations, there are two potential flows of transfers, as shown in Figure 1(c).

Individuals might transfer virtual cash from their own accounts to one of an organisation. For this to occur, an organisation needs to register with Safaricom to become a corporate/bulk user, and is then assigned a specific identifier for their virtual account. Users can then transfer money using messaging in a similar way to P2P transfers, except they now specify the account of an organisation for payment and e-cash is transferred between accounts accordingly. In a similar way, organisations can also bulk send virtual payments from their own account to a number of users provide that they have users mobile phone details.

It should be noted, that for smaller organisations, M-PESA use tends to be more ad-hoc where an individual in the organisation might use their own personal account to receive or transfer P2P payments to and from individuals. Whilst such an approach can be quicker and cheaper in the short term, such organisations may they loose the benefit of the tracking tools offered by Safaricom, as well as the increased limits on organisational transactions as opposed to individual users.

Social transfers can be considered to one of many such ‘organisational’ transfers that are pushing this service. In the ideal case the social transfer ‘supplier’, a government agency or transfer implementer would send out multiple transfers from their account to the phones of recipients.

Recipients would then be able to withdraw such transfers when they wished at their local agent. Hence, for social transfers, organisational transfers offer potentially more convenient ways of implementing transfers to the population.

4. Examples of technology use in social transfers

M-PESA is the first service where mobile money has been used for social transfers. Here we outline the use within three example cases; a cash transfer pilot in the Kerio Valley Cash Transfer Program (KVCTP), the use of M-PESA in the subsequent Post Election Violence Recovery (PEVP) program in three districts in Kenya, and an emergency food cash transfer program based in slum areas in urban Nairobi.

The Kerio pilot, was the first program that attempted to use M-PESA in delivery of social transfers and occurred in 2008. In the context of the December 2007 post-election violence in Kenya and continued tensions through early 2008, cash transfers were articulated as a potential way to alleviate short term poverty that was emerging, particularly related to a dramatic slowdown in the economy and damage to livelihoods (such as loss of cattle) in many regions. The pilot served 571 households, distributing 640Ksh (~\$8) via M-PESA transfers to recipients for each household member in two monthly tranches to provide for basic food needs ¹².

In terms of the mobile money element of delivery, in rural areas mobile phones were still being diffused during this period and the M-PESA service itself was only around one year old. Thus, the project had to pay particular attention to the potential weaknesses in infrastructure. This occurs in the project in two ways. First, attention was paid to mobile phone needs of recipients. Central to this was to ensure that all recipients had M-PESA accounts to receive transfers by

¹² Brewin, *Evaluation of Concern Kenya's Kerio Valley Cash Transfer Pilot (KVCTP)*.

supplying recipients with Safaricom sim cards, and in addition providing 45 mobile handsets to be shared amongst recipient groups ¹³. Secondly, M-PESA at this stage did not have sufficient agents in the sub-districts that were the focus of transfers. To overcome this, the pilot implementers had to work closely with Safaricom, where M-PESA agents were employed to travel at certain times, to specified a distribution points where the majority of the cash transfers were disbursed to recipients ¹⁴. Thus, in this early pilot, some of the benefits that could accrue from using M-PESA, particularly around potentially flexible collection of transfers from local M-PESA agents was negated due to lack of infrastructure. The pilot can be seen as drifting back towards traditional set places and times of distribution of transfers, albeit in this case through innovative third parties.

The evaluation argues that in terms of costs to benefits, “KVCTP was marginally less effective than a traditional food transfer would have been” ¹⁵, particularly owing to the high proportion of problems and costs for integrating mobile phones and sim cards into such a small-scale pilot. However, both suppliers and respondents were positive about the use of the service. For suppliers, the risks from handling cash through robbery or petty corruption was reduced through use of M-PESA. For recipients, M-PESA was considered to be empowering for recipients, with the use of such new services making them more active players in delivery.

The Post Election Violence Recovery project followed from this pilot, beginning in late 2008, operating in three regions; Nairobi, Nyanza, and the Rift Valley. It served 6,522 households, distributing 600Ksh per member per month for 6 months ¹⁶. With the increasingly aggressive

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid., 35.

