

Affordable, clean energy: a pathway to new consumer choices

Lessons from M-KOPA's first
three years of innovative
energy service

Summary

Over three years, M-KOPA¹ has developed an innovative approach to energy delivery in East Africa. This uses solar power and telecommunication technologies, mobile payments, and a motivated sales and support network to deliver a reliable service and cost savings to low income customers.

M-KOPA's model is commercially scalable. It has the potential to reach millions of people who live off-grid or suffer from unreliable electricity supply.

This paper introduces the M-KOPA approach and its early results. It provides practical insights and lessons from M-KOPA's work with large numbers of customers in East Africa. These lessons go beyond the characteristics of M-KOPA's specific business model to inform business and development activities aimed at low-income customers that have traditionally been excluded from basic services. In particular, M-KOPA's experience highlights the following interconnected themes:

- segmenting the customer base, and how this process evolves over time;
- implementing a service model approach that reduces risk for low-income customers;
- making technology choices to enable scale (at device and network levels); and
- addressing the 'last-mile' challenges of sales and distribution.



Established in 2012, M-KOPA set out to address the tremendous demand for affordable off-grid energy by offering a pay-as-you-go solar energy service. To date, more than 250,000 customers have used this service. This growth has been achieved using solar home energy systems that are connected using cellular communications (GSM) technology. This allows for remote monitoring and real time control of each unit.

The M-KOPA solar home systems are sold through a network of incentivized sales representatives. Customers make payments on their solar home systems with mobile-money from any location, at any time. This enables flexible payment schedules and responds to the cash-flow challenges of low-income customers. GSM connectivity to the solar devices provides the ultimate control switch: the device will not work without payment. This connectivity also provides rich data that allow detailed analysis of use, device diagnostics, and real-time customer support.

Acquiring a solar home energy product on credit allows the customer to save money from the first day of use by immediately displacing costly kerosene. M-KOPA can also 'reset' the credit, allowing the customer to use their home system as collateral for further purchases from M-KOPA.

The M-KOPA approach has delivered tangible benefits for customers: clean, affordable energy in the household; manageable, anytime repayments; new assets; savings on kerosene expenditure; and access to further credit purchases of productive products.

For M-KOPA, its investors, and other stakeholders, the first three years strongly suggest that this business will scale. This viable commercial opportunity is based on technology-enabled financing of products and services for the millions of people who live outside the power grid.

¹ [M = mobile, and in Swahili, KOPA means to borrow]

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Clean energy systems: mobile technology unlocks a new business model

Even with the rapid rise of new technologies in recent decades, the speed and scale of mobile phone adoption globally is unprecedented. The pay-as-you-go model has been a major driver behind the proliferation of mobile phones in low-income economies. The number of people who own phones far outstrips access to other services, such as grid power and banking (Figure 1). This presents an exciting opportunity to redesign solutions for people who have been invisible to traditional service providers.

M-KOPA's innovation has been to make off-grid-power affordable by enabling customers to repay the capital costs of solar home systems over time. The solar systems are sold on a pay-as-you-go basis, using a combination of mobile payments and embedded machine-to-machine connectivity (the device can link directly via GSM to M-KOPA servers).

In Kenya, an estimated 6 million households are outside the power grid². These households spend a significant percentage of their disposable incomes on poor-quality energy sources for lighting and heating, especially kerosene. Solar systems are an obvious alternative energy source but few low-income households could or would choose to pay the US\$200 typically charged for a solar home system.

M-KOPA is a for-profit business established to tackle this affordability problem. M-KOPA's solution enables customers to purchase a self-install, mobile-connected solar home energy system. Customers make small payments over a period of time, topping up 'units of credit' as and when they need to use the system. See Figures 2 and 3.

The proposition is simple: a customer pays a deposit of around US\$30 to take home the solar system from a sales location or service center³. The customer then makes payments for daily credits (top-ups) of around 40 US cents. Each credit enables the solar energy system to discharge power for 24 hours. The customer can buy credits in any amount, from a single day to 30 days

or more. After the customer pays for 365 credits the system automatically switches to free use, requiring no further top-ups. The customer then owns the system and will not need to spend any more for home power until the end of the unit's life.

Customers can buy credits from their mobile phones at any time. Any form of mobile or e-payment will work but customers in Kenya use the ubiquitous M-PESA⁴ mobile service operated by Safaricom, the leading local network carrier. Safaricom's mobile network ensures that the solar unit is online and able to quickly receive the secure top-up message after the customer makes the payment to M-KOPA. As long as M-KOPA is paid, the device will operate. No credit - the device will not discharge power.

Since its commercial launch, M-KOPA has acquired over 250,000 customers across Kenya, Uganda, and Tanzania. Two factors underpin the success of M-KOPA's model:

1. Solving access to clean energy at a reasonable cost;
2. Providing a flexible payment option that recognizes the variability in household income that is a reality for most customers.

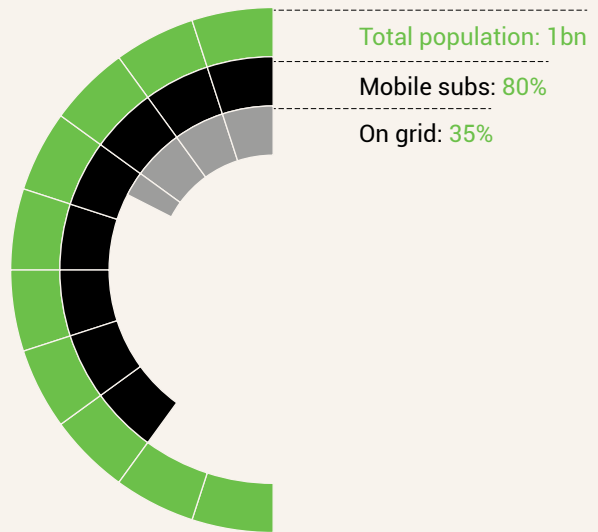
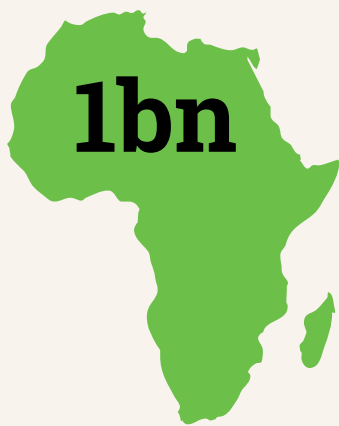
These two factors are examined more below.

