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# Sustainability culture and fashion enterprises: From creating questions to co-creating participation

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## Abstract

The potential role of co-design in the fashion industry and system toward a more sustainable future and as a critical action for social change can be addressed through the role design assumes in an organisation. This article describes a strategy to develop a sustainable consumption culture through participatory design activities. It does so by reconstructing the collaboration between a company and a local third-sector entity promoting co-design for social innovation. The methods used to drive this collaboration included ideation techniques and intensive co-design workshops aimed at developing a recognisable sustainable brand and understanding sustainability-related topics for the company's customers. Strategies, design probes and replicable design tools emerging from the workshop were applied as innovative actions. This collaboration provided several experiences that, on the one hand, allowed the identification of new company strategies for supporting sustainability in the fashion industry and, on the other hand, created the condition to systematically adopt co-design instruments for providing social change through company actions.

**Keywords:** Co-design, Circular economy, Co-design for sustainability, Fashion co-design, Service-system co-design, Co-design ladder, User research, Community design, Organisational design, Design for innovation

## Introduction

In this article, the case study of an experimental collaboration between a third-sector entity and a company is used to illustrate (i) how co-design for social change can contribute to redefining the fashion industry system towards more sustainable horizons and (ii) the processes that can be applied to promote cultural sustainability within contemporary entrepreneurship in the fashion field. These two aspects are the core of the research question addressed in the presented study. The article opens with a literature review to introduce the theoretical focus through which the case study has been observed. The context of the collaboration between the two main actors is then examined. This central part of the paper highlights how co-design activities and research can be applied to an industry rethinking itself. It also describes the adopted toolkit and how the main findings emerged. The paper closes with recommendations and future steps to undertake for design research to stimulate the development of sustainable cultures through design, particularly in the fashion industry.

Sustainability and fashion and their intersections with co-design and participation are crucial themes discussed at the beginning of the next paragraphs. Then, the research context of the case study is introduced. This is also decisive for understanding the background for where the two entities collaborated to explore how to embed co-design in fashion systems for sustainability purposes.

### *Co-design, fashion culture and sustainability*

The theoretical positioning adopted in this paper revolves around the debate concerning sustainability, participation, co-design and fashion. With regards to the entanglements between the first two, participatory sustainability has often been analysed in the literature concerning urban governance and policymaking (Certoma et al., 2015) as a filter through which to assess the quality of decision-making exercises (Dawodu et al., 2021) and as an approach for triggering effective actions for environmental protection (Fritsch & Newig, 2012; Grifoni et al., 2014). Crucial, in this context, is the notion of ‘community’, not only as the unit to assess the adoption of evidence-based practices for social change (Hacker et al., 2012; Marschalek, 2008), but also as an increasingly complex ecology entangled in different types of social and technological transformations (Smith & Iversen, 2018). Participation, sustainability and design are also increasingly analysed in the literature within sustainability governance strategies (Esguerra & van der Hel, 2021) or, to put it differently, as methods of inquiry capable of stimulating new conversations towards innovative policies (Gaziulusoy & Ryan, 2017). Adding the broad concept of ‘fashion’ within the sustainability-oriented design research literature opens the discussion to concepts of sustainable fashion designs and innovations (Claxton & Kent, 2020; Hur, 2015; Hur & Beverley, 2023). Terms such as ‘sustainable fashion design’ (Hur, 2015; cf. Claxton & Kent, 2020) can also be difficult to define because they embed a unique concept with complex components within a broad discussion.

By and large, even though the fields of application of these concepts seem to stretch from fashion activism (Hirscher & Niinimäki, 2013) to cloth-making practices (Townsend & Sadkowska, 2020), sustainability, design and fashion also appear to be often investigated within the education field (Fletcher & Williams, 2013; Lam et al., 2022). Fully aware of the expanding field of application of these concepts, in this paper, we attempt to contribute to the debate by providing first-hand evidence of how co-design methods can be applied to contribute to fashion industry companies’ attempts to gear towards more sustainable modes of operation. We refer to co-design as a resource for participatory design research (e.g., Busciantella-Ricci & Scataglini, 2024; Wilde, 2020), as an essential process for designing social innovations and sustainability (Manzini, 2015) and as a facilitator to balance powers among the different actors and knowledge (cf. Freire et al., 2011). In the field of sustainable fashion, co-design can facilitate the relationship between service designers and local textile artisans (as in a UK study), where service co-design tools and outcomes help to visualise and share possibilities for future sustainable directions (Mazzarella et al., 2017). At the same time, processes driven by ‘design activism’ and co-design are assuming a crucial role in creating counter-narratives in fashion towards sustainable solutions (Mazzarella et al., 2019) and exploring more open and democratic approaches to fashion manufacturing, such as ‘social manufacturing’ (Hirscher et al., 2018). Also, according to a socio-ecological perspective (White & van Koten, 2016), co-creation and co-design can help find a better sustainable future by disrupting current fashion consumption patterns and addressing environmental and social sustainability concerns. It means understanding how to provoke sustainable fashion innovation through co-design by also adopting new instruments such as the Sustainable Fashion Bridges (Hur & Beverley, 2023) toolkit to support ideation processes (Hur et al., 2013).

Co-design also helps exploit technical and technological innovations in the fashion industry. For instance, it can help understand how to use intelligent textiles to create more harmonious solutions and avoid the technology’s mere adjunct strategy (cf. Fairburn et al., 2016). In the realm of fashion for social change, participatory design helps to use techniques such as patternmaking and garment-making in a framework of fashion design for social innovation (Monteiro, 2023). At the same time, co-design is also seen as an ethical

key in design pedagogy for fashion design education, where future designers can establish relationships with fashion artisans (cf. Ghai, 2022).

Co-design's potential value as a strategy for sustainable futures and social changes can also be addressed by exploring its role in fashion industry organisations. To reflect on these aspects, literature on design ladders may help frame a background for future sustainable design processes in the fashion industry. In the early 2000s, the Danish Design Centre research team introduced a design ladder with four steps, from 'No use of design' (Step 1) to 'Design as a strategy' (Step 4) (Ramlau, 2004), to describe how design is present in organisations. While it is still challenging to find a specific connotation of the design ladder in fashion industry-related changes towards sustainability and co-design, this ladder has been interpreted in several ways, such as understanding the relationship between design and the public sector (Design Council, 2013); design capabilities in the nonprofit context with a specific design ladder (Nusem et al., 2017); the pedagogy of design thinking with an educational design ladder (Wrigley & Straker, 2017); and design culture in the industrial context (Palmares et al., 2022). These references describe a potential background for understanding how co-design and sustainability can impact the fashion industry with a distinct perspective and culture.

### *Research context*

The adoption of co-design-inspired methodologies that we describe in this article in the business activities of a brand that is active in the fashion industry (and that subscribes to a particular ethic in the textile domain) is shaped by the social, economic and cultural trajectories inscribed in the history of the city – Prato – and its recent reconfigurations. The city, the second largest in the Italian region of Tuscany and one of the most important world textile clusters, is where the presented company and association are based. The case study presented in this article is titled Co-Rifò. It emerged from the joint work between Rifò (i.e. a small to medium-sized company that aims to create a line of quality clothing and accessories produced entirely in Prato and the surrounding areas with regenerated and regenerable fibres; see Rifò, n.d.) and Codesign Toscana (a collective of professionals animated by multidisciplinary research and co-design inspired methodology for social innovation and the creation of eco-sustainable communities).