¹⁶ MacAuslan, *Evaluation of Concern's Post Election Violence Recovery (PEVR) Programme*.

growth of M-PESA ¹⁷, in this project collection of cash transfers occurs in a different way to the Kerio pilot, with widely spread recipients receiving cash transfers and then visiting local agents at their leisure in order to make cash withdrawals. In terms of the outcome, the use of this technology was considered very positively by the project evaluators with particular comment made to the flexible benefits of such mobile transfers for recipients¹⁸.

In terms of infrastructure, appropriate sim cards and phones were still provided for recipients who did not have these facilities (in this case evaluation does not fully examine how such distribution affected the overall project value for money). There were also a number of significant, but not insurmountable problems related to the technology, such as frequently reported mobile network problems and messaging delays in rural areas. In this project problems also particularly related to the special care made to ensure vulnerable groups, such as the elderly or disabled recipients where M-PESA might be problematic, could still receive transfers¹⁹. In this case, the project introduced ‘nominees’, third parties who would receive the money through M-PESA on behalf of such recipients, who would then pass on the cash to the final recipient. Such nominees eventually included 26% of all recipients, and here it was found that misuse and misappropriation was much higher than the nearly negligible problems amongst direct recipients²⁰.

A later emergency cash transfer program occurred in informal urban locations in Nairobi during 2009 and 2010. This transfer related to provision of nutrition related to the growing vulnerability within urban informal areas, disbursing 1,500Ksh (\$18) monthly to 2,500 households for six

¹⁷ Safaricom, *M-PESA Key Performance Statistics*.

¹⁸ MacAuslan, *Evaluation of Concern’s Post Election Violence Recovery (PEVR) Programme*.

¹⁹ Brewin, *Evaluation of Concern Kenya’s Kerio Valley Cash Transfer Pilot (KVCTP)*.

²⁰ MacAuslan, *Evaluation of Concern’s Post Election Violence Recovery (PEVR) Programme*.

months²¹. Operating under similar structures as previous programs, use of M-PESA received a positive review from evaluators,

“The M-PESA payment system worked excellently. Recipients unanimously preferred this system and preferred cash to food. This was because of the secrecy and flexibility it offered”²²

The urban location of this program can be seen to be particularly beneficial in terms of better infrastructure. With growing mobile phone use, evaluators went as far as to suggest that whilst sim card distribution was essential, growing prevalence of mobile ownership and availability of shared access, phone supply can now be seen as optional for suppliers²³. In addition, a more dense spread of locally accessible M-PESA agents within urban areas can be seen to reduce any travelling time to near zero.

In slum areas, cash transfers had previously been connected with high insecurity, both in terms of bringing cash transfers into such areas and for recipients who were consequently prey to loss through robbery. The more discreet mode of mobile phone delivery and consequent collection at agents can be seen as greatly beneficial in terms of safer delivery of cash transfers²⁴. In terms of disadvantages, as with the previous projects, the most vulnerable recipients may be the least able to receive payments by M-PESA. This particularly relates in this urban case to the need for identification to register and use an M-PESA account. In this case, a lack of identification resulted in the inability to participate in the project and meant that certain vulnerable groups; the

²¹ MacAuslan and Schofield, *Evaluation of Concern Kenya's Korogocho Emergency and Food Security Cash Transfer Initiative*.

²² Ibid., iv.

²³ MacAuslan and Schofield, *Evaluation of Concern Kenya's Korogocho Emergency and Food Security Cash Transfer Initiative*.

²⁴ Ibid.

elderly, under 18 headed households and those with worries of legality, could not be part of this scheme ²⁵.

In sum, it can be seen that as both mobile coverage and M-PESA agency infrastructure has become more widespread, delivery of social transfers through M-PESA is becoming increasingly viable both for suppliers and recipients. For suppliers the key advantage revolves around the improved agility and security that comes from using existing infrastructure as opposed to having to be involved in more complex process of delivery. For recipients, the flexibility, and improved safety of cash is invaluable, whilst the use of mobile technology is beneficial in terms of ownership and building the self-efficacy of recipients.

