From Social Impact to Sustainable For-Profit: Solar Power in Rural India

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Introduction - Team & Project

Simpa Networks (Noida, India)

*Neel Shah (Product Management Leader) and Piyush Mathur (CFO)*

EPFL Energy Management and Sustainability Program

*Catarina Neves and Ekaterina Paramonova - MS Students*

EPFL Management of Technology & Entrepreneurship

*Prof. Dominique Foray - EPFL Faculty*

**Project** -  *Payment Behavior Analysis for Solar Home Systems in Rural India*

**Duration** - Summer 2016+
Project Overview

- **What?** - Training and Education Project to understand how Simpa applies an entrepreneur and for-profit mindset to tackle the issue of energy accessibility in India
- **How?** - 2.5 month internship at Simpa working on understanding their solution & studying customer payment behavior trends
- **Why?** - The success of this innovative solution to energy poverty hinges on its ability to collect its dues, something that can be challenge in the field of microloans
What is Simpa?

Simpa sells solar power systems on financing to households and shops in rural India. The company is pursuing a market opportunity to create 100 million solar rooftops.

01 THE PROBLEM
energy poverty

02 OUR SOLUTION
solar-as-a-service for the energy-poor

03 THE COMPANY
growth stage, award-winning, experienced leadership team.
What is Simpa?

OUR CUSTOMERS

energy-poor households and micro-enterprises in rural India

off-grid households
- rural households with no connection to the national electricity grid
- aspirational, investing in a brighter future for their children

poor-grid households
- rural households getting less than 12 hours per day from unreliable grid
- needing reliable back-up for lighting and cooling to survive the blistering summer heat

micro-enterprises
- small shops such as tea stalls, village shops, and restaurants
- located in areas where staying open later will generate new income every day
What is Simpa?

OUR BUSINESS MODEL
Our customers pay for energy service, while also building equity in the solar product.

INSTALL
Customers make a small down payment for installation.

TOP-UP
Customers buy prepaid energy service days from local agents.

UNLOCK
When customer is ready to buyout, the system unlocks permanently providing free energy.
Central Question

How can Simpa optimize the payment behavior of its customers in a scalable way, both from the customer selection and customer engagement sides?

Sub-Questions

I. Which customers / villages are better matched with what Simpa products, plans, approaches, etc.? (i.e. static)

II. How should Simpa engage if it observes a certain behavior by the customer / village? (i.e. dynamic)
Payment Behavior

Customer-Type Based
- Geography
  - Climate
  - Village structure

- Economics
  - Assets
  - Loans
  - Technology alternatives
  - Income
    - Regular
    - Irregular
  - Expenses
    - Regular
    - Irregular

- Social
  - Address type
  - Gender
  - # school children
  - Age
  - Family size
  - Education
  - Marital status
  - Language

- Motivation
  - Purpose
  - Benefits
  - Substitution (i.e. price parity)

Customer-Engagement Based
- Technology
  - Power-level
  - Add-ons
  - Meter / no meter

- People
  - UM (village sales person)
  - RSA (Simpa sales person)
  - CRA (Simpa collection agent)

- Payment Plans
  - Downpayment
  - Monthly service
  - Flexibility

- Events
  - Regular
  - Irregular

Other?
- e.g. time-dependent factors - seasons, holidays, epidemics

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Project Results

- Data Analysis on Customer Payment Behaviour at Simpa + Policy and Data Collection Recommendations
- Interest in Continuous Partnership and Collaborations through Training and Capacity Building Internships
- TBC: White Paper on Social Entrepreneurship as a Key to Unlock Energy Access
Impact for Simpa

- Helped the organization reflect upon its data gathering processes and platform. Simpa is now investing in developing a data analytics role within the company.
- Product pricing are being developed based on findings of the analysis particularly in the area of:
  - Developing improved lease terms
  - Balancing downpayment for the pricing with respect to total ownership costs of the product
Impact for EPFL

- Students learn from the experience (via events) and this spurs on an Energy Development Initiative to connect students with similar internship / thesis projects via EnergyBPT Student Association

- EPFL making an impact via research projects with Simpa and other similar companies in the Global South
Future Partnership Plans

- Create a solid, mutual benefit partnership to *engage interested EPFL students* in issues of energy poverty through *internships* at Simpa in fields of engineering & management
- Expand scope of internships to include other players in the energy & development sector in India
- Write *white paper* with the results of collaboration
- Participate in the campus-wide, *student-led Energy BPT event* to showcase the partnership results to students interested in issues of energy poverty
Take-Aways for Other Partnerships

- *Bring all stakeholders to the table from Day 1.* Avoid miscommunications and conflict of interests by fostering communication and transparency.

- Keep trying, keep testing, keep measuring. Only by trying out a few variables for a sustained period of time will you be able to measure their real impact in the field. Data can go a long way when properly collected and analyzed.
Final Takeaways

- Good starting point - stakeholders met in-person
- Momentum to continue on-campus via student-led initiatives to develop more project opportunities and connections

Thank you!
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