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The co-design in private companies.

A handbook for co-designing in the context of service innovation.

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Abstract

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English

In these years, the pursuit of innovation in its collaborative and design-driven forms, i.e. Co-design, is increasingly crucial and widespread, in particular considering how pandemic affected businesses. However, often companies don't have enough know-how to be able to implement this methodology. Even though tools for co-designing are increasingly widespread and accessible to anyone, if used without knowledge there is the risk to create misunderstandings or mistakes, compromising co-design credibility and effectiveness.

Therefore this thesis proposes to realize a Handbook for co-design in private companies, solving complex problems for innovation purposes. It is a manual to help designers or design experts applying the co-design methodology, structuring and organizing sessions according to the obstacles to be found during a service design project.
I identified six contexts of use, or *obstacles*, for applying the co-design, and for each of them, I created a co-design model, or *opportunity*, offering guidelines, suggestions, and existing activities, but always considering the co-design session in its complexity/as a whole.
The handbook creation is based on in-depth field research, consisting of multiple interviews and analysis of case studies. Then the co-design models have been enriched and tested through a real case study of a service design project, carried out during the curricular internship experience with Desis Lab at Politecnico di Milano, which was used as a practical example for every *opportunity*.

Italian

In un periodo in cui la realtà aziendale è stata duramente colpita dalla pandemia, la ricerca di innovazione nella sua forma collaborativa e design-driven, ovvero il Co-design, risulta sempre più cruciale e diffusa. Tuttavia spesso le aziende non hanno il know-how sufficiente per poter implementare questa metodologia. Nonostante i tools for co-designing siano sempre più diffusi e alla portata di tutti, se utilizzati da non esperti nel settore o senza conoscenza del contesto di applicazione rischiano di creare fraintendimenti sulla natura del co-design, compromettendone la credibilità e l'efficacia.

Pertanto questa tesi propone di realizzare un Handbook for co-design in private companies, solving complex problems for innovation purposes. Si tratta di un manuale per aiutare il designer o un esperto di design ad applicare la metodologia di co-design, strutturandola e organizzandola a seconda dell' ostacolo da affrontare durante un progetto di service design. Ho individuato 6 contesti d'uso, o *obstacles*, in cui applicare il co-design e per ognuno di essi ho creato un co-design model, o *opportunity*, offrendo linee guida, suggerimenti e attività esistenti specifiche per poter organizzare e gestire una sessione di co-design nella sua complessità. La realizzazione dell' handbook è basata su una approfondita field research riguardante la conduzione di interviste e l'analisi casi studio. I co-design models sono stati arricchiti e testati grazie al progetto di service design realizzato in occasione dell'esperienza di tirocinio curriculare presso il Desis Lab del Politecnico di Milano, che ho utilizzato come esempio pratico per ogni *opportunity*.

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1. 1. COLLABORATIVE INNOVATION IN PRIVATE COMPANIES

Convergence [culture] is coming and you had better be ready. Convergence [culture] is harder than it sounds. Everyone wil l survive if everyone works together. (Unfortunately, that was the one thing nobody knew how to do.)
(Jenkins, 2006, p. 10)

1.1.1. Connecting innovation, design and collaboration

Innovation in the "social enterprise"

The corporate landscape is currently undergoing major transformations due to intensifying combination of economic, social, and political issues that are challenging business strategies (Deloitte, 2019). Moreover, Covid-19 has brought a sudden and unforeseen crisis, leading to an acceleration of artificial intelligence (AI) and automation that has pushed companies towards a pervasive digital transformation (Deloitte, 2019; Symbola, 2020). Indeed nowadays, for companies **innovation is no more a choice**, but a necessity to guarantee their success (Govindarajan & Trimble, 2010).
In the "Global Human Capital Trends" (Deloitte, 2019), big private companies state that **innovation goes beyond productivity and competitiveness** (McKinsey, 2019), it is more about welfare, reinventing the ability to learn, share information, rethinking the workforce experience, developing leaders differently (Deloitte, 2019) and shifting their mindset from innovation as *surviving* to innovation as *thriving* (Deloitte, 2021). This mindset shift depends on an organization becoming human at its core (Deloitte, 2021). It implies a **different way of being a corporate, which lives in the era of participation and collaboration** (Smith, Bossen & Kanstrup, 2017) and that addresses every action from a human-centered perspective, transforming the company into what Deloitte (2019, p.7) calls a "*Social enterprise*":

"A social enterprise combines revenue growth and profit-making with the need to respect and support its environment and stakeholders network. It shoulders its responsibility to be a good citizen serving as a role model for its peers and promoting a high degree of collaboration at every level of the organization."

The collaborative nature of innovation

Defining what innovations are, who innovates, where and under what conditions innovation occurs, is crucial within society today (Björgvinsson, Ehn, & Hillgren, 2010) to understand its connection with collaborative design methodologies. As Govindarajan and Trimble (2010) say, innovation is a broad concept, and it could be generically defined as *"Any project that is new to you and that has an uncertain and unpredictable outcome."*
There was the need to identify a measurable and categorized innovation (OECD, 2005). Schumpter in the 1930s (Rogers, 1998), noticed how innovation came in multiple shapes and sizes (Govindarajan & Trimble, 2010) and identified five main typologies:

- **Introduction of a new product or qualitative change** in an existing product
- **Process innovation** new to an industry
- **The opening of a new market**
- **Development of new sources of supply** for raw materials or other inputs
- **Changes in industrial organization**

Following this categorization, the Oslo Manual (OECD, 2005, p.31) gave a general business interpretation for innovation, representing the current standard definition for companies and statistical authorities (Rogers, 1998).

"Product innovation is the introduction of a good or service that is new or significantly improved concerning its characteristics or intended uses."
"Process innovation is the implementation of a new or significantly improved production or delivery method."

Innovation inside a company is a separate discipline that cannot be approached in the traditional business way, needing new rules and new structures. It is **unpredictable and non-repeatable, independent,** opposite but at the same time coexisting with the Performance engine of a company, that represents all its ongoing operations (Govindarajan & Trimble, 2010). For the authors, innovation basic paradigms are **ideas and execution** (Govindarajan & Trimble, 2010). Ideas immediately connect to the topic of creativity that is the base of the design discipline (Brown, 2009), connecting the very nature of innovation to this field of study. On the other hand, the second factor is divided into three paradigms, and its combination with ideas can give rise to diverse models of innovation.
The first paradigm is leadership, traditionally represented as a great commander, a hero that fearlessly goes beyond any established rules, flaunting authority and going against the system (Govindarajan & Trimble, 2010).
The second paradigm is a **new way for organizing/ teaming** to control the non-routine element that characterizes innovation (in opposition to the repeatability of ongoing operations), while the third is a **new way of planning** to control the unpredictability of innovation, contrary to the predictability of the performance engine (Govindarajan & Trimble, 2010).
This leads the radical innovation equation to be composed as follows: **innovation = ideas + leadership + team + plan**
We can see how innovation is connected to people (the workforce) and must be based on collaboration both inside teams and between them.

"Each innovation initiative requires a team with a custom organizational model and plan that is revised only through a rigorous learning process."
(Govindarajan & Trimble, 2010, p. 37)

False myths to demolish

According to Deloitte (2019), **70% of innovation projects fail** and this is due to a series of false myths (Govindarajan & Trimble, 2010) that hinder the understanding of the link between design, innovation, and collaboration.

1. Innovation is all about ideas. Ideas are not enough to reach innovation (Verganti, 2017) and must be combined with the execution factor, which is the **structured collaboration between different people** (leaders, plan, and team) (Govindarajan & Trimble, 2010).
2. A great leader never fails. If the execution burden of a whole company is on the shoulder of just one individual innovation will fail (Govindarajan & Trimble, 2010).
3. Everyone can be an innovator. Even if there is increased access to designing tools (Manzini, 2015) and users are active creators, **their contribution to innovation is limited** to their field expertise (Bjögvinsson, Ehn, & Hillgren, 2010). Unfortunately, only **20% of companies in the Italian** panorama (Bruno, 2020) have a professional figure dedicated to project innovation.
4. Innovation can be embedded inside an established organization. Radical innovation is incompatible with the performace engine of a company and **cannot be integrated inside it.** It is a self-standing discipline working with new language and rules.

1.1.2. **Innovation trends for design and the workforce**

"Good design is essential to good business."
(Design Council, 2011, p. 27)

In this paragraph, I want to analyze the most important trends regarding the innovative landscape of large private companies, focusing on the four paradigms of innovation's nature (and that also represent a key aspect of analysis for this thesis), namely:

- **The ideas,** namely the creativity and design sphere and how company are trying to achieve innovation investing in design;
- **Leaders and plan,** understanding how the concept of leadership is changing concerning a new corporate and workforce structure;
- **The teams**, understanding new ways of reaching innovation through collaborative approaches.

Design trends in private companies

As mentioned, I analyzed design innovation diffusion in a big private company, identifying a state of art. I focus on design adoption in general, while in the next chapter, I will refer specifically to collaborative design (that is the subject of this thesis).
Design is intrinsically linked to the concept of innovation. As Design Council stated (2011), **design is the connection between creativity and innovation,** shaping ideas (creativity) and making them respond to the user's needs (innovation). I will consider the measurable side of design, even if design is also a manifestation of the human impetus to make things better. As such, its value must be understood on many levels, not only as economic metrics but **including the social and cultural sphere** (Design Council, 2011).

Trend 1: Companies are increasingly taking advantage of design field approaches.
In the last decades, design has caught the attention of stakeholders in various areas of private organizations. R&D, Marketing, and Innovation departments have understood its value for innovation (Rossi, 2019). Moreover, it is recently gaining more and more relevance as an **agent of change** for other expanding areas of innovation like organizational change, management, policymaking, and social engagement (Rossi, 2019; Design Council, 2011).

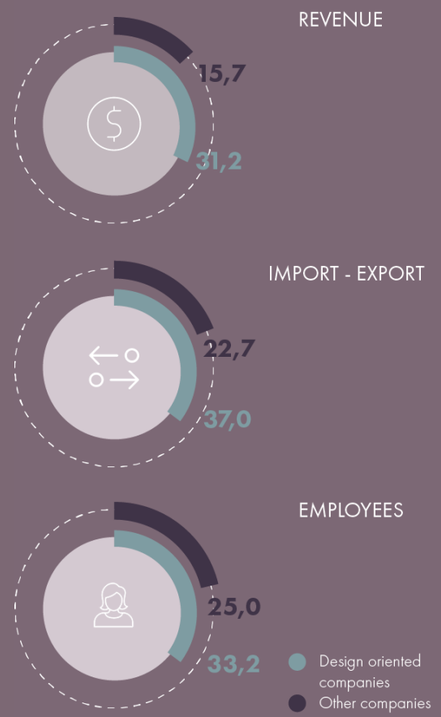
Trend 2: Investing in design increase a company's turnover.
According to "the Design economy" (Symbola, 2019; Symbola, 2020), those who in 2019 invested in design through internal staff, or the acquisition of services on the market, **managed to grow in turnover, employees, and exports.** In Italy, 37% of design-oriented companies managed to increase their turnover against 22.7% of the others.
Also, the Design council (2011) analyzed that design-intensive firms outperformed their peers by 200% in a span of over ten years. Moreover, Design Council (2007) discovered that every £100 spent on design increases turnover by £225, in particular for businesses that consider design as an integral part of their structure.

Trend3: design as a crucial factor for competitiveness on the market
80% of businesses believe that design will help them stay competitive in the current economic climate. They considered it the sixth **most important factor driving business success,** higher than R&D and marketing (Design council, 2011).

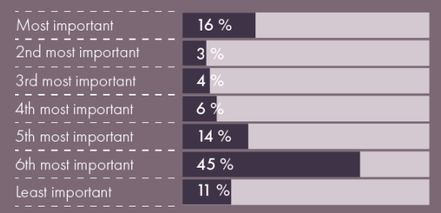
Trend 4: Beyond product and process innovation
Hughes, Moore and Kataria (2010) shows that companies that introduced a new product saw average employment growth of 4.4% compared to 2% for non-innovative businesses. And this is even greater considering process innovation that is gaining more popularity in these years, also thanks to its relation with organizational change (Symbola, 2019).

Trend 5: Everybody wants to learn about design
More governments are recognizing the **transformational role of design innovation** with the diffusion of Designing Demand mentoring programs to build greater design capability (Design council, 2011). I also found a significant increase in companies collaborating with design universities (Design council, 2011) and an **exponential growth of consultancies** that are asked to undertake design projects, integrating their competencies or training and coaching these skills (Rossi, 2019).

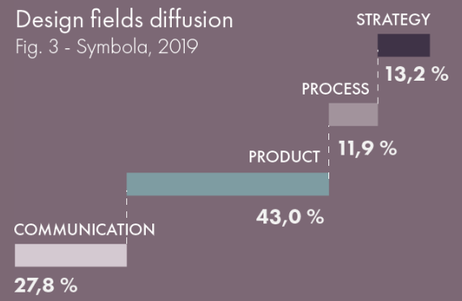
Companies increasing Revenue, employees and export in 2019
Fig. 1 - Symbola, 2020



Design ranked to business success
Fig. 2 - Design council, 2007



Design fields diffusion
Fig. 3 - Symbola, 2019



Workforce and organizational trends in private companies

I want to highlight the major trends concerning the organization structure, in particular concerning the concept of *social enterprise* and their repercussion in the workforce, considering both leaders and employees.

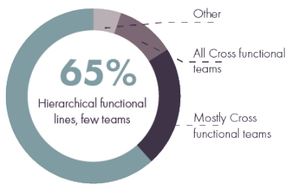
Trend 1: Nurture employees creativity
During Covid-19, there has been an **explosion of creativity of worker potential** because of workers' unseen agency and choice to tackle issues from new perspectives, deploying their capabilities, and nurturing their passions from the bottom-up (Deloitte, 2021). When **innovation is embodied in people and their skills** (OECD, 1997), organizations break free of the constraints of traditional workforce planning models. It will adopt as mainstream also "alternative work" (Deloitte, 2019) in a fluid and flexible work culture (Catalyst, 2020). To unleash people's potential, it is necessary a **culture that supports continuous learning** (Deloitte, 2021) inspiring a **growth mindset**, comfort with change, creativity, critical thinking, and social intelligence (McKinsey, 2021).

Trend 2: Transforming work for the well-being
Covid-19 has made even more relevant the topic of "employee experience", conversing about social isolation and economic recession on workers' mental and emotional health (Deloitte, 2021). Now companies need to assess the **potential for remote work**, reconsidering the concept of proximity as a new normal (McKinsey, 2021). This change needs to be sustainable also for people's well-being considering mental, physical safety but also diversity and inclusivity (Morgan Stanley, 2021). Companies need to shift **from employee experience to the "human experience"** (Deloitte, 2019), to connect work back to the impact it has on society as a whole.

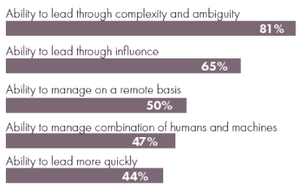
Trend 3: New skills for future leaders
80% of Deloitte's survey respondents (2019), stated that **leadership is facing unique and new requirements.** Reskilling is not a prerogative of the rest of the workforce but should start with leaders first (Deloitte, 2021). Leaders' approach must take into account the new business context, that draws on critical new competencies like: leading through change; embracing ambiguity and uncertainty; understanding digital, and AI-driven technologies (Deloitte, 2019); and **capitalizing on workers' potential** (Deloitte, 2021). Leaders should gain real-time insights about workforce productivity, their well-being, and their priorities (Deloitte, 2020).

Trend 4: Teaming as a new organizational model
During pandemics working in a team has become a crucial surviving strategy. The next step is the *superteam*, which **pairs people with technology** to re-architect work in more human ways, considering technology as a **partner more than as a tool** (Deloitte, 2021). Moreover, superteams are based on the *diversity bonus* (Page, 2008), because heterogeneous teams outperform homogenous ones at solving problems, making predictions, and developing solutions (Deloitte, 2021). However, companies still struggle to operate in teams and building programs and incentives that support collaboration (Deloitte, 2019).

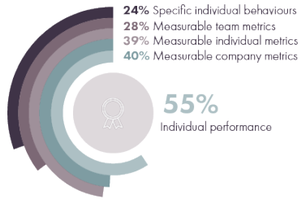
Organization of the workforce:
Fig. 4 - Deloitte, 2019



New leadership needs:
Fig. 5 - Deloitte, 2019



Reward system for companies:
Fig. 6 - Deloitte, 2019



1.1.3. Collaboration trends inside private companies

In this paragraph, I will analyze the last paradigm of innovation (team), from the point of view of the collaboration trends in private companies and how collaboration can become a powerful success lever, despite all its controversies and challenges. I will describe the rise of collaborative innovation, a kind of all the possible innovations existent, and that descend from user-driven innovation, in which people are always at the center and are the drivers for all the company's choices (Politecnico di Milano, 2018).

The rise of collaborative forms of innovation

Research has evidenced (Meroni, Selloni, & Rossi, 2018; Scott-Ladd, Travaglione, & Marshall, 2006) that the last decade has seen the **emergence of a great number of collaborative activities** and an increase in employee participation across organizations (Ramsay, Scholarios, & Harley, 2000), ranging over a variety of technology, business, urban planning, community development, and many others, encompassing private, public and third sectors (Meroni, Selloni, & Rossi, 2018).

Collaboration is adopted more and more by companies for different reasons:
The first one, as mentioned before, is that **we currently live in an "era of participation" and "participatory culture"** (Smith, Bossen and Kanstrup, 2017; Jenkins, 2006), in which **people can contribute in new and unprecedented ways**, sharing their interests and concerns thanks to the rise of the internet and Web 2.0 applications (Bannon and Ehn, 2012).

Due to Covid-19, the way people organize activities has changed; being always online is no longer a feature, but a taken-for-granted aspect of daily living (Bannon and Ehn, 2012).
The second reason is that the practice of **collective creativity is connected to the roots of innovation** and considered promising in tackling to solve complex problems it is necessary to include a multitude of diverse players (Meroni, Selloni, & Rossi, 2018). Whereas in the past, most people's work was individually focused, today the reverse has become true: **82% of white-collar** workers feel they **need to partner with others** throughout their workday to get work done (Steelcase, 2010). Again it is reinforced the idea that collaboration is not about agreement. It is about creation (Salvatore, 2019) and exchange where **workers build on each other's ideas and create new knowledge together** (Denise, 2012; Schrage, 1990).

The last reason is associated with the trends analyzed for the workforce. In fact, **collaboration brings benefits both to the corporate and to the people** who work inside it, increasing employee motivation, job satisfaction, organizational commitment (Scott-Ladd, Travaglione, & Marshall, 2006), and Kappelman and Prybutok (1995) **attribute these outcomes to empowerment.** Empowerment is visible in the **growing sense of autonomy** (Scott-Ladd, Travaglione, & Marshall, 2006) that employees have in managing the variety in their multiple roles and responsibilities.

The typologies of Collaborative innovation activities

Innovation activities may be distributed in complex ways through new media (Bannon, & Ehn, 2012), often blurring the borders and popping up between citizens, private companies, the public domain, and academia (Meroni, Selloni, & Rossi, 2018). To understand the co-design influence and diffusion in private companies it is relevant to analyze its relation with other traditions of collaborative innovation (Bannon, & Ehn, 2012).

From the business field, the first collaborative form of innovation is *Open innovation.* Then, another relevant tradition is represented by *Crowdsourcing.*
From the design field, the main collaborative form of innovation is *Co-creation*, inside which we also find the *Co-design* methodology. Belonging to the design field, we also find the *Participatory design* and the collaborative *Design thinking* tradition. In this paragraph, I will focus on collaborative activities coming from the business world, while the design areas will be explained in the future chapter.

Open innovation:
Traditional business models of innovation have undergone significant reworking over the past decade. In management science traditions, **user-driven innovation is often associated with Open innovation**, which introduced an innovation model that **explores collaboration across company borders** (Bjögvinsson, Ehn, & Hillgren, 2010) and where creativity, knowledge, and expertise are co-opted wherever they are found (Chesbrough, 2003). This model, together with co-creation, brought a significant shift during which the product-centric view was replaced by the co-creation of value (Prahalad, & Krishnan 2008), and in which **competitive advantage comes from leveraging the discoveries of others**. An open approach to innovation leverages **internal and external sources of ideas** (Chesbrough, 2003).

Moreover, while the view of the individual innovator is still common, it is increasingly challenged by the new collaborative business environment (Bannon, & Ehn, 2012) because, as Page (2008) has validated, **a group will measurably outperform the lone expert every time**. In the world, there are not so many brilliant individuals, but there are lots of brilliant teams (Steelcase, 2010). Through open innovation, decision-making is moving towards democratization, allowing for a bolder, wider approach to problem-solving. It suggests interacting with broader groups of stakeholders, and i**t builds collaborative community engagement** around specific challenges and issues: ideas and input flow into organizations from outside and smart, innovative solutions are easily generated and processed using idea management software. (Wazoku, 2017)

Crowdsourcing:
Crowdsourcing is a way for companies to innovate by **harnessing 'the wisdom of crowds'** through new media (Surowiecki, 2004) and 'lead users' (von Hippel, 2005). It also descends from user-driven innovation therefore, it puts people at the center of attention (Bannon, & Ehn, 2012).

Crowdsourcing occurs when an organization outsources projects to the public. **It requires a lower level of engagement and involvement than open innovation**. An organization using crowdsourcing will set a challenge to the public and ask for opinions, insight, and suggestions. It is an open call whereby the **organization solicits solutions from the crowd, not genuine contribution and collaboration**. On the other hand, Open innovation and co-creation imply a stronger involvement from the stakeholders who are included in the value and creation process (Wazoku, 2017).

Collaborative innovation challenges inside an organization

Collaboration is not a panacea for every kind of trouble, on the contrary, **it is a challenging and complex activity** to accomplish (Salvatore, 2019). Companies willing to collaborate will find themselves struggling with specific challenges that, if underestimated, can cause these activities to be ineffective and not innovative.

How can companies recognize the value and the form of true collaboration?

Recognizing true collaboration complexity.
Even though people, departments, offices, and suppliers contribute together to the realization of the production flow, this is not necessarily considered collaboration (Salvatore, 2019), because **having a common goal does not imply that people are actively and appropriately collaborating** with their teammates (Schrage, 1990). Organizations can mistake low-intensity interactions, such as coordination of individual tasks or communication (see fig. 7) (Denise, 2012), for true collaboration (Steelcase, 2010).

Fig. 7 - Levels of perceived Interaction (Schrage, 1990)

This happens because **collaboration is exhausting**, requiring the acceptance of others and the use of empathy, and going against our one-man show culture that enhances individualism (Salvatore, 2019), even though competitive individualism and collaborative initiatives generally coexist (Palmer & Dunford, 2002). Therefore, **collaboration can give people a competitive advantage,** obtaining something better than what they would have done by themselves (Salvatore, 2019). Moreover, companies fail to realize that collaboration requires its kind of space (Steelcase, 2010), regulated by a structured model because it takes shared space to create shared understandings (Schrage, 1990).

"Collaboration is not one of those skills or competencies that is acknowledged as explicitly or as cleverly as it should be and that, to my mind, represents a failure of leadership and a failure of creativity." (Ubiquity, 2008)

How can collaboration support people and employees' empowerment without discrediting professional's expertise?

Creativity appropriation boundaries.
We live in a world where users are constantly modifying and changing their environments tailoring the systems that surround them to fit their needs (Bannon, & Ehn, 2012) in very inventive and sometimes innovative ways (Kanstrup, 2012).
In so doing, they are contributing to the growth of the open-source movement, adding to the community know-how and expertise (Bannon, & Ehn, 2012). This phenomenon has brought interest to two relevant topics: **the bottom-up initiatives** (I will talk about them later) **and the appropriation.**
Collaboration initiatives assist in giving people a voice, challenging received opinions, giving them creative power and a sense of appropriation (Bannon, & Ehn, 2012). There are instances where groups take over control and shape technologies to their ends, and here appropriation can lead directly to empowerment (Stevens et al. 2010; Storni 2010). However, even if the users are actively participating (Sanders, & Stappers, 2012), it is still important to remember that **they are not innovators** (Govindarajan & Trimble, 2010), **nor designers, nor creators,** and that their contribution can not replace the work of experts (Manzini, 2015).

How can innovators and designers support concrete and practical bottom up initiatives inside private companies?

Collaborative Decision Making
The second topic highlighted in this scenario was increased popularity in understanding and **adopting bottom-up initiatives.** In particular collaborative decision making (CDM) initiatives, during which all relevant stakeholders work together to understand issues and determine the best course of action (Co-create, 2019). **Collaboration conflicts with the paternalistic and autonomous communication models,** while it is in his nature to nurture two new modern models: the shared and collaborative decision making (Co-create, 2019).
A shared decision process concerns the willingness to listen and respect each other's views, while a collaborative one requires that all stakeholders work together in a process of engagement between the parts, which only ends when **both parties have learned from each other.**
However, many companies struggle to adopt collaboration:

INTERACTION LEVEL	EXPERT	USERS	KNOWLEDGE FLOW
Paternalistic	Directive	Passive	One way, from expert to users
Autonomous	Receptive	Directive	One way, from users to expert
Shared decision making	Informative	Informative	Two way exchange
Collaborative decision making	Supportive	Proactive	Knowledge building

Fig. 8 - Information sharing models (Co-create, 2019)

because of their hierarchical structure based on silos; and also considering that highly centralized corporate information and decision making are traditionally suggested in uncertain situations, like the one that we are currently living with Covid-19 (Lawrence & Lorsch, 1967). Moreover, **collaboration may produce a hidden cost, longer decision cycles** due to excessive consensus or meetings time (Aragón-Correa, Martín-Tapia, & Hurtado-Torres, 2013), and the diffusion of focus throughout an organization, although these effects could be tempered by new technologies, avoiding dispersion in big teams and reducing the cost of managing complex networks (Adams, Black, Clemmons, & Stephan, 2005).

