

## **Navigating Value and Vulnerability with cooperative farmers and their stakeholders:**

*How information communication technologies can support financial services in the sustainable trade industry*

A synopsis of the design research of Melissa Cliver, Rudy Yuly and Catherine Howard

Overall, our goal is to utilize field observations and design implications that will give IMTFI stakeholders the information needed to create tools to help improve financial inclusion. Focusing on farming cooperatives as intermediaries to the poorest individuals, their day workers, we translate observations and design implications into concepts for financial services available through information communication technologies. Our aim is to generate scalable solutions that can be used throughout the sustainable trade network—a delivery route driven by innovation and fundamentally concerned with fairness, sharing and positive outcomes.

Our initial work in the field was with one large coffee cooperative in Zaragoza, Oaxaca Mexico—Cooperativa 21st de Septiembre (comprised of 92 small farms and hundreds of individuals). We are continuing our work with the members of this cooperative to develop financial service models that could be tested at various other cooperatives globally. We examine the current practices of day-to-day management with farmers. Observations include the challenges they face as well as the ways they have used investments and share financial knowledge in their communities. Our research began in 2008 and will be completed in 2011. The team is comprised of individuals with backgrounds in anthropology, design, interaction design, journalism and business.



## Research questions driving our process:

1. What is the day-to-day financial landscape of the cooperative and the community members?
2. How are finances currently managed?
3. What financial factors are in place which contribute to the current state other than lack of investment?
4. What can we learn about the cooperative that will contribute to the cultivation of sustainable relationships with outside entities as trusted partners—the ultimate goal for the socially responsible lender and conscientious producer ?
5. How might current and future state technology contribute to financial inclusion?
6. What unique cultural aspects contribute to financial constraints and interests?
7. How might we understand and support financial inclusion in the terms of those operating in the sustainable trade industry?
8. Where are the breakdowns in the system?



## Design Research Methods

### Secondary research

Our secondary research focused on topics including financial services, innovation technologies, sustainable farming, social innovation, mobile communications and microfinance.

### Participatory design

We place a strong emphasis on participatory design, a process where participants (potential end users) are invited to actively contribute along with designers, researchers and developers during the innovation process. During development, they help evaluate proposed solutions. In Zaragosa, we found community members were willing and helpful participants.

### Qualitative interviews and observation

Over the course of one year we interviewed farmers, cooperative managers, importers, roasters, coffee drinkers, lenders, technologists and day laborers in various phases of the coffee distribution process. We interviewed managers in their offices, and farmers and day laborers in the coffee fields, following them in their daily routines.



## **Selected observations stressing financial health (proposed outcomes in italics are intended to be general options informing later concepts)**

### **Efficiency and workflow**

- **It's hard to communicate farm-to-farm or farm-to-office.** Laborers often walk for several hours to sit and wait for farmers to pick them up for work not knowing when they might arrive. *Proposed solutions could indicate who is available to work and to provide work—organizing available helping hands, spare tools and resources.*
- **Plants are suffering from infection.** Investments in workshops to build and cultivate new plants were successful but the stress of not being able to control the fungus *hemileia vastatrix* is ongoing. *Translation of articles and Skype sessions with experts willing to share knowledge would be useful. Access to updated information would reduce stress and aid productivity.*
- **Water (irrigation) innovations are somewhat understood but not well implemented.** *More innovation and sharing of ideas among cooperatives could contribute to innovation sharing for typical needs like irrigation.*
- **Contracts with utility companies are not clearly understood, so the farmers agree to terms potentially not beneficial to them.** Some farmers are aware but the cooperative does not have an aggregated system for contract navigation. *A list of standard questions for negotiating contracts with specific relevant cultural appropriateness might be helpful.*



