

Operation of the fecal sludge management platform in Maputo, Mozambique

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Version 2 – 04/11/2015

This is the way we see the operation of the platform, however we are aware of the fact that there is a budget of 200 KEuros and not everything may be implemented at once. The Human Centered Design (HCD) will help define priorities. Some questions that need answered before or during the HCD are given in boxes.

Indispensable characteristics for the platform

Infrastructure

1. The platform will be composed of:
 - a. A physical structure where the call-center will be installed.
 - b. An IT structure that receives requests via SMS or via a website and processes all requests , including the ones made via the call-center. This structure also manages subscriptions (point 9.b) and stores all collected data.
 - c. A structure that allows contact with the operators. For interaction methods check point 4.
 - d. A paying system (e.g. Mkesh, Mpesa or similar systems) that allows direct transferring of the money from the household to the operator and the municipality (check point 11).

Question:

What is the most appropriate, or combination of, payment systems?

Interaction with the platform

2. The platform will allow creating user-accounts online
 - a. For operators the information should cover:
 - i. Name of company
 - ii. Name of owner
 - iii. Legal address
 - iv. Geographical area: some operators might only want do jobs in a certain area of the city. This will be used when assigning the jobs (see point 7).
 - v. Number of trucks and information on individual trucks
 1. Volume
 2. License plate
 3. Manufacturer and model
 4. Year of production
 - vi. Suction systems
 1. Manufacturer and model
 2. Year of production
 3. Number
 - vii. Number of employees
 - b. For households or private entities the information should cover:
 - i. Name of contact person
 - ii. Address
 - iii. Number of household members
 - iv. Type of system
 - v. Volume of system
 - vi. The household should be able to answer “do not know” to all questions

3. Information submitted by households and operators while creating an account will be confirmed, *in situ*, by someone working for the platform. This person would have to receive education on sanitation concepts, in particular fecal sludge management
4. The platform should allow different ways of requesting a service through:
 - a. A call-center

Question:

Where will the call-center be located?

- b. An online webpage
- c. SMS/WhatsApp/WeChat/Twitter. Please note that this option should only be available for recurring jobs for households already known to the platform – this implies that the system has been fully described (see point 2.b).

Question:

Is it necessary to fully describe the households before starting the pilot or can this be a work-in-progress during the first months/years of operation and a cost supported by the platform owner?

- d. Neighborhood representatives. In Maputo blocks and neighborhoods are, sometimes, represented by locally elected figures (*Chefe do Quarteirão* and *Representante do Bairro*), these can provide a link between the platform and the households.

Question:

What is the favored way of interaction according to the households? Are there other options that can be tested?

- e. Households can still contact an operator and request a service outside the platform.

Marketing department

5. This department can be responsible for
 - a. Engaging operators in the platform
 - b. Demonstrating to households the benefits formal emptying of onsite systems (educational programs)

Job assignment

6. Households should be able to indicate whether the service is urgent or plan services in advance.

Question:

How does this relate to periods when operators have more work, for example during rainy season when the systems fill-up much faster? Are they still able to address urgent calls?

7. The platform should allow different ways of assigning the jobs:
 - a. Normal bidding. This is done within the platform with cheapest option being selected by the platform and presented to the household.
 - b. Direct assignment to the truck that is available and is closest to the job. A household can ask for a service with direct assignment, which might be important if we want to better address urgent jobs (point 6). Also, this is useful in the cases that the emptying is done by municipal trucks – relevant if we want to export the platform to other countries/regions/cities.

- c. Selection of a number of bidders (e.g. 3) sorted by price with the household selecting the preferred one. The selection can be based on subjective factors, for example previous experiences or based on the reviews on the website (see point 15).
- d. Selection of the cheapest operators (e.g. 3) for a certain area, based on previous jobs.

Question:

What is the favored way for assigning a job based on the business models of the operators?

Cost, payment and fees

8. The cost of the job will be defined by the operators based on the requests from households (supply/demand)

Questions:

How do we control issues such as i) cartelization or ii) over-bidding (in order to make sure that the costs of the job are covered by the requested amount)?
Should we define ceiling values for emptying services (USD/m³)?

9. Payment procedure
 - a. Direct payment. Payment is done immediately before or after the job is completed.

Questions:

When is the payment made, after requesting the service or after completion of the job?
To whom is the payment made, to CMM or to the platform?
If the payment is done after the job is done, how do we make sure that the payment is made?
How will operators see this possibility?

- b. Subscription. The household can pay a monthly/weekly/yearly fee and have its system emptied on a regular basis without extra costs. This implies that the household has an account at the platform (see point 2.b).
- c. Subsidized emptying. The platform subsidizes emptying of sanitation systems and the households pays back with interests.

Note: both subscription and subsidized emptying could be extended to allow financing mechanisms (micro-finance) for better sanitation systems. For example, a household can buy packages, for example an improved system (e.g. lined latrine or a septic tank), and n emptying jobs. The selected system should allow for safe emptying of the system.

Questions:

Who defines the interest rate?

10. Treatment fee
 - a. Considering that an operator can get jobs outside the platform (point 4.e) the difference between the volume of sludge brought to the treatment plant and the sludge emptied through the platform the difference will be paid to CMM (treatment fee). This should be a flat fee (USD/m³) and will not take into consideration the distance travelled. It is possible that an operator legally discharges less at Infulene than the total amount collected if, for example, the operator uses the transfer station.

Question:

How can this uncertainty be managed considering that there is not a registration system for the transfer station?

Note: if the payment is done before the job and the assigned operator does not do the job it is the platform's obligation to find a second operator to do the job for the same price. The money paid by a household will cover a treatment fee (paid to CMM) an administration fee (paid to the platform owner) and job fee (paid to the operator).

11. Payment method

- a. Mobile payment (e.g. Mkesh and Mpesa).

Question:

How much would this integration cost?

Do these services charge a fee (%) of processed transactions?

What is the penetration of these services in the poorer areas of Maputo?

- b. In-person payment.

- i. At the platform's office
- ii. To the Neighborhood representative (see point 4.d)

Reporting

12. The institution responsible for the platform will report on:

- a. Monthly on the number of households served and volumes of fecal sludge handled.
- b. Yearly reports providing detailed data of users: total volume of FS processed; number and distribution of onsite systems, geographical and city-wide; volume of systems and corresponding up-filling rates; average cost per job/m³, with geographical distribution of service costs. The operators will be benchmarked on the performance, bidding and winning rates and customer satisfaction. These data (anonymized) should be made public in raw and tabular format.

Accountability and control

13. It should allow external control from different parties:

- a. CMM
- b. CRA
- c. Ministry of Health

Question:

Who else should receive access?

Data management and privacy

14. The privacy of the operators and users should be protected. Data cannot be sold or shared, can be completely deleted at any time, cannot be used by the owning partner for advertisement.

Ideal characteristics for the platform

15. Create products (including the platform) that are open-source.
16. Allow feedback from the users (point 7.c), similar to what is done, for example, in travelling websites.
17. Built in a way that allows integration with other (municipal) services.