2 The Off-Grid Lighting Market in Sub-Saharan Africa, Lighting Africa, February 2011.

3 Of which there are more than 60 in Kenya.

4 See Safaricom <http://www.safaricom.co.ke/personal/m-pesa> and multiple related publications on M-PESA.

Figure 1: Overview of people with phone and without power in Africa



Penetration
% of population of Kenya

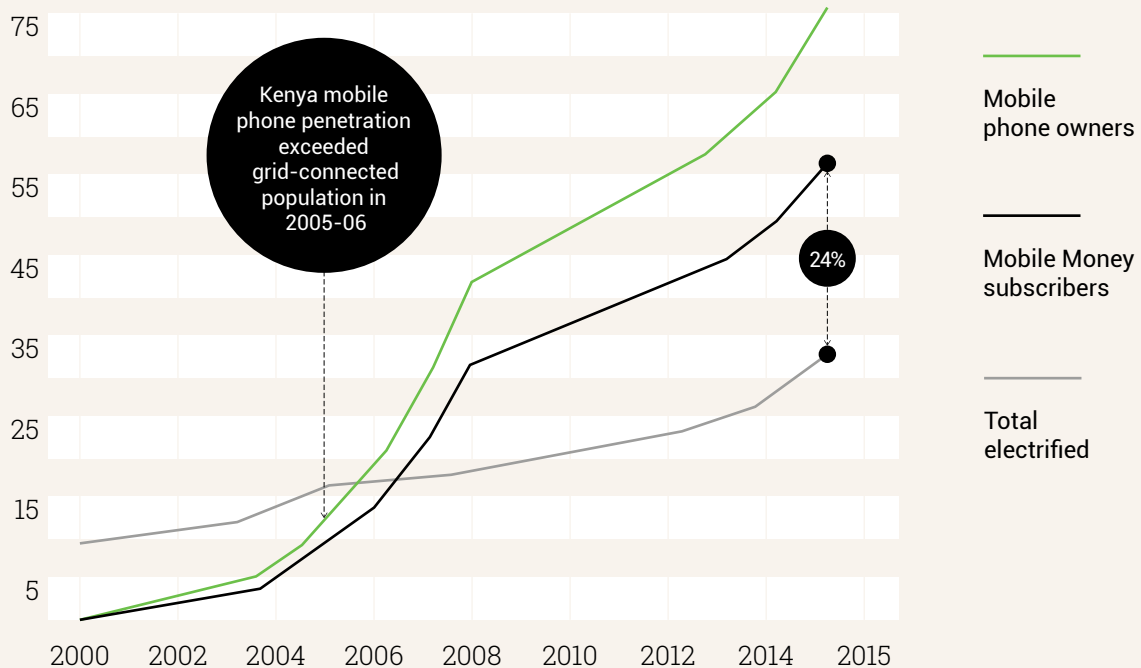


Figure 2: The M-KOPA solar home system

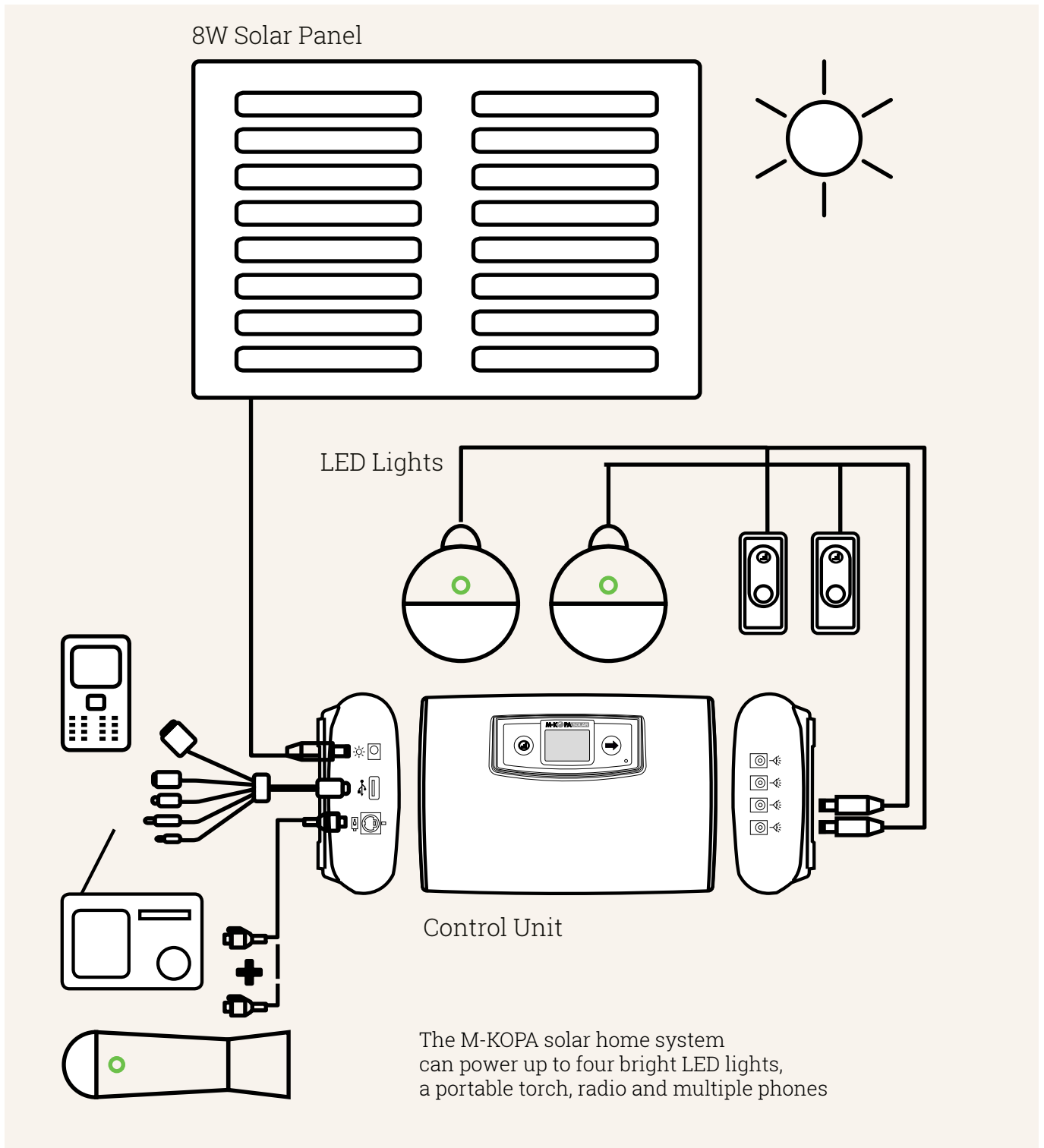


Figure 3: How M-KOPA works

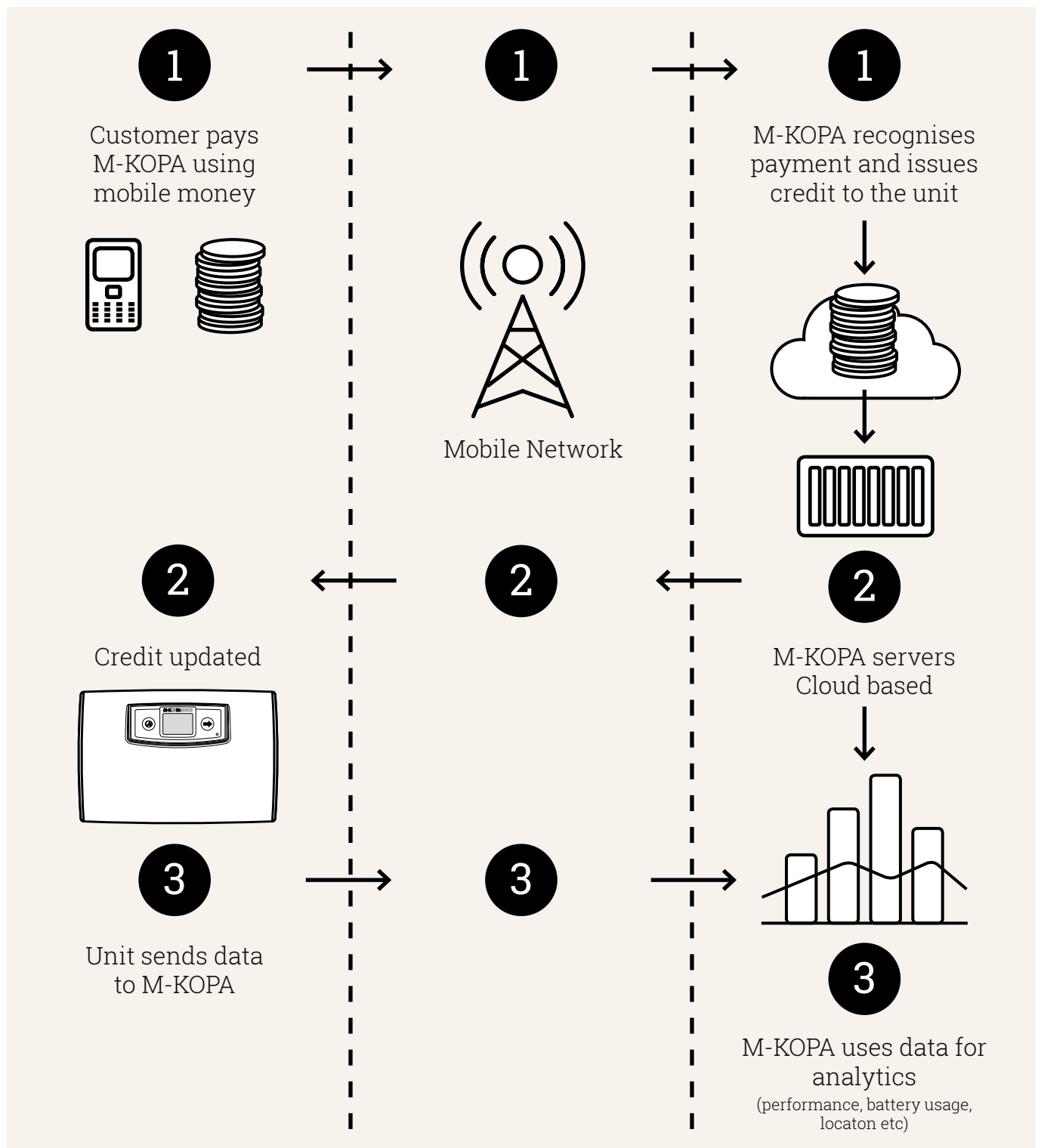


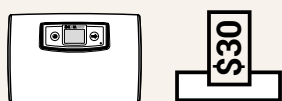
Figure 4: Summary of proposition



In Kenya over **6 million** off-grid households spend over **\$1bn** on kerosene



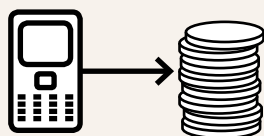
A solar system worth **US\$200** would be a better alternative, but the upfront cost is too high.



With M-KOPA Solar, customers can deposit just **US\$30** to take a high quality system home.



Then make daily top ups via their mobile phone at any time. The cost is less than kerosene.



Embedded GSM technology activates the system remotely when credits are bought. And after 12 months, they own the system outright, have a positive credit score.

