



Source: Noor, W. and Shrader, L., CGAP, 24 February 2015, MobiCash shared agent network – Bangladesh<sup>63</sup>

### 3.4 Telecommunication network access issues

Mobile financial services are provided over the mobile telecommunication network, whether using GSM technology or Internet Protocol over a 3G or 4G network. MNOs control the networks so other providers of mobile financial services must rely on the MNOs for access to these networks and customer devices. Such providers are thus both competitors and customers of the MNOs.

This potential conflict of interest in the MNOs exposes competing providers to the risk that MNOs restrict access to the communications channels. This is a serious risk because mobile networks are already a concentrated market, with only a few of them in each country. MNOs that are dominant in the mobile telecommunication market and aspire to grow (or protect market position) in mobile financial services may have both the ability and the incentive to exclude competitors from, or increase their costs in, the mobile financial services market. As with the harm to consumers from dominant providers operating exclusive agent networks (see section 3.3.2), the harm from MNOs excluding competitors from the market or increasing their costs includes weaker innovation, a narrower range of available services, and higher prices.

<sup>62</sup> See for example, CGAP, [www.cgap.org/blog/mobile-money-agents-tanzania-how-busy-how-exclusive](http://www.cgap.org/blog/mobile-money-agents-tanzania-how-busy-how-exclusive)

<sup>63</sup> [www.slideshare.net/CGAP/mobicash-shared-agent-network-bangladesh](http://www.slideshare.net/CGAP/mobicash-shared-agent-network-bangladesh)

### 3.4.1 Communications technology delivery channels

There is a range of communication channels available for provision of and access to mobile financial services. The desirability of a given technology in a given market depends on its compatibility with available handsets, user experience, security, cost, and ease of deployment.<sup>64</sup> Today, mobile money is chiefly accessed through the human interface of the agent in the street and the technical interface of the phone handset. The most commonly used access technologies are:

- Unstructured supplementary service data (USSD)
- SIM application toolkit (STK)
- Internet

#### Unstructured supplementary service data (USSD)

Most large scale mobile financial services in developing countries rely on USSD as their primary mechanism for connectivity with customers.<sup>65</sup> USSD is a standard for transmitting information over a GSM network. It functions on the vast majority of basic and feature phones, and smartphones.<sup>66</sup> Delivery of services over USSD does not require programming changes in or access to a handset SIM card. This allows non-MNOs and non-MVNOs to provide mobile financial services, and makes interoperability across different MNOs easier.<sup>67</sup>

However, USSD does not offer the same security capabilities as STK or mobile Internet (described below).<sup>68</sup> The customer experience is also typically not as smooth as STK, with USSD having a higher risk of dropped sessions. Where customers are charged for usage, this can undermine trust and raise costs.<sup>69</sup> USSD is typically cheaper than SMS because it provides a session-based connection that is real-time and significantly faster and cheaper than SMS for two-way transactions.<sup>70</sup> To provide mobile financial services via USSD on an MNO network, the provider requires a designated short code. The customer dials this (e.g., '\*100#') and is then presented with a menu of options and communicates back and forth according to his or her selections.<sup>71</sup>

USSD codes may either be assigned by the MNO or the telecom regulator, depending on the jurisdiction. In Tanzania and Uganda, they are assigned by the regulator while in Kenya, USSD short codes are assigned to MNOs that may in turn provide secondary assignments to non-MNOs. However, where operators provide such secondary assignments they expose the mobile money providers further to the market power of the MNO, with risks of delay and other impediments.

#### SIM application toolkit (STK)

STK-based interfaces comprise a set of commands programmed onto the user's SIM card. The menu for accessing the commands is embedded in the normal phone user interface, accessible on the phone menu. The programmed SIM determine how the SIM should interact with the outside world.<sup>72</sup> This makes it more secure than USSD and SMS (even though it operates over those technologies).<sup>73</sup> To use STK, a provider of mobile financial services needs access to programme the SIM card. Mobile financial service providers that are not MNOs or MVNOs (which control such access) typically do not

<sup>64</sup> Hanouch, M. and Chen, G.: [www.cgap.org/publications/promoting-competition-mobile-payments-role-ussd](http://www.cgap.org/publications/promoting-competition-mobile-payments-role-ussd)

<sup>65</sup> Hanouch, M. [www.cgap.org/blog/what-ussd-why-does-it-matter-mobile-financial-services](http://www.cgap.org/blog/what-ussd-why-does-it-matter-mobile-financial-services). Also see GSMA, 2014.

