Design, Prototype, Test: using Design Sprints to develop an app for sanitation service providers

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WSUP and project partners BoP Innovation Centre and UX developed a mobile app, Pula, inspired by GV's Design Sprint method. Pula aims to support vacuum tankers with their business while providing urban planners with data about sanitation in the city. This Practice Note describes the design process behind development of the app.

What is Pula?

Pula is a mobile phone application that aims to improve sanitation in unsewered urban communities. For both private and public stakeholders within the faecal sludge management (FSM) sector, access to data is crucial for making informed decisions. However, such data is often either unavailable or inaccurate.

Pula aims to bridge this gap by capturing data through a mobile phone application used by on-site sanitation service providers (vacuum tanker owners and their drivers). The benefits are twofold: Pula can strengthen the daily operations of service providers, while gathering anonymised and up-to-date information on urban faecal sludge movement.[1]

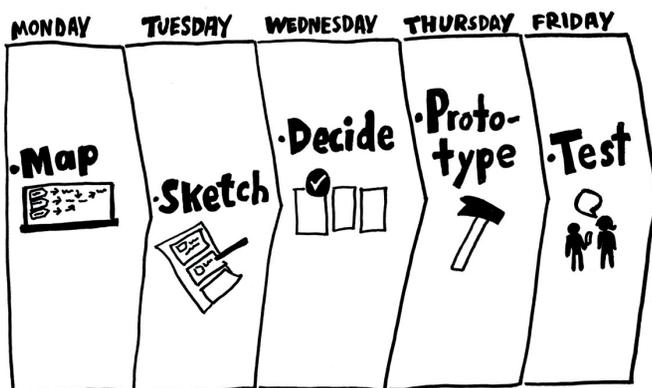**Figure 1:** The Design Sprint process. Credit: dwaiter

Applying Design Sprints

A project team was formed of an FSM market expert, a design researcher, a user experience (UX) designer and a business specialist. The team spent three weeks respectively in Ghana, Kenya, Zambia and Mozambique from December 2016 to February 2018, focusing exclusively on the development of Pula. The standard five-day Design Sprint process (see Box 1) was extended to 15 days in each location to ensure enough resource was dedicated to testing the app's features.

Thanks to the Design Sprint method, decisions about the app's features could be made quickly and the project could move forward at pace. Insights from the field were immediately translated into prototype app features, and then rapidly rolled-out for testing by target users and adapted as required.

As an example, the iterative changes made to the app's core feature ('Truck Tracking') during the Design Sprints in Lusaka (December 2017) and Maputo (January-February 2018) are detailed in Figure 2 overleaf.

Box 1: What are Design Sprints?

The standard Sprint is a five-day process designed to answer critical business questions through rapid designing, prototyping, and testing ideas with customers. Developed by GV (formerly Google Ventures), Design Sprints combine business strategy, innovation, behavioural science and design thinking into a replicable package. Teams undertaking Sprints gain valuable learning about their product and its audience without significant time spent on building and launching products (see Figure 1).

Design Sprints consist of specific exercises spread over five days, with the aim of testing the developed product with target customers on the last day.[2]

1. See www.getpula.com for a demonstration of the app
2. See http://www.gv.com/sprint/ for a complete guide to Design Sprints

Creating a working product: the evolution of an MVP

Developed by project partners, the initial prototype app features were based on market assessment and validation exercises performed in each of the four countries.

However, these first versions of the app's features were not working prototypes. Wider market assessments – alongside testing of the prototype app's functions with public and private sanitation service providers – fed into a Minimal Viable Product (MVP), which was tested in Maputo and Lusaka in September 2018.

The MVP meant that the most important question to be addressed about Pula could be properly tested: will vacuum tanker drivers and owners continue to use the app independently?

The multi-country iterative design and consultation process has already provided valuable information about the daily operating challenges for sanitation businesses in urban sub-Saharan Africa. Data collected over the MVP test period will reveal its usability in real-life settings as reported by vacuum tanker drivers and owners.

The full findings from the test period will be shared soon in a forthcoming WSUP publication.

Figure 2: The development of Pula's 'Truck Tracking' feature
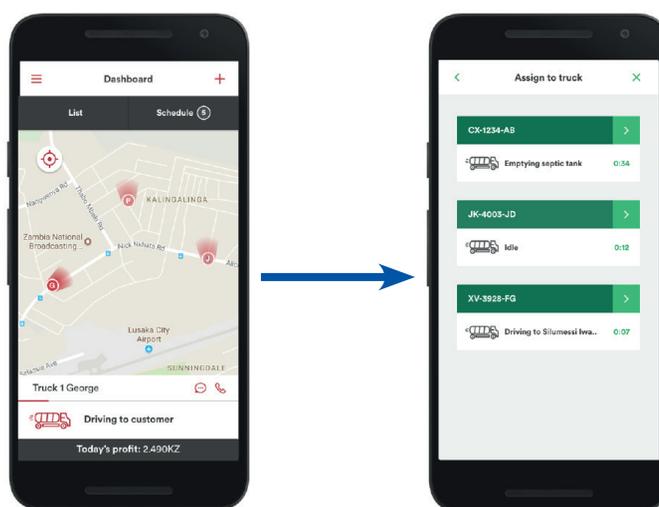
Lusaka Design Sprint outcomes	Maputo Design Sprint outcomes
All trucks are viewable on an interactive map. When the truck icon is clicked, the status of the truck is displayed (e.g. 'Driving to customer')	The statuses (e.g. 'Idle') of all trucks are displayed. To view the location of the truck, the user clicks on 'Details'. This reduces the app's energy and data consumption
Total aggregated daily profits are displayed on the bottom of the screen	Financial data is eliminated to reduce complexity
Trucks are identified by the name of their driver (e.g. 'George')	Trucks are identified by their licence plate as drivers may use different trucks

Recommendations for sanitation app developers

Project partners ran four Design Sprints in four countries and found them to be a useful way to rapidly gain user feedback about a product as it is being designed. Regarding the experience of building the app itself, it is recommended that other would-be app designers:

1. Integrate a coder from the project's inception
The design sprint team did not include a coder, so prototype features were found to be technologically unfeasible much later in the project than would otherwise have been the case.

2. Keep it simple
The project team were ambitious regarding the number of features so the app eventually became too complicated for target users. Instead, it is recommended that developers focus on fully solving one problem.

3. Make it real
Prototypes need to give the user the impression of a working product if feedback is to be relevant and realistic. Users with limited digital experience find it difficult to give accurate feedback on prototypes.