



Welcome  
to the Solar (Data) Revolution



1.4

**billion** people in the world  
are without **electric power**.

# BBOXX HOME & THE VIRTUAL GRID

The **BBOXX Home** system has been designed to power lights, radio, TV and charge phones for households and microbusinesses.

It uses a 50W Solar Panel and a 17Ah SLA battery with remotely configurable depth of discharge for customer upgrades. It can work with LiFeP04 batteries too.

The special thing about the BBOXX Home is that each unit can be **remotely monitored and controlled**.

Every BBOXX Home system is able to connect to the GSM network, sending back fantastic amounts of data for our team to analyse.

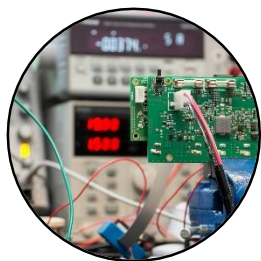
It also allows us to support automatic switch off processes for customers on payment plans, as well as to receive repairs and upgrades.

Essentially, BBOXX is building a virtual grid with solar power; its modern, innovative, and without grid wires!



# TOTAL INTEGRATION

BBOXX COVERS A WIDE SECTION OF THE VALUE CHAIN TO PROVIDE THE BEST SERVICE TO OUR VIRTUAL GRID CUSTOMERS.



## DESIGN

Design and engineering are the starting point of our business. Our team of 20 engineers is based in London.



## MANUFACTURE

Manufacture and assembly take place in China. Over 20,000 units/month can be made through our dedicated supply chain.



## DISTRIBUTE

Systems are shipped from China, along our logistic routes through East Africa to our retail network of local shops.



## FINANCE

Financing the solar home systems on payment plans is vital so that they are affordable to the mass market.



## INSTALL

Our technicians install each new product at the customer's home. This ensures safe set up and knowledge of how to use the product.



## SERVICE

Each product comes with full maintenance and warranty support. Our remote monitoring and customer service teams guarantee superlative service.

# IMPORTANCE OF ENERGY EFFICIENCY FOR OFF-GRID SOLAR

We provide customers with energy efficient appliances to accompany their BBOXX solar home system. We do this to make sure customers can get the most out of the product.

Using energy efficient appliances means that customers can use the BBOXX Home for up to 6 hours to run the following appliances all at the same time:

- 4 x lights
- 15.6" TV
- Radio
- Portable light
- Charge 2 mobile phones

All of this will consume 88Wh of power (customers have 100Wh available).

The brilliance of this is highlighted if we look at TV power consumption. An A+ rated 18" LED TV consumes on average 20W of power. This means our customers would be able to run only this for 5 hours. They are more likely to have access to a CRT TV, which consumes on average 90W of power which could only be run for just over an hour on the BBOXX Home.

Energy efficiency brings much greater choice of appliances and many more hours of light and entertainment to our customers.



# DATA, DATA, DATA!

BBOXX COLLECTS AN ENORMOUS AMOUNT OF DATA – 70 MILLION UNIQUE POINTS EVERY DAY!

## CUSTOMER USAGE DATA

Usage data shows us whether customers are under or over utilising the unit, both of which can be bad for battery health. It can also be analysed to show accessory usage and to learn about customer habits.

## PRODUCT PERFORMANCE DATA

BBOXX's SMART Solar system allows for the collection of critical data from each system. This data is analysed and developed into alerts to notify technicians and call centre staff.

## CUSTOMER PAYMENT DATA

The BBOXX Pulse CRM system is integrated with Mobile Money to give a live view of customer payments. The system communicates with the customer via SMS or by alerting the call centre.

## STAFF PERFORMANCE DATA

Based on the product and customer alerts, the BBOXX Pulse system automatically generates tasks for the workforce. This can then be used to track individual performance.