The case study has been developed by the authors of this paper, who are both members and co-founders of the aforementioned association. All are engaged in forms of research through co-design activities by working on the edge between the voluntary association and academia. Indeed, despite the authors' very different backgrounds, they all hold design education and research positions in academia (i.e. an assistant professor, a professor with a temporary appointment, a post-doc researcher and a research fellow). The work of Codesign Toscana has been applied to that of Rifò (hereafter 'the company') over two years (Figure 1), adapting the contextual needs of growing the sustainable fashion brand with tools and methodology inspired by co-design.

Two phases of the collaboration between the two entities are considered: in the first stage, co-design has mainly been conceived as a lever for community building and as a support for Rifò's start-up phase. In this phase, co-design functionality was used to co-create local promotional events, and design tools were employed as boundary objects to raise awareness within different user categories and concerning the company's core leverage (i.e. a circular process, ecological thinking, sustainable transition and advocacy in the fashion industry). In the second stage, the co-design dimension acquired space as a transversal tool among the organisation's departments: processes, tools and results were used for user research, testing

and concept validation of products, communication and sales strategies and as a relationship management tool with the community of users. Regarding the first stage, we refer to two practices conceived in 2017 and 2018, respectively: Rifò NEXT and Circular Fashion Map. Rifò NEXT was the title of an envisioning session organised by Rifò and Codesign Toscana in December 2017 at the iconic Textile Museum of Prato. This was conceived as a collective discussion with enthused local stakeholders about sustainability. Relational design was used on this occasion as a methodology for collective envisioning and ideation through the ‘How Might We...’ tool (Nicolai & Thompson, 2023). The Circular Fashion Map, developed and optimised from 2018 to 2020 by Codesign Toscana, is the name of the co-design tool used by Rifò team members to spread the concept of sustainable fashion among schools, practitioners and within the Fashion Revolution context – a global movement formed by activists who believe in a different fashion industry that respects human rights and the environment at all stages of the supply chain. Here, the collaboration between designers and textile and communication experts has been essential in shaping some assumptions and delivering the principles underlying the social entrepreneurship project.

The second stage of design-driven application to Rifò's brand development toward a recognised sustainable fashion brand, using design-based and collaborative tools, led to the launch of the Co-Rifò project. Co-Rifò can be understood as a research process that integrated gamified elements, including playful and interactive parts within the user research processes, favouring peer learning and the emergence of strategic insights. Thus, the collaborative design approach and a playful dimension sought to balance economic sustainability in favour of the social sustainability of the people participating. Through Co-Rifò gamified research workshops (GRWs), Codesign Toscana put in place a double objective: on the one hand, the organisation of relational moments that represent the basis on which social design can deliver value; on the other hand, involvement of and listening to users through hybrid qualitative-quantitative methodologies provide strategic insights for different company departments.

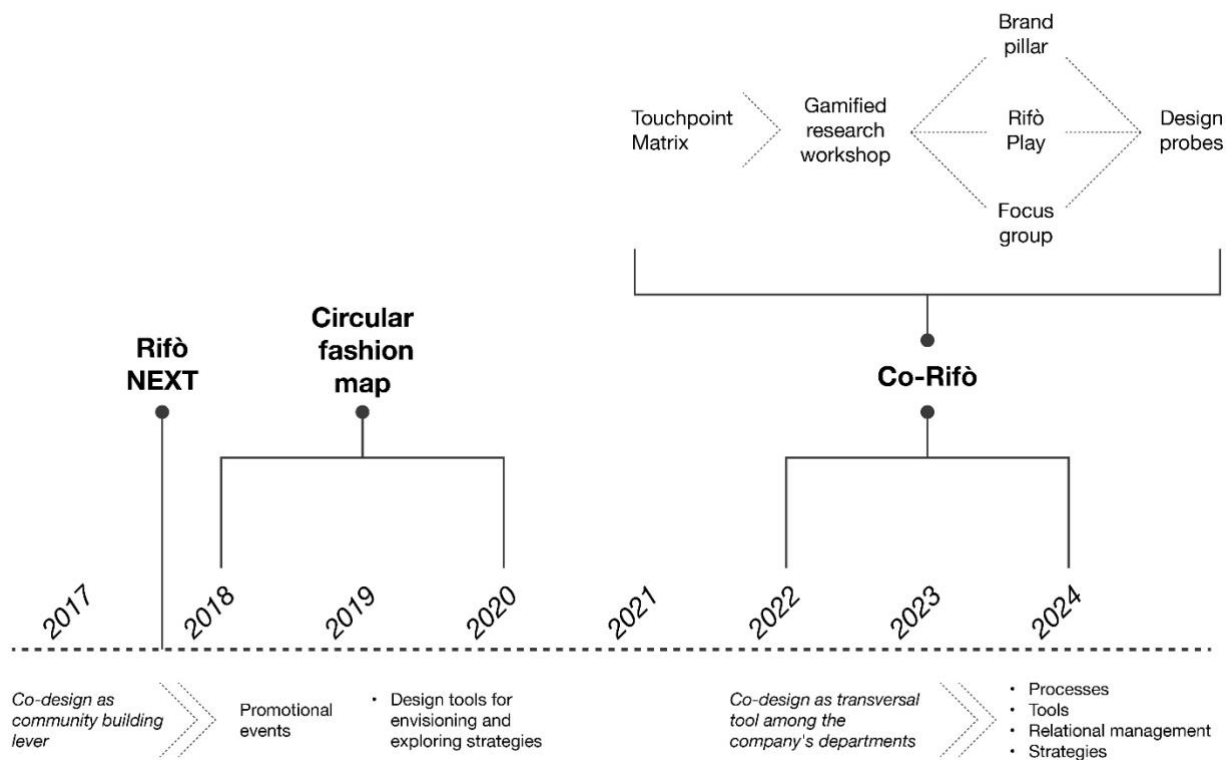


Figure 1: Sequence of the main activities and related tools of the presented case study.

## Methodology

### *Rifò NEXT and Circular Fashion Map*

In the first phase of collaboration between Codesign Toscana and Rifò, ideation techniques such as the 'How Might We ...' tool (Nicolai & Thompson, 2023) were mostly used. The following are some of the design questions and challenges (defined a priori), themes and issues that Rifò wanted to address:

- How might we help the company overcome the problem of overproduction and overconsumption by having a social impact in the territory?
- How might we help the company create jobs for the associations' users to be the natural bearers of social inclusion?
- How might we help the company solve the problem of overproduction of clothes by adopting circular economy strategies?
- How might we support the company in creating social value for Prato and its citizens?
- How might we contribute to the company project in an active way?
- How might we decrease the purchase of clothes that would otherwise remain unused?
- How might we include needy, marginalised or differently-abled people in the company project?
- How might we adopt a homemade process to recycle clothes we no longer wear?

Referring to the Circular Fashion Map, design tool portions from distinctive design thinking phases (Dam & Siang, 2021) were adopted. Functional pieces were later embedded in a unique canvas to depict an overall process for the co-design of an engage-collect-recycle sustainable chain. Portions of personas, eco-systemic maps, scenario design and business model canvases from the Codesign Toscana open-source learning toolkit (Codesign Toscana, n.d.) were used.

