Sustainability and its Paradoxes: The case study of a big coffee roasting company in the Turin Metropolitan Area on the lens of systemic design

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Sustainability and its paradoxes: the case study of a big coffee roasting company in the Turin Metropolitan Area on the lens of Systemic Design.

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Coffee is one of the most important agricultural commodities in the world. Due to its economic importance and its growing worldwide demand, it is well-known that the coffee value chain is responsible for several wicked problems, mainly associated with sustainability. Systemic Design (SD) seems to provide an answer to deal with these issues, by defining a structured and holistic process and promoting an innovative approach towards a sustainable and resilient future. This paper aims to frame the role of the systemic designer as a figure capable of proposing sustainable strategies with an innovative and transdisciplinary approach. The discussion is narrowed to the specific case study of a big coffee roasting company present on the territory of the Turin Metropolitan Area, which has been analyzed on the lens of the SD approach. The set of tools and methods provided by SD has led to the identification of paradoxes related to the sustainability vision promoted by the company itself. Owing to the fact that the company also operates on the international scene, very often it tends to confine its interventions towards sustainability to localized actions, instead of considering the whole system made of inter-connections. The role of the systemic designer becomes crucial in dealing with these tensions and proposing solutions in order to strike a balance in the sustainability dilemma.

Keywords: Systemic Design, Holistic Approach, Design for sustainability, Wicked Problems, Coffee value chain.

A look at coffee supply chain and its issues

Coffee supply chain plays a central role in the global economy, being coffee one of the most commercialized products in the world, second only to petroleum (Giraldi-Díaz, Medina-Salas, Castillo-González & León-Lira, 2018). Despite the coffee industry being one of the most flourishing on the world stage, it is also responsible for several dire consequences to the well-being of our Planet, such as soil erosion and deforestation, air and water pollution, food loss and food waste, to mention a few. However, the long-term sustainability of this production chain depends not only on actions aimed at reducing these environmental impacts. In fact, the coffee value chain has to contend with social issues such as food insecurity and poverty in coffee communities, unfavourable working conditions due to the long working hours, health related problems in workers and many more (Samper & Quiñones-Ruiz, 2017). To these environmental and social issues must be added also the consequences caused by interests of businesses and international agreements, which contribute to making the need to develop strategies for a sustainable and resilient future more urgent.

The design discipline has addressed this critical value chain in many ways over the years, developing products and services capable of making a shift in the sustainability vision proposed by international coffee companies, which tend to confine their interventions towards sustainability to localized actions, instead of considering the whole system made of inter-connections. Systemic Design (SD) provides a method to face complexity in a more holistic way, helping companies to include into their business model a circular vision that creates new value and delivers long-term prosperity and profit. The aim of this paper is to deal with the criticalities and paradoxes in terms of sustainability associated with the coffee value chain through SD. The discussion is narrowed to the specific case study of a big coffee roasting company present on the territory of the Turin Metropolitan Area

(which for practical and disclosure reasons we will call Cofix), that also operates on an international scale with the aim of dealing with these tensions and proposing solutions in order to strike a balance in the sustainability dilemma in the coffee value chain.

Establishing a methodology

Following the SD principles, we started our work with a Holistic Diagnosis (HD) of the Metropolitan City of Turin and Cofix, gathering data regarding social, economical and cultural aspects. As a first result of our research we put out a giga map, a systemic visual representation of all main data collected, creating clusters of information and links between those. Within this analysis we examined each aspect of Cofix, and gave a strong focus to their supply chain. Thanks to this particular view we were able to take a deep look into the different outputs of the company and found out that these outputs were in some cases treated as a by-product and in other cases as an ordinary waste.