How can companies adapt to the current situation by leveraging digital technologies to enhance the ability to collaborate and share information?

Covid-19 and digital collaboration

As information and communication technologies have moved from the desktop to the mobile phone and into people's homes, new electronic spaces have become pervasive and have become interwoven into our lives, making our reality constantly online (Bannon, & Ehn, 2012). This aspect has intensified even more with Covid-19, during which however our **relationship with technology has become rather passive,** as it is the machines that perform most of the sensing, interpretation, and even action in the intelligent environment that surrounds us (Bannon, & Ehn, 2012).
Then Emile Aarts developed the idea of 'synergetic prosperity' (Aarts and Grotenhuis 2011), a more open and technological vision of the future that can be discerned in the evolving debates on 'the Internet of Things (IoT).
All the objects in the world will be networked together, not only technological ones, populating the internet space. Exactly what it might mean to have such interconnections, and to what level these objects are not just 'on the Net, but active agents, are items for debate (Bannon, & Ehn, 2012).
In this way, technology can become a team member and a project partner for innovators. (Deloitte, 2021). unfortunately, most companies are still not ready to confront technology and integrate it into the teaming process. On the contrary, Covid-19 has brought a great push to digitalization, also for companies that were mostly traditional ones. On the other hand, times of uncertainty and crisis risk favoring the return of hierarchical and controlled/safe models, abandoning experimentation models like the collaborative ones (Aragón-Correa, Martín-Tapia, & Hurtado-Torres, 2013).

1.2. DESIGN AREAS INVOLVED

"Let me raise the question of design, in the etymological sense of "drawing together". How can we draw together matters of concern so as to offer to political disputes an overview of the difficulties that will entangle us every time we must modify the practical details of our material existence?"
(Latour, 2008, p.12)

1.2.1. Design for collaboration in private companies

Design has become central in our world. It moved from being an accessory practice of just a niche of entrepreneurs to a fundamental component for every industry or company that need to innovate to guarantee their survival (Politecnico di Milano, 2018; Govindarajan and Trimble, 2010).

For Verganti (2009), innovation is the result of a **combination of at least three different factors** (Business, technology, and people) and can be driven by each one of them, leading to very different outcomes (Politecnico di Milano, 2018). With the first factor profit is the main driver of innovation, while with the second, the main aim is the discovery of a new technology. Then there is the third factor or people/user-driven innovation, which in recent years has become increasingly popular, **better known as Design-driven innovation** (Verganti, 2009).
In this case, innovation starts from people, from customers to employees, including anyone who is involved in the production or fruition of a product/service. The core of design-driven innovation lays in finding what is meaningful and valuable for these people, and to do this, they should be engaged in the innovation process **through collaborative relationships** (Politecnico di Milano, 2018).
Design-driven innovation is based on a human-centered approach, therefore, it also adopts **collaboration as a means to empower users** and understand what is valuable to them. Therefore today's organisations are increasingly taking advantage of approaches which are typical of the design field, applying them to a range of continuously expanding area of innovation (Rossi, 2019). For this reason open innovation and co-creation and co-design, that we will see later, are both belonging to user/design driven innovation.

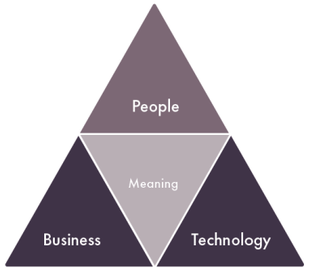


Fig. 9 - New model for innovation / Design-driven innovation

In this master thesis, I tried to understand how design-driven innovation can take place inside an organization focusing, in particular, on the **adoption and the diffusion of co-design methodology used in a private company to solve complex problems** for project innovation purposes.
Therefore in this chapter I will analyse **"collaborative design practices or services"** (Manzini, 2015; Rossi, 2019) that: make use of design methods and tools; imply collaboration among different stakeholders; and involve a guidance role played by a trained designer.

I identified three practices that are intrinsically linked to co-design, explaining how they have influenced or are influencing the co-design methodology till today.

- **The service design methodology**, that often **works together with co-design methodology** in managing complex problems; (Meroni, Selloni, & Rossi, 2018)
- **The participatory design**, that can be considered one of the **main origins** (Sander and Stappers, 2008) **of co-design** methodology, foreshadowing lots of its features and anticipating business rethoric on co-deisgn (Bannon and Ehn, 2012);
- **The design thinking**, an approach with different and recent roots, but that is **often confused and associated with co-design** because of their similar and complementary nature. (Augsten et al., 2018)

I will also try to solve a **general lack of clarity** between these methologies and approaches, that is seen by many authors, especially from the design discipline, as a **threat to the professionalism of the design practice** (Muratovski, 2015).
If applied without knowledge and experience it could results in a sequence of silly activities and tools, exciting and funny at first but totally inefficient and that suffers from "construct collapse" (Rossi, 2019). Aspiring innovators have learned some magic tricks but in the end these are just **temporary placeholders and not a powerful innovation approaches** (Brown, 2009).

1.2.2. Design thinking interpretations

Design thinking definitions

As mentioned before, Design has become central both in modern design discourse and in the business sector, and this could happen **thanks to the label of Design thinking, DT** (Brown, 2009; Verganti, 2009).
Design thinking has many definitions, here in this thesis, I will use one of the most popular, written by Tim Brown (2009), CEO of IDEO, for whom:

"design thinking is a human-centered approach to innovation that draws from the designers' toolkit to integrate the needs of people, the possibilities of technology and the requirements for business success."
(Brown, 2009, p. 30)

Another similar definition was given by the Osservatorio of Politecnico di Milano (2018), saying that:

"design thinking is an approach that looks at value and change from the perspective of people, or even better from the perspective of what is meaningful to people."
(Politecnico di Milano, 2018, p. 6)

Still, the definition for design thinking is vague and open to different interpretations, so much that Lucy Kimbell (2011), underpins that the concept of **design thinking is still untheorized and unstudied.**

The three interpretations of DT

One of the first interpretations sees design thinking as a **strategic asset to foster and accelerate the innovation process** (Rossi, 2019). We have seen design thinking being adopted more and more by companies, that are acquiring design resources (consultants, internal teams, acquisition of design boutique, training for employees, etc... (Muratovski, 2015). Design thinking allows companies to navigate the complexity of the technological world, transforming enormous flows of data, numbers, and codes into **something that resonates and is understandable** by people (Politecnico di Milano, 2018). In fact, design thinking is what **transforms the "more and more" into what is meaningful:** products, services, and understandings (Politecnico di Milano, 2018). However, to have a real "change by design" (Brown, 2009) inside the company, design thinking needs to **integrate inside a business and managerial environment,** reaching organizational culture, structure, and policies that can ultimately inspire innovation (Rossi, 2019). If not embedded inside an organization, design thinking can not be successful (Micheli et al., 2018) because it can not reach the managerial and strategic levels remaining superficial (Edman, 2009).

Another interpretation refers to design thinking as a **democratization of the design mindset**, in a good and risky way (Rossi, 2019). From its early stage, scholars have tried to standardize and identify how designers think and act, and nowadays more and more companies are creating **tools for designing that are accessible to anyone** (Manzini, 2015). Therefore, these tools are also eliciting the diffusion of design thinking approaches that can be subject to **risky distortions** (Rossi, 2019). In this panorama in which everybody designs (Manzini, 2015), design thinking has fragmented into lots of different models that I will explain later in this paragraph.

The last interpretation sees design thinking as a **catalyst for organizational change through collaboration and co-design** (Rossi, 2019). As we have seen, in fact, innovation permeates the entire company, it is no longer relegated to specific departments such as R&D (Politecnico di Milano, 2018). To innovate, companies can no longer rely on the old paradigms of change management in which innovation was simply decided top-down. Innovation through design thinking is based on **bottom-up approaches**, which for now are mainly diffused only in social contexts (Manzini, 2015), or in **flat management systems,** which could be represented by the concept of "holacracy" (Robertson, 2015). T**he "holacracy" is the first real and complete attempt to challenges the pyramidal leadership** model so that innovation can happen at any time within all business processes, from IT to customer interaction (Politecnico di Milano, 2018). In this new context, the designer changes its role becoming more a connector between top-down and bottom-up (Selloni, 2017) and enhancing its role from a simple administratory contribution. Also for Manizini (2016), this is possible only by shifting the ideology at the base of companies and societies, that are limiting the expression of designers' potential. Because a good idea born inside a cage will not develop outside its boundaries.

Design thinking models for business application

After adopting these interpretations, companies have developed four main models of design thinking, that have been analyzed by the Osservatorio of Politecnico di Milano (2018).
These possibilities of implementation are constantly evolving thanks to all sorts of recent tools, and one of them has become particularly close to co-design methodology.

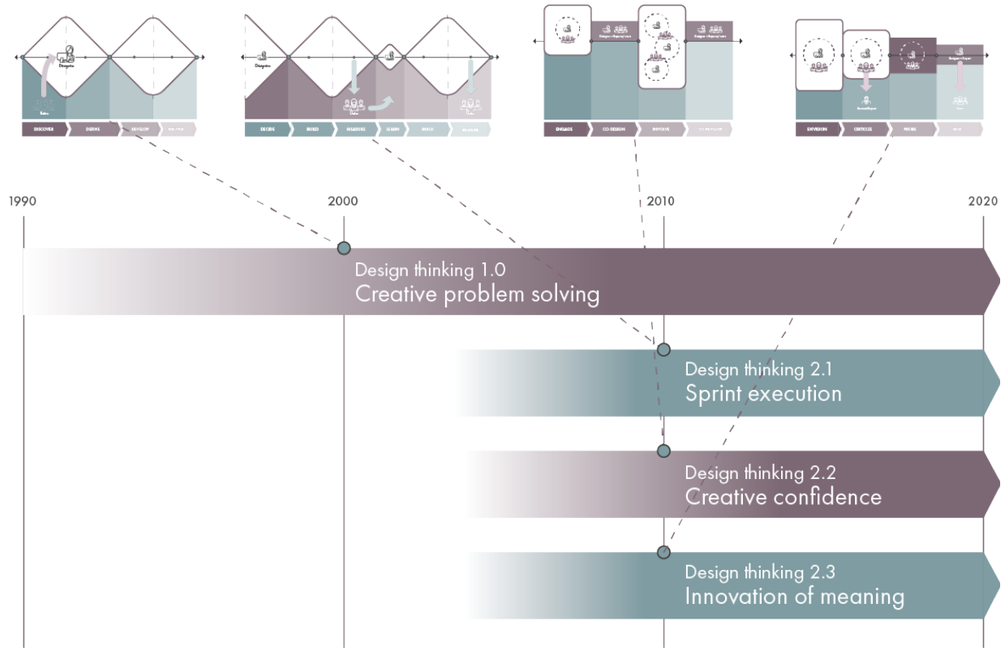


Fig. 10 - Infographic of the four Dt models (origins and diffusion in Italy)

Creative problem solving

This model is based on the concept of *wicked problems* (Buchanan, 1992), namely the kind of problems that design can solve. It was the first model to be developed and is based on the **alternation of convergent and divergent thinking,** as represented in the *double diamond* model developed by Design Council (2014). This model applies to all the phases of the project, from the identification of the problem to the grounding of this one. It is the most used approach in service design methodology, for this reason, these two disciplines are often confused even if DL and DT are to be considered as complementary rather than alternatives (Edman, 2009).

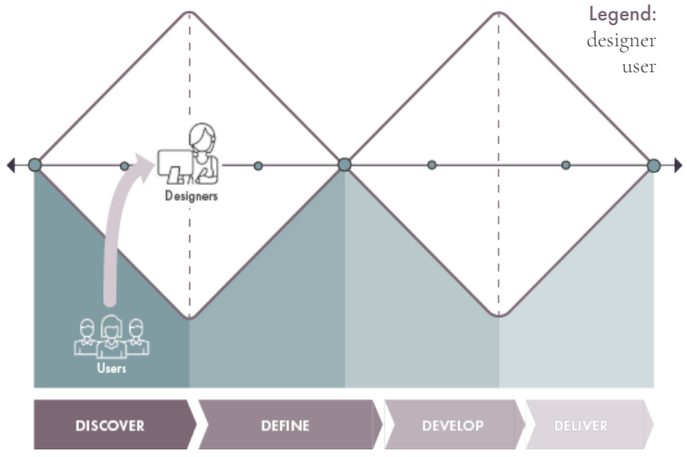


Fig. 11 - Structure of Creative problem solving model

Sprint execution

This branch of the DT was born from the hybridization between creative problem solving and lean methodology (Politecnico di Milano, 2018). Both disciplines have iterative processes in common, but Sprint has a **greater focus on converging axes and the solution and prototyping** rather than on the problem.
The central theme of sprint execution concerns the transition from conceiving to executing (Knapp, 2016), which is often critical in the company, since, also thanks to digital technologies, finding brilliant or numerous ideas is quite simple while putting them on the ground is not. It is much more complex but also much less stimulating and energizing (Govindarajan, & Trimble, 2010).

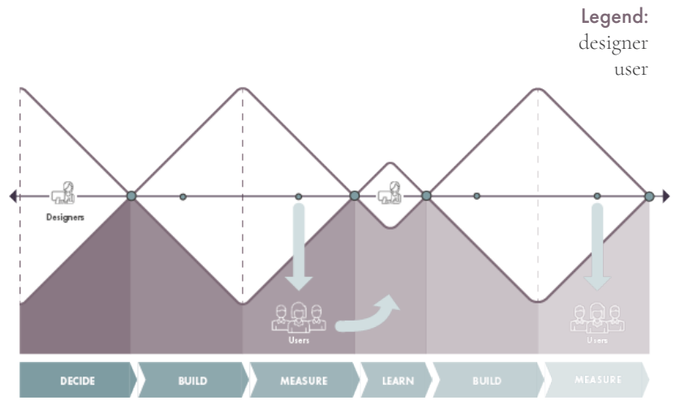


Fig. 12 - Structure of Sprint model

Innovation of meaning

This model is based on providing a novel purpose for innovation, **redefining the problems worth addressing**, and taking innovation on a higher level of How and, in particular, Why (Politecnico di Milano, 2018).
Innovation of meaning was theorized by Verganti (2017), who stated that generating too many ideas will lead a company to the *paradox of the idea*. In fact, in this way, companies will only solve problems that in the meanwhile have become meaningless (Verganti, 2017). Innovation of meaning is the opposite because it is **based on the art of criticism**, namely finding values and meaning for ourselves that can push us into new directions. **It is an inside-out approach** based on the accurate analysis of ourselves (Politecnico di Milano, 2018).

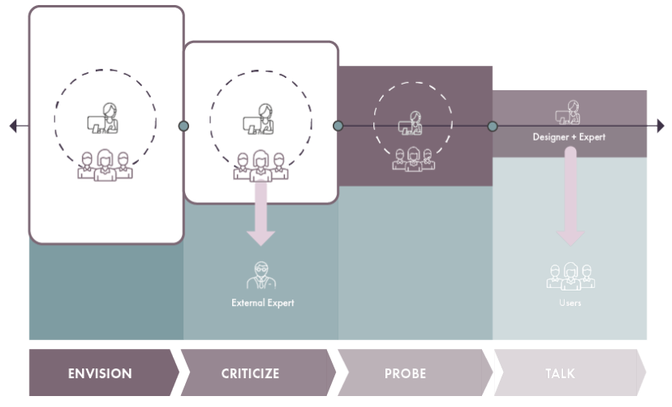


Fig. 13 - Structure of Innovation of meaning model

1.2.3. Creative confidence

This last approach is particularly interesting for my thesis because of its influences from the co-design methodology, which is the core of this work. Therefore, it is interesting to note its adoption and diffusion in the company and its perception by the entrepreneurs from a managerial perspective.

Creative confidence model definition

In fact, this model represents the **integration of co-design inside the design thinking** approach. The DT has incorporated this older methodology into one of its ramifications, to apply it to the corporate context of project innovation. Moreover, it is relevant to note how the **DT can be a bridge between the co-design and service design methodology**. Through two complementary models (creative problem solving and creative confidence), DT identifies two general approaches within which the two methodologies are positioned in an integrative way. I will introduce them later, reinforcing even better their bond and intrinsic connection.
Creative confidence was born from the work of Kelley and Kelley (2013) and its core principle is **human centrality and deep empathy.** In their book, they affirm that **everybody is potentially creative** and that it is possible to learn and train to become innovators thanks to the "growth mindset". However, it is also necessary to **nurture a collective creative culture** to aim for innovation at scale (Kelley, & Kelley, 2013). In a company, this model is particularly effective when working on organizational culture and mindset, challenging top-down rules, and inspiring employees to unleash bottom-up innovation (Politecnico di Milano, 2018).
One of the most effective ways to prepare people for change nurturing their creativity is **engaging them in the creative process through methodologies like co-design and co-creation** (Kelley, & Kelley, 2013). Forming cross-functional teams is the most effective way to break hierarchical structures and company boundaries involving not only employees (ibidem).

Diffusion among italian companies

According to the data from Osservatorio of Politecnico di Milano (2018), the creative confidence approach is still in an **embryonic phase and is less diffused** compared to other approaches inside the companies (only 34% of companies adopted it). However, if we consider just Strategic consultancy companies, its adoption will jump to 54%, because of the great **power to operate on complex problems** and innovation at scale working on culture and leadership.

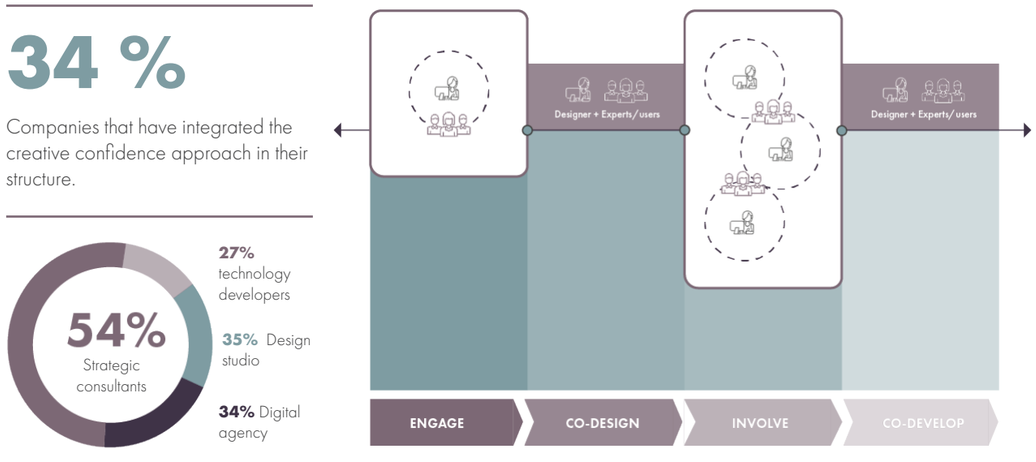


Fig. 14 - Adoption for various companies

Fig. 15 - Structure of creative confidence

1.2.4. Discovery of complexity: Service design practice

The next economy

It is confirmed that nowadays the **economic panorama is moving towards a "service economy"** (Meroni, & Sangiorgi, 2011). In 2007, the services represented 69.2 % of total employment and 71,6 % of gross value added (Eurostat, 2009). Manzini, in the book "Design for services" (Meroni, & Sangiorgi, 2011), named it "the Next economy."
The next economy is, at first, a *social economy*. Second, it is intertwined with the ongoing dynamics of social innovation. Third, the **next economy's products are systems** targeted to a specific purpose and, in particular, services (Meroni & Sangiorgi, 2011).

We are shifting from a mainly product-oriented design culture to a **predominantly service-oriented one**. This change concerned moving from a logic in which the product is the center of attention and the service is considered an extension of it; to a logic in which the **interactions between people, things, and places are at the center of attention**, and where the product represents the physical evidence of the service existence (Meroni, & Sangiorgi, 2011).

This idea was also explained in the work of Vargo and Lush (2004), who theorized the substitution from a "goods"-dominant logic to the **concept of "service"-dominant logic**. "Goods" are represented as *operand resources* and will be exchanged with "benefits" that are represented as *operant resources* (Vargo, & Lush, 2004).
This shift emphasizes the role of **services as the basis of economic exchange**, where goods are just a distribution mechanism for service provision (Rossi, 2019), challenging the traditional **ways of evaluation of productivity, growth, and innovation** (Meroni, & Sangiorgi, 2011).
The service-dominant logic perspective configures a conceptualization of **services as value creators** rather than a category of market offerings as a replacement of products (Foglieni et al., 2018).

The un-designable service

It is particularly difficult to define what is a service because **services are complex entities and hybrids artifacts,** they belong to the technical and biological systems but also the cultural and sociological one of human interaction (Meroni & Sangiorgi, 2011).
However, even if they seem *un-designable*, during the years it was possible to **develop a service design practice and methodology** that is gaining increasing popularity.
Considering the current panorama the service is an

"application of competencies for the benefits of others" (Spohrer et al., 2008; Vargo and Lush, 2004).

Moreover, following the work of Edgett and Parkinson (1993), services nature is based on four main characteristics:

- **Intangibility:** means that **services cannot be perceived by our senses.** It is a strategic quality to stimulate innovation, pushing people to "think by function" and to explore multiple experiences by **providing visual evidence of services** (like touchpoints or interfaces). (Meroni, & Sangiorgi, 2011)

- **Heterogeneity:** means that the **quality of the performance will depend on time, context, and participants** to the service, so it is important to udenrstand and design these factors (Meroni, & Sangiorgi, 2011).

- **Inseparability (of production and consumption):** this means that the **service's existence requires customers** and that there is a high level of human interaction. It was impossible to design services without talking or including the user in the creative process, but Design for services gives even more **relevance to co-production** as seen in the work of Meroni (2007).

- **Perishability:** Services can't be stored so it is necessary to

balance demand with supply capacity. It is also crucial to reflect on replicablity of the service strategies or on new collaborative service models.

I chose this specific definition because the new emerging technologies and interaction forms are **merging the concept of product and services** that are often impossible to distinguish from one another (Meroni, & Sangiorgi, 2011). In fact products now are seen as **"embodied knowledge or activities"** (Normann, & Ramirez, 1993).

Design for services

After describing the context and the subject, we can finally talk about the methodology to design services, or better as Meroni and Sangiorgi (2011) say: to *design for services.* Changing the preposition helps to reflect the above mentioned changes because it means a shift from designing focusing on the end-result, to **focusing on an "action platform", an ongoing transformation process.**

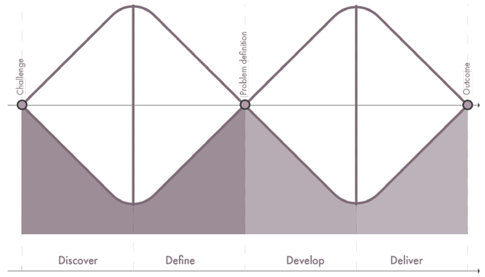
Therefore Design for services is based on considering the **user as a resource**. Design for services starts from the theory of user-centered design and goes to the more comprehensive theory of human-centered design. (Meroni & Sangiorgi, 2011) The users become *people*, and they are not bringing needs to designers but **are actively bringing skills and abilities** (Nussbaum, 2011). Designers are not designing for experiences but are designing for **co-experiences, transforming services into "collaborative services**", that are expanding more and more also thanks to the advent of new digital technologies (Meroni, & Sangiorgi, 2011). Design for service approach implies a continuous involvement of subjects other than the designer (users, experts, stakeholders) and its methods and tools are useful in **framing interactive design processes between multiple entities** (Meroni, & Sangiorgi, 2011). At the center of debate there is the **topic of *co-design*** and how to use this strategic approach as a way to make people co-designers of their services. **Co-design is critical to service design** because different perspectives, and a productive combination of different perspectives, are needed in order to understand both a service's demand side and its supply side (Steen, Manschot, & de Koning, 2011). In this way design for services is both influenced by the Scandinavian tradition of participatory design, but also by co-creation, that considers the user as the biggest untapped resource.

The double diamond

In 2007, the Design Council conducted a study of the design processes used in leading global companies. Therefore, by describing and standardizing a common design process, they also contributed to the creation of a **framework for innovation for designers** (Design council, 2014). The *Double Diamonds* represents a process of exploring an issue more widely or deeply and then taking focused action in 4 phases:

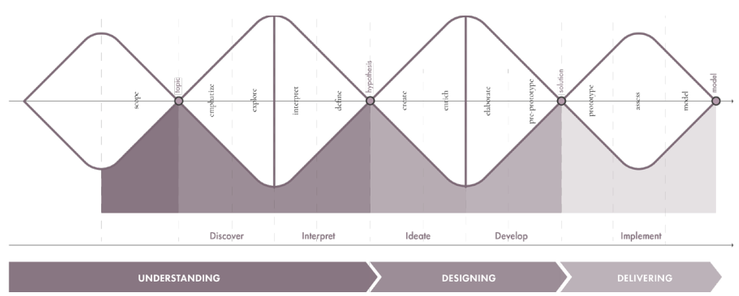
- **Discover.** divergent phase to understand peoples' problem, speaking to and spending time with them.
- **Define.** convergent phase to redefine the design challenge thanks to the insight gathered from the discovery phase
- **Develop.** divergent phase to seek different inspirations to solve the problem, co-designing with a range of different people.
- **Deliver.** convergent phase to test out different solutions at a small scale.