### *Co-Rifò*

In the second stage, design-driven application to Rifò's brand went towards developing a recognised sustainable brand and understanding sustainability-related topics for Rifò's customers. The work structured in 2022-2024 focused on intertwining engagement strategies with user research on sustainable consumption and beliefs, fashion industry communication perceptions and fashion-consuming habits. Three main actions of Co-Rifò can be synthesised as pillars of this design-based application for sustainable fashion brand development: contextual analysis through internal diagnostics, engagement with the users through a GRW and long-lasting research through design probes. An initial phase of semi-structured interviews with employees was conducted to understand the main topics shared in the exploration. This qualitative method of listening and dialogue (Parker & Tritter, 2006) created common ground for collaboratively developing participatory activities with stakeholders and consumers. Thanks to the Touchpoint Matrix (Figure 2), a tool specifically designed for debriefing the interviews and intertwining these results with quantitative post-purchase questionnaires, sustainability-related themes emerged that were used for the following phase. Second, going deep into the GRW, we could depict a process design focused on user research and co-design techniques adapted to the thematic clusters identified in the contextual analysis phase. On this occasion, a set of personalised co-design tools were designed to match the results of the preliminary qualitative research.

[illegible]

Observations and hypotheses to be validated

Figure 2: Touchpoint matrix and stakeholders map canvas.

*First tool development: Brand-pillar tool*

This aimed to deconstruct the main elements of the Rifò brand. It connected them to sustainability trends and allowed its users to evaluate their relevance concerning their brand attitude. Based on the contextual analysis phase, the tool was co-created with the Rifò team, and the pillars of the brand were recognised as regenerated fibre, collection service, artisanal and local production, young project, garment design, recovery textile tradition, social impact, material quality and durability of the garments. The tool (Figure 3) is visualised as a spider graph (with scores from 1 to 3, where 1 indicates weak points and 3 strong points) designed to be compiled collaboratively with thread, tacks and cardboard.

- **BRAND-PILLAR** State how each of the following characteristics of the Rifò brand is relevant to you, then briefly explain why yes/no.

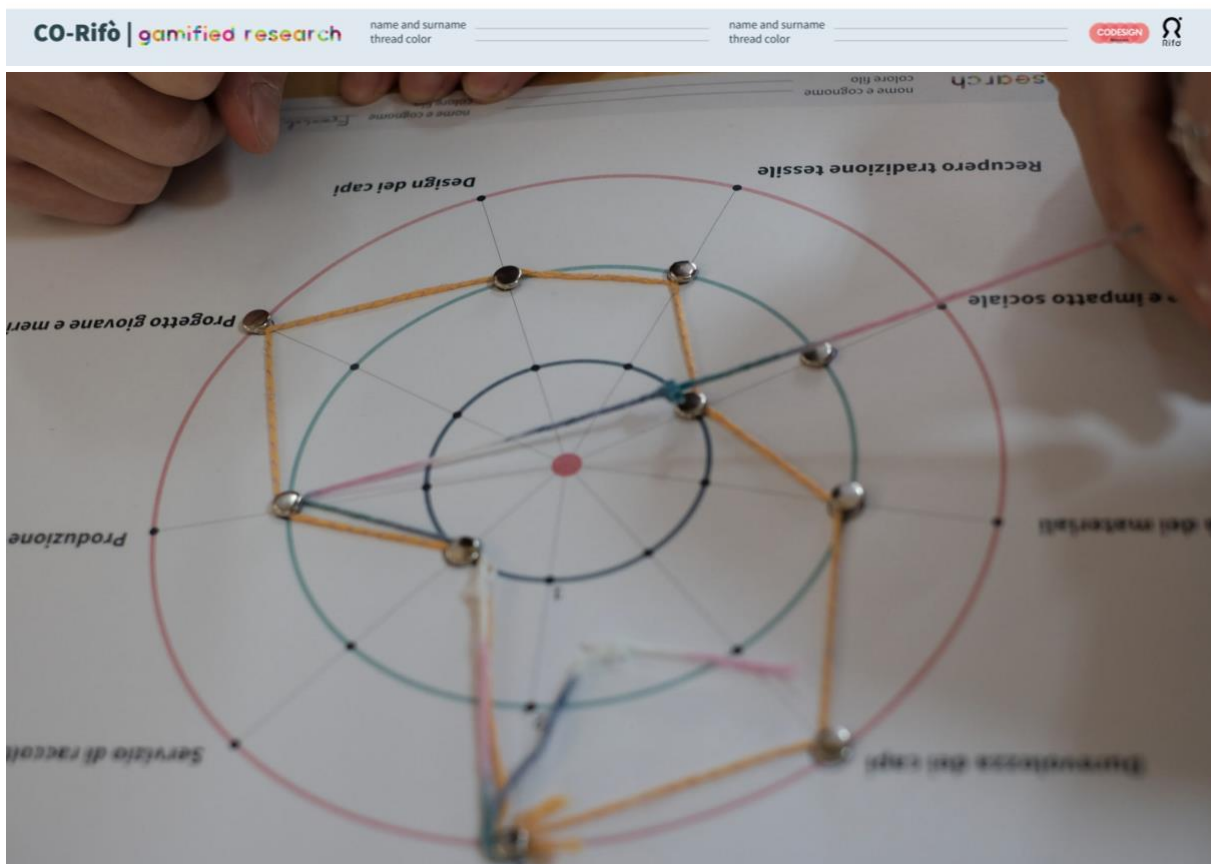
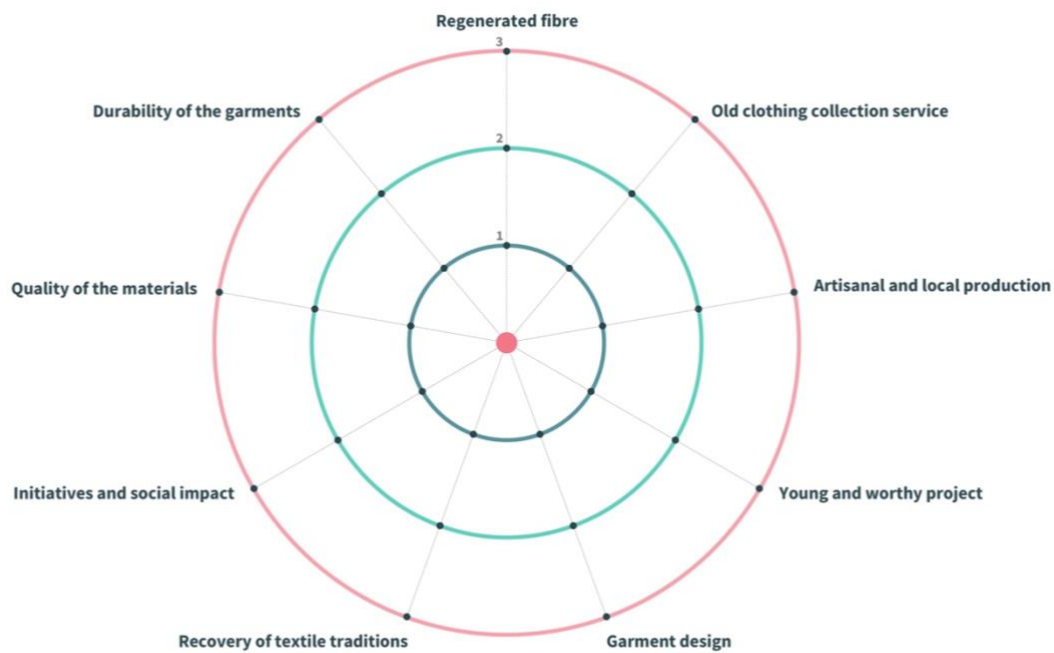


Figure 3: Example scheme of brand-pillar canvas and activity interaction.