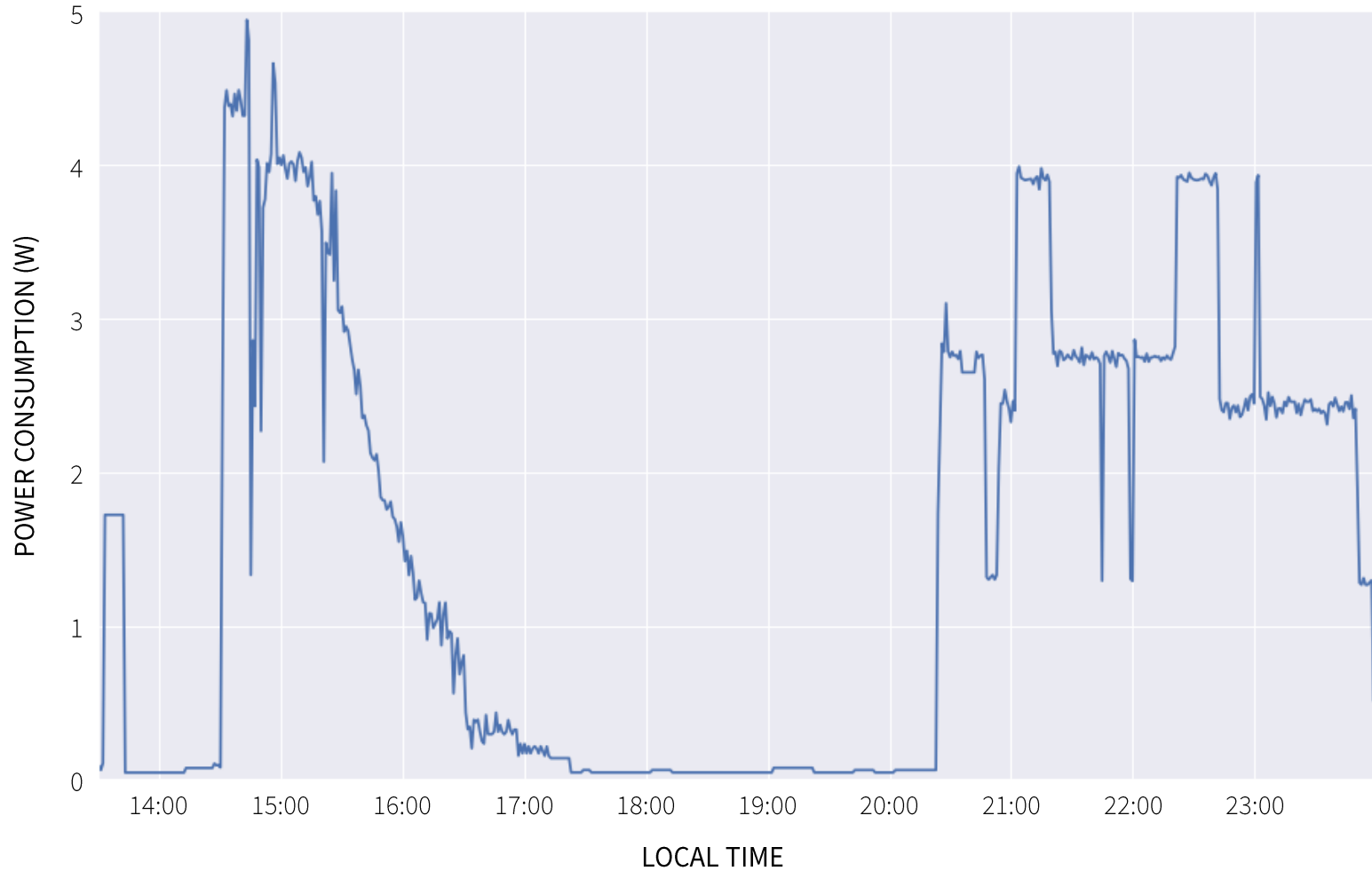
TOTAL  
INSIGHT INTO  
OPERATIONS



# CUSTOMER USAGE

# DAY 1

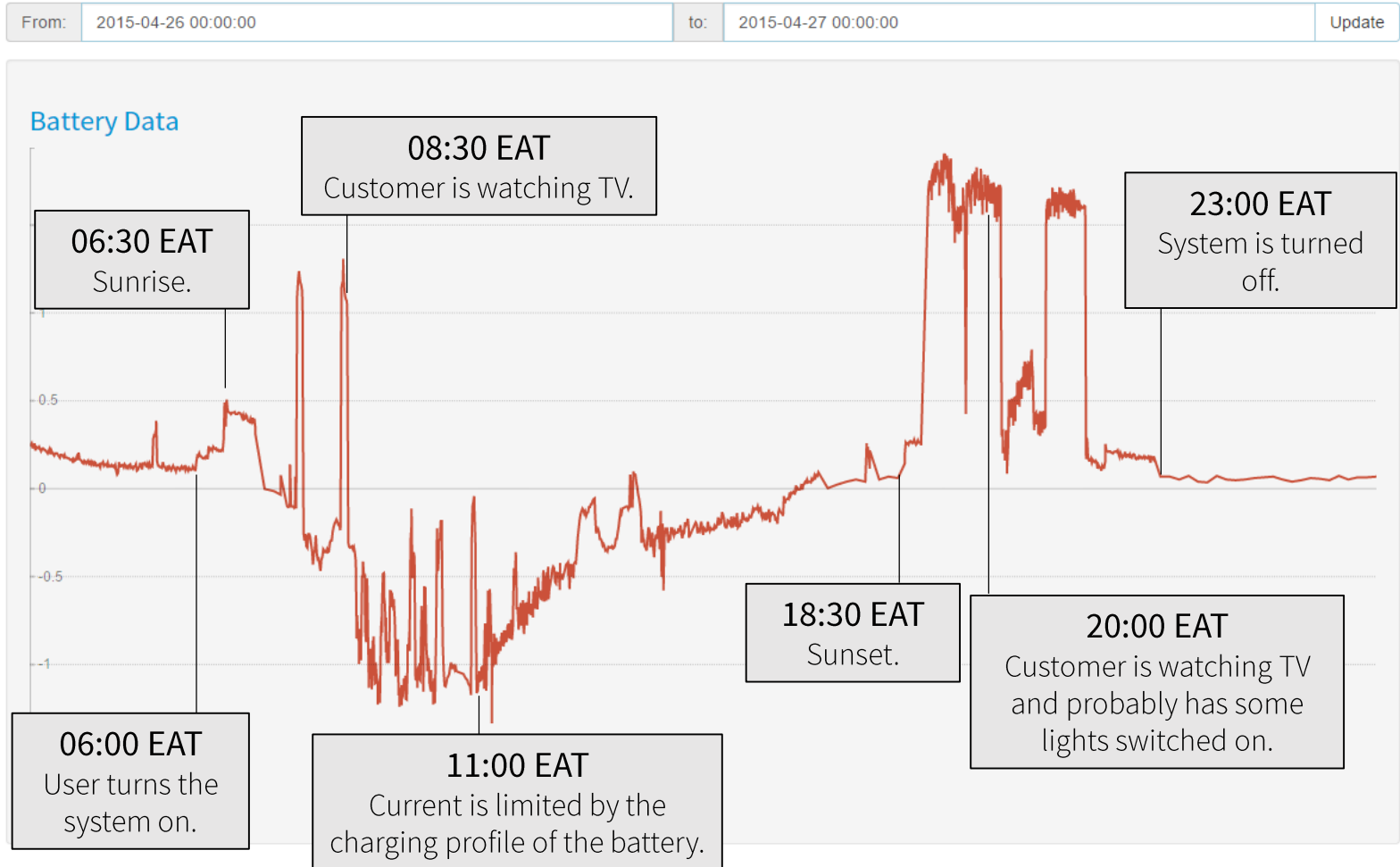
JUNE 16<sup>TH</sup> 2016 – MAURICE, LILIAN AND THEIR TWO CHILDREN HAVE ACCESS TO MODERN ENERGY FOR THE FIRST TIME.





# INDIVIDUAL SYSTEM DATA

THE ENERGY LIFECYCLE OUR SOLAR HOME SYSTEMS EXPERIENCE EACH DAY.