Fig. 16
Double Diamond



This framework is valid for every discipline in the design field, so Selloni and Meroni (forthcoming 2021) have developed an **extended version specific for service design and complex projects** and that will be the one used during this project thesis. The *define* phase was expanded into *Interpret and Ideate*, giving more space users' involvement in the designing process, through collaborative activities like co-design.

Fig. 17
Extended double diamond for service design activities



1.2.5. Participatory design

Participatory design origins

The participatory design developed during the seventies in the Scandinavian countries and mainly thanks to the work of Ehn and his colleagues.
The notion was born inside organizations to **challenge the introduction of new technologies** in the workplace (Meroni, Selloni, & Rossi, 2018). They caused **alienation between workers** because the

"social and the technical aspects of work had been treated as completely separate domains."
(Bannon and Ehn, 2012, p. 42)

These authors understood that design could enhance workers' expertise, leading to a **democratization of the work sphere** (Meroni, Selloni, & Rossi, 2018). In fact, Participatory design assumes that **those affected by design should have a voice** in the design process (Ehn, 1988).
After 40 years, design panorama has become heterogeneous, open, and public, engaging users and other stakeholders across organizational and community borders (Bannon & Ehn, 2012).

Participatory design evolution

Therefore how does design in **Participatory Design relate to contemporary design** thinking and design theory?
Is design in Participatory Design akin to the 'designerly' design (Cross, 1984) we meet in the emerging discipline of interaction design (Bannon & Ehn, 2012)?
For Bjögvinsson et al. (2012) participatory design has changed, evolving into the **enhancement of processes of empowerment within communities.**
Bannon and Ehn (2012) then, precisely define this evolution reframing the design subject: from designing "things" as objects to designing **"Things" as socio-material assemblies** of human and non-human elements through which 'matters of concern' or controversies are handled (A. Telier 2011; Meroni, Selloni, & Rossi, 2018).
In fact, what has always been missing is an **impression of the controversies** and the many contradicting stakeholders that are born within these (Latour, 2008).

"Objects are always assemblies, and designers are still unable to draw together what a thing is, in all of its complexity"
(Latour, 2008, p. 11)

This means that **the object of the design is changing** - not only products but more complex items, entering new environments that go also beyond the traditional companies in the private sector (Meroni, Selloni, & Rossi, 2018), even if this does not mean that in that sector problems were solved and work democratization achieved (Bjögvinsson, Ehn, & Hillgren, 2012).

This perspective may also inform designers as to how they may act in a public space where heterogeneity of perspectives is in evidence among the actors, in finding alignments of their conflicting matters of concern (Bannon & Ehn, 2012).

The evolution of participatory design didn't stop with this, as we will see in the next chapter analyzing one of its direct descendants: the co-design.

1.3. CO-DESIGN INSIDE THE COMPANY

"Collaboration is the process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own.
Collaboration creates a shared meaning about a process, a product, or an event. In this sense, there is nothing routine about it. Something is there that wasn't there before."
(Schrage, 1990, p. 15)

1.3.1. Co-design origins

The expression Co-design is a **recent conceptualization** of a notion developed almost forty years ago, and that we described in the previous paragraph as Participatory design. In particular, we can describe co-design as a methodology emerging from the **convergence of two different approaches,** as theorized by Sanders and Stappers (2008):

- **User-centered design** approach, coming mainly from US tradition, in which the user is considered an **"object of study";** (Selloni, 2017)
- **Participatory design** approach, happening mainly in Europe and developed first by Scandinavian countries, characterized by a view of the **user as a "partner".** (Bannon, & Ehn, 2012)

User-centered design at glance

The user-centered design was born in the field of ergonomics and computer interaction to indicate **putting the person at the heart of a project**, system (Zhang, & Dong, 2008). Designers discover human capabilities and limitations (unconscious needs) to produce safe and satisfying solutions. User-centered design slowly shifted to a **human-centered design** (Meroni, & Sangiorgi, 2017), a broader connotation that considers **users as people, human beings** living their lives in varied social-economic, political, and cultural contexts, and not only business tools (Zhang, & Dong, 2008). In fact, human-centered design is **fundamental to the affirmation and strengthening of human dignity** (Buchanan, 2001).

This specific approach was also fundamental for the development and consolidation of another interesting approach described before: **Creative confidence**, which, therefore, is **strongly linked with co-design methodology.**
In this first approach, designers use mainly interviews as a method to observe and study users.
However, it is now becoming apparent that the user-centered design approach **cannot address the scale or the complexity** of the challenges we face today (Sanders, & Stappers, 2008). Asking users what they need will reveal just superficial needs and will not allow designers to reach the deep and true unconscious needs that people have, and that reflect the complexity of societal and cultural changes.

"We are no longer simply designing products for users. We are designing for the future experiences of people, communities, and cultures who now are connected and informed in ways that were unimaginable even ten years ago."
(Sanders, & Stappers, 2008, p. 8)

Therefore it is not enough to simply study or try to understand the users through etnographic research, but we should design products **with** users, involving and engaging with them in the creation phases.

Participatory design at glance

On the other hand, the Participatory design approach, which we introduced previously, is based on the concept of **the user as a resource** (Manzini, 2015) to involve in the design process, which is not anymore related to designing *things*, but to designing *Things* (Bannon, & Ehn, 2012; A. Telier 2011; Meroni, Selloni, & Rossi, 2018).

Users are "experts of their experience" (Sanders, & Stappers, 2008) and can contribute with abilities and skills to the discourse.

1.3.2. Co-design definition controversies

In the **era of participation" and "participatory culture"** (Smith, Bossen, & Kanstrup, 2017; Jenkins, 2006), the notions of co-creation and co-design are becoming increasingly widespread. However, there is a **general lack of clarity** over the difference between the two terms, which are often confused and treated as synonyms. Even if their popularity is growing, it is rare to find definitions or entries of these words on online dictionaries, and even Wikipedia, the online encyclopedia, has only preliminary entries. (Sanders, & Stappers, 2008) Sanders and Stappers (2008) gave definitions to both of them: co-creation is a **broad term** indicating different forms of collaboration and refers to **any act of collective creativity,** shared by two or more people. On the other hand, the term co-design indicates when collective creativity is applied

"across the whole span of a design process, thus, co-design is a specific instance of co-creation."
(Sanders, & Stappers, 2008, p. 6)

Co-creation

Co-creation refers to **different contemporary phenomena:** like Open source communities (Leadbeater, 2009), Diffused creativity (Manzini, 2015), and Democratized innovation (von Hippel, 2005) and its central idea is that **people who use services are hidden resources:** it goes beyond the simple idea of citizen engagement or user involvement. Co-creation fosters **a balance of power and responsibility among service professionals and individuals** because both of them can contribute to the service delivery bringing their unique

experience and skills (Selloni, 2017).
For Prahalad and Krishnan (2008), co-production is based on four main building blocks:

- **Dialogue**
- **Transparency**
- **Access**
- **Risk assessment**

The combination and alteration of these four elements identify a **spectrum of co-design experiences** that can open a whole new room of opportunities. It is important to clarify also what is not co-production: for example, **consultation processes** that ask users for advice and opinions (Boyle and Harris, 2009); or **outsourcing activities** onto the customers' shoulders (Prahalad and Krishnan, 2008). Therefore, co-production fundamentally "**changes the way services are delivered",** recognizing people as assets, promoting reciprocity, and shifting the balance of power (Selloni, 2017).
As mentioned the label "co-creation" **covers various forms of participation** that, in a way, have contributed to expanding its semantic field (Selloni, 2017), identifying promising direction, even if different from the one chosen for this thesis. Bannon and Ehn (2012) attempted to outline these blurred boundaries identifying:

- **Living Labs**
  Living labs represent one of the **first spaces for open innovation**, aiming to collect and engage designers, end-users, and stakeholders to actively collaborate during all the project phases. They are also called Design labs because "**the authorship of the design work is shared** between the lab partners and stakeholders." (Meroni, Selloni, & Rossi, 2018)
- **Maker spaces or Fab labs**
  The same kind of sharing authorship can be found in some Fab labs or maker spaces. Fab labs were born as spaces to "do it yourself", but some of them are **currently shifting to "do it together."** This is very interesting because co-design can **support peer-to-peer production and creation of networks** to generate innovation (Bannon, & Ehn, 2012; Bjögvinsson, Ehn, & Hillgren, 2010).
- **Public participation**
  Another interesting case of co-creation regards public participation and the **topic of social innovation.** Recently public consultations are increasing to allow people to participate in decision-making dynamics in a process of *democratizing innovation* (Meroni, Selloni, & Rossi, 2018; Bjögvinsson, Ehn, & Hillgren, 2010)

Co-design

"the creative work during the design development process of designers and people not trained in design."
(Sanders and Stappers, 2008, p. 6)

This first definition, by Sanders and Stappers (2008), was enriched by the work of Selloni (2017) that defines co-design as a methodology **to solve complex problems.** Co-design is a complex, contradictory, sometimes **antagonistic process** (Manzini, 2016) **requiring a big effort** from everybody involved in it in terms of energies, time, and resources. Different stakeholders (design experts included) propose their specific skills and culture in a social conversation. Therefore every dialogue, to be creative, has embedded in its nature **problems and tensions** generated by ideas and actions (Manzini, 2016).
Like for co-creation, users are considered **"experts of their experience"** (Sanders, & Stappers, 2008) **or untapped resources** (Manzini, 2015) and thus play a key role. For this reason, Selloni (2017) destined co-design to the generation of complex items: **services, strategies, and scenarios.**

Co-design works on such complex systems, in which there is extensive collaboration over time and among many stakeholders (Bannon and Ehn, 2012), for its ability to generate a **"third space" or "infrastructure"** (Björgvinsson, Ehn, & Hillgren 2012; Muller, 2002), detaching even more from its ancestor participatory design, reaching a new step of evolution. According to these authors, the "**third space is a fertile environment** in which participants/stakeholders can combine diverse knowledge in new insights and action plans" (Muller, 2002). The "Infrastructure" is not a substrate that other actions can run on top of, but rather an **ongoing alignment between contexts** (Star, & Ruhleder 1996). Hence, "infrastructuring" can be seen as an **ongoing process** happening in any phase and moment (Bannon, & Ehn, 2012), and not just as a **method to generate ideas in the first phase** of the project (Sanders, & Stappers, 2008). As a consequence, co-design is a methodology generating **Things as long-term relationships** (services, strategies, and scenarios) **across the entire creative process** (Selloni, 2017) and, in which those involved pay attention to, and work with, the way technology connects to wider systems of socio-material relation in the form of the **collective interweaving of people, objects and processes** (Björgvinsson, Ehn, & Hillgren, 2010). This emerging co-design is defined as **"massive co-design"** by Meroni, Selloni, & Rossi (2018), representing a future in which we will deal with complex service systems, value constellations, and **service ecosystems** characterized by **multi-player networks**, largely interdependent but collaborating out of need (Sangiorgi et al., 2017).

1.3.3. Collaborative design framework

Creating a co-design session is very complex because by nature co-design methodology is never completed and is **ill-defined, systemic, and conflictual** (Kimbell, 2011).
Meron, Selloni and Rossi (2018) in their book "Massive co-design" aim to provide **actionable knowledge for supporting designers** in aligning processes of co-design. In other words, they aim at **providing a framework for "infrastructure"** (Bjögvinsson, Ehn, & Hillgren 2012; Muller, 2008) **collaboration** within determined contexts or systems in which there is a common challenge, opportunity, or problem.
Therefore they created the **"Collaborative design framework"** a matrix to contextualize co-design sessions related to the service design sphere. In fact, one of the two variables comes from the service design tradition as mentioned above.
In fact, the way **collaboration takes place in design depends mainly on two factors:**

- **Design subject matter**
- **Style of guidance**

Design subject matter

The first variable refers to the phase of the process during which collaboration takes place.
Considering the "Extended double diamond" (Selloni, & Meroni, forthcoming 2021) or, for simplicity, the "Double diamond" (Design Council, 2014) from the previous chapter, we can argue that all the steps of the divergent and convergent phases could be and are actually developed collaboratively.

Considering this sequence of phases as a linear yet iterative process, the authors identify a two-pole axis that highlight the subject matter behind the design:
On one side, there are "topic-driven" activities that refer to the problem/situation that has to be investigated through the project. On the other side, there are "concept-driven" activities that refer to the project direction decided after the problem-solving/brief phase of the project (Meroni, Selloni, & Rossi, 2018).

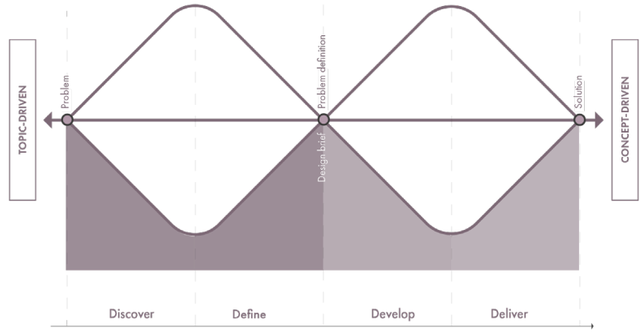


Fig. 18 - Axis of design subject matter

Style of guidance

The second factor regards the style of guidance of the session or how to practice the *art* of **joining forces with others to explore, develop and evaluate creative solutions.** The way design will interact with the session's participants can significantly change its outcome. **It will influence the way participants will contribute**, their collaboration level, and their possibility to go out of their daily norms and boundaries (Meroni, Selloni, & Rossi, 2018).

This ideas is also communicated by the philosopher Dewey (1938). During co-design, both "perceptive" (the capacity to see, hear, touch, smell, and taste what is) and "conceptive" (the capacity to imagine and envision what could be) capacities of all participants need to be adequately challenged. In this way, they can also be applied to the session becoming a form of contribution and bringing an **effective and *ethical* interaction.** However, there is also the risk for designers to transform their **dialogue in forms of persuasion** (Dewey, 1938), causing

just biased and assumptive results instead of changing their behaviors and emotional reactions ultimately changing the understanding of a problem (Meroni, 2008).
Designers should try to skip the "participation-ism" defined by Manzini (2016) as a way to reduce the role of design experts to "process facilitators" of over-simplified systems.
As such, we can argue that the guidance approach can range between two stances: **"active listening" and being "thought-provoking"**, reflecting a difference in purpose and situation.

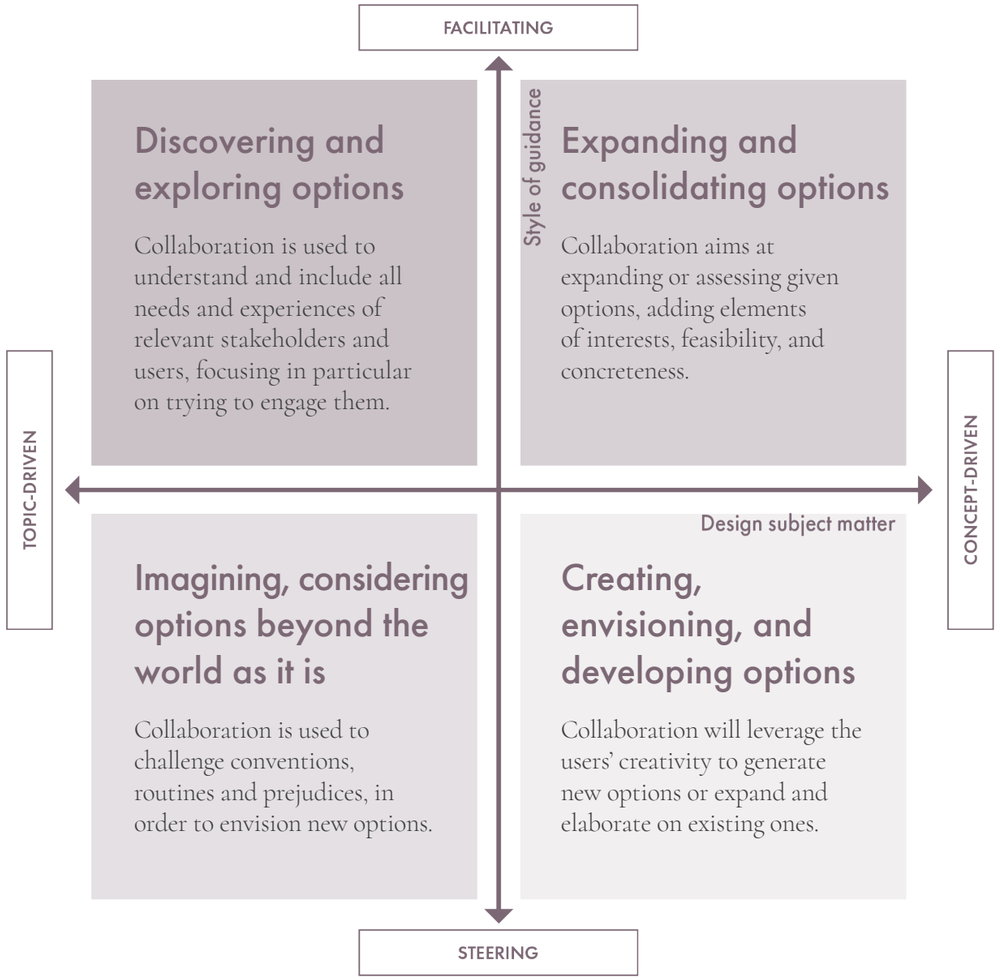


Fig. 19 - Collaborative design framework

1.3.4. Co-design challenges for private companies

"Bringing co-creation into design practice will cause a number of changes to occur. It will change how we design, what we design, and who designs. It will also affect the tools and methods that the new teams of co-designers will use."
(Sanders and Stappers, 2008, p. 16)

This continuous change towards the future will be disruptive at first. (Kimbell, 2011)
Therefore we found ourselves inside a **conflict between design research and practice,** with arguments going back and forth about roles and responsibilities, which tools and methods belong to whom, and how to manage and use the data. (Kimbell, 2011)
This moment of disruption will end with the merge of research and practice, **clarifying the co-design position** inside a context. Still, while this disruption continues, new disciplines will spin out and people will begin to explore the new design spaces on the emerging landscape. (Sanders, & Stappers, 2008)

In this paragraph, I want to deal with some issues concerning co-design that have not yet been studied, or that **represent interesting challenges for designers,** practitioners, and scholars. Co-design challenges can vary a lot depending on the context of the application, so I considered only the ones **inherent to the analyzed context for this thesis: the private company and the service design innovation.**
In this scenario, I have identified 6 challenges to be further investigated and that can represent possible promising directions for this project thesis and I clustered them into two general macro-groups.

Challenge 1:
Co-design managerial perspective

When we reflect on co-design effective application inside private companies it is important to notice that the **best-known proponents of co-design originate from business** or marketing and not from design practice (Bannon and Ehn, 2012). This is one of the biggest factor that divides the research made by designers and the actual co-creation practice used by the business, in which the source becomes business-driven and not design-driven. Prahalad and Ramaswamy (2004) are usually given credit for bringing co-creation to the minds of those in the business community with the publication of their book, "The Future of Competition: Co-Creating Unique Value with Customers". They affirm that the **meaning of value and the process of value creation is rapidly shifting** from a product and firm-centric view to personalized consumer experiences. **The consumers** now are informed, networked, empowered, and active and **are already co-creating value with the firm**, even without the company's consent. (Prahalad and Ramaswamy, 2004). They challenge the two basic concepts that:
1. **Value cannot be created unilaterally** from the company to the customer anymore
2. **Value doesn't reside exclusively in a company's products** or services but it is shared and reside in its experience with the users, time and place, and context.
This work of communication of design thinking and co-creation values to business was also done by other authors like Verganti (2009).

Why for co-creation and co-design it is so difficult to reach the business/managerial sphere?
The most repeated argument about the integration of design in the business environment is that **designers lack basic business competencies and language** (Rossi, 2019).
This is a major issue, raised even during the Advisory Board of the course in Product Service System Design at Politecnico di Milano in 2016 (Rossi, 2019).
However, if from one side it is true that designers need to learn how to speak the business language (Rossi, 2019), it is also true that if an organization 'get' design, it will start using "emotional language (words that concern desires, aspirations, engagement, and experience) to describe products and users" (Kolko, 2015).

First challenge

Still, the challenge for co-design remains: How can co-design speak directly to companies and industries illustrating its design perspective and not the managerial one?

Challenge 2:
Co-design for profit or for democracy?

In line with the problem described above, we must reflect on how the co-design and co-creation method **may not be adopted in favor of other collaborative methodologies** (described in chapter 1) and which were born from a more business-oriented approach. I am talking primarily about Open source innovation or Crowdsourcing or any other form of collaboration developed inside the managerial sphere.
We should also reflect on how this methodology, due to a lack of clarity on its nature and definition, is often **shaped and adapted to company criteria and business logic**. This could cause a **loss of validity and credibility** of the methodology which would be less effective and less innovative, having lost some of its key values deriving in favor of other different and more traditional values.

On the other hand by participatory production we think of such phenomena as open innovation and Living Labs, but also more open peer-production arenas from maker spaces like Fab Labs to social innovation in the public sphere. Bannon and Ehn (2012) believe that **Participatory Design and co-design today are in a similar situation to when the field emerged in the early 1970s.**
Participation by users and consumers is seen as fundamental to contemporary production, and now, as then, **it is a question of which interests to support** – narrow corporate managerial interests or broader more democratic participatory ones?
So, how can co-design research and practice respond to this managerial version of user-driven design and innovation?
What is the co-design approach to design, democracy, and participation in open innovation?

Second challenge

Is there a research perspective on open innovation more in line with the values that once guided Participatory Design? (Bannon, & Ehn, 2012)

For Manzini, in the book "Massive co-design" (2018), one way to answer the question can be to reflect on co-design as a practice. In particular, what is missing is a discussion that **shifts from the tool to the content**. There is a multitude of tools but what should the designer exactly do with all of them?

Third challenge

It is enough to have tools that allow the designer to listen or collaborate with users without really knowing what they want or must do? (Meroni, Selloni, & Rossi, 2018)

Field and Desk Research

2.1. Interviews

2.1.1. Interviews methodology
2.1.2. Interviews Summary
2.1.3. Interviews Insights
2.1.4. Contexts of use

2.2. Case Studies

2.2.1. Case study methodology
2.2.2. Case study summary
2.2.3. Case study insights

2.3. Internship case study

2.3.1. Description?

2.1. INTERVIEWS

2.1.1. Interviews methodology

Even on a cursory inspection, just what design thinking is supposed to be is not well understood, either by the public or those who claim to practice it. (Lucy Kimbell, 2011, p. 286)

The lack of literature on the topic chosen made necessary deep field research, conducted through a first round of interviews.

The interviews aimed to understand **how collaborative services are used** within private organizations, how much they are integrated with the standard design process and **recognized as effective methods** by their users. The second goal of these interviews was specifically related to the reason behind the adoption of co-design methodology. I wished to understand **what pushes a company to use these methods** and how much energy a company spends to carry out these activities (their priority perception).
Gradually the questions changed focusing more on peculiar aspects of the conduction of a co-design. I aimed to obtain information regarding the management of time, participants, and the activities.

For all the interviews, I have used the term collaborative services and co-design, and I have also accepted as valid other similar terminologies such as **workshops or hackathons** because the popularity of these terms often leads to misuse or common meanings. I also included as valid all the forms of **collaborative and participatory meetings** organized during a project that is not properly co-design session but that reveals a space in which co-design methodology can be used and adopted.

The participants of the interviews were all selected according to the previously identified parameters, therefore mainly Italian panorama, large private companies that make use of design thinking, and more specifically of collaborative services. I tried to have a broad perspective including both the private company that uses design thinking (that has an internal design department or that calls for external designers) or a design consultancy agency.

The interviews were progressively modified during the development of the project, not only to adapt to the new interlocutor and his/her context but also to adjust to the developments and sometimes new directions of the project.

I conducted the interviews in a semi-structured way, making them last about 45 minutes each. The full interviews can be found in the appendix at the bottom of this thesis, while in this chapter I will report **a summary of insights and quotes** derived from my overall analysis.

2.1.2. **Interviews summary**

Interviewe	Role	Company
Sara Mazzocchi	*CEO and Co-founder*	Storyfactory
Clara Lott	*Service designer and UX researcher*	Experientia
Antonio Grillo	*Service Design and UX Director*	Tangity
Valentina Gingardi	*Project manager and Urban & Digital*	eFM
Ana Isabel Palacios	*Designer Lead*	Designit
Stefano Greco	*User Experience designer*	Sketchin
Francesca Carella	*Service designer*	Vodafone
Lidia Tralli	*Service design director*	Fjord
Eli Wood	*Prototype Designer, Design Facilitator*	Designit
Caterina Benetti	*Customer Experience designer*	Sky
Veronica della Morte	*Service designer*	Accenture
Sara Casanova	*Service designer*	Alkemy
Justine Syen	*Senior Interaction Designer*	IDEO
Chiara Casadei	*Service designer*	Frog
Daria Cantù	*Ph.D, Service Design Lead*	Experientia
Pietro Curtolillo	*Head of Customer Journey and research*	Generali
Stefano Grisenti	*Inno&green ambassador ddi*	Leroy Merlin
Aleksandra Miljkovic	*Director concept development*	xxx
Daniela Selloni	*Service Designer and Researcher*	Polimi Desis lab

INTERVIEW 1

07 December 2020

Sara Mazzocchi

CEO and Co-founder
Storyfactory, consulting agency

Insight: From this interview, I learned that co-design aims for co-generation and not confrontation between different points of view. Avoiding conflict means to give priority to inclusivity in all its forms, also including the one of the digital divide.