To temper this optimistic view, such schemes have tended to operate at comparatively small scales - in terms of regional spread, number of beneficiaries, level of cash transfers and period or projects. In addition, Kenya has a unique structure in terms of its mobile sector, presently 88% of the population has mobile coverage ²⁶, whilst one mobile money service, M-PESA is all dominant. These structural issues can be said to enhance the ability for social transfers to be efficiently implemented through M-PESA in Kenya. Discussions from Kenyan social transfer projects on the weaknesses are crucial to highlight possible issues which might be more severe elsewhere. Thus, in the proceeding sections we examine the issues in more detail in order to allow implementers to weigh up the potential of mobile money within their own regions.

5. Mobile money for social transfers

²⁵ Ibid.

²⁶ CCK, *ICT Sector Statistical Reports*.

Drawing on the cases from the previous section, we illustrate the key issues which implementers of social transfer delivery need to consider related to the potential of integrating mobile money infrastructures.

5.1. Advantages of mobile money

5.1.1. Efficient Infrastructure

As shown in the M-PESA case, the core functionality and infrastructure of M-PESA revolves around a system to allow for efficient and safe money transfers, with focus on less affluent groups. For social transfer suppliers, M-PESA provides a service where transfers might be disbursed to recipients quicker, cheaper and more transparently than present implementations.

Devereux and Vincent²⁷ usefully differentiate between two types of social transfer ‘push’ and ‘pull’. Inevitably, certain large scale disbursements may be too large for such infrastructures to deal with, leading to more traditional methods of disbursement. However, smaller scale or more widely spread schemes have greater potential to look towards more flexible ‘pull’ disbursements. For the supplier, such a ‘pull’ system has the potential of reducing both risks and costs involved in the tricky logistical exercise involved in disbursement of transfers. This is particularly the case where implementation occurs in more remote areas or regions of humanitarian intervention where conditions are more risky for implementers.

A number of technology solutions have been suggested for implementation of ‘pull’ social transfer such as mobile bank branches, smartcards and ATM delivery²⁸. Where mobile money transfers exceed these other options is the role of agents who are potentially more widespread and locally embedded in remote areas to provide such services.

²⁷ Devereux and Vincent, “Using Technology to Deliver Social Protection.”

²⁸ Ibid.

For suppliers, such ‘pull’ approaches to implementation, provide potential new directions for social transfers. Firstly, lower logistical demands aid agility of suppliers so that during sudden crises, suppliers have better ability to scale or respond to needs in shorter time frames, to become more effective. Secondly, transfer which targeted only very small groups of recipients, or ones that were too widespread might have previously been ruled out as too costly in terms of costs might become increasingly viable allowing previously unrealised social transfer strategies. Finally, the structure of mobile money is particularly suited towards more regular disbursing of smaller rather than larger lump sums, which can facilitate new schemes of transfer to recipients.

5.1.2. Security

As shown in the case of M-PESA, suppliers particularly saw enhancements to security and fraud as one of the key factors in adopting mobile money in transfers. This relates to losses to suppliers through robbery, corruption in the processes of delivery and in recipient fraud, all of which mobile money has the potential to reduce. In terms of robbery, transportations of large sums of money by suppliers to be disbursed are reduced where cash is now redeemed at the agents. From the suppliers perspective social transfers are thus now essentially a ‘cashless’ exercise. By transferring money directly to recipients, and disbursing cash through agents, mobile money solutions become increasingly transparent and trackable. This reduces the risks of losses through corruption as it is no longer possible for intermediaries to skim off small sums for themselves. The only intermediary of cash delivery becomes the cash agent. Whilst in Kenya, cases of agent fraud in social transfers have been reported to occur particularly with inexperienced users ²⁹, in general agents whose business depends upon honest delivery are far less likely to fraudulently skim off money in the same way as previous intermediaries. In terms of fraudulent recipient

²⁹ MacAuslan and Schofield, *Evaluation of Concern Kenya’s Korogocho Emergency and Food Security Cash Transfer Initiative*.

activity, requirements for mobile money registration and agent activities can contribute to reducing other sources of fraudulent activity. So called ‘ghost-recipients’, false identities or double accounting (whilst likely not totally eradicated) are likely to be vastly reduced given the tough ‘know you customer’ (KYC) and ‘anti-money laundering’ (AML) schemes that mobile money firms and their agents operate in a well policed mobile money infrastructure, in order to meet regulatory requirements.