# 'ENERGY BUDGET' EXPENDITURE

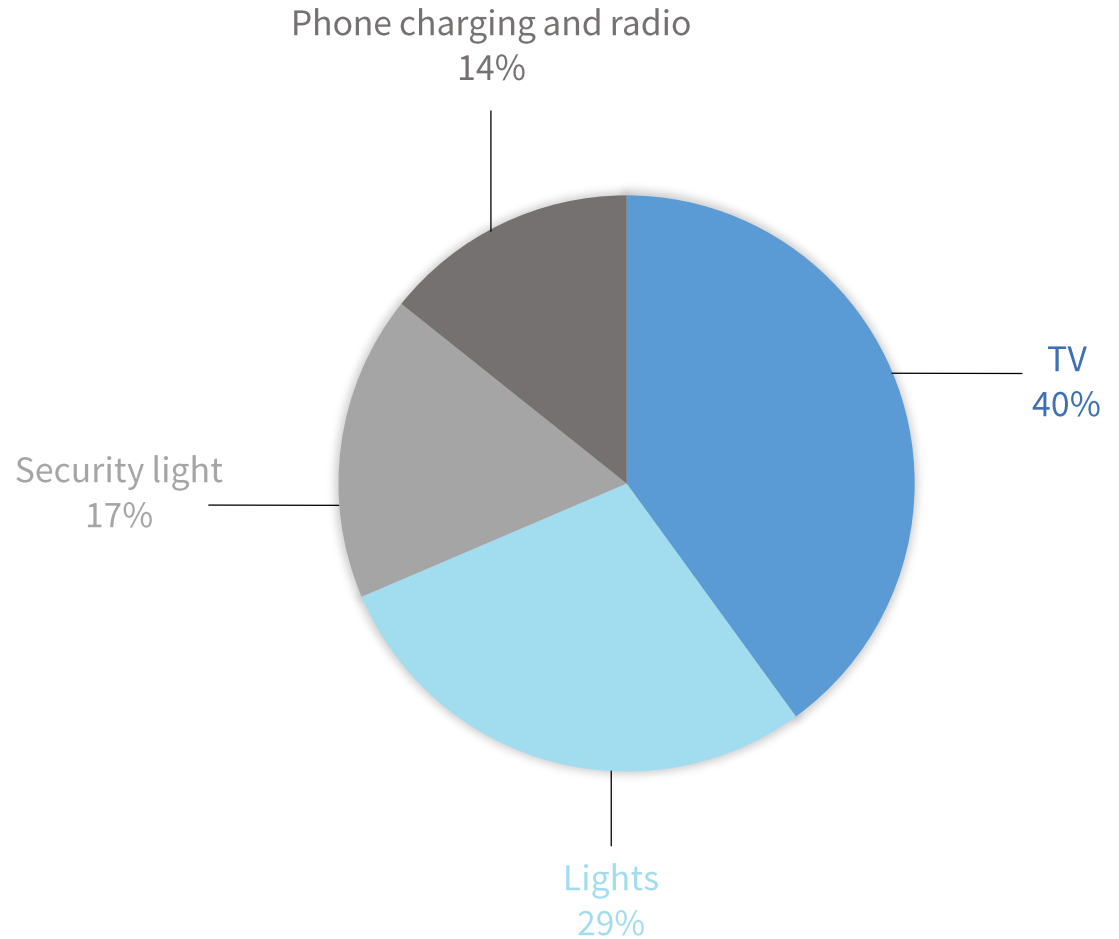
HOW CUSTOMERS CHOOSE TO SPEND  
THEIR CHARGED SOLAR HOME SYSTEM  
EACH DAY ON AVERAGE.

BBOXX collaborates with machine  
learning researchers to disaggregate raw  
data on customer usage into individual  
appliances.

This helps us to:

- Tailor future product offerings.
- Create alerts when an appliance is not used.
- Educate customers about their energy usage.

By continually learning more about  
customer usage, BBOXX can improve the  
systems and educate customers to get  
the most out of their systems.