#### Second tool development: Rifò-Play tool and CO-Ilage

The Rifò-Play tool aimed to simulate an individualised purchasing experience calculated on the average expenditure declared when completing the questionnaire. The participants were called to make expenses



catalogued in two macro-areas: the first, based on an actual calculation of the resources available; the second on a choice dictated by one's desire and regardless of economic availability.



*Image 1: Example scheme of Rifò-Plafigurey canvas and activity interaction.*



*Image 2: Focus group in action.*

In parallel, the participants were stimulated to provide a collage - namely CO-llage - by taking inspiration from fashion magazines according to (i) a chosen or preferred kind of clothing, (ii) perception of the Rifò company, and (iii) their definition of the term 'sustainability'.

### *Third tool development: Focus group*

As a final exercise of the GRW, through a focus group, exploratory open questions and debate focused on some specific topics related to the macro-concept of sustainability:

- Topic 1 - Sustainability and eco-anxiety
  - What is your perception of climate change?
  - What specific consequences of climate change worry you most?
  - As a consumer, what types of purchases and consumption choices make you feel like you have a positive impact on the environment and others?
- Topic 2 - Information
  - When does a company prove to be genuinely sustainable in your opinion?
  - What are the main elements that distinguish sustainable clothing brands for you?
  - What information do you look for to assess the sustainability of a brand and/or a product?

### *Fourth tool development: Design probes*

Finally, during the first Co-Rifò phase in 2022, Codesign Toscana and Rifò agreed on the usage of cultural probes (Halpern et al., 2013) as design means that can dilate – i.e., long-lasting research – the listening and co-design process through self-reflection by users and their potential close community. Adopting the shape of an audiobook and a logbook, the assumptions at the basis of these have been to test the legacy (Berni & Del Bono, 2022) of the co-design approach by engaging users through forms of care and reflection on sustainability issues during their daily lives. Using observation, self-reflection and research tools that complement traditional digital strategies, we assumed probing as a potential example of design-driven and community-oriented innovation.



Image 3: Examples of probes covers and their calls to action.

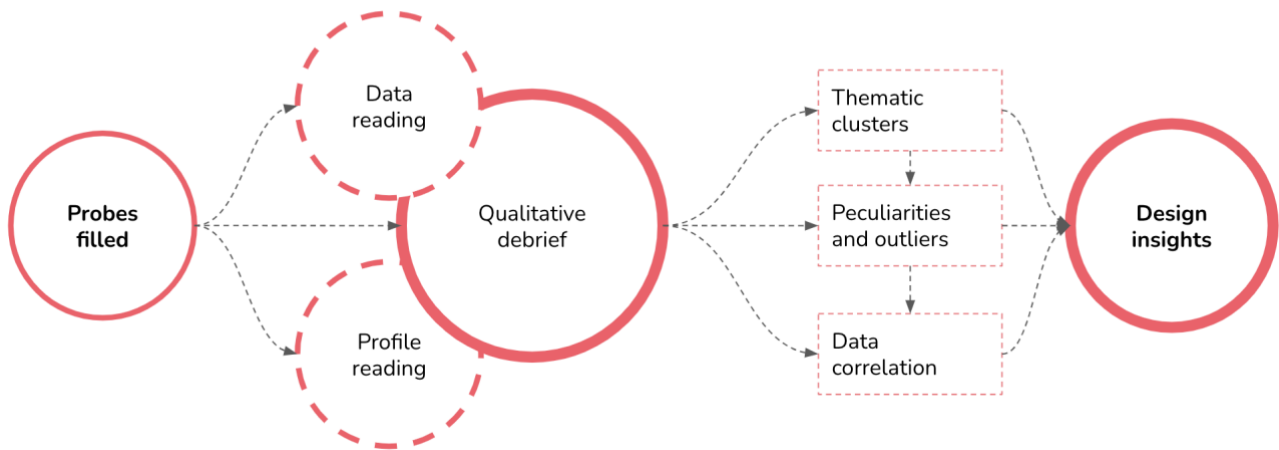


Figure 4: Example scheme of probes analysis operations and extrapolation of results.

## Results

The main results of the presented case study can be framed through the outputs provided during the three main initiatives: (i) the Rifò NEXT session, (ii) the work with the Circular Fashion Map and (iii) the Co-Rifò experience. These moments of the case study provided specific results that can be clustered together according to the following paragraphs.

### *Rifò NEXT and Circular Fashion Map*

First, the session named Rifò NEXT (2017-2018) provided a series of visions that can be clustered together according to the following categories:

- Promotion and offline/online engagement: engaging users through social media and digital volunteering, organising sartorial hackathons and discussing the Rifò project on various occasions.
- Sustainability and clothing recycling: in this set of ideas, creative ways to recycle unused clothing are proposed, such as transforming them into new garments, donating or exchanging them.
- Involvement of associations and local entities: this cluster emphasises needs, values and opportunities to collaborate with local entities, international associations and user associations through tailoring training, sustainable deliveries and exchange of experiences.
- Education and awareness: from this set of ideas emerges the possibility of promoting conscious shopping, educating on fashion taste and organising scheduled pickups for clothing recycling.

These categories have been used to design the canvas of the Circular Fashion Map (2018-2020) (Figure 4). The canvas itself is one of the early results that emerged from the joint work between the two involved entities. The Circular Fashion Map has been employed as a collaborative design tool in different environments, including outside the company to introduce students (e.g. of design or economics) to circular thinking and circular business models. This canvas embeds the main aspects that need to be considered systematically in a unique framework to assume a circular economy perspective. Technically, it is the logical and sequential combination of well-known design tools such as personas, eco-systemic maps, scenario design and business model canvases. However, they are arranged and redesigned in a manner that favours connected and strategical reasoning for assuming a circular fashion perspective. The map emerged from the early activities arranged during the encounter between the fashion company and the voluntary associations, considering the participation of the local communities in public events.