5.1.3. Recipient flexibility

As shown in the Kenyan cases, social transfers through mobile money services also has considerable benefits to the recipients where increasingly wider expanses of the population use mobile money services. For recipients, mobile money transfers are more flexible, convenient, and safer. The receipt of transfers through a mobile phone reduces the need to travel to an often far flung bank, government or NGO office at a certain date and time to receive cash. Associated costs of travel can be high, and timing can be inconvenient, particularly for workers who may incur wage or business losses due to travel. Locally mobile money agents are potentially more wide spread, closely located to recipients reducing such transport costs. Crucially, users are free to collect their transfers when they are needed, and can hence fit better into their lifestyles.

In hand with this shift, recipients are consequently likely to be carrying cash from their transfers over shorter distances. Conceivably, given adequate understanding they might additionally keep the majority of their transfers as virtual cash. Thus, mobile money can also contribute to a lowering risk on the demand side for insecurity and loss of money prior to the spending of this cash.

5.1.4. Empowerment

Typical methods of social transfer can be disempowering to poor groups, connected to a poor self-image related to the processes of attendance, queueing and potential marginalisation which surround receiving of social transfers. Suggestions from the M-PESA examples are that this is reversed with social transfers via mobile phone. Given the virtual nature of transfers, the disempowering rituals of collecting such transfers are reduced, and the use of cutting edge technologies can provide a better feeling of empowerment.

Further, researchers have increasingly advocated the benefits that come from poor groups entering into financial circuits, through better financial literacy and use of savings³⁰. Thus, such transfers can be seen to be inducing recipients into using such financial systems, and connecting to the benefits over more informal banking means in the longer term.

In an attempt to boost female empowerment, matriarchal distribution of social transfers has been a common in attempting to ensure that social transfers contribute towards female empowerment, and connected to the fact that female disbursement likely result in more efficient use of such disbursements³¹. Using mobile money can enhance such targeting. Firstly, the flexibility of mobile money means that there will be less occasions where it acceptable to pass such cash collection to men related to busyness or work - the recipient is able to later redeem the transfer herself. Secondly, at the point of cash withdraw mobile money agents enforcing know your customer (KYC) regulation ensure that in all likelihood that at the point of disbursement, the women will receive the cash transfer. Of course, issues of unequal inter-household redistribution still exist, which threaten such disbursements being optimally empowering. Further, some literature on

³⁰ Collins et al., *Portfolios of the Poor*.

³¹ Samson, van Niekerk, and MacQuene, *Designing and Implementing Social Transfer Programmes*.

mobile phone ownership in developing countries suggest that such technology can become an additional trigger of gender conflict ³². Thus care needs to be taken with consideration of introduction of such technology solutions particularly in areas where gender-based problems (such as violence) might be exacerbated with such introductions.

5.1.5. Local economy

The increasing awareness of transfers in development has particularly focuses on their benefit over other means of social aid such as food or goods. Cash when disbursed locally by recipients can spur local economic growth through increasing flows of money. Social transfers via technology might also enhance local economic agendas, through their support of mobile money service and mobile phone infrastructures. Lack of such services offered by suppliers often links to a lack of demand. In such situations, demand-side stimulus has been advocated as a way of growing such services, and this is what social transfers by mobile money can be said to drive. There is evidence that social transfers have been successful in stimulating similar growth in the past banking sector, in the case of Equity bank in Kenya ³³ and in Pakistan ³⁴, which were articulated as crucial in driving agency banking in these institutions towards ever more remote rural locations.

5.2. Weaknesses of mobile money

5.2.1. Infrastructure lack

Given that mobile money services are still in their early stages, in many countries there are still many problems connected with the completeness and coverage of such infrastructure. For mobile

³² Wakunuma, "Mobiles Reinforce Unequal Gender Relations in Zambia."