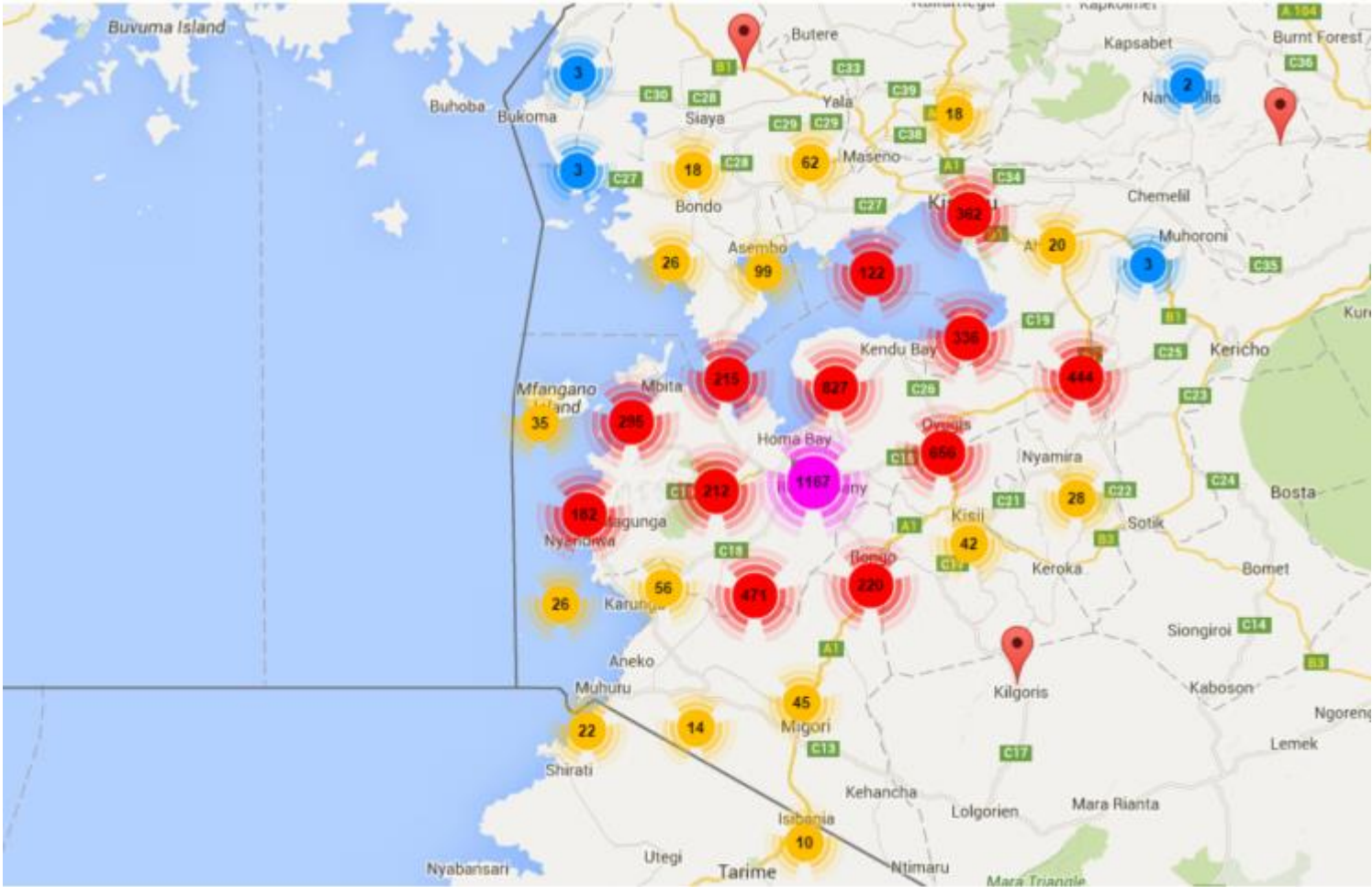




# PRODUCT PERFORMANCE

# PRODUCT LOCATIONS

BUILDING A LOCATION DATABASE FOR TECHNICIANS, AND TRACKING PRODUCT LOCATION DENSITY.

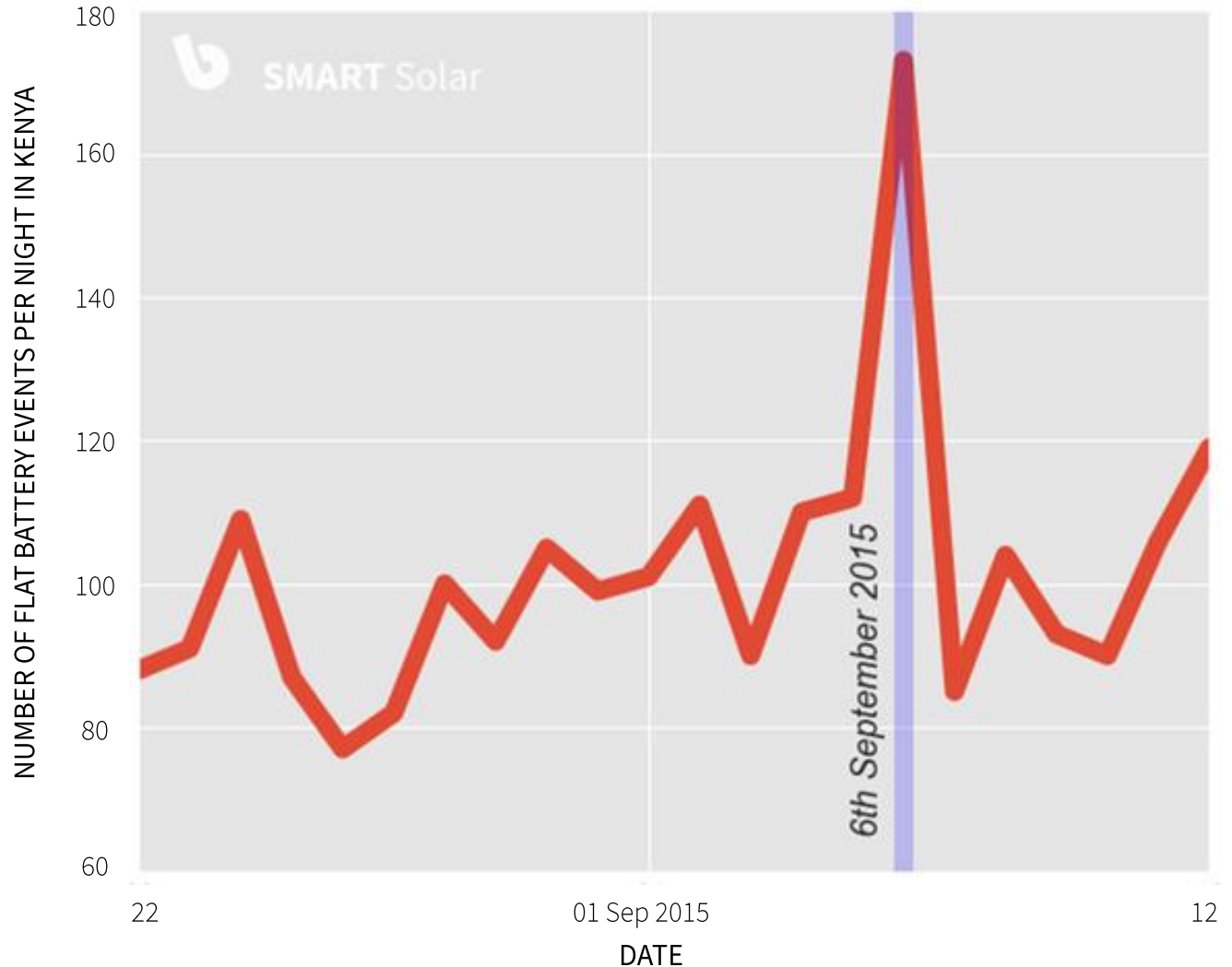


# LARGE-SCALE TRENDS

TV USAGE DATA HAS SHOWN SOME CULTURAL VALUES WE WEREN'T EXPECTING TO SEE.

Flat batteries on 6<sup>th</sup> September caused by a spike in TV usage on the same day as Kenya vs. Zambia in 2017 AFCON qualifying match...

...could just be coincidence – there is a still need for ground truth data sometimes.