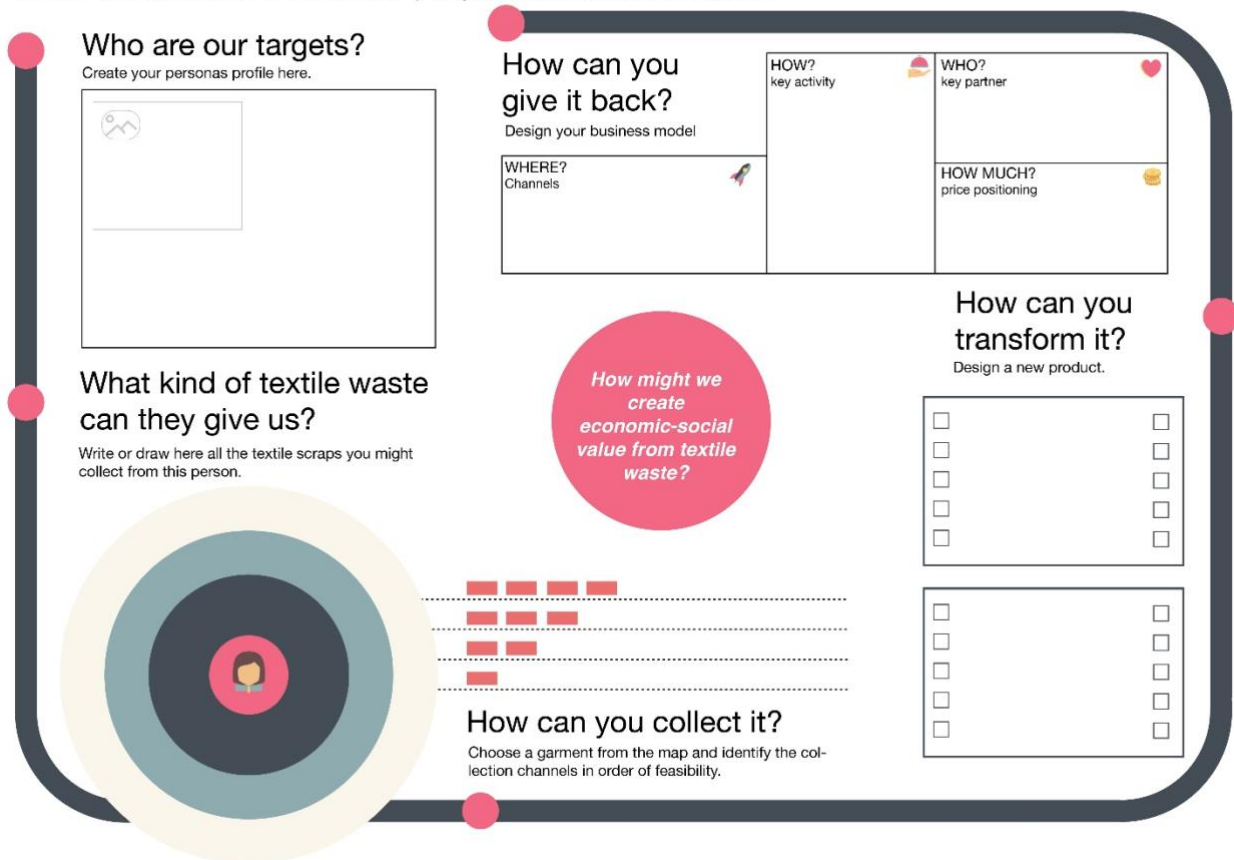
### Exploratory strategies

The development of the Rifò NEXT session and the application of the Circular Fashion Map provided insights that contributed to centring Rifò's 2021-2023 strategy. Specifically, the collaboration between the company and Codesign Toscana led to some strategies emerging that were applied as innovative actions to be explored.

The actions implemented by Rifò can be divided into the following strategic areas:

- Improving multi-channel community management activities with social impact and the ability to drive sustainability principles to the community of users. This strategic line was developed through the following actions:
  - The Co-Rifò/Gamified Research Workshops explore new forms of collaboration between the company and their potential clients through 'gamified research' activities.
  - The Textile Tours are guided tours to discover the companies involved in textile regeneration in Prato.
  - The 'Nei nostri panni' project is a course for textile artisans and spinners involving migrant people in Prato.
- Embedding a series of communication and advocacy contents. This strategy was developed by the 'Rifolution' tagline of the brand that delivers the message of 'the [sustainable] revolution of Rifò'.
- Providing complementary innovative services. This strategy has been developed with the Rifò take-back service, which is a diffused system to gather used clothes.

#### CIRCULAR FASHION DESIGN MAP | Project name:.....



The canvas is a circular design tool with a dark blue border and pink circular markers at the corners. It contains several sections for designing a circular fashion project:

- Who are our targets?**  
Create your personas profile here.  
Includes a placeholder for a profile picture.
- How can you give it back?**  
Design your business model.  
Includes a table with headers: HOW? key activity, WHO? key partner, WHERE? Channels, and HOW MUCH? price positioning.
- What kind of textile waste can they give us?**  
Write or draw here all the textile scraps you might collect from this person.  
Includes a circular diagram with concentric rings and a central figure.
- How might we create economic-social value from textile waste?**  
A central pink circle with text.
- How can you collect it?**  
Choose a garment from the map and identify the collection channels in order of feasibility.  
Includes a list of red rectangular blocks representing collection channels.
- How can you transform it?**  
Design a new product.  
Includes two columns of checkboxes for product transformation.

Figure 5: Circular Fashion Map canvas obtained by assembling parts of different design tools.

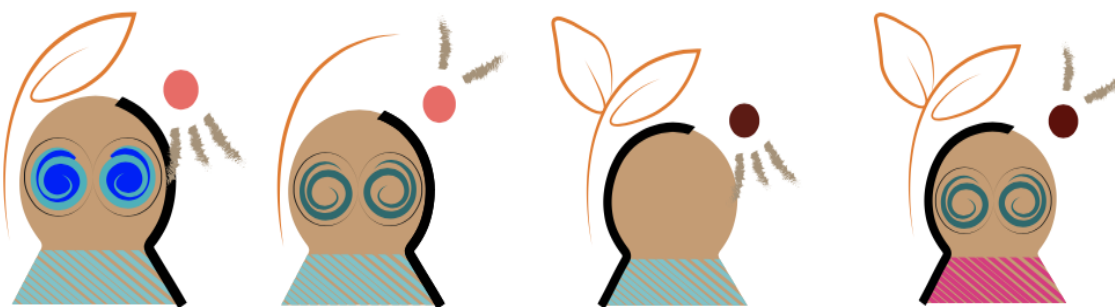
### *Co-Rifò results and practice*

The activities performed in the Co-Rifò phase (2022-2024) provided five sets of results. They emerged both from the internal activities within the company and through the development of the GRW sessions that involved more than 80 participants.

The first set of results is nine categories of themes to be addressed and developed as they are crucial to addressing sustainable fashion processes. As emerged from the internal exploration of the Co-Rifò activities, these categories are considered crucial for the company. They are (i) product and fibre quality; (ii) brand recognition; (iii) prices of products; (iv) daily sustainability choices; (v) sense guilt/indulgence toward (un)sustainable choices; (vi) active participation; (vii) style; (viii) sales channels, engagement and distribution; and (ix) complementary services.

The second set of results is persona profile elements obtained by intertwining quantitative data from six-monthly questionnaires with qualitative results from focus groups. The assemblage of these elements shapes the personas profile (Image 4). The elements that describe each persona profile are as follows:

- Age range (20-30; 31-40; 41-50; 50+);
- Social status (Married; Parents; Single);
- First purchase/Purchase frequency (Rifò; general brand);
- 7 gamified personas cluster (4 women - 3 men):
  - Green Freaks are sustainability-conscious women, primarily self-assessing themselves as consumers of sustainable products and services.
  - Safe Fall/Winter - Safe Spring/Summer are the most represented group among women, with an average age of 36 (min. 23, max. 56). The majority have no children, almost all have bought Rifò in the last year, half buy presale and very few use the used garment collection service.
  - Stylish are the least represented group, with an average age of 37. The majority have bought Rifò in the last year 4+ times. Only one uses the garment collection service, and another uses the presale.
  - For non-primary users, Bit primary users and super basic users, men represent a minority. All of them, although with different degrees of 'basicness', do not stand out in terms of attention and care to their style and sustainable choices. Average age 38, largely childless.



*Image 4: Gamified persona data visualisation examples.*

The third set of results is the design probes, both as a template and a set of contents that emerged in their early application. The design probes ask for self-reflection and daily reporting from users. Through open



questions and mood boards, design probing has been striking for exploring aspects of the user's culture that may:

- influence Rifò's sustainable design choices;
- suggest design insights by reading the user's characteristics and peculiarities;
- probe the cultural, personal, and intimate context of the user; and
- empathise with the design context through the user's vision.

In total, 10 participants were involved in compiling design probes, but only 4 effective compilers delivered the probes (see the example in Image 5).

