Prepaid & Pay-as-you-go Models for Asset Financing

Analysis of Mobile-Money Business Models for Kickstart (irrigation pumps) and M-KOPA (solar panels) in Kenya

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Acceptance of the prepaid airtime model—along with the emergence of mobile money—sets the foundation for new business models that allow innovative financing for people living on irregular incomes or with an aversion to credit.

The new pay-in-advance (prepaid) or pay-as-you-go models are electronic hybrids of old-fashioned savings and layaway plans. But mobile-money payment systems give sellers and lenders the ability to an infinite number of micro-payments, which is impractical with cash.

There are several keys to effective application of this new financing model:

- **Flexibility.** The majority of the world’s rural poor live on irregular incomes and require flexibility in any financial instrument. A borrower or saver pays down or pays forward what s/he can afford when money is available, with no pressure to adhere to a fixed payment schedule.

- **A human network.** Just as “phone ladies,” “top-up” shops and mobile-mobile agents helped spread mobile phones and mobile money, agents help build trust in a new mobile financing model by putting a human face behind it.

- **Automatic shut off.** The ability to remotely monitor and shut off the device through a SIM card gives the seller leverage to continue collecting payments, or automatically shut off service.
To date, the most widespread financing models apply to services—such as electricity, satellite broadband, or cable TV—that people are used to paying for on a post-paid basis. For example, more than 10 percent of Kenya Power’s 2 million customers now buy electricity in advance with mobile money, and the electric meters automatically shut off when the prepaid units run out.

The question we ask is, Can the prepaid/mobile money model be applied to asset financing for high-cost durable goods, or physical assets? Our research focuses on two experiments in Kenya, where mobile money (particularly Safaricom’s M-PESA) is prevalent:

1) A layaway program for Kickstart pedal irrigation pumps (with no remote shut-off);

2) A pay-as-you-go program for M-KOPA solar panels and lamps (with a remote shut-off).

**Kickstart: Tone Kwa Tone Pata Pump Mobile Layaway**

KickStart International sells pedal-powered water pumps that provide farmers with a means of irrigation. One of Kickstart’s most popular pumps is called the MoneyMaker, because it is virtually guaranteed to increase a farmer’s income. A pump and hosepipe costs from $65 to $185, depending on the model.

Pumps are sold through agricultural stores, and marketed by Kickstart sales reps. Some ag dealers create informal layaway plans with farmers they know, taking small payments in advance and allowing farmers to save up for the full purchase price. KickStart saw in this an opportunity to formalize the layaway program and tie it to M-PESA mobile payments, saving the farmer trips into the market town.

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1 Information on Kickstart is based in part on interviews with Charlene Chen, a manager of the Tone Kwa Tone Pata Pump layaway program.
Kickstart’s mobile layaway program is called Tone Kwa Tone (TKT) Pata Pump (“Drop by Drop” Gets the Pump). After a 15-20% deposit, payments on the remainder of the purchase price can be made at any time, in any amount—but must be completed within three months. (Initially, Kickstart allowed a nine-month pay period, but farmers’ payments lagged as the months rolled by, and the three-month period has been much more effective.) Using an M-PESA PayBill number (a numerical code assigned to a payee), farmers send money when they can, typically around a harvest or sale of an animal.

To date, more than 30% of layway customers are women, a much higher percentage than amongst traditional buyers. And TKT buyers pay up more quickly than those using the informal layaway plans. However, dealers have not been supportive, as they like to get cash in hand more quickly than they do after intermediation through M-PESA’s PayBill mobile money. And many TKT farmers are uncomfortable with the M-PESA PayBill mechanism (which is more widely accepted in urban settings) and the transaction fees (even though Kickstart pays for half that fee).

**Analysis:** Kickstart is in the business of designing, manufacturing and selling water pumps. Designing, managing and promoting a financial service is a very different business and has been a challenge.

TKT offers flexibility for payment amounts and timing, although the three-month cap is tight. But it’s not clear that the intended target market (poor rural farmers) is sophisticated enough to understand the value. The best uptake of the TKT product to date is from people who have higher incomes than most rural farmers, and they pay faster. Kickstart has a strong human network of sales reps, but dealers’ interests are not aligned with those of the sales reps or Kickstart itself.

Because Kickstart pumps are mechanical (not electronic), there is no automatic shut off. Customers cannot take possession of the pumps until the full price is paid. An alternative approach for Kickstart—more like a traditional layaway program—is to offer the pump on a “rent-to-own” basis, allowing farmers to start using the pump after paying a deposit. This arrangement might work better in groups, to insure that the pump is maintained and not stolen. Kickstart might have to increase the selling
price, and/or require a higher deposit. But the ability to use the pump before fully paying for it could be the missing trigger that allows customers to fully realize the money-making value of the farm tool.