Insight: Today co-design phenomenon is definitely on the rise, also for demographic reasons (young people tend to reject top-down strategies, there is the spread of a collaborative and shared culture). Companies tend to internalize this methodology by hiring experts in this field.

By nature, we have always co-designed with clients, but now, we have chosen to open to a more structured and academic co-design methodology. So we have recruited expert designers in the sector.

Interview main topics

- Rarely companies come to design agencies because they want to change or innovate. On the contrary, they often have a problem to solve, a **promising problem to be transformed into an opportunity.** Innovation can be reached as a consequence of problem solving.

- Co-design is perceived as the **accelerator of their approach** (that was collaborative already but more intuitive and less structured). In this way also the results are more perceived by the customer.

- Co-design is also perceived as a **methodology based on inclusivity** and not on fundamentalists rules. The designers need to understand how familiar a person is with the tools proposed, and how much he/she needs help to approach the session. **Co-designing is not just a matter of tools and activities,** but more of bringing people closer to the idea that, by co-designing, it is possible to arrive at a project faster and more effectively.

- **Digitalization is a promising problem:** companies found themselves with systems and methods no longer working, and this can lead to a systemic evolution. In few months, companies experienced an acceleration that in normal conditions would have taken years to happen.

INTERVIEW 2

10 January 2021

Clara Lott

Service designer and UX researcher
Experientia, consulting agency

Insight: New roles are emerging for designers. Consulting agencies are becoming more and more strategic and holistic, specializing in the management of complex systems, so their use of co-design methodology is also increasing.

Insight: From this interview, I started asking myself whether it is possible to transmit methodology during workshops, and more importantly, to transmit it to non-designers using specific tools and techniques.

Companies often don't come to us because they are unable to design, but to expand their range of knowledge and to nurture and unlock the creativity of their inner departments.

Interview main topics

- One of the common facilitation mistakes happens when people are not aligned with our reasonings, making arguments that indicate a **lack of knowledge of the subject.** In this case, it is fundamental to **share results in advance** with the participants giving them enough time to immerse themselves in the collected data and material.
Therefore the communication of the contents is relevant because designers cannot send a 200-page report since they want the material to be read and not ignored.

- Compared to the digital co-design, It was also much easier to involve and engage people in person. This happened in particular thanks to **small informal moments before and during the workshop** that were the real ingredients to create a relaxed, convivial, and shared atmosphere (coffee, chat about the trip, buffet, etc...)

- One of their trusted clients asked them to **develop a methodology toolkit** that could help them in dealing with all projects. This toolkit is still used by them and is very specific to their context while remaining generic and easy to use even for non-designers. With this toolkit they are not independent and continue to collaborate with consultancies, in fact, it is almost to be **considered as a communication tool** so that the work teams within the company follow the same path.

INTERVIEW 3

12 march 2021

Antonio Grillo

UX Service designer director
Tangity, consulting agency

Insight: From this interview, I understood that designers often tend to suffer from arrogance above their customers or users. All the negative perceptions (like skepticism or sillyness) towards the co-design method derive from this communication error.

Insight: Co-design is an innovative method because it manages to force and trigger conditions (related to creativity) that would normally be considered fortuitous. Instead, they are not, and they can be learned and transmitted.

Co-design sessions are a bit like a stethoscope, it is a tool that must be used by competent people, if the stethoscope was used by a non-doctor we will not get the same results.

Interview main topics

- There are no stupid customers but designers unable to communicate the value of what they do. So **designers job is to foster dialogue and communication,** making sure that people can easily interact with tools leading to cooperation and collaboration. Designing tools that make dialogue and **create connections between people is fundamenta**l and allows designers to converse with each other and with the services.

- At the moment, co-design sessions highlight the needs of the user, business, and technology. However, two components must be taken into account from now on because this triangle of forces may no longer be enough. It must become a pentagon with two other dimensions, **namely social responsibility and sustainability.**

- A big problem in digital co-design is the **absence of serendipity and randomness,** the spontaneous contents and ideas that generate innovation. On digital, everything must be programmed.

- They use co-design in the **generative phases of a project, as well as in the convergent and validation ones.** They also use co-design sessions in the **prioritization or framing phase**, and to do grounding (when passing from the blueprint to an alpha or beta version).

10 January 2021

Valentina Gingardi

Project Manager and Urban & Digital Transformation
eFM, architecture company

Insight: An interesting consideration concerns the management of space: space is a fundamental element to encourage collaboration, to reduce conflict, and to horizontalize and democratize a company or a design /project team.

Insight: This interview was fundamental to understand how a company first approaches the co-design method. Although it can be used spontaneously at first, one soon realizes that collaborating is complex and requires experts and knowledge.

Co-design allows giving voice to all the members of the group with a spontaneity that for me is by no means trivial and, in the end, what you get is much more than a simple "comparison between individuals".

Interview main topics

- The digital change has pushed them to **institutionalize moments, even those of informal collaboration** (seeing each other in the morning, taking a virtual coffee break, etc...).

- She has always considered this method very useful and fruitful to bring out innovative ideas, thanks to the comparison between people with different skills. She noticed co-design to be a **powerful internal accelerator in identifying the key points** of the project in terms of processes even before solutions.

- They first used co-design in a specific project. **Co-design was a need that arose almost spontaneously**, and it all started from the difficulty of managing the participants' schedules. The customer had a very wide network of partners so, in the kick-off phase of the project, they found themselves with 25 representatives around the table, each with his/her ideas and thoughts. So they had to think about activities to make these people collaborate in an unstructured way, but which certainly brought them closer to a new world (an embryonic form of co-design).

- Collaborative services will become more and more important and will likely become a **hybrid form of totally remote or in presence.**

17 February 2021

Ana Isabel Palacios

Designer lead
Designit, consulting agency

Insight: The most important insight coming from this interview was an honest opinion of how tiring and frustrating this methodology can be for designers and how the lack of education about facilitation is an absolute shame.

Insight: Facilitation is the key to performing correctly the co-design, and facilitation is a skill that must be learned because it is made of tools, knowledge, empathy, patience, and improvisation.

For me, workshops are very challenging. Facilitation is the most important issue, in particular on-remote, because it is very difficult to engage people and keep them active during the session.

Interview main topics

- In strategic design, it is difficult to ask participants for **more than 4 hours of meeting**. Designers are working at the top level of an organization and it is complex to schedule the agendas of decision-makers. They don't have much time to dedicate to meetings, also because they don't often realize the value of these kinds of initiatives.

- Engagement is the crucial problem: if there is a person who is a **"hypo", (like a CEO), everything goes around him/her,** and then all the people are going to be influenced by that person's opinion. Designers need to find ways to avoid this, like making everybody anonymous or using laser pointers for voting (in this way, designers don't know the source of light but just see the final dot).

- Digital co-design sessions are very complex. In fact, it is very **difficult to feel the energy, like group dynamics**, if somebody is bored or not engaged. Moreover, sometimes people don't want to show their face, don't turn on their camera, and the facilitators lose facial expression communication.

- Sometimes participants feel the **co-design activities to be silly instead of playful**. This is very risky because then design as a whole field will be seen as a silly discipline and this happens a lot doing this kind of activities in the wrong way.

INTERVIEW 6

3 January 2021

Stefano Greco

User Experience designer
Sketchin, consulting agency

In our method, it is very important to involve the client, first of all, to obtain his know-how. In a project, we bring our experience as a designer, our method, but maybe we don't know the context that is the client's expertise.

Insight: If for some companies the lockdown meant the end of the co-design sessions, for other companies the opposite occurred, prompting companies to organize workshops in all situations and even in non-necessary cases.

Insight: Sketchin has a very well-structured method for managing meetings and co-design sessions and, above all, for managing participants. Ex. for each session there must be a fixed core of participants and sporadic additions as needed. The core is always characterized by decision-making levers.

Interview main topics

- Methodology transmission can happen in two ways: **naturally, so the client asks to do a project together** with the consultancy, not only because there is a guarantee of quality and that the output will be as expected but because he wants to learn specific methodologies. So there is already a **client's propensity for "learning by doing."** The other way is the simple training workshop about design thinking.

- Often, the client comes with a **request that is already a solution** and that is not what he needs. Then the client relies on the consultancy to redefine his problems.

- Sometimes it happens that the company is very skeptical. The client contacts the designers because he wants to try design thinking in workshops, etc... But then, while practicing, he becomes hesitant and starts questioning the usefulness of the activities. In fact, in the **first workshops, it is essential to gain the trust of the client.**

- **Remotely we have seen a surge in meetings,** precisely because of this anxiety, especially on the part of the customer, to follow our work and **keep the design team "controlled**." If in the physical world short visits were not a nuisance, in the virtual world this increase in daily calls hinders the carrying out of work.

INTERVIEW 7

18 december 2020

Francesca Carella

Service designer
Vodafone, telecomunication company

Sometimes the brief request is to do a workshop, but the workshop is not the problem nor the solution. It is a fundamental part of the solution process.

Insight: It is important to create connections between the design team and the rest of the company, otherwise, the designers would feel isolated from the rest of their colleagues and excluded from the company lifestyle.

Insight: Co-design is an innovative method but there is the risk to use it for the work purposes and just to please the client when he asks for it.

Interview main topics

- The design team tries to educate the internal collaborators that the workshop is not the panacea for all troubles and should not be abused. Maybe there is no need to do a workshop but only a well-organized meeting. First of all, the designers' job is to **educate clients about what a workshop is and for what reasons they do it.**

- **People need education on the tools of design thinking,** also because there are often words that are in fashion and are used inappropriately. We also try to make it clear that the workshop must be prepared, so if I want to do a workshop, I can't do it overnight.

- The activities organized on the board are **more efficient and more organized.** The online workshops waste less time because you cut all that time of socializing and pleasantries and go straight to the point. Also, designers need less resources and materials compared to the physical workshops. Our workshops usually last two or three hours.

- Participants are not obliged to come to the session, but they are not even volunteers, they are invited by us according to the project and according to the areas and channels we need. **Sometimes they are "pushed" by their team leader** to participate.

INTERVIEW 8

25 November 2020

Lidia Tralli

Service design director
Fjord Milano, consulting agency

Insight: Companies look for design partly because they see that their methods don't work anymore. They understood that their transformation should be done in a user-centric way, and designers are experts in this.

Insight: From a certain point of view, a lot of damage has been done to co-design methodology, and very valid instruments have been inflated because of all its recent popularity. If the quality of the result decreases, their credibility and reputation also decrease.

When clients require a co-design, they want a solution to quickly come up with an idea, skipping all the phases that precede that moment. A miracle is expected, while this activity is only part of the process.

Interview main topics

-It has now become quite easy to convince companies that co-design methodology is important, and it is **rare to find resistance in the acceptance of the method**, even if at the beginning there can be a little bit of skepticism.

-The bigger problems concern the logistic sphere. **Crossing agendas and having the availability of all people** for a long time, also because often the interlocutors change from co-design to co-design.

-Another problem occurs in moments designers need more detailed or more operational information for the project, requiring the collaboration of experts or consultants. The main difficulty concerns the **motivation of the participants and creating engagement and enthusiasm.** So there is an "actor" component that must be brought to the field.

-Sometimes the **methodology transmission is a real phase of the project,** while sometimes, it should be designed and managed separately. Moreover, many times the people who participate in these activities should somehow become **"ambassadors" for the rest of the company** and this is not an easy or automatic task. If the session is operational the client do not need the transmission, but if the primary goal is to create engagement and a shared vision, then it becomes crucial and must become the subject of a program.

INTERVIEW 9

19 February 2021

Eli Wood

Design lead
Designit, Consultancy design agency

Insight: Digitalization didn't reduce productivity or quality in the design outputs and outcomes. On the other hand, it significantly reduced fun in doing these activities. This makes on-line workshops very productive, but less enjoable.

Insight: A clear goal may be in reality meaningless. For example, a company that wants to "align", doesn't really know what it is asking for. Alignment can be traduced in different ways, from team building to goal clarification.

Co-design frequency will definitely increase. I come from a company that was specialized in doing just professional workshops. Three-four years ago it was difficult to find competitors, but now workshop agencies are growing like crazy.

Interview main topics

- Designit co-designed almost just with the client, in fact inside large companies, it can be really difficult to get people to **resource their time.** It also depends on the **mentality of the client, how protective they are of their users.** Sometimes designers can't involve them, even if it would have been better and more successful to do it. Because the client wants to show the users a product that is already finished and sexy.

- One big obstacle is the **lack of clarity about the goal.** It is better to only have 1 objective, even with lots of time available. For example, if you need to create ideas for the page of a product (already a good enough goal), often people fell into this trap of thinking: "We have 4 hours, so in the first one we will do this, in the second this, and so on... This is always a failure because participants' minds get lost on-remote. **On-remote breaks are not effective,** participants' minds never stop thinking or working on the previous activity, and they aren't able to reset.

- Before producing activities, the designer should identify three dimensions: **people, place, and time.** Only at this point he/she can start **creating tools like puzzle pieces to bridge** the information obtained. The interviewee saw a lot of time that inexperienced designers make these kinds of mistakes, producing workshops that, in the end, are useless.

INTERVIEW 10

30 November 2020

Caterina Benetti

Customer experience designer
Sky, telecommunication company

Insight: Sky decided to adopt the co-design and design thinking methodology when they had to develop a completely new project, that was so different from the previous one to require a diverse approach.

Insight: The internal design team worked together with other two consultancies that helped them define the methodology, framework, and nomenclature, and built the base of the service.

It is very difficult for some people to break away from the concept of process and immerse themselves in the concept of the customer journey. For many, it seems the same thing but in reality, it is not.

Interview main topics

- The design team rarely works with the final users. For the construction of the service, **users were never involved,** especially when they were working with a new service protected by privacy. Instead, they do a final check with the customer. There are structures through which users can try out scenarios, giving feedback for improvement. The interviewee wishes to in**volve more the customer in the future, not only in the latest phases,** in which his contribution can't really change the course of the project.

- They don't have meetings where they design journeys together with the participants. On the contrary, **they work on journeys that they have previously prepared.** Therefore they often do consolidation workshops but they never do ideation ones.

- They often **organize "offline workshops."** They prepared all the materials and activities and then sent them to the participants offline who had two or three days to complete all the planned tasks. Then later they organize a discussion session to share results and comments on the activities done.

- For many people it is automatic to skip the identification of a customer journey and immediately move on to the discussion of the process. **Shifting from a process-oriented to a user-centered approach** is the hardest task when working with such a big company.

INTERVIEW 11

19 march 2021

Veronica Della morte

Service designer
Accenture, consulting agency

Insight: If a company has an internal design team, this may work as a sort of separate agency inside the company. Designers risk being excluded from the rest of their colleagues, and their credibility and trust can suffer from this.

Insight: Accenture design team works as a real workshop agency. Their task is to support the other teams in the adoption of design thinking methodology and in the organization of custom workshops.

Workshops with customers are often easier than internal ones. It is more frequent to find non-collaborative participants, which can affect the effectiveness of the session because they generate hypo.

Interview main topics

- The designers' tasks as facilitators are primarily to keep the **conversation going and keep the spark alive**. Sometimes, on the other hand, it can happen the opposite. They should intervene to **divert or interrupt a discourse**, mainly for reasons of time, without demolishing the vivacity of the debate or without cutting off interesting and innovative ideas and contents. If the atmosphere in the group is set optimally, these two problems occur very rarely.

- The client team is often an obstacle for the design team. They tend to always satisfy the client and therefore, out of fear of disappointing him, **they do not trust the designers' proposals,** especially when they are unconventional.

- However, dealing with the client team is essential as they are the content experts, knowing very well the client and the subject they deal with. And this is especially important when the issues are very technical.
The problems of the client team are **mainly related to the timing, and to the management of the participants** (because for example, participants are not too numerous).

- Another problem occurs in running into participants who **do not believe in the value of what you are doing**, perhaps due to the playful nature of the sessions themselves.

30 March 2021

Sara Casanova

Service designer
Alkemy, consulting agency

Insight: Being able to coordinate with the project managers by the client is essential, because they have great power and influence and are the ones who know the team and the participants best.

Insight: Co-design is potentially relevant when it becomes an important phase of the project which cannot be skipped, and it is not only seen as a design accessory.

This year we didn't organize traditional workshops as we did before. Probably this happens also because companies didn't have that budget available to dedicate to these very demanding innovation projects

Interview main topics

- The interviewee has never done training programs, even if they offered them to the clients.
However, during a presentation, they are often asked to **add slides about process and methodology**, because otherwise many steps that are logical for designers would be unclear to the client. So the **methodology is implicitly conveyed** during exhibitions and presentations.

- One of the main co-design trouble is represented by the **onboarding of the participants.** Try to clarify the right spirit/mood of the session and the type of activity they are going to do. Especially in presence, it was very difficult to **communicate the value of what they were experiencing.** Because at times activities didn't seem serious there is the risk of being taken lightly, especially by certain departments of the company and perhaps also for political reasons. This happen in particular for internal co-design sessions.

- Co-design is managed in two ways:
Either it is an **activity that designers propose within a larger project,** or they understand that co-design is the aim of the project, and therefore it is a **customer request.**
In the first case, the workshop is only a **part of the project process** and integrated within it; in the second case, the **workshop is the protagonist**, and the aim is mainly to engage and put different people in the same room.

03 march 2021

Justin Syen

Senior Interaction Designer
IDEO London, Consulting agancy

Insight: We can say that remote workshops are more convenient but just less fun. Designers shouldn't care anymore about all the logistical aspects that were crucial for the past co-design sessions (dressing up space, booking the catering, printing materials, etc...

Insight: Digital co-design is setting an interest refection over inclusivity. Many people are suffering from the digital divide, and digital co-design might lead to the exclusion of some people, in particular the older ones. On the other hand, it can become more inclusive for other people whose participation is limited by space, time, and money, because everyone has at least a smartphone today.

The main obstacle is to make the session interesting. You want people to throw themselves into the session, and to let their guards down. Online everything is so flat that I struggle in compensating for the absence of space and of the possibility to sketch.

Interview main topics

- During workshops, designers need to find ways to **break the tiring flow of remote working** because people can not live constantly online and behind a screen. Co-design must be moments that are different from the standard working atmosphere, like a vacation from your daily work. In presence, it was really easy to **create a bubble in which everything was different.** On the remote, people are constantly jumping from one call to another, and it is very **complex to have this mental switch.** So for example designers can try putting on some music to lift the mood, making participants choose a playlist.

- During a co-design, **everybody needs to gather around just one goal.** On the contrary, every person, coming from different departments, has a different goal and different parameters that he/she wants to achieve from the project. It is very useful to find ways to **break participant's roles, hierarchy, and job titles**. For example, designers can ask participants to change their names in the chat with an avatar.

- The **impossibility to sketch makes more difficult** for certain ideas to come to life, and it is also more difficult for other participants to **understand each other's thoughts** because they have to read instead of seeing what you are thinking. Also if the workshop is based on the manipulation of the space everything becomes very complex

15 March 2021

Chiara Casadei

Service designer
Frog, consulting agency

Insight: Digital co-design has brought some benefits (like better time and space management), but on the other side, these benefits cannot be applied to all the co-design contexts or to all the fields, like products for elderlies.

Insight: Moderation becomes complex, especially when designers enter an established reality in which they have to impose on the participants, taking leadership, but at the same time creating a climate of sharing and equity.

We're still figuring out and testing how to get organized with this digital shift, in particular with users, because we have many problems with the digital divide.

Interview main topics

- Shifting to digital designers have two main kinds of problems:
the first is that they often have to **deal with products that the participants have to see,** touch, and test, which is impossible in digital. The other problem is that these sessions are effective if they **take place in the user's context** because understanding how the user moves in their environment is very important.

- Time is always the main problem, **finding it and knowing how to manage it** during the course of the session.
Being an efficient timekeeper is very complex because it happens very often to be faced with activities that last too long and that designers shouòd interrupt without being rude or stopping the conversation flow.

- It is important to remember to **communicate the right value of co-design**, without taking anything for granted, because your participants may not know what a journey is and why it is so important to do it. It can be useful to introduce the session with a **brief methodological recap.**

- Then another important thing concerns **the quality of the materials produced and used.** For example, using a beautiful graphic or a beautiful paper, setting up space in a pleasant and refined way, showing the commitment you have put into it, are crucial to guarantee the session's success.

16 february 2021

Daria Cantù

Service Design Lead
Experientia, Consulting agancy

Insight: The majority of consultancy agencies have already a huge experience about co-design and years and years of practices, rules, and activities which are modeled on their routines, projects and clients, teaching them to newbie deisgners.

To learn how to co-design you need to practice, observing people who are experts at it, attending workshops as much as possible, observing users and observing everything.

Interview main topics

- On-remote everything has changed because to manage a successful co-design session, you need to **engage with people, making them collaborate in teams.**
Therefore you need to create relationships and networks between people, and this is almost impossible online.
Moreover, on-remote, there are a lot of technical issues because it is more difficult to organize and prepare content but, more importantly, **a lot of people suffer from a digital divide** that let them feel excluded from the conversation.

- There are also positive sides to this digital shift: in fact, now there are participants who come from all over the world, and it is easier to have the right people for the right session without make do with the available people. It is also possible to **organize a bilingual workshop** thanks to simultaneous translator, so that in different rooms you might be speaking different languages.

- A golden rule for facilitators is to let everyone talk a little bit, a lot of **patience, courtesy, and kindness,** and maybe you understand when you can tone down a little bit, maybe make a light joke to create a slightly more informal situation, to encourage more and more collaboration.
You can learn this or you can have a natural talent in understanding situations.

INTERVIEW 16

15 December 2020

Pietro Curtolillo

Head of Customer Journey and research
Generali, insurance company

Insight: They didn't have any professional figures specialized in any sector of the design field, therefore all their journey started from the first contact with a design consultancy firm, from which they stole experience.

Insight: They do many training courses and, in particular, they offer "knowledge corners" that provide theoretical and practical tests on design themes, including co-design.

Co-design is about bringing people into the same room, making them think differently in a structured way, instead of focusing on the correct application of some tools.

Interview main topics

- It all started with a project: the internal renovation of more than 20 business processes in collaboration with a design consultancy agency. After the project, Generali **absorbed the savoir-faire of the consultancy and they internalized it,** importing the co-design methodology and all the tools, including complex ones such as blueprints, etc ... to create new processes and innovate. At the same time, when the company saw that this approach was working very well, it began to **apply these methodologies to all the corporate hackathons and workshops**, which have intensified and developed in this period.

- Then, they also structured a **digital portal collecting and explaining all the tools** and all the useful methodologies used inside the company, a sort of playbook with the design thinking methodology used within Generali, and the recommended tools to use according to the situation/ context. They did this to avoid that, with the growing popularity that these approaches were having inside the company, people would find themselves disoriented, **using the methodologies and tools inappropriately** because of their lack of knowledge.

- In the beginning, the co-design was perceived as something new, there was a lot of fear of making mistakes. Now, on the other hand, **it has integrated with company logic and with the Agile methodology** and it is used frequently throughout the design projects.

INTERVIEW 17

18 November 2020

Stefano Grisenti

Inno&green ambassador ddi
Leroy Merlin, Retail company

Insight: When a service design project is partly bottom-up, there is the risk that, at one point, the decision-makers will not completely understand the value and usefulness of the programs, perceiving them as something too demanding in terms of resources.

Insight: They got to know the world of design and collaborative services after feeling threatened by avant-garde themes and movements such as the "sharing economy", which risked compromising their market.

Service design innovation projects are still perceived as something nice but not fundamental, something that takes space and time from the business routine but cannot substitute them.

Interview main topics

-In 2012 they finished a long journey of visioning to imagine the company in 2020, after which they came into contact with a service designer (Danieal Selloni) to create offers and services for the company of the future.

-They created programs (FAI) in which **individual employees from the store were trained on the service design methodology** and associated with a tutor (a marketing and logistics expert). The team was responsible for developing an entire project on their own, from ideation to grounding.
In this way, the company had the **development of the person** from a professional point of view, but also the communication and the **union of two company departments** that had never spoken before (ie shop and administration) and obviously the **development of an innovative project.**
They had a time constraint of 6 months to develop everything and 2 months for prototyping it, in the end, they collected more than 26 services in just one year.

- **The relationship with the colleague is based on his/her knowledge and not on his/her status,** therefore they try to avoid hierarchical relationships because each of us has a different but equally important knowledge contribution. This makes it easier to go in the same direction and have a common goal.

INTERVIEW 18

15 April 2021

Aleksandra Miljkovic

Director concept development
xxx

Insight: A big company like the interviewed one is still quite skeptical about the possible implementation of co-design methodologies inside its departments because it is still relaying on hierarchical and silos systems.

Insight: Communicating with other designers as clients sometimes con be very complicated because you don't know exactly which things to be taken for granted and which things that need to be explained to not create confusion.

We didn't understand why we started with the idea of doing a determinate thing and, after months and months of service design work, we still ended up with that exactly determinate thing.

Interview main topics

- I specifically interview this person concerning a service design project done in the previous months by my team, to verify and collect some impressions.

- She told me that even though she and her team were very interested in the methodology proposed and **were hoping to apply it to their environment,** they were not sure about the feasibility of all the processes.
They had never done service design projects or co-design activities, and this way of working was totally new for them. For this reason, they immediately **found some conflicts in this new way of working** with their traditional one, based on deep-rooted hierarchy, fast projects, and no information sharing between cross-functional teams.