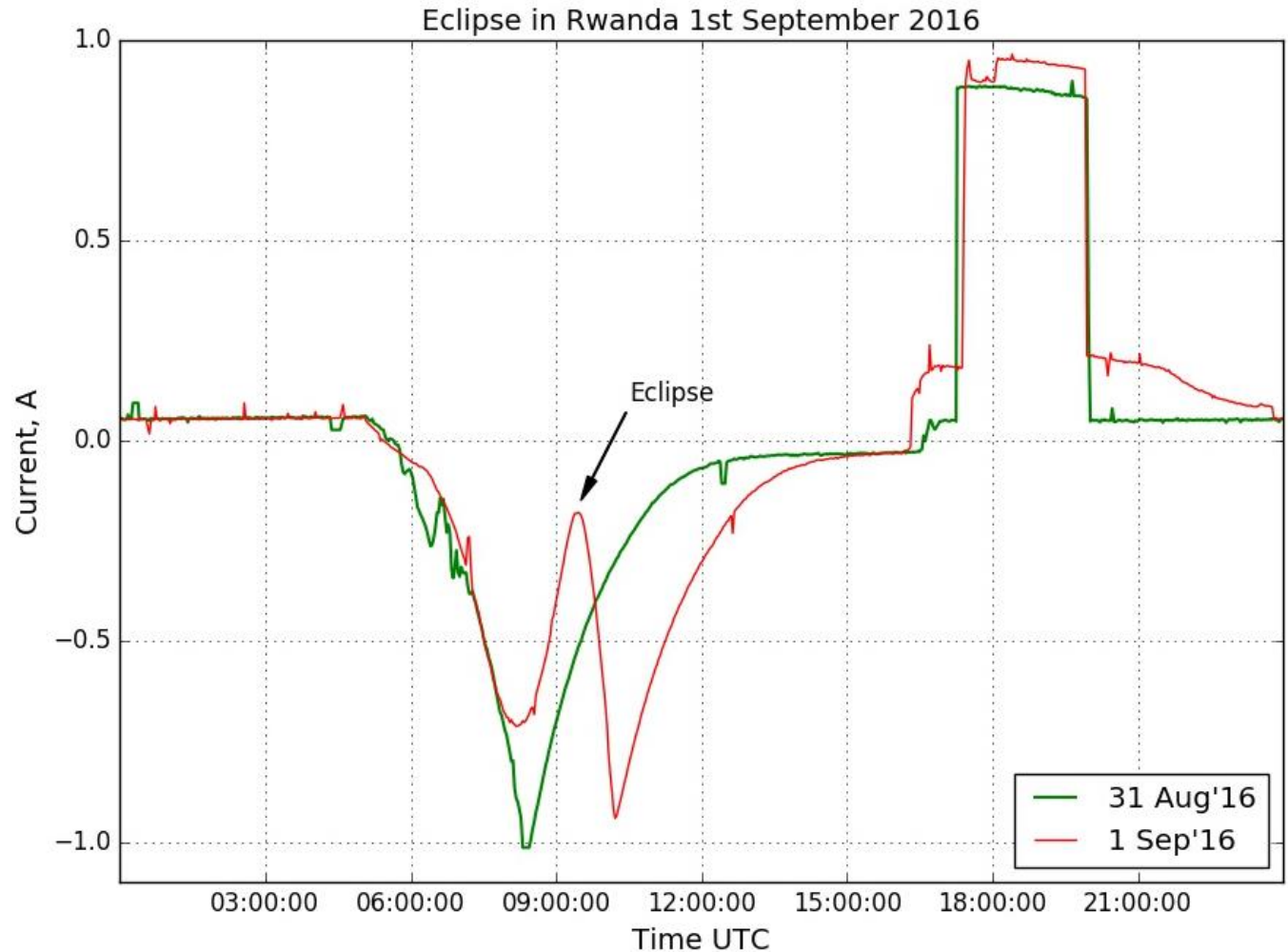
# SOLAR ECLIPSE

MONITORING DATA ACCURATELY  
SHOWED THE RECENT SOLAR ECLIPSE  
SEEN ACROSS AFRICA

Our battery monitoring shows the difference between a normal day (31 August) and the day of the solar eclipse (1 August).

The charging pattern on 1 August is clearly disrupted. The charging cycle also takes longer than normal as well. Both forms of disruption occur as the sun is blocked out and the battery has minimal ability to charge.

Fortunately, the eclipse did not stop the battery charging fully and the customer could use their battery in a similar way as they previous evening.