By crossing the data taken from the HD, we were able to identify various insights that pointed out challenges and assets for the company and the territory. Those insights with a challenging nature were rated and then filtered by understanding their relevance to the territory and the company. We understood the relevance of each challenge through a SWOT analysis, taking into consideration the strengths, weaknesses, opportunities and threats that the territory and company presented with respect to each specific challenge. The most relevant challenges were then taken further by turning the SWOT into TOWS, understanding which possible strategies could be followed in order to address these challenges through Cofix actions. We identified 6 main strategies, and then selected 3 with the widest range of impact that generated a domino effect in various challenges. These 3 were then shifted into stated opportunities by doing desk research on good practices all around the world and inside the territory. Lastly we created different scenarios for the implementation of these found practices combined with the assets of the territory and made an evaluation through a multicriteria analysis turning qualitative characteristics into quantitative data, being able to rate its feasibility in the territory, its importance and impact to the local actors and the company, time scales of action, sustainability concerns and advantages, among others. All this helped as a filter for setting up the first draft of our system, a set of actions and interconnection of actors that by collaborating would be able to generate a value to the company's wastes and to the territory.

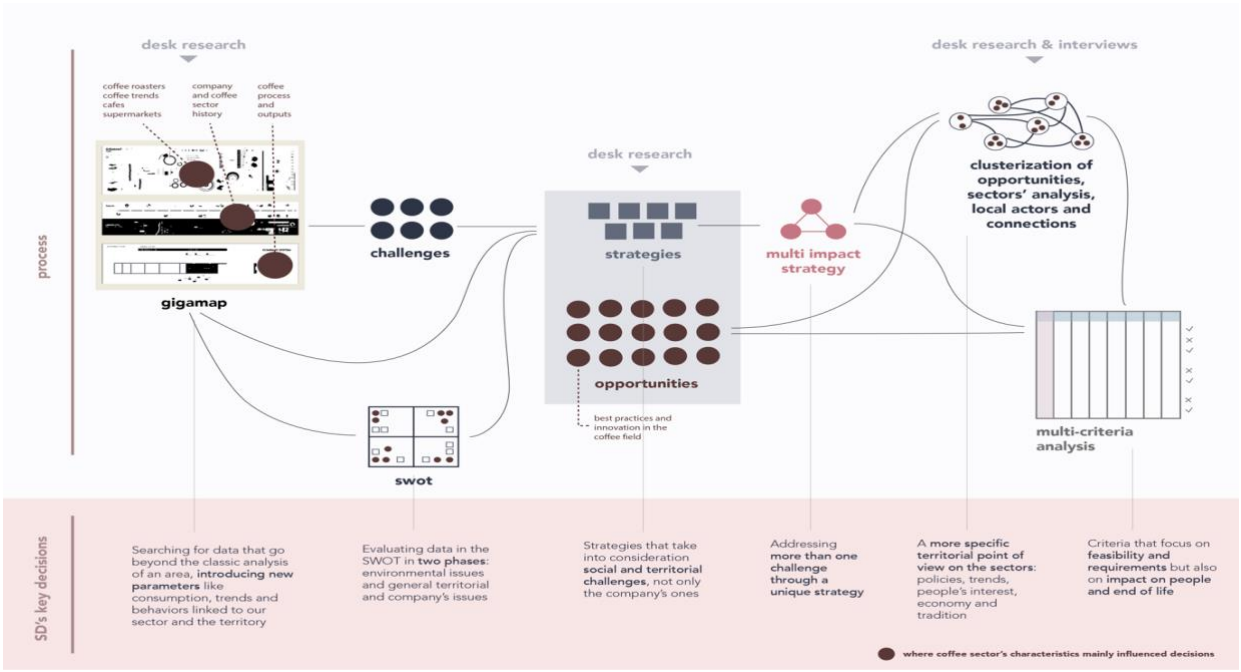

Figure 1. Schematization of the methodology followed for the case study. Source: Authors

Addressing the tensions

As exposed previously, the tension between sustainable visions may vary according to the lens from which it is seen, and the case study of Cofix is not an exception. We were initially introduced by the company to some possible paths that were being explored towards innovation in their sustainability programs. It's here where the first tension appears, although it might be seamless, the fact of giving a possible path might be easily taken as a route into a dead end. We addressed this first tension by putting aside their suggestions and making an analysis that gave an entire panorama of the company's and the territorial conditions. It is important to clarify that it is not a fact that the company was doing things wrong or didn't know what to propose, however it is crucial for an SD analysis to have a clear view of all the present assets in order to prioritize the different criticalities present within the context.