³³ FSD Kenya, *Equity Bank and the Hunger Safety Net Programme (HSNP) in Kenya*.

³⁴ CGAP, *Case Study: United Bank Limited Supports Cash Transfer Payments*.

money to be an appropriate technology platform it needs to be adequate in three linked domains; mobile ownership, mobile coverage and mobile money agent coverage³⁵. Poor mobile coverage can be problematic in that it prevents users receiving or sending essential messages. It is common for rural areas to have sporadic mobile coverage, but this is less problematic given that M-PESA messages are received by SMS which can be delayed without difficulty. This was the case in the PEVR transfer program, where sporadic coverage in some rural areas, whilst annoying to recipients did not detriment the overall goals of the project³⁶. Sporadic network quality can be more problematic for agents because without the final confirmation SMS, transfers are deemed to be incomplete, and hence recipients will not receive cash if there are severe delays. In areas of dense delivery of social transfers, increased volumes of messages, might lead to network problems and thus delays at the agent level. Thus implementers would be best advised to slowly scale up such delivery in anticipation of such problems.

In locations where mobile phone adoption is low, suppliers of mobile transfers will have to include workarounds in their projects. For example the Kerio Valley transfer project, purchased a number of mobile phones for recipients to allow them to receive transfers through mobile money³⁷. As shown in this case, purchasing mobile phones in bulk will inflate costs, and likely such projects will require additional training for recipients unfamiliar with using mobile phones and phone transfers. In Kenya, costs were cut through supplying shared phones and only supply individual recipients with mobile phone numbers (by supplying each with a sim card). However this workaround leads to a number of weaknesses. Most crucially given the very small size of sim cards (2cm x 1cm) they can easily get lost, which then involves time consuming sim card

³⁵ We might also include electricity as an infrastructural issues, although with informal rural charging services common in rural markets, and increasingly long life on mobiles, this problem is often less serious.

³⁶ MacAuslan, *Evaluation of Concern's Post Election Violence Recovery (PEVR) Programme*.

³⁷ Brewin, *Evaluation of Concern Kenya's Kerio Valley Cash Transfer Pilot (KVCTP)*.

replacement. The supply of sim cards, and shared phones was at the core of the 2009 Kerio project in Kenya, with this approach resulting in a significant number of delays and extra costs. However, the project was able to overcome these hurdles to succeed.

Finally, in terms of infrastructure it is essential for such delivery that there are sufficient agents, who are able to deal with potential increase in volumes of transfers. In rural areas, local agents often tend to be small kiosks attached to other businesses such as mechanics, typesetters or food sellers. Where social transfers trigger many agent requests, such agents are likely to find themselves overloaded. Typically such agents are already struggling to juggle their supplies of money and e-cash, often needing to perform ‘float balancing’ which requires a potentially costly and insecure journey to a local bank. Often small agents will refuse to conduct a large transaction which forces them to float balance, preferring to wait for lower value transactions which provide better profit. For suppliers, low, regular and staggered transfers within a region and close partnership with operators including increases of agents in ‘hotspots’ of delivery will likely avoid such problems. However, in areas where large volumes of transfers are made, agent problems will likely result in suppliers needing to resort to alternative measures in disbursing cash through agents. In the Kerio valley transfer case for example, even though M-PESA was used, distribution volume resulted in a return to more traditional ‘push’ approaches to disbursement, which may invalidate the original strengths of using mobile money in transfers.

5.2.2. Security

It is a common misconception that if any type of cash transfer become electronic it is totally safe. Certainly mobile money improves some aspects of safety, reducing the need to travel with cash and allowing recipients the ability to store cash virtually. However, mobile money introduces new risks. Transfers in the mobile money system revolve around having the correct number of the

receiver, and later that users type in the correct number of agents, friends or family when they use such services. Mistyping amongst all levels of user is extremely common and results in misdirected transfers. Whilst such transfers tend to be ‘clawed back’ it requires a tedious process of going through the central services provider. For suppliers working with details of hundreds, maybe thousands or recipients such issues become more problematic as outlined in the case of the PEVR program, many users entered friends or incorrect numbers at early stages which later resulted in difficulties for the suppliers in tracking transfers³⁸. As in this case, suppliers need to be careful or they may find themselves swamped in tracking down mobile numbers and incorrectly supplied transfers.