## Social and experiential contributions to financial stress

- **Young members of the community are leaving.** Technology and innovation is becoming an ever-increasing part of the day to day for farmers. We witnessed young members of the communities serving as entrepreneurs, buying and selling, negotiating services, and serving as technology gatekeepers for the older members—all extremely valuable functions. But the majority are leaving to work elsewhere or join the military. *Incentivizing young people to stay in their communities should be an element of potential solutions.*
- **Importers are often perceived as fair-weather friends.** The amount of success based on chance is destabilizing. There is no security built into the partnership between the producers and the farmers, which leads to an absence of trust. Importers have their own set of variables to be responsible for, yet producers have great risks, for example cooperatives have the responsibility of getting product to its destination (port) uninsured. *Services such as insurance and emergency fund grants would facilitate more trust, as would transparency in the sales and agenting the process. Farmers are confused by their low wage as compared to the 4\$ Late sale price and the chain of costs. More exposure to the complete process would aid trust.*
- **Women are overwhelmed.** The women we met work on average from 4 am to 11pm. In addition, when they become the focus of lenders as a preferred recipient of investment (microfinance) this preference often causes tension at home. It was stressed that financial decisions are made by “The Family” yet women are the focus of outside investment causing a “rift” at home. *Directing funds through the cooperative with earmarked funds for gender-neutral proposals focused on supporting women and families would shift hierarchy from bank to the culturally sensitive cooperative leadership. Tensions may decrease because decisions to lend would be collective of the community rather than from outside.*
- **The concept of savings for emergencies and the unforeseen is abstract.** Cooperative members are uncomfortable with savings plans because funds are not equally shared, part of the tenant of the cooperative culture. They are more comfortable with accumulating wealth in ways they can see, one example are the numerous partly finished buildings throughout the villages. *Proposed solutions might make savings “tangible”—use a visual-based system to show the growth of funds in a culturally relevant way that the co-op members can see.*
- **Women pickers carry their babies with them in the field.** Childcare is not a concept that is familiar. Currently, village women have little confidence in others caring for their children. *Working toward making child care available, while reinforcing the feeling of trust in childcare building infrastructure, nutrition for children and ease stress for women working in the field.*



Women members of the cooperative during a discussion on “savings”

## Prototyping financial tools and service models

Each concept has a service model, and monetization feature to test with stakeholders in co-design sessions. The concepts are represented in scenarios (storyboards) and shared with those who will use the technology. We choose to validate the concepts in a narrative form first before creating actual technological prototypes to best understand the nuance of experience before creating the specific interaction and to minimize changes. Below you see a concept card that indicates use for stakeholders.

This concept, “Send the Change”, came directly from the observation that savings had no dedicated cash stream, our design challenge was to create one. The concept links consumers and the cooperative via mobile sharing. Outcomes have meaningful implications for the workers on the farm and the financier as well.

CONCEPT | **SEND THE CHANGE** | CONSUMER ROUNDS UP WHEN PURCHASING A POUND OF COFFEE

### Importer

receives tax deduction with direct donation

### Farmer

receives new cash stream for savings and securing livelihood

### Consumer

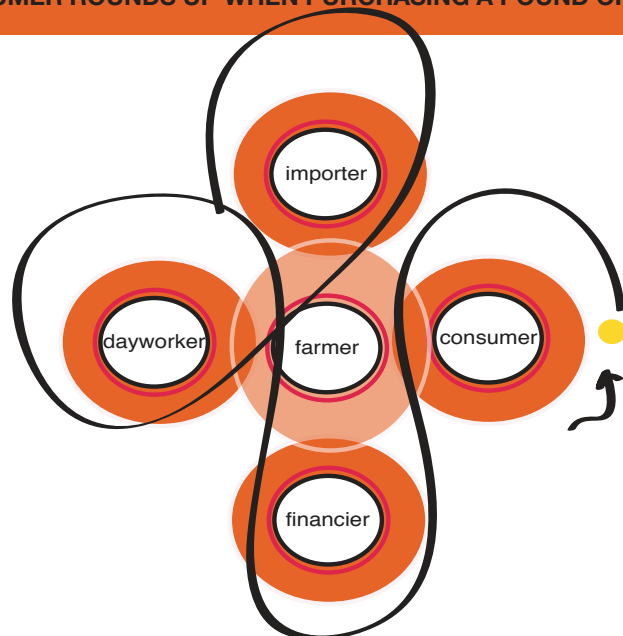
gains access to point of origin information

### Dayworker

gains access to micro loans via co-op from half of “send the change” funds

### Financier

can continue to focus on direct product-related financing instead of infrastructure (investors don't typically fund infrastructure, yet see the value)



## Additional sample concepts in storyboard form

These concepts are intended to be broad encouraging discussion fueling possibility.

### Concept and scenario validation with participants

**"m-sharing"**



**"round-up for livelihood"**



services    technology    experience

**"farmshares"**



**"skype sisters"**



**"food-friends"**



**"Social Sharing" knowledge and cash streams for livelihood**