- Moreover, after the project end, they **were not sure to have understood properly the value of service design** and co-design methodology, and they were confused by the fact that they started the project with an initial idea and, after months of work, they remained over the first one proposed, rejecting all the others ideas and options discovered.

- I understood how difficult it is to communicate clearly what you are doing, **showing its complexity** (that requires a long and deep study and analysis) but at the same time also **its practical feasibility traits.**

INTERVIEW 19

05 june 2021

Daniela Selloni

Service Designer and Researcher
Polimi Desis Lab, university laboratory

Insight: The company wanted just an introduction to the service design world. then they reflected over these data for over a year, finding the right opportunity to experiment with this methodology (that is the case study at the base of this thesis)

Insight: Case studies were fundamental to give them something practical, trustworthy, and to show the feasibility side of the design principles that are difficult to envision.

We felt a little out of context because we didn't know if they understood all the things we said, especially with the more junior figures. The design perception was: nice to have but not fundamental.

Interview main topics

- In June 2019 the interviewe and a colleague were called by a big company to do a **training workshop on service design** and, in particular, applied to the retail world. This happened thanks to few **enlightened people (therefore it was a completely to-down decision)** who understood they had to rethink the store and its service offering (one of them was Aleksandra, see interview 18).

- The workshop lasted one full day and was divided into three parts: the first part was dedicated to a **methodological introduction to the world of design**, introducing the company to substantially new concepts. The introduction was mainly focused on design principles, double diamonds, and also its flexibility because every designer can adapt the method to his/her own way of working. Then, the second part was dedicated to the **exploration of real examples of applied knowledge, through case studies.** The designers also brought with them a special guest to tell another famous case study of service design applied to the retail field. The third part was dedicated to service design and it was divided between a t**heoretical lesson and a practical, creative, and collaborative activity.** The goal was to provoke and inspire people through typical service design tools but applying everything to the retail world. The activity consisted of a set of provoking "what if" cards that were distributed to the audience.

2.1.3. **Interviews Insights**

"We live in a world in which saying that we are all designers is no longer a possibility but a reality." (Manzini, 2015, p. 24)

From the interviews made, many insights emerged that, for simplicity, I decided to clusterize in microtematics to be analyzed in this section.

From the interviews, it emerged that co-design success or failure depends on specific variables, and learning how to manage and control them can become a fundamental skill for the co-designer. Some variables are immutable ingredients to every co-design, and designers should never forget about them. On the other hand, others can change greatly from case to case, and designers should know how to change them according to the situation. Each variable will be discussed in a separate paragraph highlighting the challenge and consideration from the interviewees.

Choosing participants

The participant in a co-design session is a stakeholder involved in the project, but who exactly is a stakeholder?
A stakeholder is any person, group, or institution that, positively or negatively, affects or is affected by a particular issue or outcome. We identify stakeholders as people, institutions, or social groups that are involved in, or affected by, decision-making regarding particular design issues (Co-create, 2019). Although this definition may seem simple, it is often difficult to answer fundamental questions like these: How to find stakeholders? How to reach them? In this paragraph, I will analyze these two questions.

First of all, for all the interviewees **choosing the participants in their co-design session** was a crucial point. However, almost all of them admitted that **they have no power over the actual choice of participants** and their possibility to participate in the session, a power that is often held by the clients itself or an external intermediator.
For this reason, the designer needs to know very well the **value chain map of the people** involved in the project, to give as clear and as detailed indications as possible to reach them.

Moreover, **how participants are convinced to participate** in the session results to be a relevant factor of influence during co-design. This happens especially when participation is reserved for employees, that are **often obliged to participate by their boss** bringing a negative motivational driver to the session. Reaching people, however, does not only mean having a practical chance to engage and convince them, but can relate to a more **subtle level of inclusivity.** Some people can be unreachable for the designer, not just for spatial but for linguistic, cultural, religious barriers, etc...
The designer should be conscientious of these barriers, not only trying to convince a person to participate but also supporting the participation of less included stakeholders. For example, if there is a culture in which women are responsible for taking care of the children, then it is likely they will not be able to attend any meeting after school hours (Co-create, 2019).

The number of participants:

All the interviewees said they had **very variable sessions in terms of participants,** with workshops from 5 up to 60 people.
However, they all state that **the more participants you have the more resources** you will spend on managing them, so having a clear estimation of your resources is very important to avoid finding yourself unable to manage too many people.

Typology of participants:

Designers can deal with different people: some might be higher in the hierarchical pyramid of a company, or working in areas that are totally outside the design sphere. Some might be colleagues, or workers coming from another company, or people who don't belong to the company world. All interviews said that there must be a **balance between horizontal diversity and vertical diversity.**
Once the specifics of the project have been considered, it is necessary to pay close attention to the variety and differentiation of the participants so that they will have different skills and backgrounds.
Choosing people coming from the same environment or the designers' network will end up having a session composed of like-minded people, in which the relationship with the designer will be influenced, losing spontaneity and richness in the contents. The risk is to have instead **homogeneous and biased outputs** (Meroni, Selloni, & Rossi, 2018).

As we said before, even inclusiveness is very important to take into acccount, for example, **not having just people of the same sex, ethnicity, or social condition** at the table.
Think of participants as "active agents" rather than "beneficiaries" (Co-create, 2019).
If for the horizontal dimension the differentiation is fundamental, the vertical one may not turn out as successful. Vertical differentiation concerns hierarchical roles within a company or a society such as boss/employee or employee/customer relationship. Uniting participants with such different roles or decision-making powers could **unbalance the harmony of the session, creating tension,** conflict, or polarizing everyone's attention on specific relevant characters.

"Engagement is another problem: if you have a person who is a hypo, (like a CEO), everything goes around that person, and then all the people are going to be influenced by that person's opinion."
(interview 5)

This situation is described, by the interviewee Anna, in which a person captures all the attention by influencing with his own decisions and opinions those of all the others. As mentioned, the end-users also fall under this vertical differentiation, so it is better to keep them separate from the company members.

In reality, the real problem with end-users is **their total absence of involvement by the companies** in co-design sessions, except for sporadic collaborations in terms of testing. According to the interviewees, this would happen mainly **for reasons of time and mentality.** Involving the end-users means spending a lot of time and money, and it is not easy to convince the private company that it will be worthy, because design discipline often don't guarantee short term quantitative data. Moreover, Companies are protective towards their users and want to show them just the products when they are finished and "sexy."

Co-design perception

The interviewees raised immediately, as a topic of discussion, the concept of co-design and its interpretation and perception by people, in particular designers, and participants.
As expected, the designers' perception regarding a specific tool, namely the co-design, **influences how it will be used and also its acceptance by the client.** In many cases, it can even undermine the very usefulness of the tool, in particular, if there is a misconception at the base of the designer's knowledge.
The co-design methodology is still new and it is starting to be recognized in the innovation panorama and all this popularity has led to its application in different fields for solving different kinds of problems. This corresponds to an equally **wide spectrum of potential misunderstandings,** causing, in the end, many participants to show a **negative or misleading attitude towards the use of this tool.**
For the interviewees, the most common misunderstood attitudes are:

- Considering the **co-design session as a solution to their problems** and not as an integrated part of a much more complex process.
- **The panacea for all their troubles,** so powerful and effective to be requested even when it is not necessary.
- Perceiving the co-design session just as a **silly and playful activity**, that can be useful just for teambuilding or engagement purposes.
- Considering the co-design session **as a waste of time, looking at it with skepticism** because it wants to discuss business topics from the perspective of people who don't know anything about it. This happens in particular for co-design organized internally by the design department, while external consultants are generally more respected.
- Perceiving co-design just as a **set of tools and activities that everybody can perform,** even without any knowledge about collaboration or design.

"Let's dispel a myth: there are no stupid customers but designers unable to communicate the value of what they do."
(Interview 3)

As mentioned before, in most cases, these misleading perceptions **don't occur due to the participant's ignorance** or inability to understand the world of design. On the contrary, they happen due to incorrect use of the tool by the designers themselves and **their inability to communicate the value of what they are doing.** If from the very beginning the designer considers the participant not able to understand him, the co-design session will fail, but the same effect can also be obtained if considering the participant as an expert equal to the designer. In both cases, co-design will produce biased or useless results.

As Manzini (2015) says **everybody indeed possesses natural design talents** (critical sense, creativity, and practical sense) and nowadays these abilities are becoming more and more relevant for people, that are pushed to use them to solve their everyday problems. On the other hand, **a natural talent must be nurtured and cultivated to become a skill** and even more to become a discipline. Therefore, even if everybody is born with the ability to design, not everybody becomes a professional designer.
This distinction is fundamental to identify:
-a "diffuse design", namely the non-experts who can naturally design;
-an "expert design", namely the professional trained designers, characterized by using specific tools and by belonging to design culture.
Co-design thus **becomes an exclusive tool of the experts** comparable, as the interviewee 3 says, to a stethoscope. The tool itself is useless unless it is in the hand of a professional, even if theoretically we know how it works. This happens because **co-design is a practice and needs practice,** and only the combination of these two interdependent factors will lead to mastery (Gray et al., 2010). So it is not enough to read books (even this toolkit) to master co-design sessions without **practicing on the field and in a long time** this knowledge. But at the same time, practice alone won't lead designers necessarily to the correct interpretation and execution of the method.
The difficulty described above regarding the co-design interpretation is so evident considering that we live in a society in which **everybody designs, even if intuitively and without method.**
Facing this fact is the way to bring clarity for the co-design field and the designer's value as a profession.
In this way, the designer's goal, as an expert, becomes to bring forth the designing natural talents in the participants, to facilitate dialogue and communication between them.

Digital Co-design

One of the first topics of discussion during the interviews concerned the concept of **co-design in a pandemic contest**, focusing on the necessary degree of change to continue organizing co-design workshops.
Most of the interviewees have been experimenting with digital tools for a year now, so the majority of examples made during the interviews referred to **workshops totally digital and on-remote.**
Regardless, none of the interviewees considered the digital co-design as a new way of doing it, but more a temporary and necessary step that will leave its influence over the new co-design generation.

The degree of change during this last year was very drastic, bringing new challenges to an already complex method but, at the same time, opening doors for new uses and new strategies which for now were unexplored or considered to be impossible.
Analyzing the interviews carefully, I noticed that the digital co-design caused just one relevant problem: **the inhibition of emotional participation, dialogue, and collaboration of the participants**, making it extremely complicated to keep everyone engaged and active during the session.
Although there is just one problem, **it undermines the very bases of co-design**, compromising its efficacy so that at least one interviewee said that his company had suspended workshops since the pandemic began.

To understand this problem deeply, I noticed that it is caused by three main factors embedded within the nature of digital co-design itself.

- The first factor concerns the **limits of the digital tools** we have, even if they faced a significant and fast evolution in this period. The inability to see each participant's look, to perceive the micro-nuances of the voice, or the micro-expressions of the face, **make it more complex to empathize and understand** one's interluders. In many cases, the webcams or microphones are not turned on because of bad internet connection, so it becomes difficult to understand even who is attending the session.

- Other times, **the digital limits do not come from outside but from the participants themselves**. It is important to consider that most of the participants **seem to have a digital divide,** finding it difficult to manage new tools, have a good internet connection, or have fast digital devices. Designers must never ignore this because, as I said before, the designer needs to include everyone in the conversation, giving voice to people who don't have it. In this pandemic era, a new way of being inclusive is also considering digital barriers and how to manage them.

"You need to be inclusive and understand how familiar a person is with the digital tools and how much they need to be helped to approach them."
(Interview 1)

- The third factor does not concern the digital tools as much as the **atmosphere created during the workshop**. Some interviewees underlined the importance of the **small convivial moments** that developed naturally during the session breaks and pauses. They also highlighted the importance of **serendipity and randomness generated spontaneously** during the session, often bringing new sparkles of intuition to push even more the conversation. All these elements contribute to reinforce the "weak ties" (Granovetter, 1973) between participants that, as we have seen before, are the successful key for each co-design. For this reason, "sessions need to be designed with **proper time to relax, socialize and even play.** Pleasure has to be part of the experience" with attractive material and good food (Meroni, Selloni, & Rossi, 2018). Unfortunately, these elements reduced drastically, if not even went lost, with on-remote co-design.

On the other hand, thanks to digital co-design, it was possible to apply new and different strategies, bringing positive features to counterbalance the problem described above.

The adoption of digital tools smooths out any differences between participants, both from a **territorial, temporal and linguistic point of view**. It is possible to organize co-design sessions with people from all over the world, reaching the most suitable participants, that in-person would have been impossible to recruit. It is also possible to have **multilingual co-design sessions** thanks to simultaneous translators and separate rooms.
Moreover, digital co-designs have specific characteristics: they are **short, pragmatic, very well organized, requiring fewer resources, and going straight to the point.**
They can be considered **tools for design acceleration** that can be used more often than in-person sessions, and that represent a boost from the point of view of technological innovation tools. In fact, the familiarization with innovative software and systems is no longer an option but rather a need (Bannon, & Ehn, 2012). Until now, it was difficult to find sophisticated tools to perform these tasks, while today it is increasingly possible.

Beyond facilitation mastery

The "co-designer" is a crucial professional figure for the success of the co-design session. All participants agree that the session moderation is a critical aspect for managing a co-design session.

Participants noticed that there is not just one way to be a co-designer, as there is not just one way to facilitate a session. Designers should be conscious of the *style of guidance* (Meroni, Selloni, & Rossi, 2018) that they can adopt according to the situation and the *roles* they should interpret facing complex and different problems (Selloni, 2017). **Designers cannot be any more just facilitators,** enacting the *diffuse* creativity inside each participant (Manzini, 2015), because, otherwise, the role of expert designers is weakened into that of process moderators, asking and summarizing participant's opinions in a sort of polite conversation or *post-it design* (Manzini, 2016). Therefore **designers should also become activists,** provoking people's thoughts and believes, **shifting from tools to contents** (Meroni, & Sangiorgi, 2011), to the point of **becoming advocates or network creators** within a community.

Facilitation tools are fundamental but not sufficient to guarantee good moderation (Selloni, 2017). Giving them already to a person does not make him/her a facilitator because he/she needs to know how to create them. Since all people learn in different ways and designers have disparate goals to achieve, they need to plan and **implement many exercises and activities for every project.**
Because it is such a difficult task, many toolkits have emerged to help designers plan their sessions by offering inspiration and suggestions on multiple tools to use in co-design (Selloni, 2017). However, all the interviews agree that designers should **not just copy-paste these tools**, but they should always **adapt and reinvent them to situations**, considering the new context, people, and subject. Therefore it is almost impossible to create standard tools to reapply in different situations without changing anything.

To navigate the myriad of tools developed in these last years, designers should use correctly the classification of the existing tools.
The first classification is by Sanders et al. (2010), which identifies tools for enacting, making, and telling. The second classification comes from Selloni (2017), who identifies **tools for implementing, inspiring, and framing.**
We can find parallelisms between the two classifications, due to the similarities of **making and implementing tools,** and also of **telling and inspiring tools.** However, the framing tools identify a new category that is very used in service design. They are used for **analyzing a concept in deep,** providing options, frames, and decision-making possibilities.
Finally, the last classification reported is the one by Gray et al. (2010), which proposes tools for **opening, closing, and exploring.**
This is a simplified classification made for for non-designers, in which tools are analyzed under a slightly different perspective. We can still create parallelisms between opening and enacting tools, and also between framing and exploring tools. Closing tools can be included inside framing tools classification as well because they represent all the activities to push people to take decisions. Nevertheless, it is interesting to consider them as a category on their own, with specific tools focused on converging activities.

In this master thesis, I will refer to the activities and tools described using Selloni categorization, adding when necessary also the general labels use by Gray et al. (2010).

Identification of Context of use

Thanks to the interviews made, I also identified the most frequent and most promising contexts of use in which co-design is applied in the case of project innovation.
In the last years, the way of using co-design has changed over time, and that the requests from the company have evolved to the point of identifying new contexts of use for this method.

Nowadays it is not possible to identify what are the companies problem in general. The concept of customer journey and systemic vision on the project is spreading more and more, so every time designers touch a part of the project, they should modify its entire structure and development. Therefore, even if the company's problem concerns just a part of the process, all of it will be affected.

From the interviews, I defined all the moments within the design process in which the company will have obstacles. All these moments can be solved collaboratively, but in particular, I have identified five problems that occur more frequently and correspond to contexts of use for co-design methodology:

- Kick-off a project
- Engage and align
- Generate Ideas
- Prototype a solution
- Learn and train

In the following paragraph, I will give a detailed definition of each problematic. I identified them through the interviews, but then it was necessary a deep literature analysis to confirm them, and to understand their possible implications.

2.1.4. **Contexts of use**

1. Kick-off a project

The first obstacle the company faces is the identification of the problem itself. A problem statement "identifies the gap between the current state (i.e. the problem) and the desired state (i.e. the goal) of a process or product" (Markman, 2017) and this happens generally during the kick-off phase of the project and the *define stage* of design thinking double diamond.
Why is finding or defining a problem so important?
First of all, **how we define the problem determines how we solve it,** in fact, stating the problem with specific words will draw out of our memory specific information, nudging ispirations and inuitions, leading the team to different conclusions and research directions.

Identifying a problem is also crucial because the problem is a "Design problem", which adds, to the definition listed above, the concept of **unmet user needs** (Buchanan, 2001). The user is always the center of the design process and often manifests unconscious needs through targeted actions (goals).

The resulting design problem statement will guide the project and all its future decisions and it is generally known as a "design brief". It will keep aligned the various development teams that work on the project, giving them the possibility to work separatly without making mistakes, and it will also allow the company to save time and money in the long run (Markman, 2017).

2. Engage and align

The relationships inside a company between colleagues, clients, suppliers, etc... are the basis for all the systems to work and are even more fundamental now considering the trends illustrated in chapter 1 concerning the search for innovation. Collaborative services, by their nature, lend themselves to solving or managing all the relational problems happening in a company. They can solve both the ones related to the HR sphere, that refer to team building, elimination of silos, and well-being of the employee; and those related to the project sphere that are focused on the alignment of teams, maintain active relations with suppliers, etc...
In this thesis, **I will be referring in particular to this second sphere**, namely the functional **relationships to cultivate innovative design processes.**
The use of co-design in the company nowadays has achieved great popularity precisely to solve these types of obstacles, pushing companies themselves to request the use of collaborative services from designers. However associating the use of co-design only with the ability to solve relational problems **risks devaluing the method itself,** making both designers and clients perceive only a part of a much more complex tool with more innovative potential.
to have a shared vision on an argument does not mean having a unique view on the subject but rather exactly the opposite, it means embracing under the same gaze the various promising perspectives of which it is composed.

3. Generate Ideas

Originally co-design was born as a creative and generative tool. It was used mainly for creating new ideas or implementing existing ones during the project development.
It is one of the most common uses for co-design methodology even though it is one of the most complex and exhaustive to manage properly.

However, **generating ideas is not enough to reach innovation** (Govindarajan, & Trimble, 2010), but it is only a part of the design process; We are in a "world awash with ideas" (Verganti, 2017) in which everybody can generate new ones, rediscovering and **reappropriating their creativity and "diffuse" design capability** (Manzini, 2015). However, if these ideas are not interpreted, elaborated, and designed by professionals and experts, they will not lead anywhere and will remain only ideas (Manzini, 2015). Moreover, **not all ideas have the same design quality,** and not all of them can become design concepts. Knowing how to recognize and extract valuable ideas by creating a generative atmosphere is an arduous task.

4. Prototype a solution

The prototyping field is one of the few obstacles in which compies started applying unconsciously design principles, organizing meetings that are almost like embryonal co-design sessions, and involving other stakeholders in the process like, for example, the end-users. Even though users are involved in the process, they are generally consulted in the **later phase of prototyping, the testing** phase, during which they don't have anymore the power to change, or co-design, the project together with the company.
Still, **regularizing these moments through the application of co-design** methodology can be very helpful considering that for Meroni, Selloni, and Rossi (2018), these are primarily converging sessions, and during convergent moments teams struggle and enter into multiple conflicts (Rossi, 2019).

5. Learn and train

This obstacle is becoming more and more popular in these years because companies are showing an increasing interest in design disciplines and methodologies. They might need to **internalize these competencies**, or just give new tools to specific departments. However, often companies **don't invest the right resources in these learning processes,** compromising the success of the whole project. In fact, everybody inside the company cannot attend a learning course, and choosing the right people is crucial for the company because they will become ambassadors of these new methodologies inside the organization.
Another important factor lies in the **difference between learning and train.** The majority of these programs don't include training sessions because they are structured as traditional lessons, with a passive sharing of information flow. On the other hand, co-design permits a **continuous learning flow,** interactive and shared knowledge, alternating learning and training sessions, and giving a more complete and deep understanding of the design world (Co-create, 2019).

2.2.
CASE STUDIES

2.2.1. Case studies methodology

I continued my research through the analysis of existing case studies concerning co-design. I decided to focus on those case studies proposing **tools or services, helping designers create a co-design session.** I identified three case studies' categories.

Toolkits

The first category concerns the **creation of tools** to perform co-design activities. They are by far the most diffuse case studies category, also because recently important design consultancy agencies have begun to produce and institutionalize the tools used regularly, creating exportable and trustworthy toolkits.
Most of the tools used by designers in co-design come from these repositories even without knowing it.
I identified two typologies of toolkits:

- **Single toolkits**. The designer needs a specific tool to achieve his/her purpose and search for it.
- **Toolkit collection.** The designer needs a set of tools for his sessions or for approaching a specific topic, so he/she can find repositories of many tools that are generally divided or structured to follow a process or a theme.

Handbooks

This tool represents a **manual of rules, advice, and examples** about the organization of co-design sessions or workshops. Unlike the toolkit, the handbook analyzes the **entire co-design process, not only the activities performed**. Therefore it usually has a more didactic imprint. It is still not a widespread approach to co-design, offering a new way to help designers and companies organize and understand it. I classified it into two categories:

- **Academic handbook.** A theoretic and scientifically oriented manual.
- **Practice-oriented handbook.** It is more communicative, direct and coincise.

Workshop helpers

This last service cluster **offers tailor-made workshops.** I identified different typologies of cases: **workshop agencies**, whose only job is to organize workshops for companies, and that are becoming more and more popular, but also **co-design events or training sessions**, organized by experts in the field. They offer **customized workshop packages** to be applied according to your problem, and they help companies or designers taking care of everything.

I decided to analyzed each category in detail to identify the most interesting design aspects. I can say that there is still not a lot of case studies on co-design subject, because only recently companies have begun to produce material on co-design, to spread its knowledge and practice.
Furthermore, most of the case studies refer to generic collaborative practices, and **rarely they are specifically related to co-design.**

CASE STUDY 1

Toolkit collection

Collective action toolkit

From the top: Fig. 20 - fig. 21
Collective action toolkit cover
Toolkit for imagining ideas

The CAT action map
Frog design

Description

The Collective Action Toolkit is a **set of activities and methods** that enable groups of people anywhere to organize, collaborate and create solutions for problems affecting their community.
It is a toolkit for designers, but also educators, non-profit organizations, governments, businesses, and others across the globe. It is based on **six activity areas that give flexible guidance to a design team,** that can follow a non-linear path choosing the best activity according to the situation. They are Clarify your goal, Build your group, Seek new understanding, Imagine more ideas, Make something real, Plan for action.

Take-aways

- It is a complete tool, mainly concerning **internal design teamwork,** so it focuses more on small team dynamics instead of cross-team relations or connections with clients/users.
- This toolkit is very **clear, communicative, and expressive.** It is specifically structured to be understood also by non-designers and it is perfect for a cross-functional team.
- It proposes interesting **goals and categories to identify problems** inside teamwork. The categories follow the double diamond process and go from the start to the conclusion of a complete project.

CASE STUDY 2

Practice-oriented handbook

The Co-create handbook

From the top: Fig. 22 - fig. 23 - fig. 24
The co-create handbook cover
Two examples of facilitation tips

Handbook for Creative professionals
CO-CREATE

Description

This case study is a handbook for **training people in collaborative design**. In particular, it presents a methodology for developing **train-the-trainer workshops** on co-design. This model consists of a double training and learning strategy. The trainer, a design expert, trains other employees/people and simultaneously teaches them how to train others in the use of the subject. It is useful for accompanying co-design courses while it also features examples and practical information.
This handbook is perfect for **both students and organizations** interested in implementing co-design training activities.

Take-aways

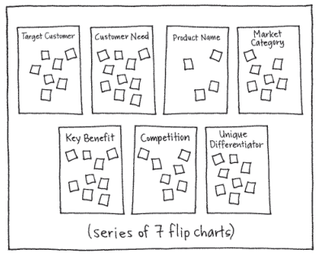
- This handbook offers a practical guide about co-design methodology, offering guidelines to structure workshops. Because it aims to train people, it doesn't focus on co-design activities but the meeting structure and organization, **identifying rules that can be learned and transmitted.**
- It bases on an **existing project** representing the co-design scenario, that will be used as an example during the handbook.
- It is focused on **facilitation issues:** how it is possible to train, and what instruments can help, like facilitation tools but also tips, etc...

