AFRICA'S MOBILE REVOLUTION

Calibrating the role of mobile technology in Africa's water future

Water utilities in sub-Saharan Africa have lagged behind when it comes to seeing the benefits of mobile technology, but the market is catching up fast. What are the barriers to adoption?

Mobile technology is revolutionising the way African water utilities operate, dramatically increasing revenue collection rates and boosting customer engagement to new highs.

Half the customers served by Nairobi City Water and Sewerage Company in Kenya and Uganda's National Water and Sewerage Corporation (NWSC) now pay their bills using mobile payment platforms such as Vodafone's M-Pesa, and Ronald Azairwe, NWSC's manager for IT infrastructure and security, says that facilitating mobile payments stemmed from a desire to make paying bills easier.

"Our offices were open when people were at work, people had to travel a long way, so it wasn't practical," he explained to GWI. "We also had the problem of cash – having to give change and taking the money to the bank."

In 2011, NWSC introduced mobile payment, which led to an immediate spike in payments. The number of customers opting for this method has steadily increased to around 50%, while the other half now pay at banks, effectively leaving NWSC cash-free.

NWSC also introduced On-Spot Billing, a system whereby meter reading staff are equipped with Android devices and hand-held printers which allow them to issue bills on the spot. Azairwe says that the system has proved hugely popular with customers, who feel they can trust the accuracy of their bills, and are therefore more amenable to paying them. "Customers will generally pay within a few hours of the bill being issued," he told GWI. Under the old system, a week would typically pass between a read being taken and the issuing of a bill, and there would be further delays until payment was made. As with mobile payment, the utility saw a surge in payments following the introduction of On-Spot Billing.

In 2010, NWSC's annual revenue was UGX12 billion ($3.5 million), and it has since risen to UGX25 billion ($7.3 million). Azairwe says that UGX5 billion of that can be attributed to NWSC extending its area of operations, but that much of the rest is due to mobile innovation.

Nairobi Water has had a similar experience. As well as standard mobile payment, the utility has introduced Jisomee Mita, a self-meter reading, billing and mobile money payment system developed in collaboration with the World Bank for low-income customers in informal settlements. Customers can access their own meter, take a reading, and send it to Nairobi Water using their mobile phone. The utility then texts the bill back, which customers pay, again using their cellphone.

The service was designed to allow smaller, more frequent payments than the standard monthly billing cycle – a solution which suits low-income households. Philip Gichuki, Nairobi Water's chief executive, says that Jisomee Mita payments peak on Fridays and weekends, when people have been paid.

Jisomee Mita also includes a facility to repay micro-loans for the installation of water connections. Nairobi Water established that residents in informal settlements found the cost of a new connection to be prohibitive (KES8,000; $77), and so the utility allowed for the cost to be spread over a three-year period.

There are now some 3,000 Jisomee Mita customers in Nairobi, which has substantially increased the amount of revenue being collected from informal settlements. Gichuki says that when the scheme first started in May 2014, his utility received KES40,000-50,000 a month ($386-483); in January 2016, it was KES1.3 million ($12,565).

Nairobi Water is in the process of installing another 15,000 Jisomee Mita connections, but the utility is also considering how the concept could be used more broadly. "We are updating our billing system, and one thing we would like to bring on board is Jisomee," Gichuki told GWI. "We do not want to have a separate system for formal and informal settlements." ▶

MOBILISING AFRICA'S WATER MARKET

The potential for cellular technology to improve the financial outlook for Africa's water utilities is limited by water tariff levels. The prospects for some countries look rosier than others.

Country	Population (mln)	SIM penetration (%)*	Access to piped water (%)	Tariff ($/m^3)
Benin	10.6	85	17.0	0.76
DR Congo	74.9	60	10.7	0.39
Ethiopia	97.0	42	5.6	0.17
Ghana	26.8	125	29.8	0.38
Kenya	44.9	80	23.4	0.43
Madagascar	23.6	30	8.4	0.24
Malawi	16.7	38	8.1	0.53
Mozambique	27.2	61	12.1	0.68
Namibia	2.4	114	49.7	2.37
Niger	19.1	35	8.4	0.32
Nigeria	177.5	82	9.5	0.80
Rwanda	11.3	75	8.1	0.48
Senegal	14.7	95	58.9	0.61
South Africa	54.0	157	43.2	1.31
Uganda	37.8	72	5.3	1.31

** Many Africans own more than one SIM*

Source: World Bank, GSMA Intelligence, WHO/UNICEF, GWI

Nairobi Water has also used mobile phones to track and record the work of meter reading staff (reads are photographed, time-stamped and GPS-tagged). These metrics have allowed the utility to work out performance targets for meter readers. Customers can also use their mobile phone to identify Nairobi Water employees in the field, a boon to root out fraudsters.

Nairobi Water now has 106,000 paying customers, up from 63,000 in 2010, and Gichuki says that more than half of this improvement is thanks to mobile technology.

Cuddling up to customers

The other aspect of business that mobile technology has transformed is customer relations. In collaboration with the World Bank and the sector regulator – the Water Services Regulatory Board of Kenya (WASREB) – Nairobi Water has put in place MajiVoice, a service that tracks customer complaints.

By offering this simple channel of communication, the number of complaints rose tenfold, but the resolution rate rose from 46% to 94%, while resolution times halved. Gichuki says that MajiVoice also allowed the company to streamline its processes by identifying bottlenecks. Billing complaints, for instance, took much longer to resolve than non-billing complaints, and so they changed the way these were handled.

Similarly, NWSC has developed a comprehensive social media policy. The utility is active on several platforms, but it is Twitter that has proved the most powerful. The corporation has two accounts, @nwscug for the utility and @NWSCMD for Silver Mugisha, the managing director. "With Twitter, if customers are not happy, we'll find out straight away," says Samuel Apedel, NWSC's social media coordinator. "It's easy for the MD to log on, too, and see what's happening. It has made him more accountable and accessible to our customers."

The utility's policy is to respond to Tweets within five minutes. It also runs numerous campaigns on its Twitter account, including "Tweet a Leak", which has become an essential tool in its efforts to control non-revenue water. The social media team can get in touch with technicians in the field and get the issue resolved quickly. They then send a picture of the completed works to the customer.

On the whole, the cost of implementing these mobile innovations was low, and was easily offset against savings and increased revenues, according to both Nairobi Water and NWSC. The biggest obstacle they faced in implementing these new processes was scepticism from employees. Both utilities provided extensive training, while Nairobi Water also ran education campaigns about the Jisomee Mita programme in informal settlements.

Cellulant, a leading digital payments service provider in Africa, says that the continent is ahead of the curve when it comes to mobile payments globally, but that water utilities have lagged behind other sectors such as electricity or telecoms because of the poor level of automation in billing systems. Interest has picked up, however, and Cellulant says that it is actively working on mobile billing with all the utilities it is in contact with .

One limiting factor will be mobile penetration and internet access: both are very high in Kenya and Uganda, but average mobile penetration is just 39% across sub-Saharan Africa, and masks wide differences between countries (*see table opposite*). ■