Coffee and Sustainability

Designing a solution of reducing the environmental impact of coffee processing while improving the welfare of farmers

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> Only 0,4% of the money you pay for coffee goes to coffee farmers

In this article I will describe my journey through the Acumen course, Designing for Environmental Sustainability and Change, from the phase of

forming a team and developing understanding of the system to designing a solution for sustainable change.

Project highlights

- Timeline: 5 weeks, team project
- My role: Design researcher

1 week. Choosing a challenge

First thing you should do when starting any project with a team is to agree on the most convenient tools of communication and time schedule.

With the shift to remote working it is vital to keep everyone engaged and informed. Here is what we picked:

- Google drive folder – for sharing project documentation
- Slack group – for everyday communication
- Google hangouts – for weekly online meetings
- Miro board – for brainstorming sessions on whiteboard

As for all of us in the team, drinking a cup of coffee was an everyday ritual, so we decided to learn about coffee production, its effects on the environment, and what's the quality of life of those people behind the scene, working hard to grow coffee beans and maintain the world's supply.

🧐 **Questions we asked:**

- *What's the impact the world's favorite beverage has on our environment?*
- *Is coffee sustainable?*
- *What is the environmental impact of the coffee industry?*
- *What's the life condition of farmers?*
- *How much do they get for their hard work?*

Each of us individually took 30 minutes to look for the answers. I focused my research on following topics:

1. The process of coffee production
2. The challenges of waste collection and recycling
3. How coffee growers are adapting to climate change?

4. Living income of farmers

Coming up with our course challenge requires research, collaboration, flexibility, and deep understanding of what system thinking is about, and what can be counted as a problem.

What is system thinking?

> Systems thinking is a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing ‘patterns of change’ rather than static ‘snapshots.
>
> - Peter Senge

That was a perfect time for our group to move to Miro board and analyse major elements of the system in the coffee industry. We grouped them into 4 layers:

- People
- Policy
- Solutions

- Narrative

The problem

Small farmers/producers of coffee depend on middlemen to sell their products, and are subjected to their conditions. It leaves them with a low income and makes them use the cheapest means for taking care of the land, prevent modernizing production systems/machinery, and packaging for the product.

Additionally, low income doesn't allow farmers to educate their families. This creates a never ending cycle. The disposal of agricultural waste, as well as the shipping and packaging of products need to be assessed in the coffee industry, in order to diminish the impact on the environment.

Opportunity

How might we reduce the environmental impacts of coffee processing while improving the lives of farmers?

Solution

Coffee for Change – an online platform that provides subscription-based service for end-consumers and incentives them to support the livelihood of the farmers. This service will fund educational resources/actions among the coffee producers, giving them more tools to advance the formation of the cooperatives.

How to know whether or not your intervention would positively impact the environment and human wellbeing?

To understand that each of us listed the ideas and measuring indicators (before and after) which later we grouped by the type (nature) of impact:

- Social
- Environmental

Indicators to measure the impact of the solution

2 week. Defining the problem – system thinking

> It’s not enough to look at ‘The one thing’ that will solve it all; that’s not how systems work. If we want to successfully take on these global

> challenges humanity is facing we must dive deep into the complexity and get messy.

How current system works?

Next our team started to think of how the new system we are designing will look like in 7–10 years or beyond. In the course this long term vision is called a Guiding star.

Our guiding star

A coffee supply chain that minimizes waste, restores the environment and improves the welfare of farmers.

Brainstorming on the Miro board helped us to come up with various **enablers** (person or thing that makes something possible) and **inhibitors** (something that hinders, restrains action or progress) of the coffee production system and narrow it down to the most influential ones, which were:

- **Enabler** – existence of cooperatives that allow farmers to be more independent from intermediates, and improve their income
- **Inhibitor** – consumers are not educated about the impact their coffee has on farmers and the environment

The enablers and inhibitors in our system

Exploring the upstream causes and downstream effects

When developing any intervention it's important to know on which level (upstream or downstream) we want to focus on.

Upstream are the things that are out of your control but have effects on a community's or individual. On the other side, downstream are the factors that directly influence an individual's behavior by utilizing interventions designed for them.