Over 3,000 sales a week,
95% repayment



97% customer recommendations



24/7 support

Household realities demand a new energy approach

The World Bank⁵ estimates that 1.2 billion people globally live off-grid, and 1.5 billion endure unreliable power supplies. In the whole of Sub-Saharan Africa, the total annual hours of electrical energy generated daily (around 145 terra watt-hours) is less than that of the US state of Alabama. This lack of suitably-scaled and reliable power services not only blights the lives of the more than one billion people in households across the region, it also curtails economic growth and productivity. Businesses, schools, clinics and other public facilities simply cannot operate after dark.

Mini-grids are often suggested as a solution but there is little evidence that supports their economic viability. Grid installation is a costly and lengthy process and the initial cost of connection remains high for most consumers. Simply shrinking the supply-side scale fails to fix the cost/price challenge and neglects household realities. Typically, low-income families have lower energy needs and smaller budgets⁶ than grids are traditionally designed for and their homes are spread over wide areas.

Practically the only affordable, alternative energy source for many households has been kerosene. Spending on this very poor quality, dirty fuel is more than US\$20 billion a year worldwide⁷ and in some households kerosene purchases soak up much as 20% of their disposable income. Kerosene prices can be as unpredictable as the incomes of the households buying it and in rural areas the cost can be as much as 35% higher than urban areas⁸. Kerosene is also flammable and it produces harmful emissions, attributes linked to many accidents and fatalities in low-income households.

M-KOPA believes that traditional grid solutions are unlikely to solve the challenge of affordable, dependable energy for many low-income people. M-KOPA's own research shows just how much people spend on very poor quality alternatives, especially kerosene (see Figure 5).

There are viable alternatives to grid models. Clean, distributed energy solutions can work: there are efficient photo-voltaic panels; battery storage technology has come on in leaps and bounds, driven by portable electronic devices; and bright, long lasting LED lights are common. M-KOPA takes these building blocks and adds layers of smart, embedded mobile technology to execute a business model that works.

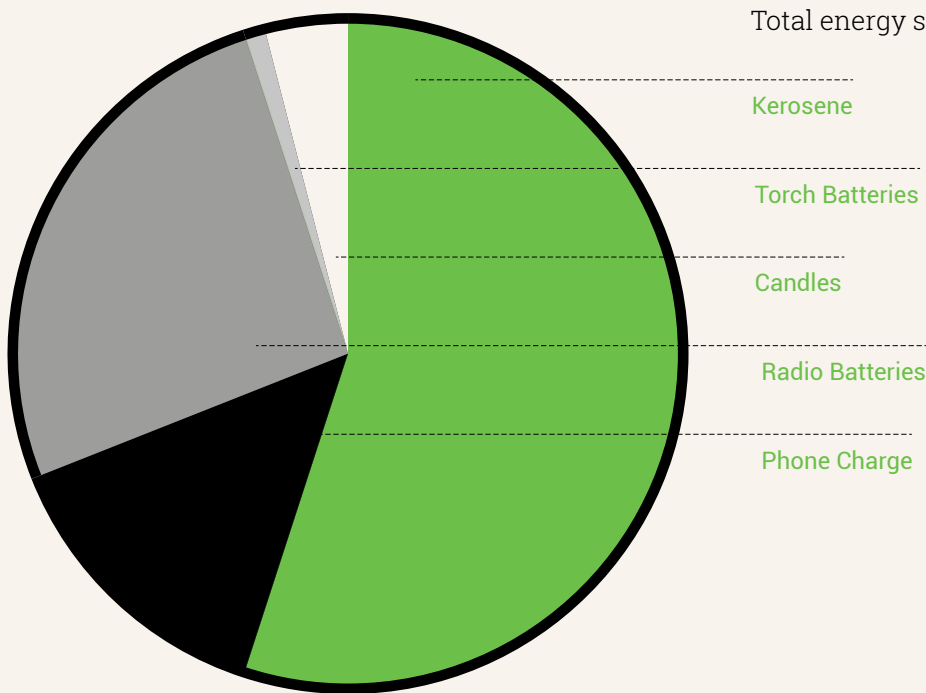
5 World Bank SE4All Global Tracking Framework.

6 The highest grid connection charge in Kenya is US\$4.00. The median Kenya Power and Lighting Company customer spends US\$35 a month on their electricity bill - an immediate cost barrier to many of the 6 million off-grid homes.

7 Prices fluctuate depending on the oil price and distance from urban distribution points.

8 The True Cost of Kerosene in Rural Africa, Lighting Africa, April 2012.

Figure 5: New Insight: Variable Spend

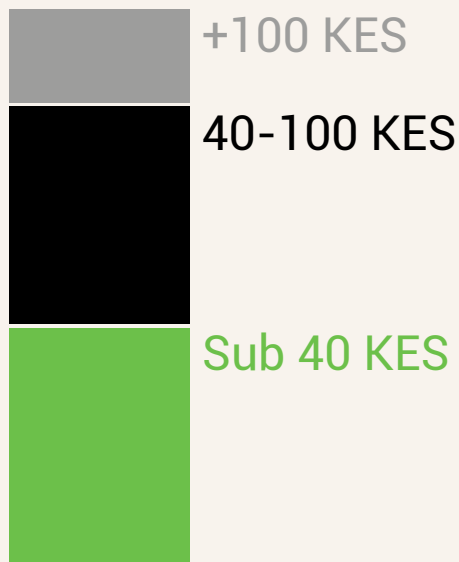


Survey shows: % on mains reported at 33% and already with solar 14%

Source: M-KOPA April 2014.

10 KES
=
\$0.11

The chart below shows proportional daily expenditure on energy by households participating in an M-KOPA survey, April 2014



KES = Kenyan Shilling

Survey shows: % on mains reported at 33% and already with solar 14%

Source: M-KOPA April 2014.

Payment flexibility offers new spending power

There is no homogenous, 'base-of-the-pyramid segment' and simple categorizations (such as on/off-grid, banked/unbanked, employed/unemployed) hide the complexities in the lives of low-income people. Those aiming to successfully design and deliver relevant, scalable products and services require a more nuanced understanding of their customers' circumstances.