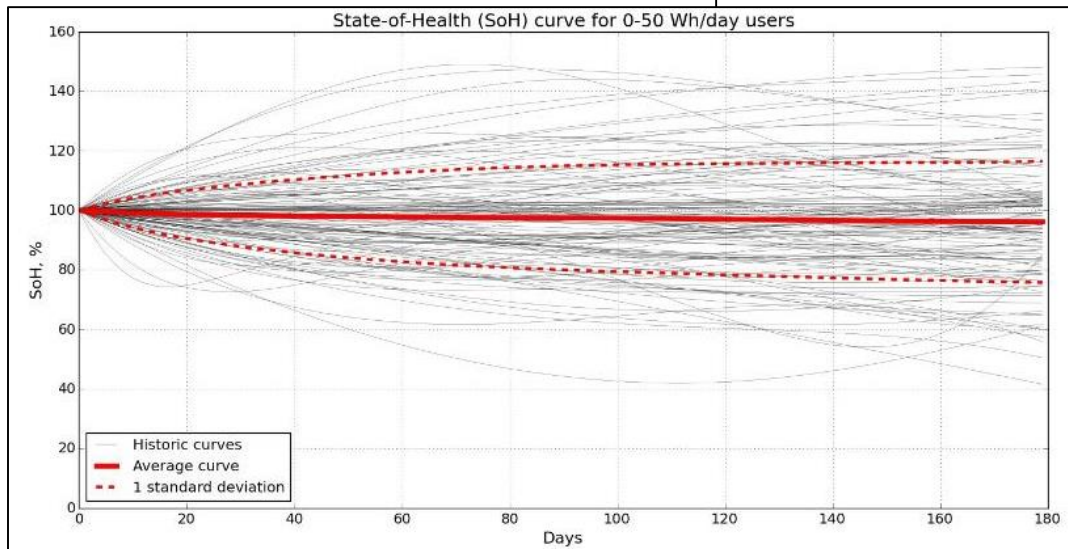
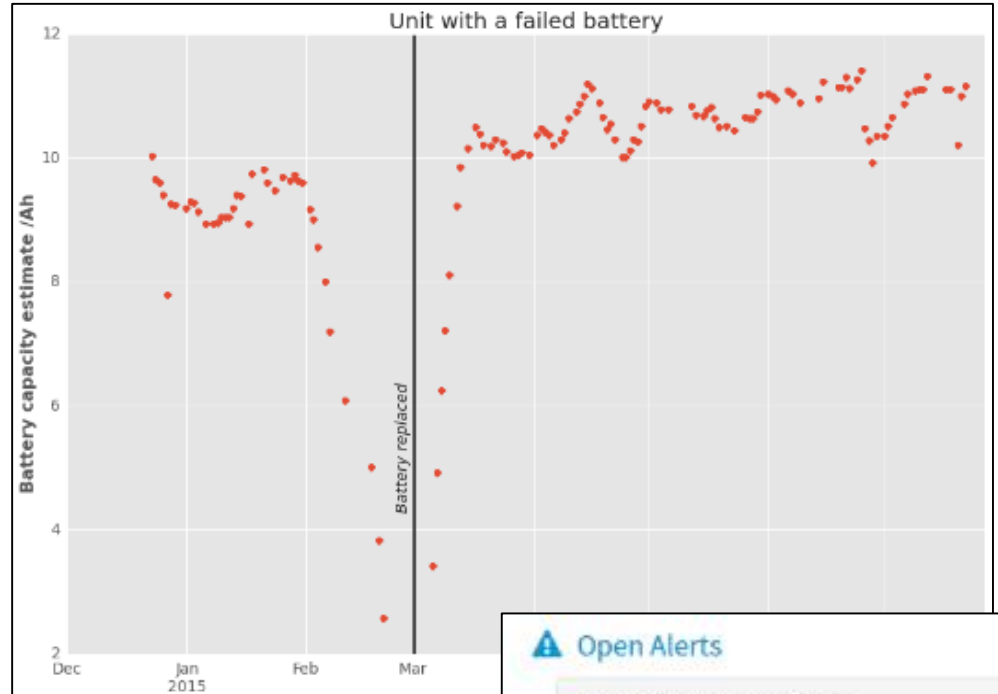


# UNDERSTANDING BATTERY PERFORMANCE

We are developing innovative models of batteries that help us to detect technical issues and provide service before any problems become critical.

A strong correlation between working systems and paying customers has been found, therefore it is vital for BBOXX to keep as many systems operational and to limit down-time for each customer.

BBOXX has a set of alerts that are activated when a battery's health drops below a certain level. Call centre staff and technicians are notified so that a customer can be informed and a repair organised as soon as possible.



**Open Alerts**

Low battery capacity - 33

The battery may need replacing. Ask the customer if they are having any problems with their system.

Alert ID: 33  
Start Time: 09:15 - 13 August 2015

Customer Called Dismiss

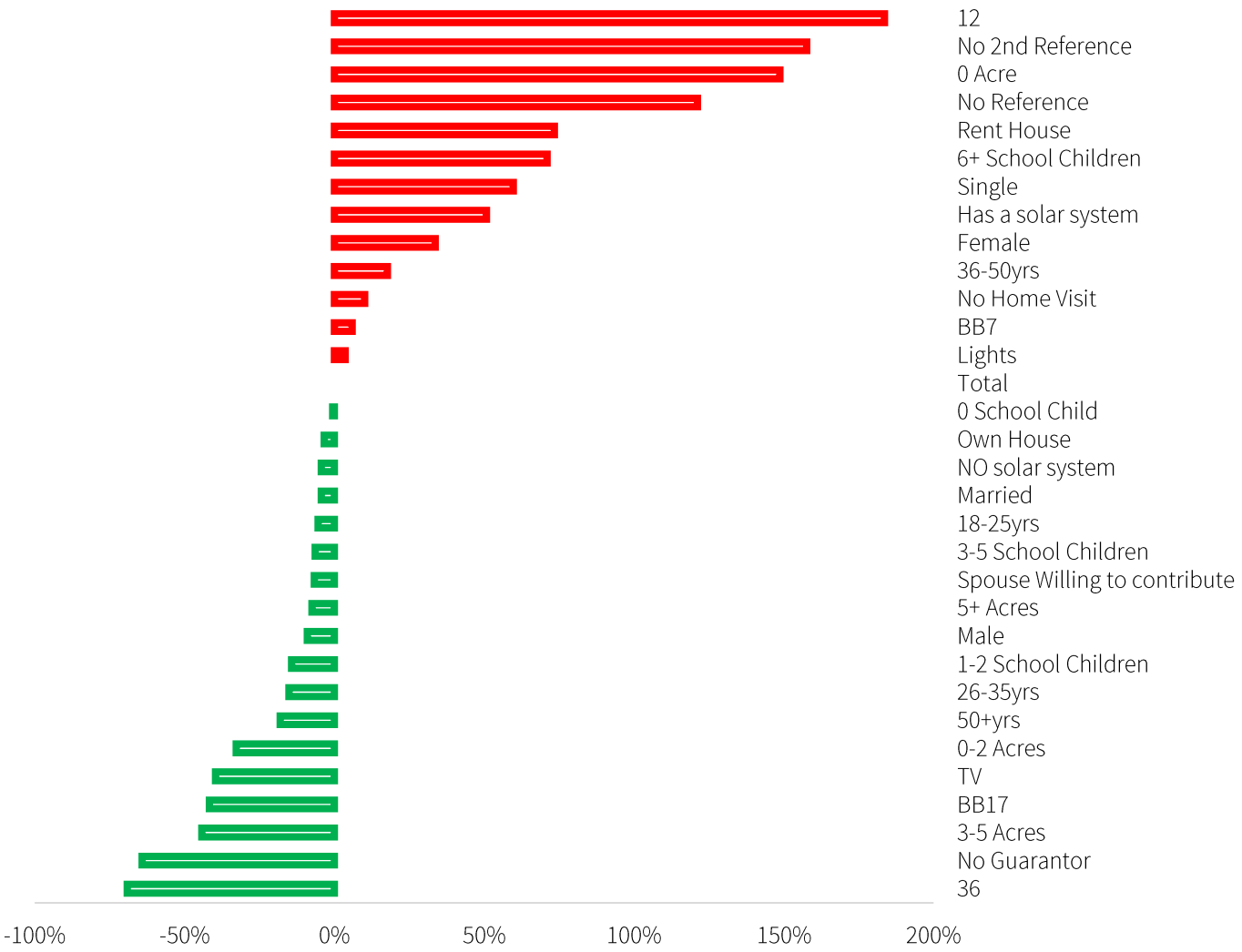
\*Example of a battery replacement. Capacity shown is useable, not absolute capacity.