**M-KOPA: Pay-as-you-go solar lighting & phone-charging system**

M-KOPA (“m” for mobile, *kopa* for borrow) sells a solar lighting and phone-charging system on a pay-as-you-go basis, with payments accepted only through M-PESA. The target is rural Kenyans in the informal economy (with irregular incomes) who are not connected to the power grid. The price, if paid upfront or within a month, is roughly $170; over a year, the more likely pay down period, the cost is closer to $195.

Distribution is through an agent network (M-KOPA calls agents “outlets”), many of whom are also M-PESA agents. (Safaricom, which markets M-PESA, is a partner with M-KOPA, which gives it a significant marketing asset.) After a 15-20% down payment, customers can take the panels home, and take up to a year to pay them off, at a minimum rate of approximately KHSh. 40 per day. (This is the amount a typical kerosene user spends per day.) The outlets pay an upfront deposit to sell a solar panel, giving them a stake in insuring that their customers pay in full.

The system, manufactured by d.light—a for-profit social enterprise that distributes solar systems in many developing countries—including solar panels, a control box, three lamps and a mobile phone charger. The system is not expandable; you cannot add more lights or any appliances to it. A SIM chip embedded in the unit allows remote monitoring, and the ability to disconnect (and reconnect), depending on the customer’s payment performance.

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2 Information on M-KOPA is based in part on an interview with Jesse Moore, managing director at Signalpoint, and interviews with M-KOPA outlets and customers.
M-KOPA launched in 2012, after nearly two years of piloting and business design. By 2013, more than 8,000 systems had been sold. Very few have been paid in full, but very few customers have defaulted and seen their solar panels repossessed (literally or figuratively, via shut-off). Some customers are more affluent Kenyans targeting remittances to M-KOPA for their relatives.

To track payments and match them to a specific customer, M-KOPA matches the International Mobile Equipment Identity (IMEI) number of the solar panel SIM card with the customer ID number. (The IMEI number is typically used to deny a mobile phone access to a GSM network.) Just before the M-KOPA account balance hits zero, the customer receives an SMS warning, followed within a day or two by a remote system disconnect. Two days later, an SMS reminder asks for payment to reactivate the system. If no money is sent after several phone calls, M-KOPA calls suggests removing the system (and refunding all money paid to date). So far, most customers have asked for more time and continue to pay.

**M-KOPA Analysis:** M-KOPA has been built from the ground up (“greenfield”) as a mobile-money financing operation that can be applied to various durables, such as TVs, refrigerators and radios. It does not design and manufacture equipment. As a mobile-money operation that is product agnostic, M-KOPA can focus on building its network. Selling an electronic product it can control through the SIM card means it can offer the item to customers before it is fully paid for. Customers learn to value the service and M-KOPA has leverage to insure full payment. The payment schedule is flexible, but well structured and easily understood (the cost of kerosene per day), which is as important as the flexibility.

**CONCLUSIONS**

Clearly, the prepaid concept does transfer to high-cost durable goods, at least electronic goods with an automatic shut-off. Whether it will be widely implemented in practice is not yet clear; more piloting and experimentation is required. The concept transfers because it allows the flexibility that consumers on irregular incomes require; and it obviates the need for customers to amass a lump sum to buy a big-ticket
durable good. The introduction of SIM-based shutoffs allows marketers to give
customers access to goods before they have fully paid for them, and to “repossess”
them automatically if payments lag. However, running a mobile-money financing
scheme is a business in and of itself, and clearly difficult to overlay on an existing
business. The new financing model requires investment, education and alignment of
interests across a wide spectrum of actors, from dealers to agents to customers.

A human network is definitely important to triggering demand and insuring payment.
The more aggressive Kickstart sales reps are more successful, handholding customers
as they walk through a very new process. For M-KOPA, which allows customers a full
year to pay off its solar panels, agents are key to encouraging customers. In both
cases, reminders to continue paying come from agent phone calls and home visits,
which are both more effective than SMS messages.

The impact of transaction fees varies, but there is definitely awareness of the issue.
Farmers buying Kickstart pumps often asked their sales reps to make payments and
absorb the fees, although that is, in part, a function of farmers’ discomfort with M-
PESA’s PayBill function. M-KOPA, which originally planned to absorb all transaction
fees, decided that doing so for the slower payers (full year) would be prohibitively
expensive, and now splits fees with its customers.

In either case, the transaction fees are no more onerous than the negative interest
rates traditional savers are often willing to endure in exchange for keeping their
money secure. Over time, the fees may simply be considered as a fee-for-service, such
as electricity, or as a small price to pay for the convenience of mobile payments. But
this issue requires further study and analysis.

The pay-as-you-go business model presents a huge marketing potential for solar
panels, on-grid electricity, cable TV and satellite broadband, to mention a few of the
early experiments. But there is no reason why this technique and business model
could not be extended to a wide range of electronic goods. And, because of the ease
of making payments from afar, financing could be marketed as a targeted remittance,
wherein wealthier relatives pay for high-ticket items, just as they first spurred the
growth of mobile money by sending e-money into villages.

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