M-KOPA has heeded the lessons of recent research⁹ that point to the critical importance of understanding how people on low, volatile incomes deal with risk. In Kenya, M-KOPA drew upon the Financial Access studies¹⁰ and the work of the FSD Trust¹¹, which used financial diary methodology to understand how low-income households handle cash flows. These studies show that the vast majority of low-income families use a wide range of informal financial management tools to smooth volatility. Household cash often flows from multiple sources and the amount of disposable income can vary by as much as 60% in any given month. Combined with sporadic expenditure (on items such as school fees, home repairs, or medical emergencies), these factors leave people struggling to find ways to ensure cash is available when they need it. The advent of mobile money has helped make transactions quicker and easier but this development alone does not remove the need for families to find ways to borrow and save small amounts, constantly maintaining options to acquire funds should they need them in an emergency. This balancing act represents a form of risk management in low-income households.

M-KOPA's ability to allow customers to purchase top ups in any amount and at any time is tailored to this volatility of income and has been critical to M-KOPA's appeal to customers on low incomes.

9 For example, "Portfolios of the Poor", 2009, Collins et al, Princeton University Press.

10 Fin Access Studies 2009 and 2013.

11 FSD Kenya 2014, see www.fsdkenya.org.

Cost savings translate into family gains

As expected, the majority of M-KOPA's customers have incomes under US\$2 a day¹² but during 2013-14 there was a 15% increase in the proportion of M-KOPA customers in this category¹³. This might reflect a combination of factors; early adopters might have had slightly higher incomes. It might also suggest that M-KOPA has pushed into more rural areas over time, aided by word-of-mouth that owning an M-KOPA system can save the household money.

M-KOPA regularly surveys customers to ensure its product and service are meeting their needs. Survey data show that the average household size is six people and in 75% of these households, the main wage earner is male and more likely to make the decision as to purchasing a solar home energy system. However, women are the main users of the solar systems day-to-day. The feedback shows children benefit greatly, with 89% of respondents claiming their children study more, by up to 2 hours per day.

Crucially, 99% of households said that they saved money on kerosene and phone charging by using M-KOPA's solar system. This research suggests that the average consumer savings over the lifetime of the product can be more than US\$700¹⁴ when accounting for displaced energy costs related to kerosene, phone charging, and radio batteries¹⁵. M-KOPA's survey data suggest around 30% of customers actually make a little money from their M-KOPA unit by charging friends and neighbors a small fee to recharge their mobile phones.

The purchase of a solar home energy unit does represent a significant household investment and M-KOPA aims to mitigate risk for the customer in several ways:

- Customers can take 'mini breaks' from repayments during lean times for household income. The solar system will not work without payment but as soon as a payment is made, even for a single credit, the system is back on line and working again.
 - M-KOPA's proprietary technology allows device performance to be monitored remotely, and M-KOPA can intervene to swap units where there is a potential risk of technical failure.
- There is a refundable deposit that is returned to customers should they decide the M-KOPA product is not suitable for them.
 - M-KOPA offers a 24-hour support line to help with technical problems.

12 Based on two surveys conducted with independent advisory support.

13 To approximately 80% of the base in Year 2.

14 The savings over 5 years from displacing kerosene align with other independent surveys. For example A.T. Kearney in collaboration with Global Off-Grid Lighting association found that the annual saving from replacing a kerosene lamp with a solar system was more than \$75 (with 10–15% of household income going towards fuel-based lighting).

15 Calculated based on M-KOPA's February 2015 Customer Financial Circumstances Survey.

An energy system that can become collateral

An exciting feature of M-KOPA's business model relates to the customer's ability to re-finance the solar home system, using the fully-purchased unit as collateral to draw additional credit for other products and services. There is effectively a double dividend on offer to the customer who can:

1. save money on kerosene expenditure from the first day while paying off the initial M-KOPA solar energy system; and
2. re-finance the unit, once it has been paid off, and take cash out (to a mobile wallet) or purchase another product or service on credit.

This new source of finance can be directed toward other household or enterprise expenses. In terms of refinancing other products, M-KOPA has experimented with offering cash back to customer's M-PESA accounts for school fees, and allowing customers to purchase other items such as fuel-efficient cook stoves, a water tank for their property, a bicycle, or a smart phone.

These products are made available by M-KOPA (working with third party suppliers where necessary) and are repaid using the daily credit top-up that is already familiar to the customer. M-KOPA is able to offer this facility because it holds detailed records of customers' repayment rates and their device usage, both of which provide an indication of their overall creditworthiness. For example, a customer might have a solid repayment record but his or her credit standing will be even more attractive if M-KOPA's data also shows the household was a frequent user of its energy system. The risk to M-KOPA is offset by the fact that the solar home energy unit will not work if the customer fails to meet repayments for the new products or services.

There is compelling early evidence of the benefits to customers from this refinancing service. A survey of more than 100 M-KOPA customers who took a Jiko fuel-efficient cook stove on credit showed that their households benefitted immediately from reduced spending on charcoal, helping them recover the cost of the stove within one year. Customers liked the ease with which they could extend their daily fee for a longer period to pay for the stove. The savings on charcoal for cooking, combined with the benefits of displaced kerosene expenditure, all stemmed from ownership of the solar home energy system, purchased on a flexible payment plan.

M-KOPA is able to provide customers with multiple products when they have successfully purchased their first lighting system. The customer is already in the habit of making regular payments to M-KOPA and can simply re-direct the daily charge towards a new product when the first is paid down. In this photo, Mr Jonah Korir displays his M-KOPA TV. Mr Korir was one of M-KOPA's early customers buying the first unit in 2013, a second lighting system last year and is now one of the early adopters of the new large power system and TV.



Key lessons in the first three years

Going beyond the evidence of success for the initial years of the M-KOPA model, we can also highlight several lessons that emerged since launching the first product in 2012.

Lesson one: Segment customers and observe product usage over time

M-KOPA's ability to effectively serve the needs of its customers has been built upon targeting a specific segment of the low-income market (Box 1), and working hard to understand how they use and pay for M-KOPA products¹⁶.