CASE STUDY 3

Toolkit collection

Game. Storming

A playbook for Innovators, Rulebreakers, and Changemakers
Dave Gray, Sunni Brown,
James Macanufo



From the top: Fig. 25 - fig. 26
Game storming book cover
Activity example

Description

This book has an ambitious goal: to **collect in one place the best existing tools** and practices developed during history for managing meetings and co-designs.
For each activity, the authors identify the source and context of use highlighting, if needed, their **development over time and their variations**. They also offer a specific way to cluster activities identifying three categories: games for opening, closing, and exploring. This book doesn't have a specific target because everyone can be able to perform these games, discovering and **exploring their natural creative power.**

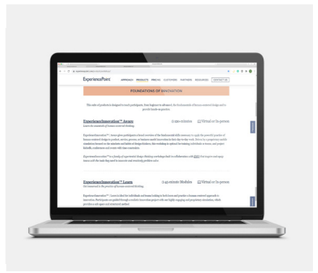
Take-aways

- This book **doesn't offer original tools** created by authors, but it is one of the most complete and extensive collections of existing tools. The majority of new toolkits appearing on the market are just a reinterpretation of these old ones.
- All the tools described are standardized, giving a few graphic guidelines. In this way, they **keep modularity and flexibility,** giving specific suggestions just on strategic or issues.
- The authors also have a **website that is continuously updating** with new tools and activities. Anybody can post and enrich it with his/her experience mainteining a high collaboration level between experts.

CASE STUDY 4

Workshop agency

Experience innovation



Empower your people to innovate
ExperiencePoint & IDEO

From the top: Fig. 27 - fig. 28
Website main page
Experience innovation app

Description

ExperiencePoint, in collaboration with IDEO, created the simulation game/workshop ExperienceInnovation to provide a **direct experience with design thinking**. ExperiencePoint provides workshops for **every stage of a company's innovation** journey, whether it is getting started or well on its way to a culture of innovation. **Workshops can be purchased** on their own or together, they can be online for remote teams or in class, but they aim to create a practical, and relevant deep-learning experience that supports tangible business objectives using leading-edge technology.

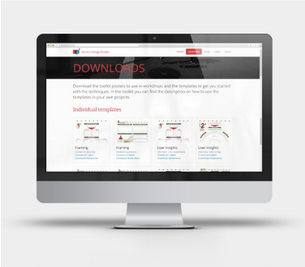
Take-aways

- ExperiencePoint offers **workshops as products**, as solutions to specific problems. This approach shows all the relevance achieved by co-design recently, but can push companies to think that workshops are not just part of the general process.
- ExperincePoint divides its offer into three categories: workshops for **learning, for applying, and for leading**.
  In every case, these workshops are based on real projects happening in the company, to practically show their effectiveness.
- The workshops main aim is to leave knowledge, to **transmit a methodology** in a way that also non-designers can use.

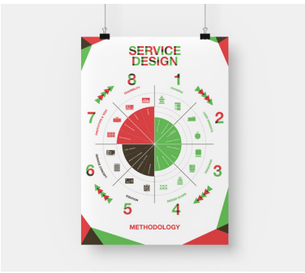
CASE STUDY 5

Single Toolkit

Service Design Toolkit



Individual templates and workshop materials
Namahn, Flanders DC, SPIDER



From the top: Fig. 29 - fig. 30 - fig. 31
The dowload page
Service design toolkit poster
Two examples of individual toolkits

Description

This platform was created to offer valid and updated tools for **anyone who wants to approach service design** to innovate their services.
It offers **free downloadable toolkits** and more complete paid packages, offering also dedicated training.
There are also specific tools for workshops and their organization.
The templates offered are structured so that anyone can use them, even though the platform always suggests using the help of external consultants to ensure the success of these tools.

Take-aways

- This platform offers up-to-date, individual content for all the needs of service designers during a project and specifically for workshops (internal or with the client). This platform emphasizes the **deep interaction between service design and co-design** since often a service design activity is also a workshop activity and vice versa.

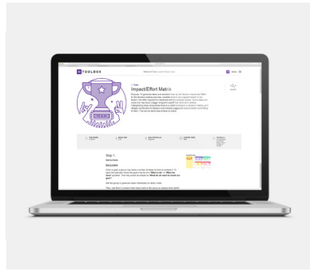
- The proposed **templates follow the double diamond phases** or the standard service design process. In this way, it will be much easier for a service designer to find just the template he needs for his purpose.

CASE STUDY 6

Toolkit collection

HI Toolbox

Methods and tool for collaboration by
Hyper Island



From the top: Fig. 32 - fig. 33
HI Toolbox homepage
An example of a tool page

Description

This platform proposes useful activities and tools for **anyone who wants to work more creatively and collaboratively** with their colleagues. The activities are presented divided according to simple clusters (such as team building activities or self-leadership activities etc ...) and are designed to be applied during workshops or meetings.

Because the platform's targets are non-designers, the tools chosen are mainly referring to the **teambuilding, management sphere.**

Take-aways

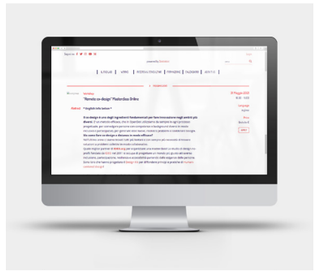
- Hyper Island is a consultancy company and a creative business school, therefore designers are not its target and the theory at the base of this school refers primarily to the business world. This platform shows how in reality the **design and the business world can be similar** and can work on the same tracks.

- The proposed **templates are presented as Miro boards** (a famous collaborative website). This indicates how many activities are now designed directly to be carried out remotely and it is necessary to design tools for the digital.

CASE STUDY 7

Co-design event

Remote co-design Materclass



Free Facebook event
Open Dot in collaboration with IDEO

From the top: Fig. 34- fig. 35
Subscription page for the event
Event poster on facebook

Description

This case study was created **as an event to inform people about remote co-design.** It is organized in partnership with IDEO and with its senior communication design Anna Zylicz.

The masterclass will aim to offer an **overview of tools and best practices** to hold co-design sessions remotely with heterogeneous work teams. The masterclass is also part of the #DistributedDesign project, funded by the #CreativeEurope program, to develop and promote the connection between designers, makers, and the global market.

Take-aways

- **The masterclass is free** and the only requirement is a little bit of experience with co-design and digital workshops.
- This is the perfect example of **how to teach people to do a remote co-design while doing a remote co-design.** In this workshop organization, there already all the rules that will be explained during the session.
- The focus of the case study is on remote co-design and how to **convert normal workshop paradigms** into the post-pandemic panorama in which everything works digitally.

CASE STUDY 8

Practice-oriented handbook

This is service design doing.

A pratictioner's handbook
Marc Stickdorn

From the top: Fig. 36 - fig. 37
Book cover and phamplet
Book homepage

Description

This case study provides everything needed to improve, or revolutionize, the products and services offered. It is dedicated to **designers or co-design experts** who work in a corporation, a government, an SME, or a start-up. **This book is based on the work of more than 300 people** from the global service design community, because participatory design is an ever-evolving field that cannot be defined by a small team of authors. A total of 96 co-authors contributed to case studies, expert comments, and tips; while more than 200 volunteers helped edit the manuscript from an early stage.

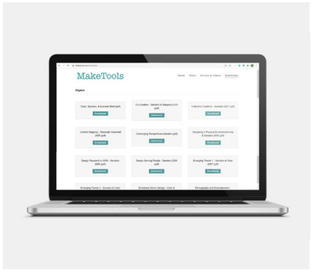
Take-aways

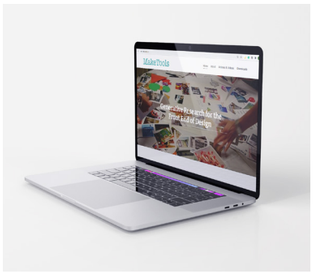
- This book speaks directly to the companies and designers that need to create effective workshops. Therefore the literature part is separate from the actual tools and activities to **simplify the handbook navigation.** Moreover, there is the possibility to **book appointments with the authors** and with workshop facilitators experts.
- **Tools and activities are downloadable as a free repository**, while the literature and methodological part aren't. This shows again how tools alone are not enough to receive a complete understanding of the topic.

CASE STUDY 9

Workshop agency

Make Tools





From the top: Fig. 38 - fig. 39
Make Tools scientific repository
Make Tool homepage

Generative Research for the Front End of Design
Liz Sanders

Description

Make Tools is a company that explores new spaces in the emerging design landscapes and, in particular, is focused on co-design. Make Tools offers **consulting services and education to people and organizations** that see the value in using collective forms of creativity to address environmental, social, and cultural challenges.

It offers **facilitation on hands-on learning experiences** for interdisciplinary teams and **advisory on theory and/or practice** of co-creation and human-centered design.

Take-aways

- Make Tools provide two rich **sections dedicated to literature and best practices,** freely accessible from the website platform. Instead of providing activities and tools, it offers **articles and scientific papers** to create solid knowledge over the co-creation and co-design methodology. The resources provided are also dowloadable for free and are constantly up-to-date with scientific progress.

- It is also specialized in **education programs for companies** and designers. Make tools offer: Presentations, Seminars, Workshops, and Hands-on learning experiences.

2.2.3. Case studies insights

Terminological issues

At first, I noticed an etymological problem: as Sanders and Stappers (2014) said, **co-design and co-creation are still uncommon words to be found** in papers, articles, and also in their related case studies. Therefore, to find case studies about co-design you need to **search under a broad terminological umbrella,** including design thinking, participatory design, collaborative design, service design, design tools, etc... Moreover, the majority of these case studies are not dedicated exclusively to co-design but also other design methodologies. Therefore, you might find inside the same document, tools, and activities more related to service design or business communication.

Diffusion comparison

I noticed a significant **disproportion in terms of diffusion** between the three categories of case studies analyzed: it is very easy to find toolkits, created also by important companies in the design world, as also Selloni (2017) said. I decided to present just a few of the ones found, because a lot of them are very similar, proposing the same kind of activity reinterpreted to adjust to the company's culture. On the other hand, it is **rearer to find handbooks** specific for organizing co-design sessions. They generally are academic or semi-academic handbooks, offering a complete and very structured analysis over co-design, which sometimes can be **difficult to approach by a company or a curious person.** It is even rearer to find the third category of case studies, like workshop agencies or events dedicated just to co-design, even if they are exponentially growing.

Aim comparison:

Toolkits generally are meant for people who are already used to organizing co-design sessions, being them designers or experts in the field. They aim to **help them in building a co-design session,** offering new and fresh ideas. Handbooks are meant for an audience of beginners, people who are not used to co-design methodology but have the resources to apply it. They aim to spread knowledge to the users, **incrementing co-design popularity and diffusion**. Workshop agencies are again targeting beginners, sometimes even people who are not aware of the design world, and they aim to teach and **transmit experience** and knowledge to the client.

Synthesis vs completeness

I noticed that toolkits with their conciseness can be a bit confusing. In fact, there is the risk that **people don't know how to use a tool,** when it can become helpful or how exactly they should present it to their audience, etc... therefore few toolkits offered **examples of applied knowledge with a case study of somebody using that tool.** In fact, without setting the co-design variables and without defining the context, a tool doesn't have a sense and can change its shape.

2.3. INTERNSHIP CASE STUDY

2.3.1. Internship service design project

In this paragraph, I will provide a project overview without going into its detail. I will talk about them later as they are also part of my project.
See chapter 4.1.3

Case study overview

In parallel to the development of my master thesis, I followed an internship program with Politecnico di Milano, regarding a service design project for a big private company in the retail sector. This empirical case study was fundamental as part of the field research because I observed, on the field, the internal **dynamics of collaborative strategies** during the entire course and evolution of a project. At the same time The project t**ouched all the phases of the extended double diamond from the beginning to the end,** following the methodology of design thinking. In this way, I experienced almost all the problems and opportunities happening in the context of project innovation. A company rarely commissions a project that includes all phases of the Double Diamond (Design council, 2014), so this was an experience of great value for my work. I also had the opportunity not only to analyze and observe, but also to experiment, test, and receive feedback.

As mentioned before, the project described here was done on the occasion of my curricular internship and covered a total of 6 months from x to x. It concerned a large client company that, for privacy reasons, will remain anonymous as well as the contents of the project itself. The client requested the collaboration with Polimi Desis Lab, a design consultancy of the Politecnico di Milano. The desis lab specializes in service research and strategic design for social innovation and sustainability, and methods and tools for co-design. Its objective is exploring how design can enable people to activate and manage innovation processes, aimed at experimenting with sustainable, convivial and collaborative ways of living and doing.

The client commissioned the creation of a project whose objectives were: The development of a set of **services focused on the theme of sustainability;**
The association of these services with a particular brand line of **products related to mountain sports;**
The adaptation of these services to the **birth of a new flagship store,** so to a retail space.
This project was conducted entirely onremote because it started during the Covid-19 pandemic. Therefore, all the examples and co-design sessions described were always managed in digital. I never met with the company's client in person, but also with my design teammates, three expert designers specialized in service design.

Research questions and project hypothesis

3.1. Research questions

3.1.1. Research questions analysis

3.2. Project hypothesis

3.2.1. Project features

3.2.2. Project hypothesis: a handbook

3.1.1. Research questions analysis

This paragraph **bridges the research part of this thesis with the empirical one.** In the first part, I explored the world of collaborative services and their perception and diffusion inside private companies, while in the second one, I applied the acquired knowledge for the realization of a handbook on co-design enriched further by the experience gained from a practical case study project. At first, from the research, various promising problems emerged concerning the co-design methodology. Working on them, I was able to define four research ad design questions to guide my project.

Research questions:

- Especially in this period, co-design method **popularity has significantly increased** so that every company feels the urge to collaborate to achieve innovation.
- Most of the time, companies consider **co-design a solution to their problems**, a panacea for every issue, instead of a part of a broader process, namely the design one.
- Co-design is recognized as a method to **solve just specific issues** (engagement and alignment), and it is still not trusted and adopted for other applications inside the company.

Primary research question

How may we help companies understand the full potential of the co-design method in all its implications and context of use? How may we diffuse its practice and knowledge for the project's innovation purposes?

- Often people responsible for organizing co-design sessions are not trained or prepared for this task. Moreover, **there is not a professional figure (like a co-designer)** who can give them help, teaching them how to conduct and manage a meeting or a workshop.
- Being self-taught in learning co-design methodology can lead to **misleading information or interpretations** of the method itself that, with time, risks losing its credibility and value.
- People practicing co-design should be **professionally trained figures**, with a design background and with solid knowledge about collaborative services.
- Co-design guidelines proposed by the majority of handbooks and papers are very general and broad, they do not refer specifically to a field/z context, leaving the designer with the mysterious sentence: "it depends..."

Complementary research question

How may we give designers guidelines to organize co-design sessions? How may we create and offer modular structures of co-design sessions specific to different problems and contexts?

- Every tool, even the ones already existing and ready on the market, needs to be **reinterpreted and partially redesigned** to adapt it to the context in which co-design takes place. This circumstance puts a lot of work and stress on the designers' shoulders.
- Nowadays, we can find a massive quantity of different tools created for almost every purpose. Unfortunately, it is very difficult to navigate these tools repositories and **identify the correct use for each tool**, so that often these tools are used in the wrong way.
- Tools should be separated from contents, otherwise, there is the risk of identifying the whole with just one of its parts, and see co-design as an assemble of different tools. We should give the right balance to this part of the session, giving more relevance to the structure of co-design as a whole.

Complementary research question

How may we help designers find the best tools for each problem and situation, helping them in their redesign to adapt to the context?
Is it possible to propose customized and modular tools solutions?

3.2.1. Possible project features

Project features:

To solve these research questions, it was necessary to identify a system with certain options to imagine a possible project. Each option represents the design opportunities coming from the insights analyzed after the research to implement in the future project. They are complementary to one another rather than exclusive because they interest in different aspects of a project.

- **Option 1:** the project needs to **speak directly to the companies and designers** involved in this type of challenge, going straight to the point with targeted and visual examples.
- **Option 2: The advice can't be only theoretical** and related to the academic field, but must be practical referring to real examples and applications.
- **Option 3:** The examples and advice proposed must illustrate the **full potential of the co-design method** inside the analyzed context. It must show the relation between co-design and the rest of the project maintaining a holistic and complete view over it and showing how each part is influencing the others.
- **Option 4:** this **project's users will be designers** or people with design experience who want to approach the co-design methodology.
- **Option 5**: it is not enough to create or show too many activities and tools. In fact, one of the biggest problems lies in the **interpretation and perception of co-design** as such, not in the absence of the right tools.
- **Option 6:** co-design guidelines must be flexible and modular. Flexibility allows changes but at the same time **sets boundaries and directions** that can guide the designer.

3.2.2. Project hypothesis: a handbook

The handbook for co-design:

Following these considerations, I decided to create a handbook on co-design, an **instruction manual to help the designer in the organization of the sessions.** In fact, a handbook is:

"A book that contains instructions or advice on how to do something or the most important and useful information on a topic."
(Cambridge Dictionary)

The handbook will be **specific for designers**, or experts in the collaboration field, working for a company developing an innovation project.
Therefore it will follow all circumstances that can happen during a project from beginning to end. In this way, depending on the kind of project, the designers will be able to create their path jumping from one circumstance to the other. The handbook will also provide them with all the necessary tools and, above all, the **ability to choose the most appropriate tools** according to the case.

Among all options, I choose the handbook because it is a very helpful instrument.
I will be able to **give a theoretical background** to users simply and visually to restore co-design perception inside the company.
At the same time, the handbook provides the possibility to **offer practical and real examples to the theoretical info**, to give credibility and support to everything said.

Thesis project:
Handbook for co-design in private companies, solving complex problems for innovation purposes

4.1. Introduction to the handbook

4.1.1. The handbook's mission
4.1.2. General guidelines before starting co-design
4.1.3. Handbook support case study

4.2. Context of use analysis

4.2.1. Introducing the notions: obstacles & opportunities
4.2.2. Kick-off a project
4.2.3. Engage and Align
4.2.4. Generate Ideas
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4.3. Opportunities development

4.3.1. Opportunity analysis and selection
4.3.2. Clarify a brief
4.3.3. Share a common vision
4.3.4. Create concepts with users and with employees
4.3.5. Prioritize a concept
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4.1. INTRODUCTION TO THE HANDBOOK

"Design is not just about visualization and the application of individual creativity anymore…because creativity does not happen inside a person's head but in the interaction between a person 's thoughts and a socio-cultural context."
(Csikszentmihalyi, 1996, as cited in Sanders & Stappers, 2014, p. 63)

4.1.1. The handbook's mission

What is this handbook:

This handbook was created to help people **solve project innovation-related problems through collaborative methodology.** It consists of **five areas of opportunity** for designers to apply the co-design methodology, proposing a model, activities, and examples to perform it correctly.

Why people should use it:

Companies are looking for new collaborative and collective ways to accomplish project innovation during all the process. The handbook offers a framework for applying co-design methodology, proposing **co-design models and guidelines according to different situations** that people can learn just when they need it. According to their team situation, people can create **their own collaborative path** choosing just the best opportunities for the project.

Who should use it:

This handbook was created for anybody who can be considered an **expert in the design field** and who needs, or wants, to perform a co-design session inside a company (being them employees, consultants, freelancers). Therefore this handbook will mainly refer to designers and, in particular, to young designers who have no experience in co-design or who have not received training on the topic. This handbook cannot replace academic knowledge about the methodology, but it can provide **practical suggestions, directions, and rules** to help designers and lighten the weight on their shoulders. In this way, this handbook hopes to **diffuse even more co-design culture among private companies.**

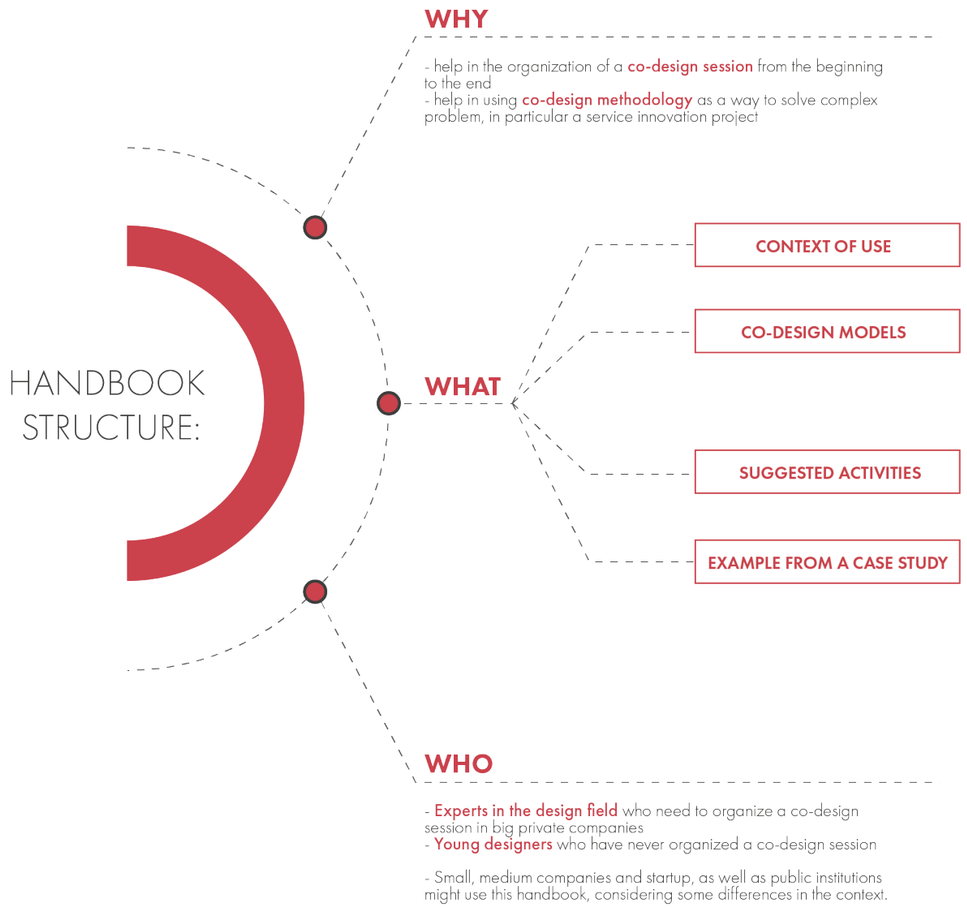


Fig. 40 - Handbook structure and mission

Why private companies?

Big private companies are investing more and more in design-driven innovation, in particular in its collaborative forms (which are often not affordable for smaller businesses), aiming to reshape their ways to achieve innovation. Therefore all the handbook's data are based on empirical research conducted over more than 20 different big private companies (both consultancies, retail, and telco). It is important to notice that some of the co-design models and activities proposed will be valid also for other kinds of companies, like startups or public administrations.

Why complex problems?

Co-design methodology is very intense and requires a significant number of resources in terms of time, money, and people. Therefore it becomes worthy when solving complex problems, which are systemic and involve a great number of resources (time, money, and people).
In particular, this handbook focuses on service design problems which are the most systemic and diffuse ones inside big companies.
Therefore the data coming from the empirical research analyzed co-design interventions for solving service design issues.

4.1.2. General guidelines before starting co-design

"Co-design is not defined by magic formulas, rules and strict dogmas but mostly by the commitment to core principles of participation in design."
(Co-create, 2019, p.10)

Before starting with the co-design framework and the individual co-design models, it is necessary to make a premise.
From the empirical research done, general guidelines of co-design emerged, applicable to all sessions as they **do not refer to particular cases** but to general situations.

Defining the goal

- It is advisable to **face one goal at a time per session,** in particular for digital codesign. On-remote **digital breaks are not effective**, and participants will not reset their mind moving from one activity to another, continue thinking about the previous one.
- **Beware of false goals**. Using conventional terms (unclear in practice, or open to multiple meanings) to indicate goals might lead to misinterpretations, in particular, if there is not a **shared vocabulary between cross-functional teams.**

Managing the output

- As in any effective meeting, **a clear agenda of the activities and the expected results** must be set and shared with all the participants.
- Co-designs as complex tools will generate copious amounts of data and outputs. therefore, designers should think about how to obtain, collect and analyze them in a manageable way.

Organizing the timing

- A digital session **should not last more than 3/4 hours**, as the concentration of people in front of a screen doesn't last for more, **without the possibility to reenergize the atmosphere** with breaks, snacks, chats, etc...
- On remote, **it is better to have two short sessions instead of a longer one.** If designers estimate that a goal requires too much time, it should be divided into smaller and more feasible goals, avoiding to stress out partipants.
- If the goals are fragmented, it is necessary to organize more than one session. **No more than 15 days should pass between one session and the other,** to prevent participants from disengaging, allowing designers to prepare all necessary materials.

Crafting effective boundary objects

- The activities scheduled should always remain **visible to all participants,** giving clarity, order, and temporal references
- There are four categories of activities:
  - Introduction
  -Warm-up
  -Main activities
  -Close-up
  The introduction is a moment to **introduce the session schedule** and rules, recapping the previous sessions and the current state of the project. It can also become a moment dedicated to **methodology transmission. The warm-up is generally used as an icebreaking activity**. It is structured as a "ceremony", a symbol of the beginning of the session (Meroni, Selloni, & Rossi, 2018). It aims to increase empathy and trust between people. Main activities represent the core of the session, aiming to **reach the goal and obtain the expected output.** In this handbook, activities are divided into four categories (Selloni, 2018; Gray et al., 2010):
  - inspiring, these are divergent activities.
  - framing, these are activities to explore deeply a topic, identifying and organizing clusters, patterns, and strategic decisions.
  - implementing, these are activities to test a (pre)prototype or a mock-up making people create and shape an artifact physically interacting with it.
  - closing, these are converging activities, aimed at selecting between options.