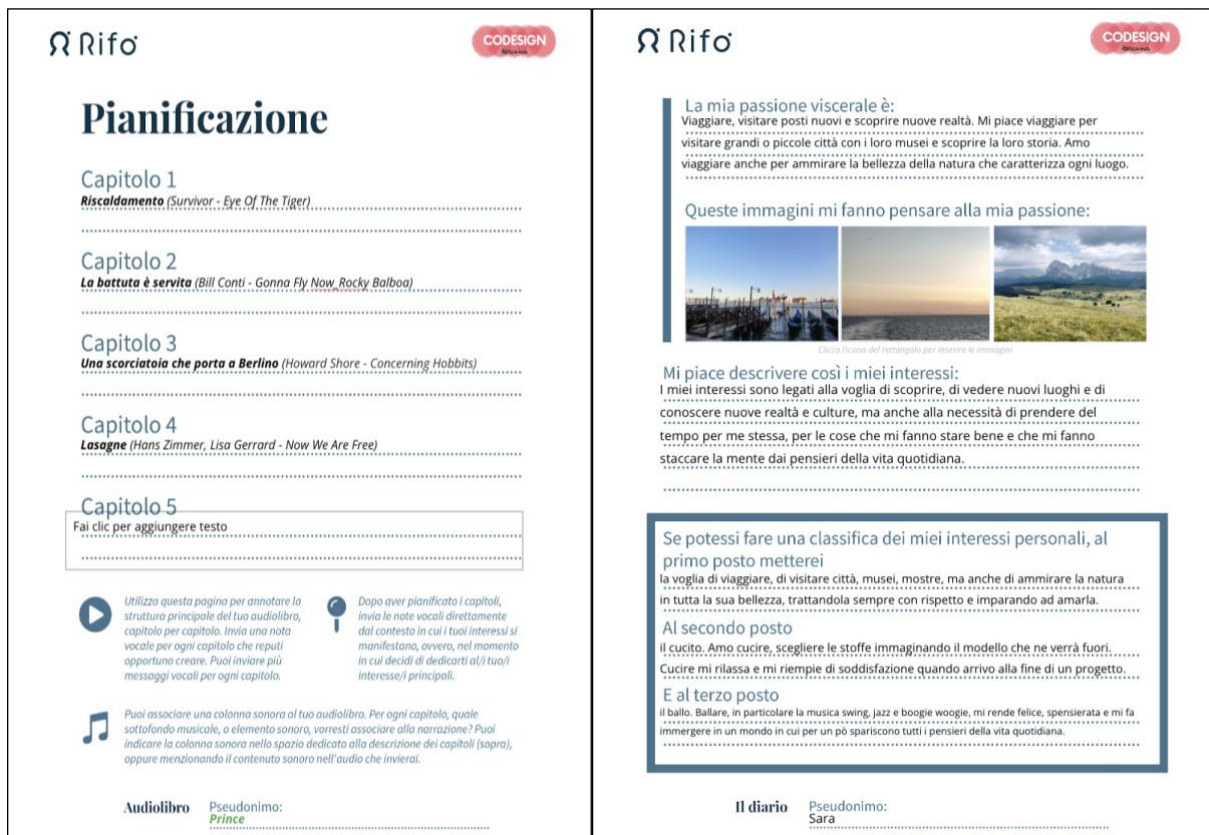


Image 5: Logbook and audiobook probes compiled by the users.

The fourth result is linked to the three replicable design tools used during the GRW of the Co-Rifò processes. As described above, the three tools are Brand-pillar, CO-llage and Rifò-Play (Images 6–9). Below are some explanatory images of their use during the participatory activities.

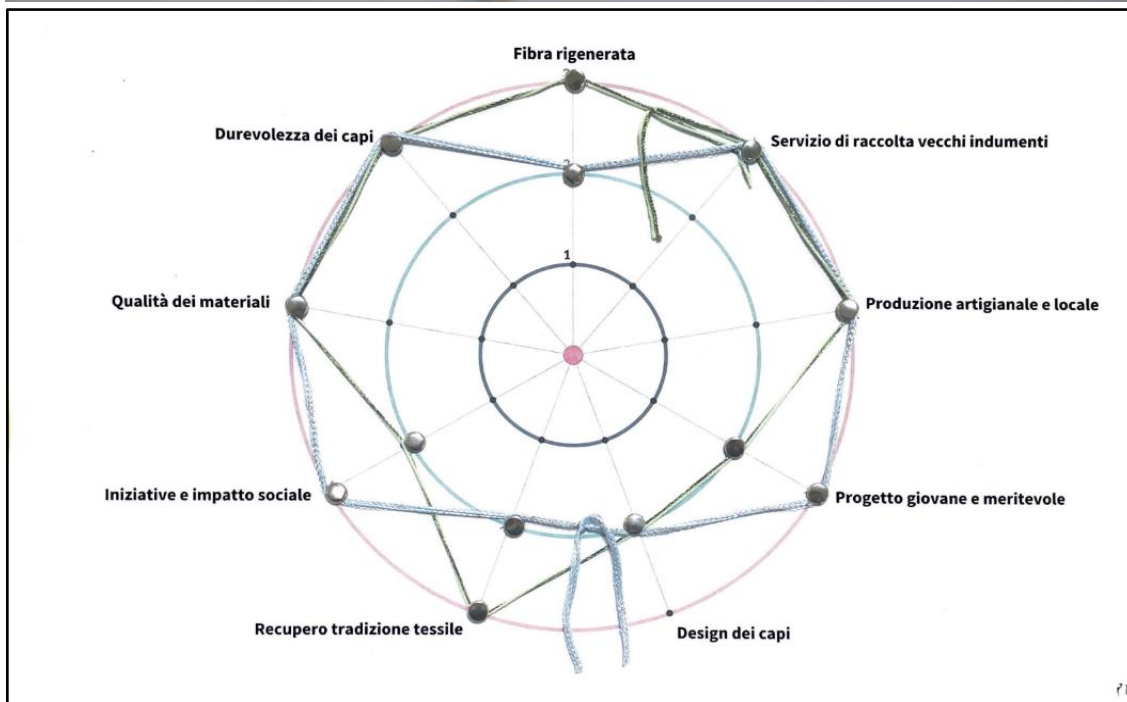
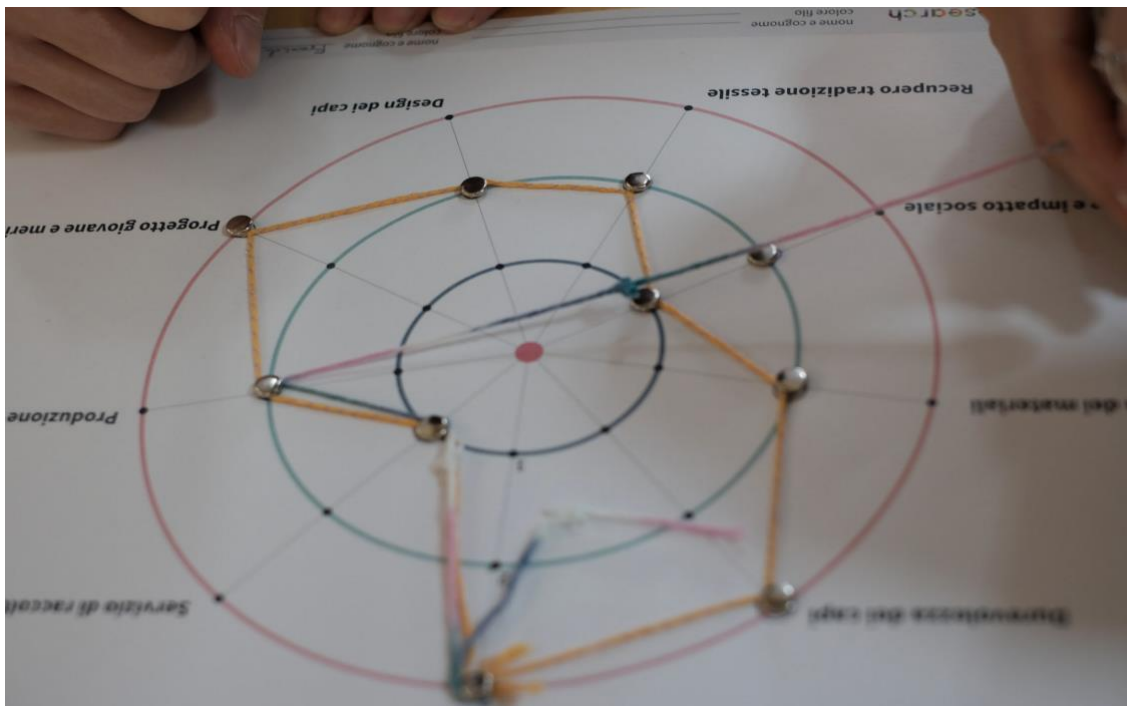