For this instance the company proposal pushed their innovation route into a purely technological solution: Take one specific output and use its chemical components as an input in 3 different industries. However thanks to our first phase of analysis we noticed that some sectors were left behind nevertheless these were showing a big presence inside the territory and a will and need for change, potentially impacting in a big scale the population and realities of the context. We noticed that by addressing different paths from those proposed we were able to still offer a similar impact to the one the company initially was looking for and additionally give an added value to other critical issues inside the contextual reality.

It now appears one of the biggest tensions between the visions of sustainability of the company and of the SD. The economical feasibility; nevertheless the SD shows a clear strategic path for the addressment of these criticalities, the system is mainly based in assumptions, assumptions that can't be easily sustented by economical means, not because there is no possible economical return but because every actor inside a system wants to receive a value from it. It is a strategic plan not only for Cofix but for the entire network of actors, and Cofix must be willing to mediate in order to have a return, be part of an autopoietic flux. In this case it was really important for us the creation of a system where every actor sees a beneficial symbiotic relation, for this purpose we returned once more to the criticalities inside the territory and the potential opportunities and found different issues that could be resolved by the treatment of this specific waste, creating what we could call a chain of favors, which in each step were adding value to the actors of the network and to strong realities of the territory.

We realized the system could add value to the coffee waste by creating a network of local actors that operate in various sectors, whoever two of these sectors came out as the most suitable by what they had to offer for the system and their impact in the territory, those were the automotive and the agrifood sector. The system envisions a chain of actions which benefits each actor in a unique way. This collaboration allows the transformation of Cofix waste into: coffee based bio-polymers used for automotive production and non-chemical fertilizers destined to local crops of barley, one of the most important crops in the territory and also input for new products of Cofix.

This collaboration not only brings a monetarial retribution for Cofix, it also helps them to position themselves as a "sustainable" and "innovative" company, as they are experimenting new solutions in the field of circular economy. Moreover, the system's actions work as a trigger for new habits, both in the company and the territory. So the valorization of the waste system is capable of creating new commercial values in other production chains that generate new networks that benefit people in the territory.

The outcomes of the analysis

Now more than ever, contemporary society is experiencing an increased complexity of challenges caused by social, economic and environmental transformations. Designers are dealing with this complexity and are learning to reframe questions in order to think more expansively and face tensions through a holistic view. Within such scenarios are necessary new approaches like SD, which is capable of providing designers with specific tools and structured methods for intervening in contemporary issues and designing new strategies for a sustainable future. Among the issues that are affecting our society, sustainability is gaining a growing interest from governments, communities, industries and many more. However, as discussed below, very often the vision of sustainability proposed by companies does not take into account the social, environmental and economic dimensions and the global systemic point of view. The case study that has been analysed in this paper shows how a holistic and systemic approach applied to a company operating in such a complex sector such as the coffee industry can actually bring benefits in terms of Corporate Social Responsibility (CSR), impact on people, and positive effects on the environment. The systemic designer, as a multifaceted figure, can act as a mediator between knowledge

and needs, capable of displaying hidden relationships, connecting local assets, actors, people and proposing strategies that aim to find a balance between economic-oriented visions and sustainable-oriented perspectives. The systemic designer has a key role in facilitating the relationship between various actors and disciplines, building a common language to solve problems and criticalities at different scales. The creation of a shared and accessible system of communication could be fundamental to narrow the gap between different sustainability visions in a SD project, therefore future research could be oriented towards this common language, helping to address the tensions analysed throughout this paper.

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