The growth of mobile money in Kenya has resulted in increasingly sophisticated ‘scams’ which prey on unskilled mobile users. Examples of this such as a phone call claiming the recipient has won a lottery, and one which involves a fake M-PESA SMS –are designed to confuse a mobile money phone user before inducing them into transferring money. There are no surveys to our knowledge that outline the extent of such scams, but from experience with users and agents, many have been tricked by such approaches. This hence points toward the essential need for education and awareness amongst users as part of early processes.

5.2.3. Recipients

Recipients of social transfers tend to be the most vulnerable in society, but they are also likely to be the same people who most struggle to use technological services. In the Kenyan cases, this related to a number of issues; elderly or disabled with inability to travel to an agent, inability to use the technology and problems with a lack of, or lost identification cards needed at the agent to withdraw cash. The response by implementers to such problems was also varied. In the urban Nairobi transfer case, recipients simply had to have identification or they were excluded from the

³⁸ MacAuslan, *Evaluation of Concern’s Post Election Violence Recovery (PEVR) Programme*.

program, in contrast the PEVR project allowed such vulnerable groups to receive transfers through nominees, but this was highly problematic in terms of recipient corruption. Thus, for implementers a crucial decision will come in understanding the demographics of receivers and designing such implementations to include such recipients most viably.

A second crucial issue relates to the tariff structures that such mobile money systems realise. Whilst suppliers find costs of using mobile money advantageous, on the recipient side, there is a risk that tariff costs can increasingly accrue. This particularly occurs as the recipient look to the mobile money service as a way to safely store their transfer, withdrawing only small sums when needed for daily use. Brewin³⁹ voices concerns of such issues in terms of the Kerio transfer project, but other Kenyan evaluations are surprisingly quiet on this issues, presumably at present users were observed to simply withdraw all their transfers upon disbursal.

To illustrate this issue, commissions are shown for M-PESA in Table 2. When a user withdraws a sum of around \$1.20-\$5, a small cash withdraw that one might typically expect in daily use, then the tariff at the agent will be 30c, potentially up to 25% of the money withdrawn. Over time if a recipient regularly withdraws small sums, the amount paid in commission begins to significant accrue. This is something that some micro-finance providers have already come up against in Kenya. One provider Jamii Bora calculated that over the 20 week lifetime of one of its micro-loan products, using M-PESA for repayments could be seen as effectively increasing the interest rate of the loan by 70%, rendering its' effectiveness far lower than intended ⁴⁰.

This is particularly a concern for common social transfers which connect to fulfilling basic needs – food, welfare benefits and so on – where commissions are likely to be large in proportion to the

³⁹ Brewin, *Evaluation of Concern Kenya's Kerio Valley Cash Transfer Pilot (KVCTP)*.

⁴⁰ Pickens, "Can M-PESA Work for Microfinance Clients?".

level of withdraw. The problem is less pronounced where social transfers are intended for a specific one-off use such as school fees, rent arrears or health care, as here the one shot nature of transfer will necessarily result in far lower costs in terms of transfer. In sum, special attention needs to be paid to the tariff structure and the unanticipated costs that recipients might find themselves subject to. Where there is competition amongst mobile money service providers, tariff structures might be influential in decision making of which provider to choose in implementation.

Type	Minimum (Ksh)	Maximum (Ksh)	Customer Tariff (Ksh)
Deposit (e-cash to cash)	-	-	0
Withdraw* (cash to e-cash)	50	100	10
	101	2,500	25
	2,501	3,500	45
	3,501	5,000	60
	5,001	7,501	75
	7,501	10,000	100
Transfer (e-cash transfer)	10	49	3
	50	100	5
	101	500	25
	501	5,000	30
	5,001	20,000	50
Notes			
1) This is an extract, illustrating only low tariffs more relevant to social transfer discussion			
2) Exchange rate indicator (April 2012): \$1 = 83Ksh, so 100Ksh ~ \$1.20			
3) * - We assume here that the use is already be registered with M-PESA, otherwise the the tariff is higher			

Table 2: M-PESA tariff extract. Adapted from ⁴¹.