# CUSTOMER PAYMENTS



# CUSTOMER PROFILE ANALYSIS SHOWS WHICH INDIVIDUALS ARE MORE LIKELY TO DEFAULT





# STAFF PERFORMANCE

# PURPOSE-BUILT IT SYSTEMS TO NURTURE EFFICIENT OPERATIONS PROCESSES

Once a customer has signed up to BBOXX a notification is sent to the local shop that an installation is required. BBOXX Pulse runs in each shop to give shop managers and technicians a to-do list for installations, repossessions and technical issues.

This is a neat way of managing operations staff and to make sure they are working efficiently.

The screenshot displays the BBOXX Pulse Shop Manager interface for Rangwe. The top navigation bar includes the BBOXX logo, Today's Date (15 Jun 2016), Battery status, Connection Quality (Good), Shop (Rangwe), and the user account (Rangwe SM Demo Account). The main content area is divided into a left sidebar with navigation options and a main workspace. The sidebar options are: All Actions To-Do, Customer Information, Record Installation (highlighted in orange), Record Repossession, and Record Technical Issue. The main workspace is titled 'Installation' and features a search bar with a 'SEARCH' button and a 'GET ALL' button. Below the search bar is a table listing installations:

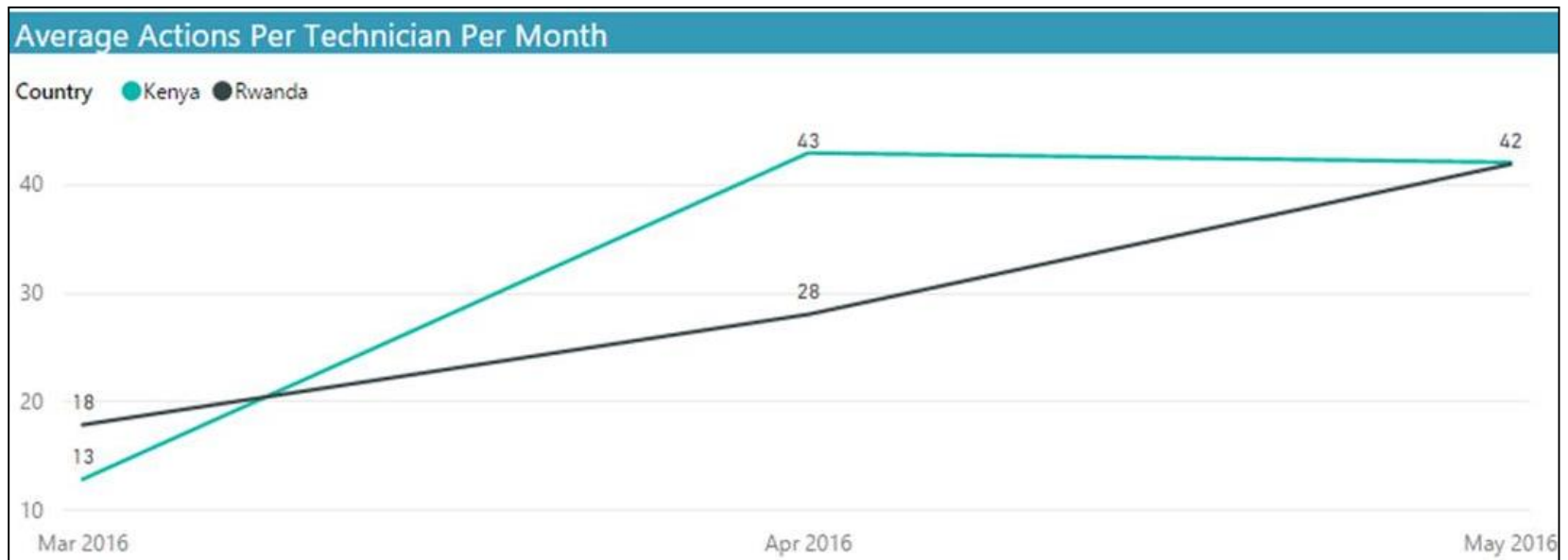
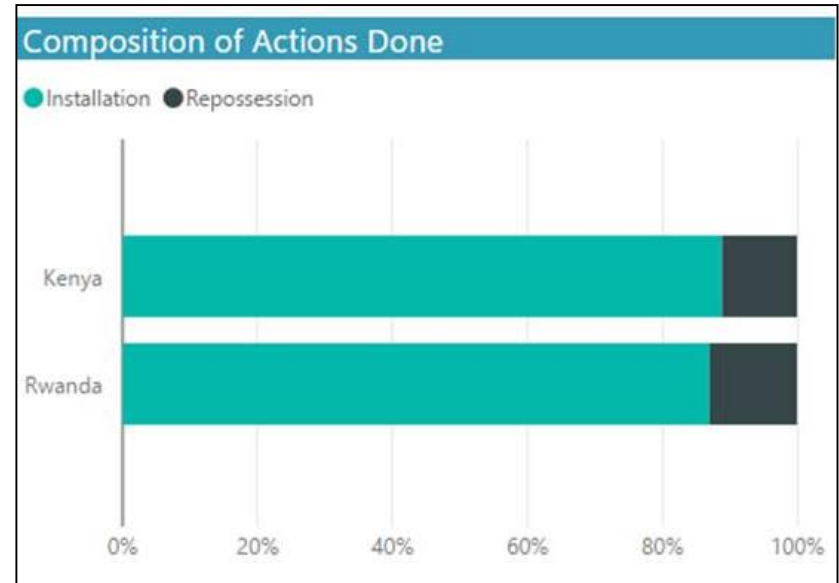
Customer Name	Client Status	Action
RODGERS SEDA OWUOR	Installation Booked	SELECT
<b>Customer ID</b> KENYARANGWE415		
<b>Address</b> BOX 285 KISUMU, RANGWE SUB COUNTY, HOMA BAY COUNTY, KOTIENO		
<b>Phone Number</b> 0726675804		
<b>Package Name</b> BB TV 3		
LUCY ACHIENG OKELLO	Book Installation	SELECT
RFNS OWINO KADINA	Book Installation	SELECT