Becoming a moderator

- The moderator of a co-design session should always be a **professional designer or an expert,** informed about the co-design methodology and trained in the field.
- Facilitator neutrality. The facilitators need to remain neutral during the session, **creating a framework of trust and inclusivity.** Even when they are supposed to express an opinion, they need to be conscious of their position towards the audience, **not influencing them biasing the results**. Facilitators should establish their emotional state because the room will follow their cues.
- Set the tone. The first activity's tone will be the foundation for the rest of the workshop. Therefore facilitators should have a **clear idea of the kind of style of guidance to adopt** and how that style will have repercussions on the session tools, way of speaking, and expressions.
- **Clarify the role.** The assignment of roles (both fictional and functional) may be effective and useful in engaging participants. It can help to **balance power, giving a voice to weaker subjects and representing all viewpoints**. Furthermore, from an organizational perspective, this may also **lighten the facilitator's duties,** because the operational responsibility will be spread among participants, creating a sense of ownership towards the project and **increasing the bonds between stakeholders**. This can also facilitate skill training and the **transferral of design knowledge** to non-designers. In the book "How to Make Meetings Work" by Doyle and Straus (1976), the authors states that to have a successful meeting, in the room must be the following roles:
  - a group member (most of the folks involved)
  - an organizational leader
  - the recorder
  - the facilitator
- **Prepare to improvise.** Write your wordfor-word script, but prepare to throw it all out as you walk into the room.
- **Collective and individual connections will energize the room**, putting the facilitator on the path to follow. Therefore he/she should periodically **probe and test the room consensus**, not losing focus and managing people's bias. Without a precise tactic to connect effectively with participants, it is hard to stimulate more critical perspectives and debates. The participants will tend to close inside their *do-goodism or dooming opinions* (Meroni, Selloni, & Rossi, 2018) without revealing their true feelings.

Managing participants

- The facilitator should **know participants before the workshop**. It can be useful to ask participants to send, to the design team, a résumé of their expertise or few description lines about their backgrounds.
- **The number of participants can be flexible** but will define the number of facilitators required to do the workshop. It can be better to **not overestimate the team resources** before starting a session and finding that it is impossible to manage all that people or data.
- Participants should **work in groups of a maximum of six people**. Everybody will have the possibility to speak, and the amount of data produced will remain observable from the facilitator's perspective.
- It is easier to manage a co-design session when the **facilitator is external to the company,** being a consultant or an expert, because participants will be **less skeptical and aggressive**. On the other hand, an internal facilitator might find it.

4.1.3. Handbook support case study

Fig. 41 - Project theme: the mountain

This handbook hypothesis will be supported and explained thanks to examples coming from a real case study called "Sustainable Outdoor".
This project is representative of the **scenario in which the co-design sessions** structured in this handbook **takes place**, namely a private big retail company that needs the use of collaborative services to achieve a service design project. Therefore the co-design models proposed were based on the obstacles and opportunities encountered during this project. Also, the order in which each co-design model is presented follows the natural development of the project analyzed.

Project description

The goal of this project was to create **sustainable services for a new flagship store** focused on mountain equipment and clothing.
The client was a big retail company specialized in product design. They required from the consultancy team a **service design approach** because they didn't have any specialized figure in the field. Moreover, they were deeply interested in the themes of user center design, service design, and collaborative design, asking the consultancy team to become ambassadors of their values and methodology and try to transmit them, at least in part, before the end of the project.

At the beginning of the project, the company had already started imagining the future store features and the possible locations in cities near the mountains. Therefore the client had previously conducted extensive market research about products and competitors and possible partner in the sustainability field. They understood that their primary objective was to **surround their products with a network of strong services focused on the theme of sustainability** that could give a new image and new values to the brand.

Values and mission

The values for this project are coming from an admixture of different disciplines: **service design, design thinking, and of course, co-design methodology.**
The approach to this project faced different challenges and, therefore it was base on four main milestones or project missions:

- Understanding **real user needs.**
- **Facing sustainability** in terms of transparency and measurements.
- Working on a project **completely on-remote.**
- **Transmitting methodology to the company,** in particular, the collaborative and the user-centered ones.

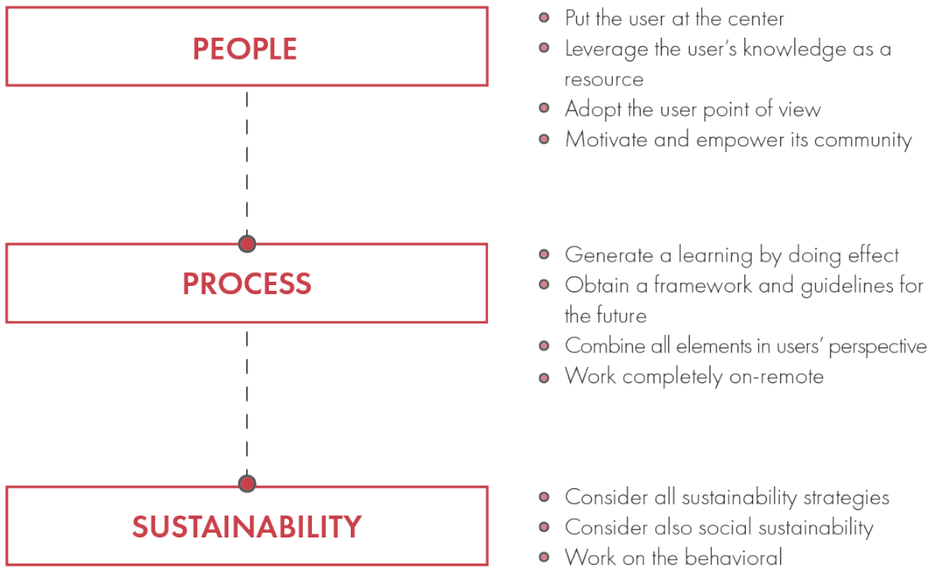


Fig. 42 - Project values and mission

Project structure:

This project was a very extensive one. It took place from 10th November to 30th May, and it covered almost **every phase of the Double Diamond process.**

Phase 0: Preliminary Understanding

This phase aimed to **scope the project and to identify and develop a brief.** During this step, we started understanding the client's problem, what he expected from us and what kind of collaboration we should have had with him.
This phase was also relevant to **pass all their preliminary knowledge** about the topic to the design team.

Phase 2&3: Shop exploration, Benchmarking, and Interviews

This phase was characterized by **deep research** from our part on the selected topic, also thanks to their previous work.
Their research was a massive quantitative work with many data. Thanks to this, we could focus more on **qualitative research**.
Despite the pandemic, we were able to conduct a "field exploration" in different sustainable/mountain stores.
Moreover, we manage more than 20 interviews with different kinds of users, coming from all ages and levels of expertise, to determine possible end-users/targets.

Phase 4: Creation of service clusters

From the research done, **we collected many insights and meaningful observations.**
They were clustered according to their similarity and relevance and transformed into **design opportunities** or possible promising directions to achieve innovations.

Phase 5: Co-elaboration and organization

Mixing the possible directions with the targets allows us to identify **seven general scenarios**. Then we explored deeper each scenario, identifying **several preliminary concepts.**
They were going to be discussed not only with the client but also with the end-users. In this way, we obtain **a complete panorama of possible service offerings,** investigating all the insights found.

From the top: Fig. 43 - fig. 44 - fig. 45 - fig. 46 - fig. 47
The five outdoor sports considerend for the project:
Climbing, skiing, mountain bike, hiking and trail running

Phase 6&7: Definition and characterization

During this phase, we investigated the tools and parameters suitable for **helping the company to make decisions**. In particular we gave them the instruments to **select the most promising service offerings** among all the ideas generated previously. We obtained a specific service framework through which they were able to choose just three final services to be further developed.

Phase 8: Lesson learnt and transfer

During this last phase, we aimed to **deliver to the clients all the final materials**, recapping all the work done, and in particular, **explaining to them better all the methodological process** that lead us to that results.
Therefore we prepared a digital booklet divided into two parts: one focused just on the contents to deliver and another one dedicated to methodology, explaining phase by phase all the process in order for them to **try to replicate it when needed.** We dedicated part of the time to explain them also the prototyping work, how to manage it and how to scale it for other service offerings envisioned.

During the course of the project, we decided to organize in total **seven co-design sessions.** Each one of them will be analyzed in detail and used as a **reference and support to the more general co-design models.**
We organized:
One session during the first phase to scope the project;
one session after the research phase to cluster insights;
two sessions during the creation and elaboration of concepts;
two other sessions for defining and characterizing ideas;
and one last session to transmit our knowledge and methodology to them.

Each session will be explained showing its key features, including what went good or wrong and what could be possibly be done better in the future. Then I will also explain in detail the activities used and developed by the team, **adapting them to be applied to every situation** inside that context. For privacy reasons, I won't show any content material coming directly from the sessions done.

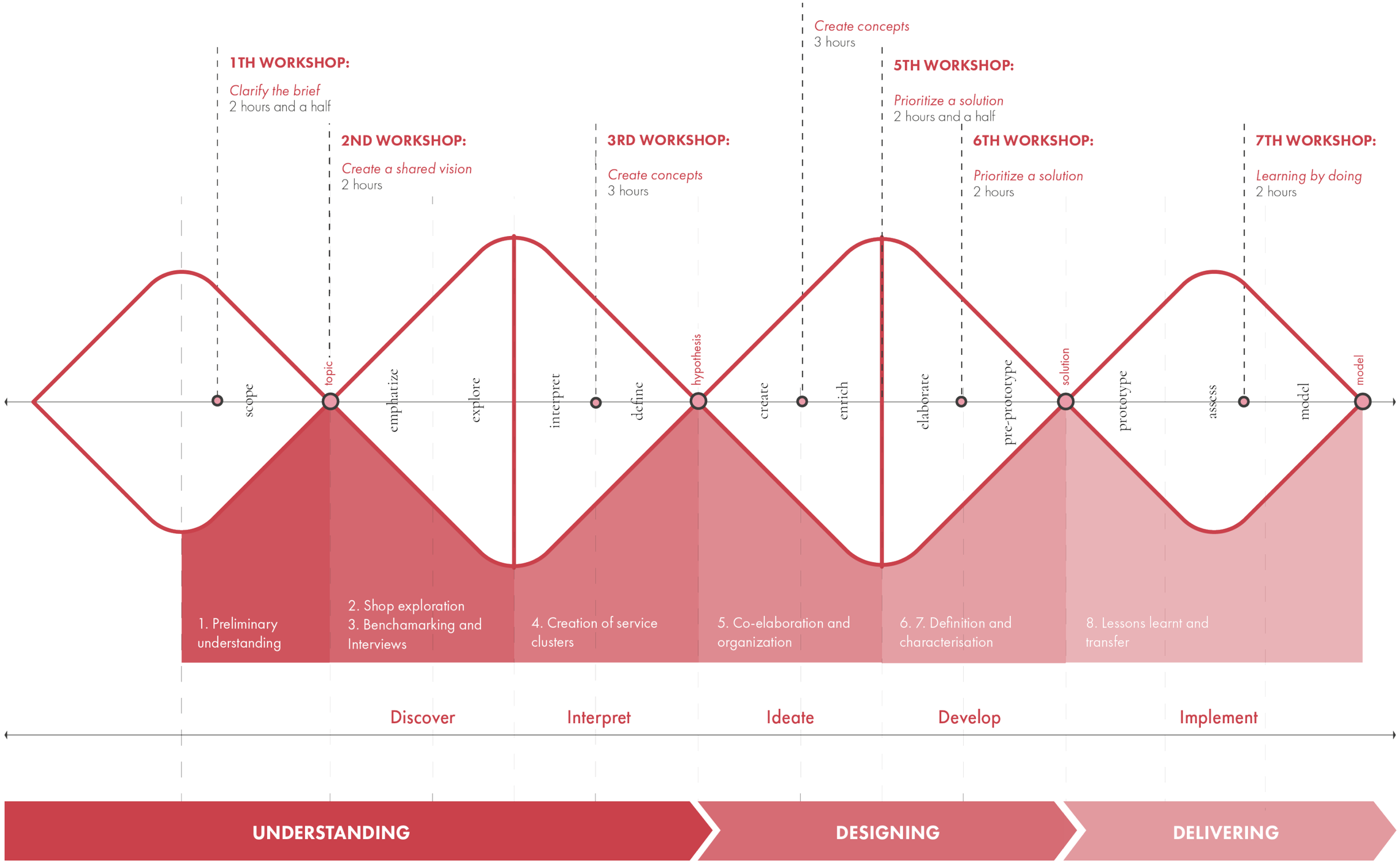


Fig. 48 - Project structure following the "Experimental double diamond" (Selloni, Meroni, forthcoming 2021)

4.2.1 Introducing the notions: Obstacles & opportunities

In this paragraph I will introduce **two fundantal notions** for this handbook: the concepts of *Obstacle and Opportunity*.

The first thing that this handbook will introduce is all the possible **contexts of use and situations** in which a designer can apply a co-design methodology correctly.
When a company suffers from a specific problem during an innovation process, that problem represents an obstacle to reaching success.
In this handbook, I have identified five main obstacles to achieve innovation. They are five contexts of use in which co-design can take place:

- Kick-off a project
- Engage and align
- Generate ideas
- Prototype a solution
- Learn and Train

Inside each problem, **the designer can find specific opportunities for the application of the co-design,** specific circumstances that can be codified and structured. Each opportunity corresponds to a co-design session that is unique in its structure while maintaining a similarity with the other sessions in the same context.
In the following paragraph, I will analyze in detail each obstacle with its belonging opportunities to show the **complete panorama of action that a designer can take** during the course of a project. Then I will consider some of the opportunities illustrated and analyze them in details, structuring a general co-design model.

Fig. 49 - Obstacles and opportunities to co-design

4.2.2. **Kick-off a project**

"The statement of the problem is the cue to memory. That is what reaches into memory and draws out related information."
(Markman, 2017)

The importance of problems:

The first obstacle introduced in this toolkit regards the **identification of the problem itself,** something that generally happens during the kick-off or the initial phase of a project.
The most used tool to identify a problem is the **design brief,** a fundamental document that can be obtained through various strategies.
The ones that I will propose in the following handbook are collaborative strategies, **often adopted intuitively** by designers and stakeholders in an unstructured way. This way is, therefore, prompt to lead to the following problems:

Common constraints:

The main constraints that can happen during this obstacle will be explained using the following categories:

- **Participants:**
  During the kick-off phase of the project, participants in the co-design sessions are usually c-level and decision-makers. However, their **participation is often compromised by very different agendas** and timelines, which can lead to an overall slowdown of the work or the exclusion of some participants that would have been important for the project. Furthermore, if all the participants have high decision-making power, this can create **friction among the participants** themselves but also the designers, creating situations of **pressure or imbalance of decision-making power.**

- **Timing:**
  there is **little time to organize this session,** as it must be conducted as soon as the customer's request is received. This can cause discomfort in the designer especially when he/she has no prior knowledge of the topics covered.

- **Engagement:**
  In this phase, the client could manifest **complaints or mistrust in adopting the co-design method** as a climate of mutual trust has not yet been created.

So within this problem, I have identified three promising opportunities for the designer to apply and organize co-design sessions following specific instructions, namely:

Clarify the brief

On this occasion, the company already knows its problem and has to communicate it to the designers. Through the co-design, the designer will facilitate this communication process extracting knowledge from participants and enriching the company's problem with the design perspective, co-creating a draft of a design brief.

Find the brief

On this opportunity, the company want the designer help to analyze a topic o multiple topics to individuate possible briefs.
It can happen in two cases: the company doesn't know where the problem lies within its structure; The company wants to find a possible future problem inside a promising topic in order to foster possible chance of innovation (creation of scenarios).

Acquire knowledge

On this opportunity, the company has a massive knowledge on a specific topic that needs to be communicated to the designers, so it can be useful to have a separate session. This session can happen after the clarification of the brief (right before the research phase) or before the start of the project, giving designers the materials to organize the kick-off session.

4.2.3. Engage and Align

Human relations are at the core of the organization, and humanizing an organization [through design] offers an approach for investigating the human relations. (Augsten, Geuy, Hollowgrass, Jylkäs, & Klippi, 2018, p. 1230)

Redefining engagement

This obstacle concerns the company's ability to remain **united and unanimous in the project team** in dealing with the work. Therefore this obstacle will arise many times throughout the course of the project, from the first stages to delivery. In this paragraph, I have identified specific moments in which I translated the concept of engagement and alignment **from abstract and vague terms to single objectives** that can be pursued during a co-design session and identifiable in precise actions.

Common constraints

The main constraints that can happen during this obstacle will be explained using the following categories:

- **Participants:**
  During these sessions, on the contrary to the previous obstacle, the client could even show **excessive enthusiasm toward the adoption of co-design**, which could lead to having more participants than those foreseen. The risk includes also having participants that don't respect the requirements.

- **Timing:**
  When the co-design session goal is team engagement or team building, it is likely to organize **more than just one single session** as building relationships is a job that develops over time. And often the client itself asks for several sessions in that sense. Unfortunately often the short schedule doesn't allow the designers to have **enough time to prepare each session.**

- **Engagement:**
  Sometimes co-design is used just as **a tool to please the client,** without leveraging on its qualities but using it just to entertain people with silly games. Even if the client requests a co-design designers should know if it is necessary or not and need to explain it to the client.

As mentioned, there is not a specific moment for this obstacle to occur throughout the double diamond process. Therefore, I identified three main opportunities for the application of co-design scattered over the overall project:

Create a shared vision

This opportunity arises when, after the research phase, the designers are in possession of all the information necessary to define the project plan and identify a shared vision agreed by everyone. In this way, the various development teams can work independently without directional errors.

Keep the client and active participant

This opportunity plans to organize more meetings with the client during the generative and development phase. In this way, the client's participation and interest in the project's future will remain alive. Also, these sessions will relieve the pressure and control exercised by the client from the designers' shoulders, keeping a structured routine in particular on-remote context.

Establish trsustworthy relationship

The opportunity occurs when it is necessary to have teams, departments or stakeholders, communicate with each other to avoid conflicts. It often happens if the company is based on a silos structure or if there are a lot of stakeholders involved in the project. In this second case, the session can be used to strenghten partnerships or to transmit/exchange knowledge.

4.2.4. Generate ideas

"The real innovation challenge lies beyond the idea. It lies in a long, hard journey - from imagination to impact." (Govindarajan amd Trimble, 2010)

Not only ideas

Generating ideas is not enough to reach innovation, but **it is only a part of the design process**, because if they are not interpreted and elaborated they will not become concepts.

Common constraints

The main constraints that can happen during this problem will be explained using the following categories:

- **Participants:**
  The first step for creating a generative atmosphere is to **carefully recruit the right participants.** As previously said, they must be different on the horizontal dimension but similar on the vertical one and must meet the project requirements. The similarity on the vertical dimension will lead to the identification of three session models in terms of management and facilitation:
  - **Internal collaboration level** (only employees)
  - **Mixed collaboration level** (employees and external experts or consultants)
  - **External collaboration level** (end-users).

The more the collaboration level shifts outwards, and the company loses control over the session, the more recruiting participants become complicated. However, **cutting the end-user voice from the design process** corresponds to a high chance of damaging the final product/service.

- **Timing:**
  These are the **most expensive sessions in terms of time and resources** because it is better to organize more than just one session with different participants who have to be involved, recruited, and engaged in a time that, as usual, is restricted.

- **Engagement:**
  The designer must be aware of the participants' roles, to be able to engage them effectively. Also, this is the **most engaging and emotionally involving** session for participants, because activities are more free and playful. In this phase, **participants are pushed out of their comfort zone**, so they are more likely to trust designers instead of contrasting or opposing them.

So within this problem, I have identified three promising occasions for the designer and that can be solved through co-design, namely:

Create future scenarios

This opportunity occurs when a company wants to explore ts own development for the future deciding its direction in terms of products, services, or organizational management.

Create concepts

This opportunity occurs when a company wants: to innovate in a specific field, create new products and services, or new strategies to make better of what it does. It is the most common form of opportunity and the most demanding in terms of resources but at the same time, it is still the most interesting and original form of co-design.

Expanding concepts

The company needs to analyze deeper one or multiple concepts to define and better understand their features. This session can become very technical, requiring the participation of experts or external consultants, that until that moment, were not involved in the project at all and that may not belong to the company entourage. It is also a session in which other components, like economics, technology, informatics, etc... become more relevant, with the risk to generate controversies and debate over the project feasibility.

4.2.5. **Prototype a solution**

The challenge of decision-makers

This obstacle arises mainly in the second half of the project development and, in particular, after the definition of one or more concepts. From this point, designers will organize sessions to take decisions, to choose between options or different implementation strategies. **Therefore these co-design sessions are converging ones** and are very challenging.

Common constraints

The main constraints that can happen during this obstacle will be explained using the following categories:

- **Participants:**
  About this obstacle, there is a high variety of participants from case to case. Sometimes it can be necessary to co-design with users, with experts, or even with c-level. However, these sessions are often **restricted in terms of participants** (because of their convergent nature), and just the perfect participants are needed.
  This can lead to scheduling problems or slowdowns in the work, as without the correct participants these types of sessions cannot work. Moreover, these are the only sessions in which the company is willing to involve the end-user in product testing, a widespread practice nowadays, especially when the product/service is almost ready to be put on the market.

- **Timing:**
  These are **reflective sessions that can be very long.** They require reasoning, investigation, and weighing of various options to make decisions, so it could be complicated to reserve long time slots or multiple short ones.

- **Engagement:**
  In this sessions, all the problems accumulated during the project will come to light. Therefore designers will test the idea but also the stakeholders' participation and involvement in the project. If the client is not perfectly aligned and updated, **he will not be able to make decisions or go deeper in testing** the validity of an idea.

There are two moments in which this obstacle manifests itself, and there are two specific opportunities for designers to intervene and solve it.

Prioritize a solution

This opportunity occurs when the company needs to take important decisions about the project, prioritizing or choosing one option over the others and determining a new direction for the project development.
There can be multiple moments of prioritization. Generally, they start in the moment of choosing between all possible ideas, identifying just the ones to be developed into design concepts. The subsequent moments will be mainly referred to the prioritization of the concept's features, deciding which one will be implemented first or the ones that should be dismissed. These sessions are fundamental to identify also possible changes.

Obtain feedbacks from users

These sessions are well known and diffused in the company to test the validity and possible implementations of a concept/project.
They can be performed with experts or end-users, depending on the type/depth of feedbacks needed and the level of development of the project.

4.2.6. **Learn and Train**

Training for innovation

This obstacle permeates all the phases of the design process because the client can request to learn the service design methodology or the design thinking, or even the co-design method itself. Often the company wants to **internalize these skills** into new departments, or it just needs to **give new tools and knowledge to its teams.** It is easy for these sessions to fail if not supported by a strong teaching approach.

Common constraints

The main constraints that can happen during this obstacle will be explained using the following categories:

- **Participants:**
  Internalizing a skill requires, in the first place, the need for the **appropriate resources and people.** Often it happens that the wrong participants are involved in the learning processes. These people then have to report what they have learned to others, creating a chain in which the final message loses some of its originality and completeness. Because designers cannot teach to everyone in the company, the chosen ones must **become ambassadors of the design methodology in the company,** the spokespersons, and therefore their recruitment is fundamental.

- **Timing**
  Transmitting a methodology means finding **extra time during the design process** to spend to teach people about design methods. If that extra time is not perceived as necessary, the company will never be willing to spend it.

- **Engagement:**
  One of the most effective learning chance is through **real and practical challenges of high interest for all participants.** In this case (during the course of a real project for the company), all participants will be highly involved and able to learn easily. Therefore, this opportunity can occur at any time throughout the duration of the project, with specific moments dedicated to **training, group reflections, or self-study.**

There are two moments in which this obstacle can happen, and there are two specific opportunities for designers to intervene and solve it.

Learning by doing

This opportunity occurs when the company wants to take advantage of a current project problem, to innovate not only in terms of solutions but of knowledge and expertise. The project is used as a case study to teach design methodology, and co-design is of utmost importance because it allows all participants to collaborate with the designers on the project solutions. Participants are not spectators, passively absorbing knowledge from designers, but they are actors guided through the designers' experience. This co-design leverage on users' experiential learning.

Methodology transmission workshops

This opportunity is more classic and frequent. The company asks the design team to organize workshops specifically for educational purposes, during which all the topics of the design methodology will be explored and experimented with. These sessions are immersive and focused and often include strategic experiences like field researches, expert interviews, and different case studies as references and examples.

4.3.1. Opportunities analysis and selection

The chosen opportunities

Due to time limitations for this master thesis, I was not able to analyze all the identified opportunities, so I chose to develop five of them based on the following criteria:
- Relevance of the occasion: I decided to analyze the opportunities occurring most often within the company, giving particular relevance to the occasions that were not fully explored or studied in the past.
-Field analysis: I chose the opportunities that I was able to test and analyize personally during the internship case study. In analyzing them I will also follow the project's order.
For this reason, the five final occasions are:

- **Clarify the brief**
- **Create a shared vision**
- **Create concepts (with users and with employees)**
- **Prioritize a solution**
- **Learning by doing**

The opportunities analysis

Each occasion was analyzed by mixing three reference models' parameters.

The first method is the **"7ps framework"**, used to plan collaborative meetings and workshops and is based on seven fundamental points:
-Purpose, namely the goal
-Product, namely the outcome
-People, including number and role of participants (including the planners)
-Process, namely the detailed agenda
-Pitfalls, the expected problems that can happen during the session related to facilitation or engagement
-Prep, materials prepared in advance to be used by the participants before the session
-Practical concerns, namely all the expected problems related to logistics and technology.