5.2.4. Local economy

Related to the supply side, there are wider concerns that are also worthy of consideration. This particularly relates to the fact that at present most mobile money platforms tend to be minimally or non-interoperable⁴². For recipients this means two things. Firstly, if you have a mobile phone

⁴¹ Safaricom, *M-PESA Tariff*.

⁴² Or at least when they are interoperable, they only do so in the most basic way. For instance, as outlined in Kenya, non-Safaricom users can withdraw M-PESA transfers, but

line with the wrong operator, to receive transfers you will need to switch or get a second phone line. Secondly, if you have a mobile money account with the wrong supplier, to receive transfers you will need to switch to, or get a second account. Beyond being confusing for customers, one can argue that in a sector where access and benefits have accrued from the design of competitive markets⁴³, large social transfers might be seen as skewing these structures.

In the existing Kenyan cases, the small scale of such transfer projects means that such concerns can likely to be neglected, but in large scale delivery, the choice of a provider for social transfer may be more than one of making a choice in a market of options, but rather as ‘picking a winner’. This has been seen previously in the case of the Hunger Safety Net Program in Kenya, where Equity bank has built unique infrastructure into very poor rural areas at least in part connected to this scheme⁴⁴.

For schemes targeting a wide proportion of recipients, particularly large ones at a national level interoperable suppliers, if available, might be given preference, or alternatively suppliers may need to consider the distorting market effects that their choice of service will lead to. To avoid such issues, firms may need to consider embrace all service suppliers in the market, or consider how to work through intermediaries such as payment platforms.

6. Conclusion: M-PESA, Adaptable to the social protection agenda?

In conclusion as shown in this chapter the M-PESA system offer efficient core functionalities in the weak and risky stage of social protection implementation and delivery. It overcomes the lack

they can only do this in one withdraw, and will incur higher tariffs. In short, one needs a Safaricom number to have an M-PESA account

⁴³ UNCTAD, *Information Economy Report 2010: ICTs, Enterprises and Poverty Alleviation*.

⁴⁴ FSD Kenya, *Equity Bank and the Hunger Safety Net Programme (HSNP) in Kenya*.

of infrastructure, the lack of safety and security (of money transfer and beneficiaries) it responds to a need for flexibility for vulnerable groups in a rapid, cost-efficient and transparently manner. Though some limitation and concerns are identified in this chapter, the use of mobile money in M-PESA present encouraging results in terms of client empowerment and indirect local economy boost which are non-negligible in the approach to social protection.

Finally, it is important to note that although technology can play a key role in implementing and delivering social protection, it does not substitute for a coherent national protection strategy.

	Benefits	Issues
Infrastructure	Uses existing infrastructure <ul style="list-style-type: none"> • Reduction of costs • Better agility • New approaches to transfers 	Infrastructure weaknesses limit use <ul style="list-style-type: none"> • Phone/Sim ownership • Network coverage • Mobile money coverage • Agent ability to deal with high volumes in rural areas
Security	Transparent, secure on supply-side <ul style="list-style-type: none"> • Reduce robbery risk • Reduction in corruption 	Security risks still exist for recipients <ul style="list-style-type: none"> • Incorrect use of service • Prone to scams
Recipients	Flexible, local collection of transfer <ul style="list-style-type: none"> • More secure • Fits better with daily life • Empowerment 	Problems of recipients <ul style="list-style-type: none"> • Vulnerability and inability to use technology service • Hidden tariff costs in services
Local Economy	Pushes mobile services demand <ul style="list-style-type: none"> • Mobile phones and coverage • Mobile money spread 	Lack of interoperability <ul style="list-style-type: none"> • Skew competitive mobile markets • Mobile money selection may be picking a winner in rural areas

Table 3: Summary table of consideration for mobile money

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