

## Mobisol

### *Business model*

Mobisol was created in 2010 and has been operating since 2011, mainly in Tanzania, Kenya and Ghana. As a first step, customers are informed about the product either at a central selling point or by local marketing agents through village presentations. Interested customers then go through a due diligence process to assess their ability to pay and a suitable system size via questionnaires and an energy game, adapted to the customers' educational background. Customers choose a system and extra items like additional lamps and pick it up at a service hub. At the service hub a video is shown that explains the technology and its function, customers sign the contract and make a down payment of 10 to 20 per cent of the system price.

The rest of the money is transferred to Mobisol's pay bill<sup>3</sup> account via monthly instalments across a maximum of 36 months, depending on the system size. It is a PAYG model but bound to a specific payment day. An short message service (SMS) reminds the customers of their pay day. If customers cannot pay the system switches off. However, they are not directly in default. The payment plan allows for a yearly grace period of one month per year. Likewise, customers get discounts when they pay off the whole system before the 36 months. Those customers who have seasonal incomes like farmers, are advised to make larger payments at times when their incomes are higher. The distribution of the product is bound to areas with local technicians that have been previously trained by Mobisol. They install the system and do maintenance work. A 36-months after-sales service is included in the price. Mobisol now counts approximately 250 customers in Kenya, 50 in Ghana (with Toyola) and 700 in Tanzania. Installation of 10,000 additional systems was planned for 2013 (Interviewee 3; Mobisol 2013a; Mobisol 2013b).

### *Technology*

The system includes a three-year warranty and contains free maintenance and remote monitoring. The system comprises a panel of 20, 60, 120 or 200 Wp. The smallest option can light two rooms and charge four mobile phones per day. The biggest system powers multiple lights, consumer appliances such as a laptop, TV, or a refrigerator and charges up to ten mobile phones simultaneously. Mobisol focuses on larger systems as the complementing technology is relatively expensive compared to the decreasing prices of solar PV modules.

A GSM modem is included in the solar controller, sending technical data from the panel and battery via an aerial to a web-based database. The M2M technology allows potential maintenance problems to be addressed remotely and the system can be locked if payment is overdue. The local technicians are informed of any problems by the maintenance system and repair the system on site if necessary. Apart from the M2M electronics which come from Germany, all other components (panels, batteries and cables) are imported from China. In Arusha (Tanzania) the technology quality is assessed and the technology components are put together (Interviewee 3; Mobisol 2013a).

### *Emergence of the model*

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<sup>3</sup> An M-PESA service which allows bills to be paid via mobile phone by entering a note to payee, the business and account number of the billing company

Mobisol's founder Thomas Gottschalk was involved with a solar taxi initiative<sup>4</sup> as a mechanic. During this time he realised both the potential of solar energy and the need for electricity around the world, especially SSA-countries. He also met people who could help him realize his idea. As he knew about solar PV technology as an engineer and about the potential of mobile technology, he decided to build up a business model based on mobile payments to provide rural households with SHSs.

At the beginning of 2011 Mobisol was searching for an appropriate business model and intensive on-site research was done by its founders to assess the baseline situation and needs that could be met by SHSs (Interviewee 3; Hollmann *et al.* 2013:, 13). They realised that the technology was already widespread, '[... ]in Kenya, any village where we went, no matter how isolated, had at least one solar PV system, but the knowledge on it seemed to be limited' (Interviewee 3).

During that field research Mobisol realised that there are very different customer groups, which led to the decision to provide different sizes of SHSs. Furthermore, they recognised that the cash flow of rural populations did not allow them to buy a high quality system or a sufficiently large system and that people were sceptical about the technology due to the high number of damaged devices. Furthermore, they found that the expenditures on phone charging and kerosene for lighting accounted for around USD15 per month, which is in line with Lighting Africa's estimates (see Lighting Africa 2012b).

Mobisol prioritises products which have good quality and last for longer, as buying an SHS is a large investment, although they recognise that 'there has to be a compromise between good quality equipment and affordable technology' (Interviewee 3). Through after-sales service and maintenance the system's life-time is supposed to be optimised.