Image 6: Brand-pillar tool compiled by a group of participants.

Sfoggia le riviste di fronte a te. Sulla base di **a)** il capo/i capi che hai scelto nell'esercizio precedente; **b)** la tua percezione di Rifò; **c)** la tua definizione di sostenibilità **crea con dei ritagli a piacere uno slogan in modo di un haiku, un'immagine che racchiuda la tua idea.**



Image 7: CO-llage tool compiled by a group of participants.

**#1**





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CO-Rifò | gamified research

Image 8: Rifò-Play single-page tool compiled by a group of participants.



Nome e Cognome		Budget			
#1	#2	#3	#4	#5 unisex	#6 unisex
<input type="checkbox"/> Spunta se hai deciso di acquistare questo capo	<input type="checkbox"/> Spunta se hai deciso di acquistare questo capo	<input type="checkbox"/> Spunta se hai deciso di acquistare questo capo	<input checked="" type="checkbox"/> Spunta se hai deciso di acquistare questo capo	<input type="checkbox"/> Spunta se hai deciso di acquistare questo capo	<input checked="" type="checkbox"/> Spunta se hai deciso di acquistare questo capo
Perché lo acquisti?	Perché lo acquisti?	Perché lo acquisti?	Perché lo acquisti?	Perché lo acquisti?	Perché lo acquisti?
			<i>Lo acquisti perché lo vuoi subito, il capo che ti piace che tiene caldo, versatile tutti i giorni</i>	<i>Se vuoi altro budget lo acquisti perché è un capo che vuoi, usa la cap. stoffa</i>	<i>Capo che utilizzerai molto soprattutto nei periodi primaverili e autunnali. Sembra un capo indistruttibile e che usa per anni di utilizzo</i>
Perché non lo acquisti?	Perché non lo acquisti?	Perché non lo acquisti?	Perché non lo acquisti?	Perché non lo acquisti?	Perché non lo acquisti?
<i>È un capo che non vuoi, preferisci per via del colore. Anche se la fibra e il colore rispettano la sostenibilità</i>		<i>Sostanzialmente è un modello che non uso e rimarrebbe nell'armadio</i>			
<p>Metti in ordine di rilevanza per te le informazioni che cerchi su un capo. Assegna un numero da 1 (il più rilevante) a 7 (il meno importante per te).</p> <p>1 Composizione   2 Origine   4 Vestibilità   7 Peso   7 Punto maglia   7 Filato (ply)   3 Prezzo   Altro: cosa? _____</p> <p>Pensa al capo o ai capi che hai acquistato, in che occasione lo/li indosserai? <i>Sempre, sono capi versatili</i></p>					

Image 9: Rifò-Play debriefs canvas tool compiled by a group of participants.

These tools report valuable insight from the perspectives of the involved participants. As tangible results, they worked both as valuable canvases in a collaborative process and as facilitators to address complex topics around sustainability, fashion and strategic thinking. More than 40 completed canvases for each template were collected among the initiatives presented in this study.

The fifth set of results are two strategic reports produced for Co-Rifò at the end of the participatory processes. They represent concrete documentation for sharing the research process, tools and results and co-design pathways. It is important to note that dynamics produced with these activities go beyond strategic business insights but include training on collaborative design approach for the Rifò staff employed and disseminating a culture of care and sustainability for the fashion brand's involved community. Similarly, although such reports represent the traditional and most widespread form of 'legacy' for participatory and design-based processes, these represent only the beginning, the visible and immediately understandable part of the value of co-design, which needs further research, monitoring and continuous triggers in financial and design terms to bring potential forms of innovation to life.

In practical terms, the reports are the tangible output containing tools, processes, instructions and analysis of the applied cases to build the legacy of the process presented in this study. They serve to exploit the results obtained with the joined experience among the two entities. The reports make tangible the possibility for the company to use the results strategically. For instance, the Co-Rifò results have been described by the company as a decision-making support for strategic choices. The reports help to use this legacy.

## Discussion

According to the experience presented in this paper, it is possible to provide answers to the research questions. Consequently, it is possible to frame three aspects that highlight both (i) the contribution of design for social change to the redefining of the fashion system and (ii) the related processes and instruments that can favour the growth of a cultural sustainability trend in companies in the fashion field.

First, combining the encounter between a third-sector entity and a fashion company with social advocacy is a vital and strategic action that can contribute to applying design for social change in a challenging sector. These encounters can facilitate counter-narratives to the mainstream fashion processes and provide valuable actions for developing forms of fashion design for social innovation (Mazzarella et al., 2017, 2019; Monteiro, 2023). As we emphasise in the present study, these aspects can be formalised by applying the research through co-design approach (Busciantella-Ricci & Scataglini, 2024). However, we argue that this process can allow us to identify a new perspective that is readable by the models of the design ladders (Nusem et al., 2017). Consequently, we can propose a co-design ladder for sustainability by generalising the process we followed in the case.

Second, we note that co-design provokes reflections on how addressing socially relevant issues can benefit both the company and society. This is evident in the legacy that emerged in the encounter between an entity that adopted design for social change and the company presented in the case.

Third, tools, processes and strategies adopted in the case are replicable instruments that may impact the company's development strategies in the fashion industry. The application of these instruments provided valuable insights into understanding how to frame a better sustainable future for the company and the related community of users. The following paragraphs provide an overview of these three aspects.