M-KOPA's approach has been to focus on customers who are likely to reach full payment in approximately 12-14 months. This target group allows M-KOPA to build a viable business: the costs of goods sold are returned within a reasonable period, and M-KOPA gets a sustainable contribution margin. That said, designing the product to match customer needs as well as to allow for repayment flexibility is a deliberate feature.

M-KOPA is able to segment its customer base by considering data on repayment rates as well as usage:

- A small percentage of customers pay well ahead of the target 12-month schedule. These customers often make fewer, larger payments before they have paid off the balance of their purchase.
- The majority of customers will typically make 35 payments to M-KOPA before their balances are fully paid off over 12-14 months.
- The remainder of the base make payments at a slower pace, perhaps purchasing top-ups two or three times a week and taking up to 18 months to pay the full balance.

Slower-repaying customers need particular support from customer care at crucial junctures. For example, it is necessary to identify potential repayment issues quickly and proactively engage with the customer to understand why their repayment behavior has changed. M-KOPA uses texts and calls to manage customer performance but repayment behavior is a complex issue. Repayment problems may relate to the device not matching customer expectations or to frustrations with network connectivity. However, it can also relate to cash flow issues in the household. Therefore a distinction needs to be drawn between customers who cannot pay, and those who choose not to pay¹⁷.

¹⁶ Although M-KOPA's off-grid-power product reaches many people who live under the poverty line there are still many customers for whom the daily repayments of 50 KES or 40 KES per day are still too expensive.

¹⁷ M-KOPA will be researching and quantifying the drivers behind this behaviour, and will publish material on this important topic separately.

Box 1

M-KOPA has targeted a specific segment of low-income customers

There are various solar power products available in low-income markets, particularly cheap, single solar lanterns available for between US\$5-20. Some not-for-profit organizations raise funds and give away low-cost devices. Many people can indeed benefit from free products. However, M-KOPA's strategy is to build a viable business built around long-term financial relationships with its customers.

M-KOPA believes strongly that its solution has the potential to bring more radical, lasting change to the economics of customers' households. This change will be driven by the M-KOPA's ability to offer real cost savings and augment that by providing the household the chance to buy productive assets over time. Customer trust,

essential to the long-term financial relationship, is built upon M-KOPA being able to continue delivering a good service to its customers after the initial purchase.



Photo courtesy of © Hahn + Hartung / Fetart / BNP Paribas

Box 2

Design decisions have been required throughout product development

M-KOPA has made design decisions that trade-off 'speed' of repayment against 'attractiveness' of the product. For example, in the second version of the solar home energy system (currently M-KOPA is on version 4), M-KOPA introduced a portable lamp as a result of feedback from customers who wanted to take a light easily between rooms or out of their building. This lamp can be charged from the main control unit (when in credit) and so it allows the customer an option of not purchasing credits for one or two days when they can rely entirely on their charged lamp for light. M-KOPA believes the inclusion of the portable light in the product box has driven higher sales and this outweighs the cost of building in this feature for those customers who use it to repay more slowly.



Lesson two: Sell energy as a service, not a device

M-KOPA is not in the business of selling equipment; it provides access to energy as a service to its customers. This is a new experience for many of the low-income M-KOPA customers, and the aim is to make them feel that M-KOPA genuinely cares about their satisfaction with its services.

Customer care is a key element of the M-KOPA service delivery model

Setting up and running customer care teams for this level of service provision is a natural part of day-to-day operations for network operators and M-KOPA adopted this model at an early stage. The challenges of doing this well should not be under-estimated. It takes time, resources, the right technology, and requires continual assessment and improvement.

M-KOPA now employs more than 250 people working in a 24-hour customer care center at its campus in Nairobi. M-KOPA recruits customer care staff with strong communication skills that have a curiosity to learn¹⁸. They address real time concerns for customers as well as field sales representatives who are often the first point of contact for customers with questions or problems.

The customer care team receives regular training through a fully-integrated, in-house technology platform called M-KOPANet. (see figure 6). This provides real-time visibility of customer account histories and device usage details. M-KOPANet is continually upgraded and improved to match the growth in customer numbers and the increasing variation in M-KOPA's products and services.

M-KOPA recognizes that motivation is key to retaining its customer care staff. It provides courses through the recently launched M-KOPA University that enable staff to develop their knowledge and skills.¹⁹

Additionally, there are on-site facilities for staff down-time, free lunches, and travel support for late-shift workers. These initiatives all count toward keeping the customer care teams engaged in serving the customer base.