#### *Actors involved in the emergence and development of Mobisol*

Grants and loans were received from AECF and the German Entrepreneurial Development Cooperation (DEG) to build up the model's structure and provide working capital. Some networks helped with knowledge exchange. In particular, the SE4ALL energy access practitioners' network<sup>5</sup> was supportive in helping to get feedback during workshops. Similarly, the Alliance for Rural Electrification (ARE) helped Mobisol to participate in different workshops. Mobisol also took part in the German Federal Ministry of Economic Cooperation and Development's (BMZ) BoP Sector Dialogue workshop which aimed to help develop inclusive businesses. The workshop provided ideas as to how to enhance the supply chain (Hollmann *et al.* 2013: 13).

Vodafone was one of the first contacts to assess the feasibility of the approach and to identify target countries where mobile banking had already been set up. Mobisol also works with local partners. One is Kampuni ya Kusambaza Teknolojia (KAKUTE) Ltd. in Tanzania, a hybrid of a private company and an NGO. Another is Sustainable Community Development Services (SCODE) from Nakuru, Kenya, a similar hybrid organisation. These partners helped develop marketing strategies and customer education, identifying pilot customers, building up customer trust, translating documents and opening a bank account. Mobisol already had established contact with MicroEnergy International, a consultancy specialising in energy access, with whom they collaborated during the development and implementation of the pilot phase and worked with to refine the business model (Interviewee 3; Mobisol 2013b).

#### *Difference to traditional microfinance and hire-purchase approaches*

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<sup>4</sup> <http://www.solartaxi.com/>

<sup>5</sup> <http://www.sustainableenergyforall.org/events-outreach/practitioner-network>

Mobisol had already done research into issues of traditional microfinance for SHSs in Kenya, focusing on technology performance and maintenance service (Lindner 2010). This knowledge helped the start-up to develop the payment plan:

Within traditional microfinance, SHSs are distributed via MFIs. The example of Grameen Shakti in Bangladesh, providing both technology as well as finance, is often praised as a successful model of micro-financed SHSs. In SSA however, such a model does not exist.

(Interviewee 3)

Under traditional approaches in Kenya, technology and finance was provided by separate actors, MFIs providing finance and technology providers the SHS. This led to problems of responsibility regarding repair and maintenance and customers not knowing whom to contact in case of system failure. 'Mobisol works differently as it is a technology provider who overtakes the job of an MFI' (Interviewee 3).

A traditional microcredit works in ascending amounts within loan periods in order to assess the credit worthiness of a customer, starting with a small amount which would not allow for acquiring an SHS. Eventually in their fourth credit period they could afford an SHS. Mobisol directly gives out credits for SHSs to customers. Hence, the customer's credit worthiness is largely unknown. This risk is partly mitigated by incentivising their payment through locking the system.

The period of 36 months is also different to former microfinance approaches for SHSs in Kenya. MFIs had seen SHS loans as business loans rather than loans for consumer goods, expecting customers to start a business and therefore set the period to a maximum of 12 or 18 months. In such a short period of time it would be difficult to pay off a system through savings on alternative energy sources. Furthermore, Mobisol does not have loan officers who would tell the customers to pay, as this is done solely via the mobile payment system and the SMS service. The flexible payment plan with a grace period has been adapted from the microfinance sector (Interviewee 3).

Interviewee 3 questioned what they perceived to be a widespread belief in the usefulness of MFIs in the context of development needs relating to energy services:

There existed and partly still exists a belief that any MFIs could help reaching last-mile customers due to their already existing customer network and knowledge [...] MFIs are often still seen as the one institution which can save the under-developed world [...] without considering that MFIs do not have capacities to diffuse cook stoves or SHSs.

(Interviewee 3)

#### *Enabling and constraining factors*

According to Interviewee 3, an enabling factor for the development of the model has been finance through new green sustainable energy social investment funds, which was not available five years ago. Another enabling factor was the removal of import taxes of around 20 per cent on solar products by the Kenyan Government. However, all products have to be labelled with 'solar' to qualify. Mobisol had to wait four months to get aerials through customs, as they were initially not recognised as being part of a solar product.

One uncertainty is taxes on mobile banking transactions. In Uganda the Government realised the revenue opportunities and put taxes on any transaction. This is making mobile banking much more expensive and slowing its diffusion. It is not certain yet if Uganda will remove the taxes due to lobbying, or if other governments will adopt such a policy. 'These are some risk factors which are difficult to estimate' (Interviewee 3).

In Kenya, Mobisol faced a problem due to the strategic partnership between M-KOPA and Safaricom which renders some Safaricom services exclusive to M-KOPA. For instance, information on network coverage is limited to M-KOPA. Furthermore, Safaricom could not provide Mobisol with a toll-free hotline (Interviewee 3).