### *Co-design ladder for sustainable fashion entrepreneurship*

The different interpretations of the design ladder (Design Council, 2013; Nusem et al., 2017; Palmares et al., 2022; Ramlau, 2004; Wrigley & Straker, 2017) inspired an interpretation of the Co-Rifò experience. Indeed, co-design assumed a different role as a social changer in the company's context. Essentially, co-design assumed the same role that it generally assumes in design for social innovation contexts or in contexts where co-design is a strategy to provoke social encounters (e.g. Manzini, 2015). However, co-design processes, tools, strategies and mechanisms assumed a different role concerning sustainability values during the progress of the Co-Rifò experience. Consequently, it is possible to frame the ladder as in Figure 5, where the steps are as follows:

- Step 1: no application of co-design and a very low possibility of reaching sustainable advancements;
- Step 2: a condition where co-design is present and adapted for specific needs or for a minimal one-step action to reach a very specific and limited sustainable objective;
- Step 3: a condition where sustainability is perceived with an ethical purpose; co-design is assumed as a collaborative-based practice to develop capabilities on this topic within the company;
- Step 4: a situation where sustainability is the policy of the company, and co-design is assumed as an instrument to identify strategies to follow the policy purposes;

- Step 5: a context where sustainability is adopted as the main goal and co-design is used for provoking transformations of the company's structure;
- Step 6: an ideal condition where co-design is an embedded practice of the company to be used for developing and taking care of the company's culture; in this step, sustainability is the company's culture.

Co-design is the instrument, and sustainability is the engine value to climb the steps and make sustainability tangible within the company.

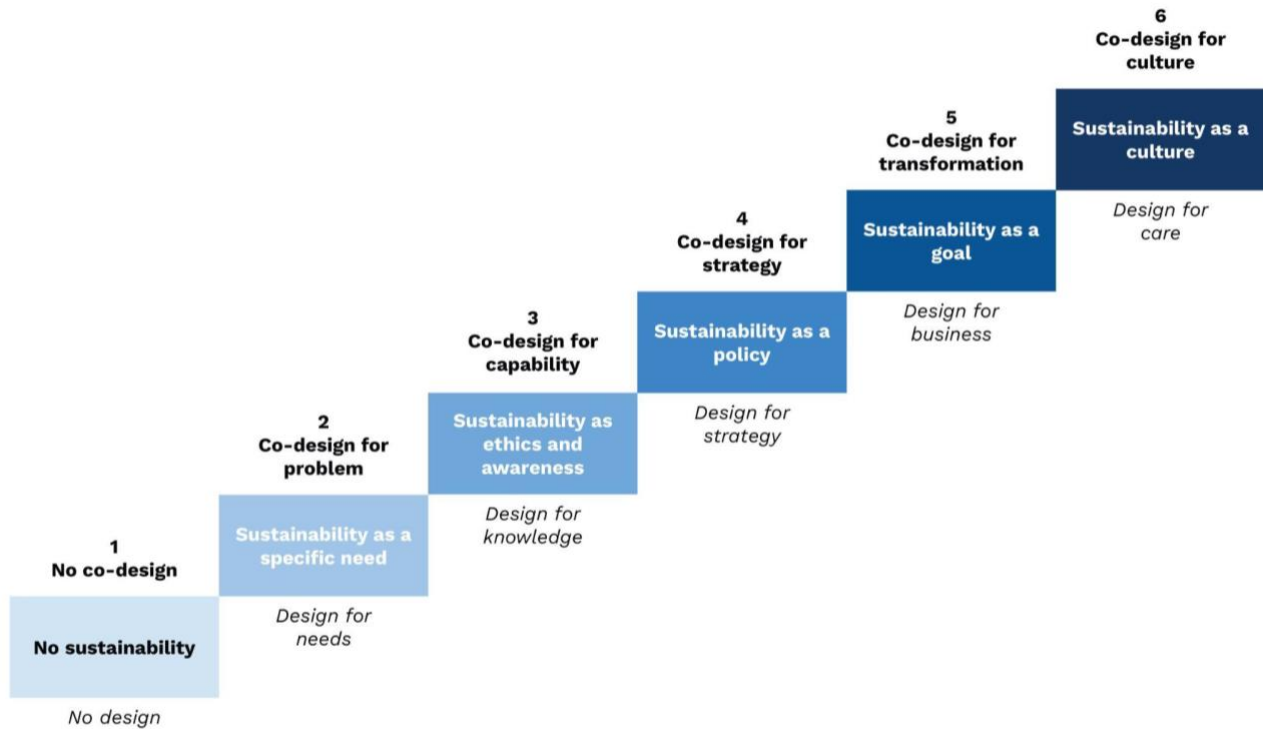


Figure 6: Co-design ladder for sustainability strategies in fashion realms.

#### Legacy and sustainability through co-design

According to the Co-Rifò experience, adopting co-design in a fashion company helps assume a sustainable attitude toward socially relevant aspects and, at the same time, frame possible more sustainable futures (e.g. see Mazzarella et al., 2017, 2019) for the company. Despite several co-design tools, processes and strategies being positively adopted in the Co-Rifò process, the legacy of the process is an emerging problem to consider. Specifically, voluntary associations traditionally act to promote social change. This vocation has been transferred in the fashion industry by focusing on (i) the value of co-design as a design for social change essential practice, (ii) the advocacy of a design activism approach in fashion (Hirscher & Niinimäki, 2013; Hirscher et al., 2018), (iii) reframing the scopes for co-designing (from at least steps 2 to 4 of the ladder). On these points, the legacy of the association for Rifò is represented by (i) the direct experience of the involved participants, (ii) the results and insights that emerged (e.g. see the reports among the results), with their relevant reusable and scalable outputs and (iii) the processes and tools as embedded in the company culture. All these factors, if carefully collected, applied and embedded in the company, according to the presented experience, can create a culture of care. It means a culture where both the problems and challenges emphasised by the company and the voluntary association are reciprocally addressed - via the ladder shown above (Figure 5). Step 6 of the co-design ladder for sustainability is reached if this happens.

### *Co-design instruments and strategies*

The steps in the ladder (Figure 5) describe how co-design may impact the fashion company organisation by considering sustainability values. Each step describes a way to adopt co-design tools and strategies. These co-design resources are adaptable as an organisation climbs the steps. The act of climbing also defines how the organisation intends to position the company concerning sustainability. Conceptually, the ladder can be used as a toolbox with co-design tools for developing strategies for sustainable fashion design and innovation (cf. Claxton & Kent, 2020; Hur & Beverley, 2023). Adaptable co-design instruments (including tools, strategies, processes and professionals) give a sense of how the organisation may or may not climb the ladder and thus reach different sustainability objectives. According to this view, sustainability is interpreted with the three canonical dimensions (i.e. economic, social and environmental), and co-design is a flexible research instrument (cf. Busciantella-Ricci & Scataglini, 2024; Wilde, 2020) to help the company understand and making these dimensions and instruments their own – step by step.

### **Conclusion**

This paper provided findings on (i) how design for social change can contribute to redefining the fashion system towards more sustainable horizons and (ii) how co-design-based instruments can be applied to promote cultural sustainability in the fashion industry. To demonstrate this, the paper presented a case study that describes the collaboration between a third-sector entity and a fashion company. They collaborated to embed co-design and improve the company's strategies toward innovative processes for sustainable fashion. This collaboration provided several experimental co-design experiences that allowed the authors to identify and discuss a co-design ladder for sustainability strategies for the fashion sector. Despite the ladder being a synthesis of a single case, it can be a reflective model for those companies that want to assume a more sustainable attitude through co-design - by climbing the ladder. Replicating the operative model presented in this paper with the same kind of entities is the primary recommendation for adopting the ladder and creating new cases among fashion companies.

In terms of limitations, as topics for further research, it is worth mentioning the need to (i) build new cases for applying co-design in fashion manufacturing and consumption; (ii) provide the presented experiences to other stakeholders (e.g. distributors and manufacturers) of the production chain; and (iii) scale the co-design ladder for sustainability strategies to challenge those fashion industries that boost fast-fashion and mass production.

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