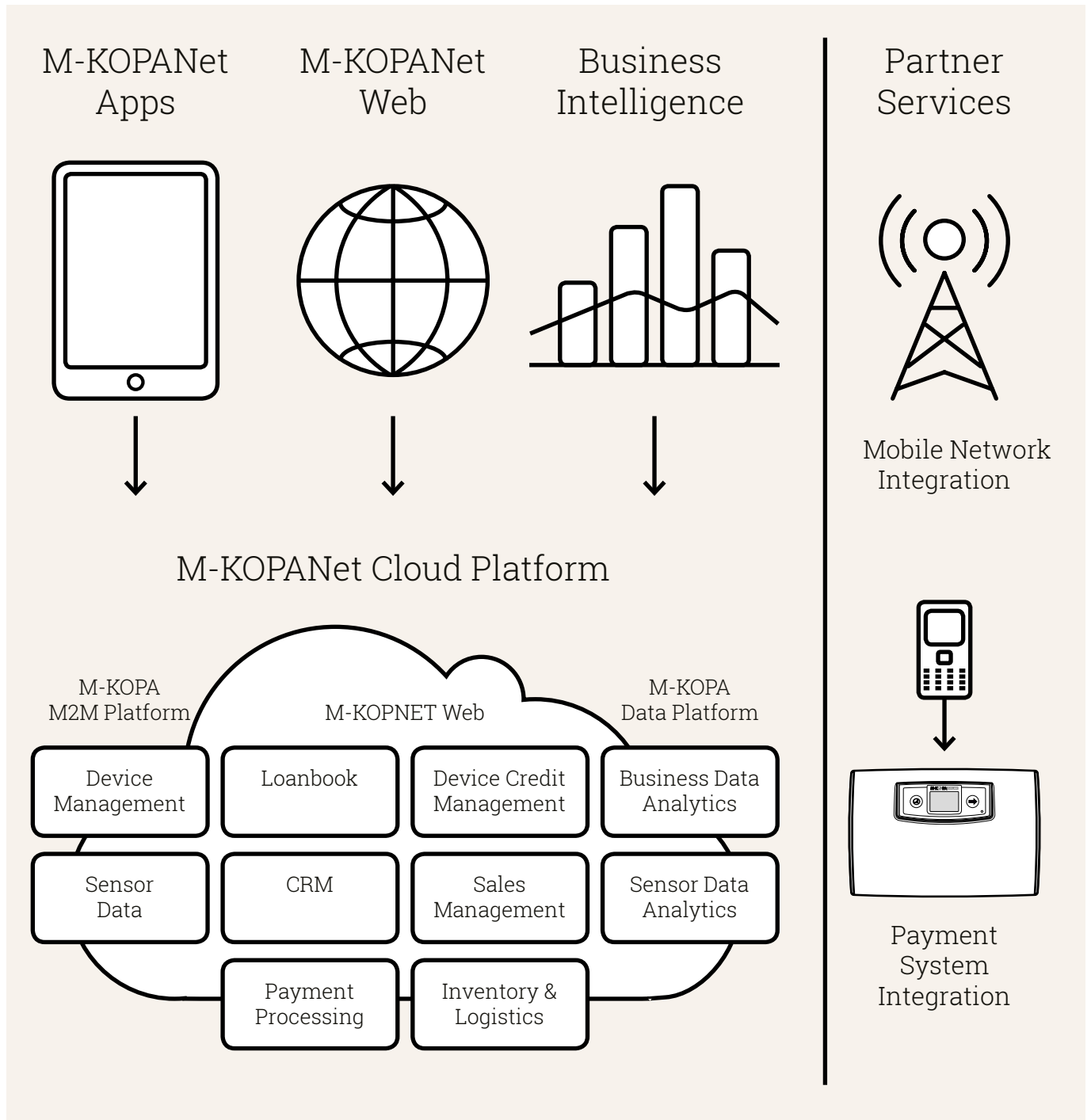
M-KOPA also employs all the tools, technologies and management techniques that would be expected in a service environment. For example, the number of calls is tracked and reported in real time to team leaders who have goals set each week for their teams. Customer queries are closely tracked and fed back to relevant parts of the business. This feedback has driven many efficiency improvements; for example, M-KOPA enhanced the solar unit's user interface by reducing the number of button pushes to make an update to the customer's credit status.

¹⁸ The customer care team has provided a rich source of bright employees with the high potential and many have transitioned from this role into jobs in engineering or sales or administration.

¹⁹ Courtesy of winning the Sheik Zayed Future Energy Prize.

Figure 6: M-KOPANet

A proprietary end-to-end business management platform integrating customers, devices, payments and data analytics



Lesson three: Make smart use of scalable technology

To the customer, the technology that makes the solar home system function is irrelevant. They just need it to work every time they use it.

To M-KOPA, the service model is only made possible by designing a scalable solution, within reasonable cost parameters and with intuitive interfaces for customer and business users. This has necessitated some important technology choices.

Embedded technology and the importance of acquiring data

By embedding the GSM communication functionality into the solar home system hardware, M-KOPA is able to monitor device performance in detail. This has been critical for optimizing product design and improving customer support through remote device analysis and updates.

The embedded solution (a modem, SIM card, and functionality for data processing) all add to the bill of materials and the total lifetime cost of the unit. However, the advantages of embedding this connectivity far outweigh the increased costs (see examples in Box 3).

Other examples of design choices that support a rapid growth strategy include: designing a tamper alert system to disable units that are forced open in the field; applying a critical component review and dual sourcing of key circuit board components; deliberate selection of higher quality components that might be exposed to high usage (ports, buttons, liquid crystal displays and plastics).

Careful choices also were made in the development of the network-level application; M-KOPA selected a cloud-based solution early with a software management regime that helps to avoid costly 'step-changes' in the underlying technology platform. Key requirements included:

- Providing telemetry to allow thousands of interactions per second, where performance and cost per communication are critical.
- Integrating analytics across the key data streams from payments to inventory management and device location checks.
- Ensuring high availability and redundancy in key architecture components. With over 15,000 real-time payments processed every day, customers depend on constant system availability.

M-KOPA will publish separate notes discussing some of its core technology choices, notably how its connected device model plays out in the context of the 'Internet of Things' (IoT); the use of cloud-based technologies to ensure flexibility and scalability at reasonable costs; and a more future-forward perspective on machine learning and its role in M-KOPA's customer service model.

Box 3

Two examples of embedded technology benefits

Remote battery diagnostics

M-KOPA monitors many data points from the units in customers' homes. One of the most critical relates to battery performance. Battery chemistry is variable across an estate of 250,000 units. Each batch of multi-cell batteries delivered to M-KOPA from approved suppliers can have slightly different grading of the active material in the cells; this means there is always some potential for variable battery performance. By monitoring rates of battery charge and discharge in real time, M-KOPA can identify anomalous battery performance early and identify units that show high failure potential, allowing an intervention to maintain a good customer experience. These data can also be used to improve supplier quality.

Remote fault-fixing

In the first few production batches, a faulty component was supplied and fitted to the unit's printed circuit board. This fault was not picked up until after the units were shipped and in customers' homes. The particular component was not graded sufficiently at source and although it passed in-line quality checks at the factory, it started to fail under certain conditions in the field. This failure was quickly seen in the performance data being streamed back to M-KOPA. The source of the problem was identified and a new component selected for production. Moreover, M-KOPA's engineering team applied an over-the-air firmware change to isolate the component on units already in use, mitigating the chances of failure. This type of remote intervention is only possible because each device is on-net and able to be updated without a product recall.