At the bottom of the table, there is a pagination control showing '1 / 4' items per page and '1 - 10 of 34 items'.

# ACTIVITY TRACKING FOR TECHNICIANS ENCOURAGES GOOD PERFORMANCE

Tracking performance of technicians and the number of activities they perform each month can help to encourage efficiency and be used to reward the hardest working employees.

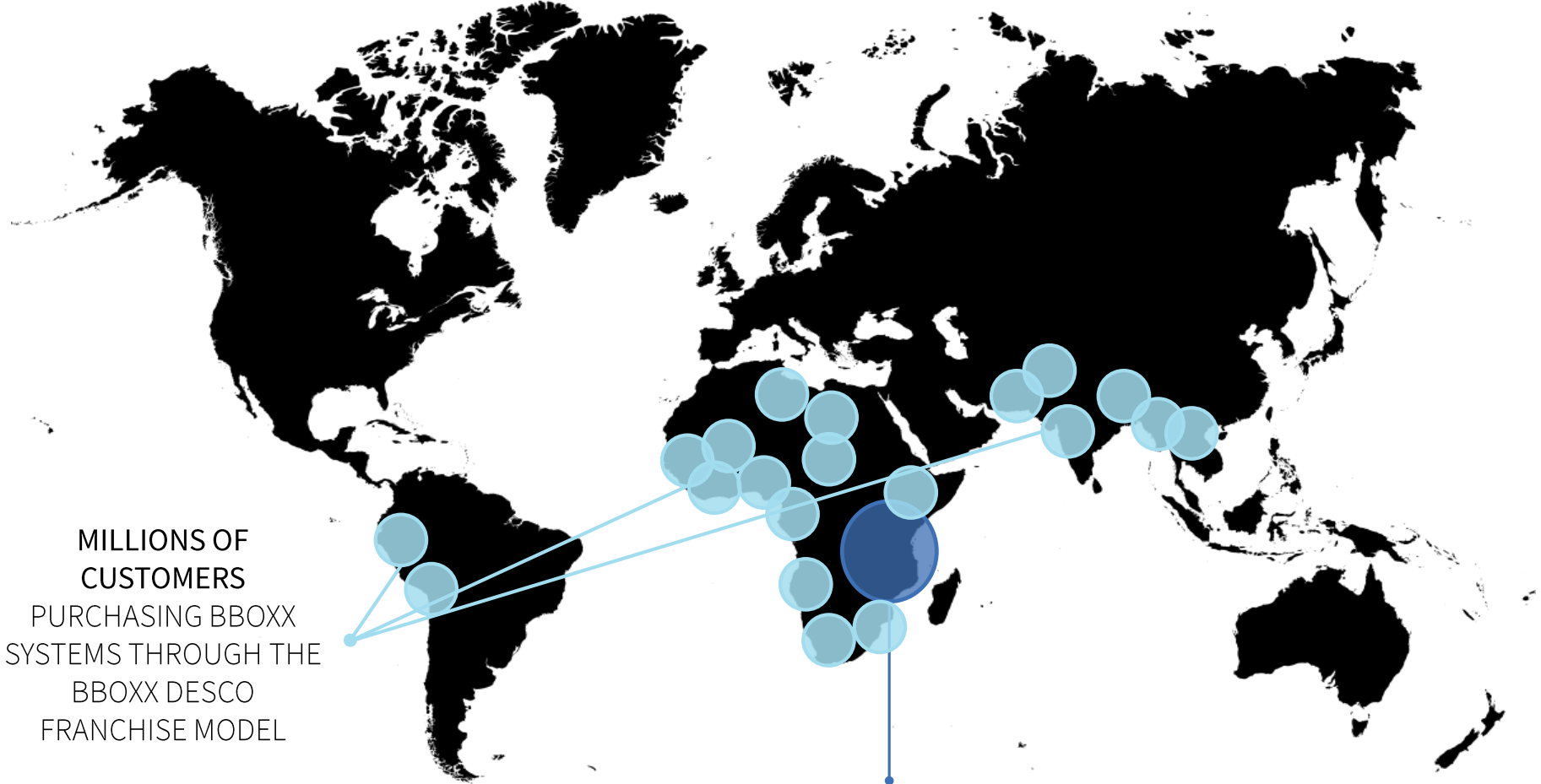
Being able to reward these hard-working individuals maintains their motivation, but also creates competition and ambition amongst other members of staff. This has already had a positive impact on our installation and repossession numbers.





# THE FUTURE OF BBOXX

# IN 5 YEARS TIME...



MILLIONS OF CUSTOMERS PURCHASING BBOXX SYSTEMS THROUGH THE BBOXX DESCO FRANCHISE MODEL

20,000,000 CUSTOMERS ACROSS EAST AFRICA

# JOIN OUR JOURNEY TO ELECTRIFY THE WORLD



[www.bboxx.co.uk](http://www.bboxx.co.uk)  
[info@bboxx.co.uk](mailto:info@bboxx.co.uk)