<sup>66</sup> Hanouch and Chen (2015), cited above.

<sup>67</sup> USAID, 2010.

<sup>68</sup> Hanouch and Chen (2015), cited above.

<sup>69</sup> Hanouch and Chen (2015), cited above.

<sup>70</sup> Sanganagouda, 2011.

<sup>71</sup> Camner, G., Pulver, C. and Sjöblom, E. (2012). 'What makes a successful mobile money implementation? Learnings from M-Pesa in Kenya and Tanzania'. GSMA.

<sup>72</sup> USAID (2010). [http://pdf.usaid.gov/pdf\\_docs/PNADW294.pdf](http://pdf.usaid.gov/pdf_docs/PNADW294.pdf)

<sup>73</sup> Singh, G. et al 'Mobile Payments Infrastructure Access and Its Regulation: USSD.' CGAP Working Paper (May 2014).

have access.<sup>74</sup> STK functions on basic and feature phones, and smartphones, making it attractive for deployment in low-income regions.

### Internet

Mobile financial services are also available through an Internet connection. The versatility of the Internet makes it highly attractive for such services. It also allows services to be ‘network agnostic’, i.e., the service provider need not have any affiliation with the MNO. For example, in Uganda, UTL and MTN have developed mobile money applications that will work on their competitors’ mobile networks.<sup>75</sup> Access through the Internet should reduce many of the competition problems arising from MNO market power through control of USSD and STK on the GSM networks, as discussed in section 3.4.3.

### Other technologies

Other possible technologies include SMS, interactive voice response (IVR), where the system interacts with the customer through the use of voice and signalling tones input on the keypad, and near field communications (NFC). These are far less used in developing countries for mobile financial services and so are less relevant to financial inclusion.

### 3.4.2 Anticompetitive practices

Mobile telecommunication networks are a ‘bottleneck resource’ in that they cannot be cost-effectively duplicated. A MNO may have two potentially conflicting incentives:

- to increase wholesale demand for its upstream telecommunication network services through encouraging value-added use by third parties, such as mobile money providers; and
- to protect its position from actual and potential rivals in the downstream retail mobile money market.

However, there is a feedback loop from the retail mobile money market into the retail mobile telecommunication market. Where an MNO operates a dominant mobile money business, it has a strong incentive to channel demand to its own transfer and payment services. By maintaining and strengthening its position in the mobile money market, the firm also strengthens its position in the mobile telecommunication market because the subscribers need the latter to obtain the former.

MNOs can use their market power over communications channels to leverage network effects to prevent competitors gaining traction in the downstream mobile money market. Strategies include refusing to provide USSD to competitors, offering prices which squeeze the competitors’ margins to make their business commercially unviable, and discriminating in pricing and other terms.<sup>76</sup>

The harm can extend right into all areas of the mobile financial services market. For instance, if banks seek to offer their services across mobile networks in competition rather than partnership with the MNO, the development of mobile savings and lending services may be impeded.

### Refusal to supply

In some cases, MNOs simply refuse to supply competing mobile money providers, or delay supply based on justifications such as lack of capacity or technical readiness.

In Zambia, for example, MTN was fined by the competition authority for restricting access to USSD of Zoona, a major payments competitor. In Zimbabwe, Econet is being investigated by the Competition and Tariff Commission (CTC) for potential breaches of the Competition Act. The banks complain that, after a period of refusal to supply USSD access, the access that Econet did eventually set for customers

<sup>74</sup> Hanouch and Chen (2015), cited above.

<sup>75</sup> Najjemba, I., <http://pctechmag.com/2015/11/mobile-money-transforming-lives-one-transaction-at-a-time/>

<sup>76</sup> See Rey, P. and J. Tirole. (2007). ‘A Primer on Foreclosure’ in M. Armstrong and R. Porter (eds). *Handbook of Industrial Organisation III*.