So should we focus on macro level ideas like new social infrastructure and government policy, or on individuals and behavior changes?

Identifying upstream causes and downstream effects

> *The next time you solve a really difficult problem, try to depict cause-and-effect relationships by connecting them in loops*

As we know, systems thinking is not a linear process, and to build a clear picture of how everything in our world is connected people use feedback loops. They are like flow-charts that help us to see how change in one

element generates a sequence of changes in others, causing the action to return to the starting point in a modified form.

For example, in agile, feedback loops help us regularly identify areas for improvement, measure effects of global warming and so on.

That's how we described **feedback loop** in our challenge:

Feedback loop in coffee production industry

In yellow we marked our leverage point – a place in a system's structure where a solution element can be applied.

We believe that the existence of cooperatives would make it possible for farmers to organize collectively and become independent from middle man. This will generate more income and farmers are going to be able to improve their education and collectively develop and apply new, more sustainable techniques to manage soil and crops. The success of this would in turn attract more farmers into the cooperative, making them increasingly popular among farmers and stimulating their creation.

3 Week. Finding a solution

After all previous sessions our team was convinced that we needed to design a **knowledge-sharing platform for farmers**, as well as end-consumers, which would include the following features:

- entice small to large scale farmers to join the service by demonstrating the benefits of working in cooperatives;
- engage the community in helping form the cooperative and support the coffee farmers in producing and selling innovative products from coffee bean waste;

- farming communities will be educated in key skills such as marketing, product design, reusing waste material to create useful products and basic IT skills;
- the subscription fee alongside any additional fundraising resources will be used for funding the educational resources for the farming communities.

What about communication channels?

Steps involved in bringing our service to consumers and farmers

Once the locals have been trained on the benefits and the know-how, they will be fully equipped to organize local gatherings with the producers (farmers) to discuss the teachings. Additionally, they will be able to

encourage them to start forming a cooperative with the champion's help and expertise.

Once the cooperative has been formed and is well set up, middlemen can be gradually eliminated.

Exploring opportunities for Circular Design

Aspects of the coffee chain that can be improved and where value can be added through our service is shown below:

Opportunities for circular design through our service

4 Week. Behavior Journey Map and Points of Friction

Every change starts at an individual level. People's personal habits and attitudes shape their behavior and impact society in general.

So my assignment for this week was to identify a specific behavior that we would like farmers to carry out.

Looking at our defined earlier long term vision (Guiding star) and feedback loop helped me to list that **target behavior**:

- Farmers retain coffee waste from the coffee bean productions instead of discarding it in water systems or direct disposal (e.g. Landfills)
- Farmers accept to attend training courses to our services
- Farmers are mobilized to start forming cooperatives
- Farmers evaluate carefully the option to join or form a cooperative (attending educational sessions, learning the benefits of creating or being part of a cooperative etc).

Listing all the steps that must take place before farmers can accomplish the target behavior

As you can see, the first target behavior is more related to the coffee production vs creation of cooperatives. It caused our team to form different opinions about which aspect of the coffee system we should focus to create behavior journey map 🤔

Do we need to follow what we decided our solution would be or focus on the existing coffee journey and find a fraction point there?

At the end we decided to create 2 behavior journey maps:

1. Coffee production map
2. Creation of cooperatives map

Coffee production behavior journey map

Creation of cooperatives behavior journey map

Exploring the barriers to behavior change and developing strategies to overcome them

Coffee production behavior change strategies

Creation of cooperatives behavior change strategies

Conclusions

To achieve desired outcome system design projects require a longer time horizon and involvement of communities, researchers, corporations, small businesses and more partners.

Systems structure sketch

It’s everyone’s responsibility to understand the economics of the international coffee trade. We need to strive for stability and fairness for all parties involved, especially small farmers.

Because without the farmers, there would be no coffee.

Looking Back & Running Forward

Working on this Acumen academy design challenge gave me a chance to meet and be a part of great community of researchers and social innovators who are willing to tackle the world's toughest problems and generate interesting ideas. It reminded me of the power of teamwork and collective passion.

Thank you!

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