Lesson four: Maintain innovation in sales and distribution

Many businesses targeting low-income customers stumble at the 'last-mile' challenge; ways to reach and deliver products to widely-distributed customers where there are few other channels (or infrastructure) to leverage. This remains a critical focus for M-KOPA. Much will hinge upon how well the value of the product is communicated to prospective customers.

Direct sales representatives are M-KOPA's key points of sale

Convincing low-income, off-grid consumers to enter into a long-term payment obligation remains a 'push sale', rather than a 'pull sale'. A significant amount of customer education is essential to explain the novelty of the product and the payment plan. M-KOPA continually recruits a team of direct sales representatives to provide points of sale close to customers. These reps are drawn from the communities M-KOPA selects for marketing and are generally young (below the age of 35), with extensive social networks.

Commission payments provide incentives for the sales reps; sales in excess of 30 units per month can generate the equivalent of several hundred dollars in commission. These incentive payments are phased to encourage the representatives to sell to customers who make regular repayments²⁰, rather than merely focusing on the initial sale.

Mobile technology shrinks the challenge of sales management

The prevalence of mobile communications throughout East Africa, combined with M-KOPA's in-house capabilities in communication technologies, has opened the door to a number of approaches to managing a widely dispersed sales team, with high visibility of sales data at all times.

- The effectiveness of the sales reps and their sales rates are tracked every day by a full-time team operating out of more than 60 service centers. Real-time sales data are also available to the management team in Nairobi via M-KOPANet.
- M-KOPA has implemented initiatives to help the reps focus on customer sales, rather than being side-tracked into customer care. By placing customer care specialists in its service centers, M-KOPA has channeled customer service duties away from the sale team while providing customers better/quicker responses.
- M-KOPA is piloting a marketing approach that relies on short-form text messages that are sent to thousands of consumer devices (push SMS messaging). Interested customers text back. These responses can then be used to drive follow-up visits by sales reps. This model depends on the network operator providing SMS services for a reasonable fee. It is also dependent upon a customer care team that can quickly capture, analyze, and follow through on responses.

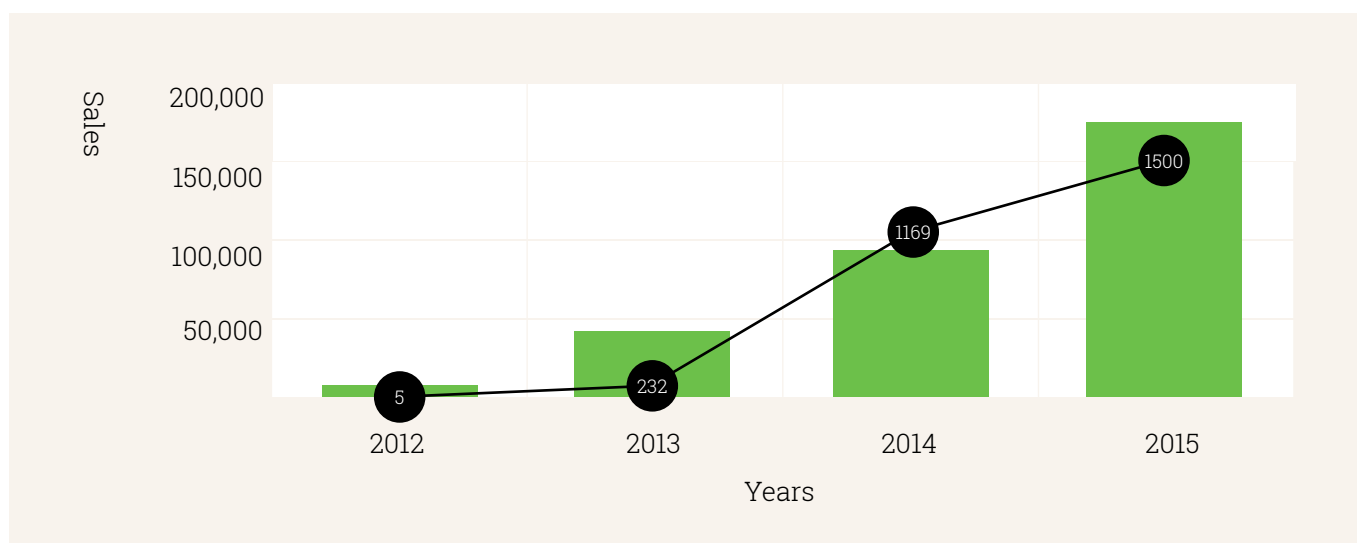
²⁰ The direct sales representative receives an initial commission payment very quickly after a customer registers and is activated, with the remainder of the commission following when the customer has paid for at least one month of usage.

Key lessons in the first three years

- M-KOPA is also deploying a sales application that runs on a sales rep's smart phone and provides a rich interface for potential customers to learn more about the offer. It also helps M-KOPA's management team with day-to-day monitoring of activities and offers additional benefits for inventory management
- M-KOPA has also entered into an early stage licensing arrangement with a pay-as-you-go operator in Ghana. The hardware and software are offered to the licensing partner, with initial training and market support activities allowing rapid deployment. This model may prove to be a scalable market entry strategy, particularly in those areas that M-KOPA can leverage early learning from its core East African markets.

Figure 7: M-KOPA - Salesforce over time
Kenya, Uganda, Tanzania combined

	December 2012	December 2013	December 2014	December 2015
Number of Agents/DSRs	5	232	1,169	1,500
Total sales	4,000	44,000	96,000	175,000



Conclusion

M-KOPA is adamant that the combination of mobile payments and remote machine-to-machine device management can tackle the challenge of affordable clean energy. Moreover, once the customer has acquired the first device, he or she owns an asset that is a conduit for further economic empowerment. Perhaps, for the first time, that customer will have the means to both save money and demonstrate creditworthiness. M-KOPA can use those factors to offer and deliver additional, relevant, and value-adding products and services.

Of course, many questions remain but in sharing this paper some of insights, M-KOPA seeks to contribute to the wider growth of this young but fast-growing sector.

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More information

If you would like to know more about M-KOPA's research activities, please contact press@m-kopa.com