I decided to keep these points, expanding the people category and more importantly, changing the terminology. In fact, the terminology used come from the service design sphere.
The terminology used, comes from the service design sphere. I decided to describe each co-design session inside the **"Collaborative design framework** (Meroni, Selloni, & Rossi, 2018)," defining the style of guidance and the design subject matter. When it was possible, I also tried to contextualize the session inside the **"Extended double diamond** (Selloni, & Meroni, forthcoming 2021)," suggesting when these sessions are generally performed.
The third model that I took as a reference to analyze the co-design session is the IDOARRT model from (). In this model, meetings are described through six parameters:
-Intention, namely the goal of the session
-Desired Outcome(s)
-Agenda, the activities to be performed during the session
-Roles, namely the participants and the facilitator and their respective roles towards the course of the session
-Rules, logistical norms related to the context in which the co-design takes place, like digital boundaries, spatial limitations, etc...
-Time, the expected timing, including breaks.

From this model, I decided to describe and suggest the activities to do during the session.

Therefore for each scheduled session, I created this specific framewrok of analysis:
- **Goal (general and specific)**
- **Output (general and specific)**
- **Variety of participants**
- **Number of participants**
- **Planners**
- **Timing**
- **Possible Tips,** a mix between Pitfalls and Practical concerns, namely possible measures to take due to the logistical or engagement context issues that could arise during the session
- **Activities and Tools,** this last section comes from the Agenda and it will be structured using guidelines to build all the activities necessary to achieve the expected output. It will be enriched with suggestions on existing tools, and examples coming from the case study developed.

I will also include another section called **"What we did: co-design session structure and main activities",** in which I will explain and show the structured of the co-design performed during the project and a standardized version of the tools and the activities created ad hoc for the session. All the activities proposed are for on-remote co-design sessions, and are original tools elaborated by our design team (Anna Meroni, Daniela Selloni and martina Rossi). I will also highlight the most interesting take-aways coming from the field experience.

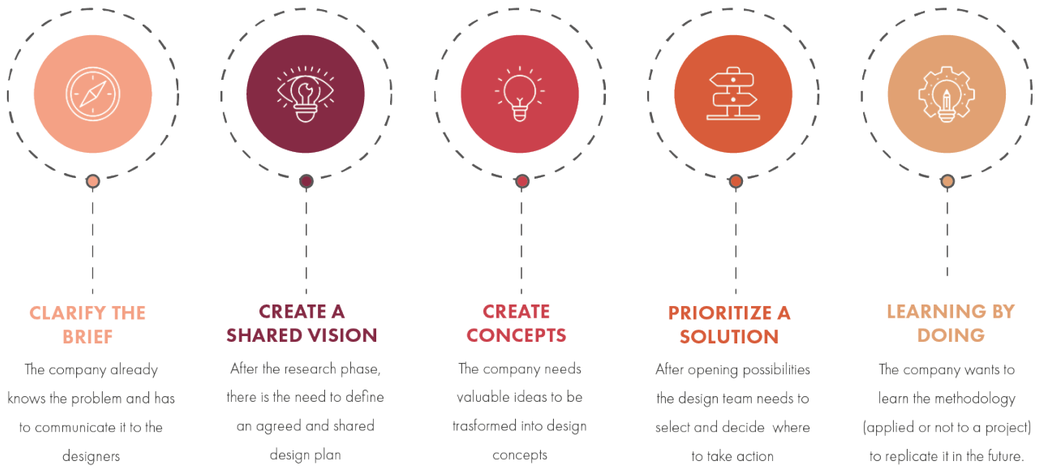
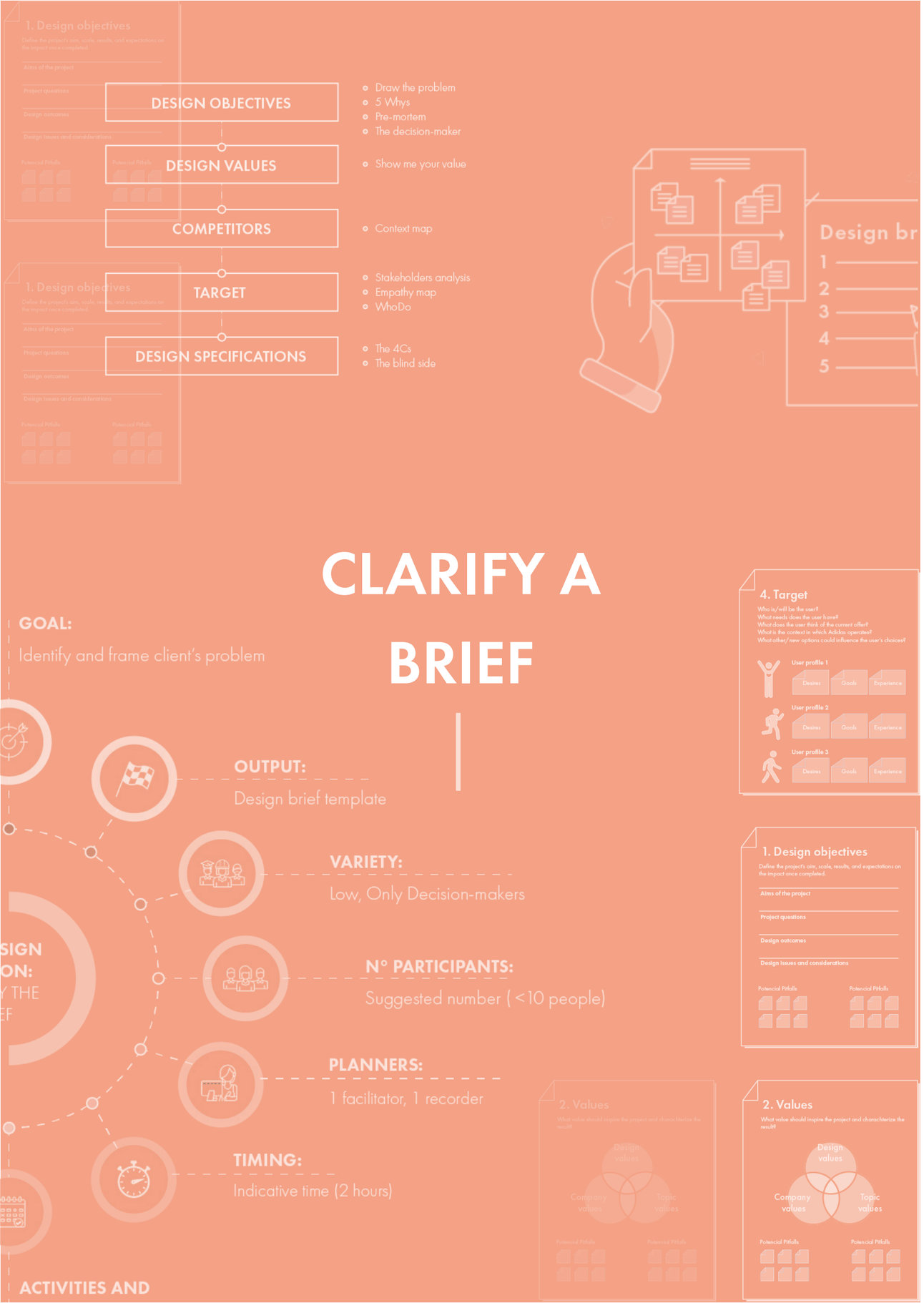


Fig. 50 -
List of all the opportunities analyzed



OBSTACLE 1 - KICK-OFF A PROJECT

4.3.2 Opportunity 1

1. With the employees

This opportunity is the first collaborative moment established during the project. It will lay the foundations for collaborative decision-making processes that the team will maintain in the future and the type of relationship that the team will build between the different stakeholders.

Goal

Identify and frame the client's problem to trasform it into an agreed project brief.

Output

A design brief template, namely a visual and clear tool that will remain available for consultation (as project foundation).

Style of guidance

Facilitating, more than pushing the discussion in this co-design the designer aims at including everyone in the discourse and letting the client understand the value of what it is doing.

Number of sessions

One session, both in person or on-remote.

Design subject-matter

Topic-driven.
The discussion remains open on a specific topic, creating and maintaining a holistic view. The designer needs to consider all the experiences, knowledge, and needs that can be offered by the participants.

Collaboration level

Internal collaboration.
Only members internal to the organization are involved in the session.

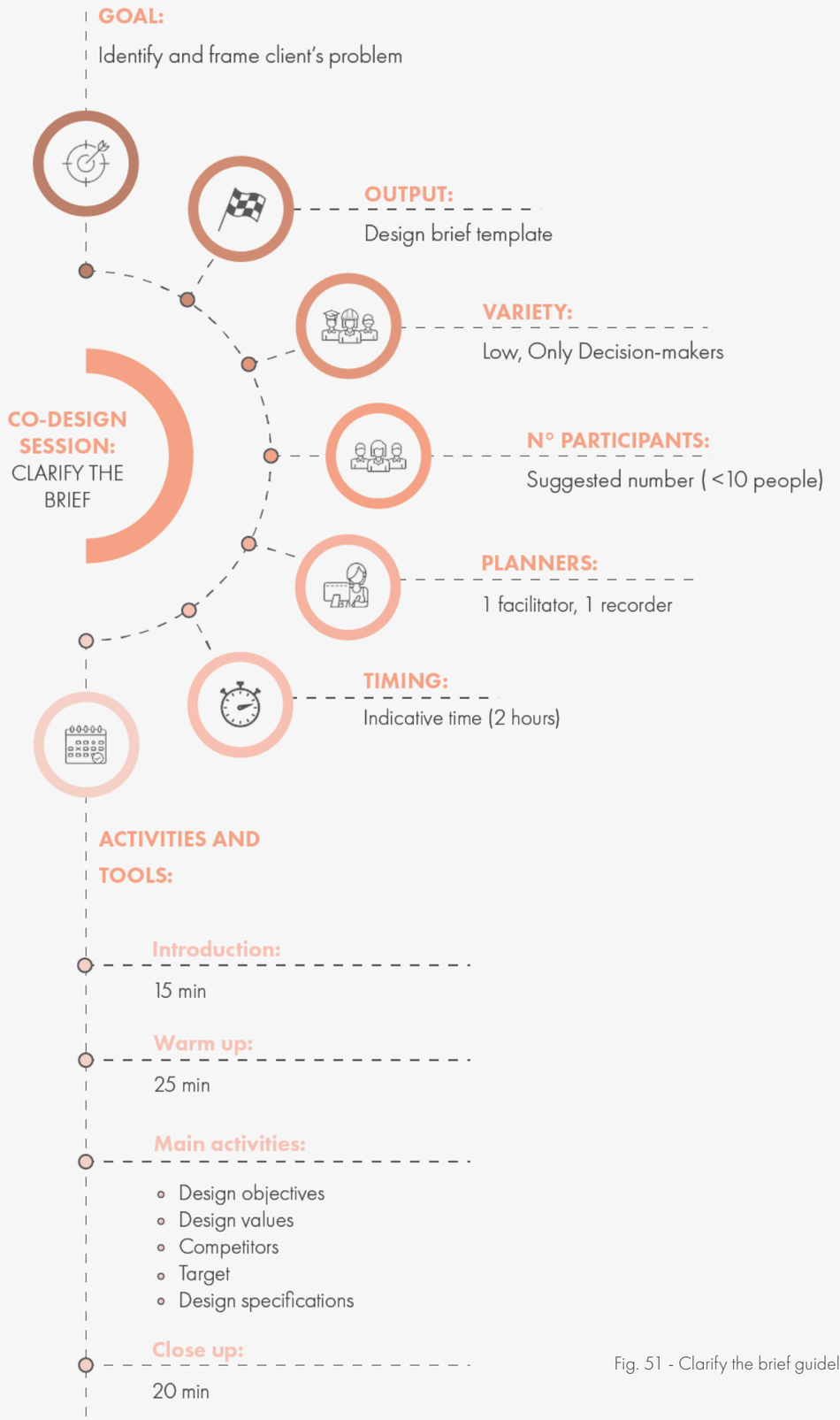


Fig. 51 - Clarify the brief guidelines

Structure of the session

Goal

Identify and frame the client problem to trasform it into an agreed project brief.

Output

A design brief, to be extended and completed in the following sessions with the client and that will remain as a pillar sustaining the whole project.

Variety of participants

Low Variety. Clarify the brief is a strategic session that is focused on outlining a possible new future for the company, and as such, it will **involve the top-levels of the organization.** The participants should be the decision-makers from all departments concerned with the project.
Following the co-design guidelines, the participants should have roughly **the same position and the same role** within the company, to avoid power imbalances.

> **Possible tips**
>
> In addition to decision-makers, it is advisable to invite the executive managers of each department to the session. The latter, despite having less decision-making power, have a greater knowledge of what is happening in each department, while maintaining a relationship of trust with the top level. Also, it is easier for them to participate in other co-design sessions, mainteining constant the participants involved.

Number of participants

This first co-design session **will take place entirely in plenary.** It is one of the few in which participants will no be sorted in separate working tables, for this reason it is suggested to keep the number of partcipants under the 10 units. The plenary session is essential as all the parties involved will be encouraged to dialogue with each other, and the expertise of each participant will be essential to draft the design brief. **The know-how of the "customer" is extremely important,** considering that the designer still does not know the subject matter.

Planners

Only **one moderator is sufficient** to manage the session and another designer in charge of transcribing it, marking the arguments and the most relevant moments.

Timing

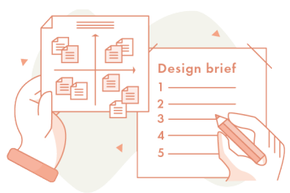
In presence and on remote: max 2 hours. I tried to structure a session working both for online and offline situation. Moreover this session includes **c-level partcipants that don't have a lot of available time.**

> **Possible tips**
>
> The moderator should be external to avoid further imbalances of power concerning the designers themselves within the company, who could suffer the pressure exerted by having their "bosses" in a co-design session.

Activities and tools

1. Introduction

It is important to start the session with a short introduction in which the designer will **describe the co-design methodology and illustrate the session's schedule,** insisting on the expected outcome they plan to achieve. Indeed an expected outcome can provide a sense of engagement and binding with the project.
The **schedule should always remain visible** to all participants. It can be also a moment for methodology transmission (see 4.3.6.).



From the top: Fig. 52 - fig. 53 - fig. 54
The warm-up; the 5 design brief templates, A template detail.

2. Warm-up

There are many objectives of the warm-up in this session:
- Making sure that the participants g**et to know each other** and establish a collaborative atmosphere.
-**Setting the session mood**, putting the participants at ease but at the same time giving new rules in which the participants can perceive the value of the method.
-Designing the **warm-up as an "opening ritual"**, a structured step to be repeated in future sessions.
- (On-remote) **Testing users' abilities in performing and using digital tools**, so that everyone is included in the discussion.

To start a dialogue between the participants it is advisable to choose activities that include **targeted questions on the chosen topic**, in fact asking questions that are too wide or imaginative can produce answers that are generic or biased. The information extracted from the participants must be **data already in their possession and easily explained** or illustrated in such a way as to encourage conversation and participation.

3. Main activities

The goal of the session's activities will revolve around the construction and **definition of the design brief.**
The information for the creation of a design brief is already in possession of the participants, so designers do not need purely generative but more extractive activities so that the dialogue between the participants **brings out all their knowledge.** I suggest organizing are **opening and framing activities,** in which it is key to create a genuine environment for listening (designers) and being heard (participants), using open tools (blank spaces, unfinished artifacts, open rooms for contribution, etc...) and visual materials such as pictures.

Following Meroni, Selloni and Rossi's work, design brief consists of several points and correspond to 5 main kinds of activities'goals:
1. **Design objectives:** the goal (and micro-goals) of the project
2. **Design values:** company's and project's mission and vision
3. **Competitors:** all the stakeholders affected by the project
4. **Target:** the expected end-user of the project
5. **Design specification:** possible project requirements/outputs

In this session the designer aims to have at least a draft of the design brief. For this reason, I have identified some existing activities tackling all the points in which a design brief is articulated and which could be used as examples in building the session. Depending on the context, it may be more important to insist on some aspects rather than others, **without necessarily having to follow all the recommended activities**, which for reasons of time would be impossible.

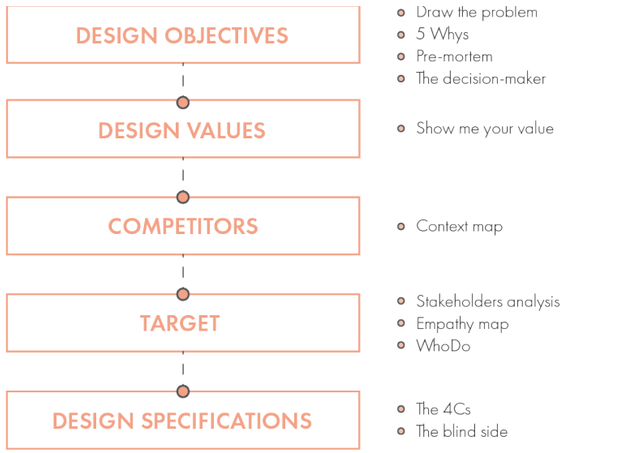


Fig. 55 - Main activities suggestion scheme

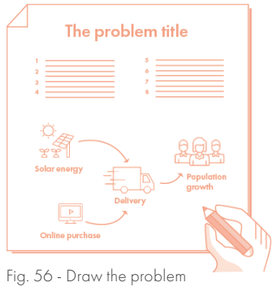


Fig. 56 - Draw the problem

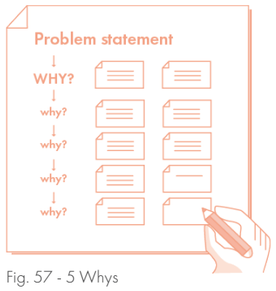


Fig. 57 - 5 Whys

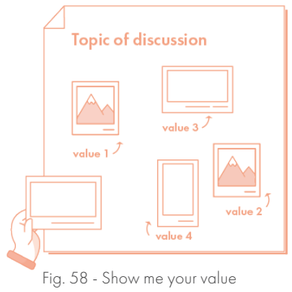


Fig. 58 - Show me your value

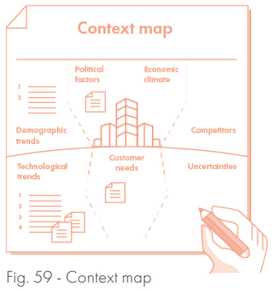


Fig. 59 - Context map

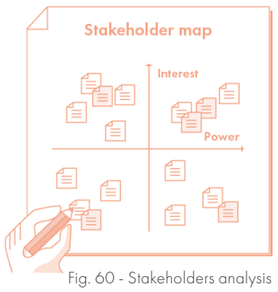


Fig. 60 - Stakeholders analysis

Suggested activities:

I will report each of the suggested activities with their related source to be consulted.

1. "Draw the problem": This activity is a **short drawing exercise for defining the problem** in a team. Each participant should think about the problem they have to solve, writing a list of items that helps to explain the problem. Then he/she will represent it with a drawing, that will be compared with others to find similar and different interpretations.
(Credits to James Macanufo)
-"5 Whys": This activity aims to **investigate beyond the surface of the problem,** exploring the roots that led to it. It is suggested when the problem has already been identified. Participants should start asking themselves Why it is a problem, writing the answer on a post-it. Then they should ask themselves Why that answer is true, writing their next response, and so on at least 5 times. *(Credits to Sakichi Toyoda)*

2. "Show me your value": This activity concerns the mapping of the company values or the topic values perceived. Each participant should **describe a topic's value through pictures or images** and then share an anecdote or a personal story about that. It can be followed by a reflection on design principles. *(Gray et al., 2010)*

3. "Context map": This activity aims at identifying the external factors and forces that surround the organization, providing a systemic view. Participants should populate 5 templates with contents: economic climate, political factors (rules), technology factors, customer needs, and uncertainties, identifying the main demographic and competitors trends influencing the company. *(Credits to David Sibbet, Grove international)*

4. "Stakeholders analysis": The aim of this activity is to map and understand the future stakeholders of the project and how to angage with them. It is recommended for projects where several important actors could influence the outcome of the project. This activity will guide the future collection of information so it has to be developed during the launch of the project itself. *(Coplin & O'Leary, 1983)*
-"Empathy map": This activity is recommended for reflecting over personas, entering in the shoes of someone else. Designers should ask a question about the project, and participants should try to understand the context, indagating the persona's real, tangible, sensory experiences. *(Osterwalder & Pigneurr, 2010)*

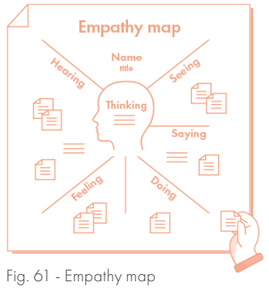


Fig. 61 - Empathy map

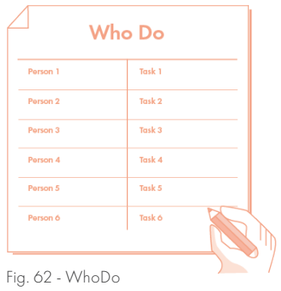


Fig. 62 - WhoDo

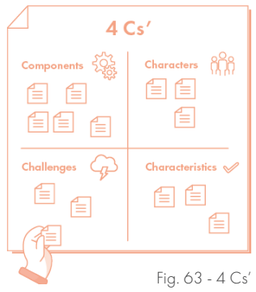


Fig. 63 - 4 Cs'

Fig. 64 - Pre-mortem

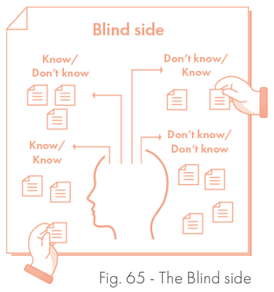


Fig. 65 - The Blind side

-"WhoDo" : This activity **translates stakeholders from abstract entities into actors** that can play an influential role during the project if correctly involved.
Participants should write in a column all the people involved, obstacles, decision-makers, etc... and then in another column all the corresponding tasks for each person. Then all the tasks should be prioritized.
(Gray et al., 2010)

5. "The 4Cs": This activity aims to disrupt the classic ways to break down a topic, which will be analyzed according to **Components, Characteristics, Challenges, and Characters.**
This activity focuses on specific features characterizing a topic, anticipating future offerings. Each team can be responsible for just one C, collecting information and organizing and clustering them. *(Richter, 2004)*

Extra activities

In certain situations, underlined in the "Possible tips" sections, it may be necessary to take specific actions to solve issues.
I have identified three activities that can help when needed:

- Pre-mortem: This activity is for projects that are supposed to be very complex and in which the risk of failure is perceived as higher then normal, so that it can be helpful to perform an extra **activity focusing on pitfalls, or everything that can go wrong** during the project development. It is also helpful to define an action plan for the future. *(Gray et al., 2010)*

- Blind side: This activity is also suggested for projects with a high failure perception or with high risks.
On the contrary to the previous one, this activity aims at **discovering and disclosing any unknown information** that can impact the company's success in any area of the project, avoiding its blind spots. So it is a more research-oriented activity. *(Gray et al., 2010)*

- The decision maker: In this specific session, it may be useful to **elect a "Decision-maker" among the participants.**
In the event of a tie or conflict, the Decision-maker will have the last word on the matter to reach an agreement.
The decision-maker will also be responsible for participating in subsequent meetings for the entire duration of the project.
His election can be convenient when all the participants have high decision-making power, so reaching a single agreement could become complex.

What we did: session structure

Goal
Frame the client problem identifying key points, issues, or missing elements.

Output
An extended design brief, trying to complete its section as much as possible.

Variety of participants
Low variety. We couldn't control the typology of participants that were invited by the project leader, because we didn't know anyone. We just specify the importance to have in this session the project leaders of the different departments, and the people who will follow the project from its beginning to the end.

Possible tips

We used software that was completely new for the client company. Therefore we decided to limit their interactions with it giving them access but at the same time transcribing their comments, their questions, etc... In this way, they had the time to understand the basics and how the software worked without feeling pressured, concentrating only on freewheeling talking.

Number of participants
In this session, we reached a total of 15 participants, excluding us as the design team. It was still a manageable number of people because this session did not have a very deep level of collaboration. The possibilities of interaction with the templates were quite limited by the technological means used and by the fact that participants were still a little intimidated.

Planners
The whole team of four designers attended the workshop. We divided the facilitation between two designers, while the other two members were mainly responsible for transcribing anything said and solving possible logistical issues.

Timing
4 hours. We learned with this session that 4 hours were a lot to digest for people and that it would be better for the following sessions to last less time. It was better to sacrifice some content but to focus on keeping the attention and the involvement higher.

Possible tips

We requested their research material in advance to organize this session. In this way, it was possible for us to pre-compile some of the templates, to facilitate the start of the discussion on data and facts on which they were experts. This was also as an ice-breaker activity, giving them the confidence to address also the areas in which the data were missing or not sufficient.

What we did: main activity

In this paragraph, I will explain the main central activity carried out during the co-design session. This activity was created by Anna Meroni, Daniela Selloni and Martina Rossi. For this hanbook I revisited and standardized it for this context.

Title:
Design brief template

Object of activity:
This activity aims to create an extended design brief articulated in all its components (objectives, values, competitors, target, and specifications), which can also be completed and enriched in any subsequent sessions remaining as a symbol that is always accessible for those involved in the project.

Number of participants:
This activity can be performed with any number of people.

Duration of activity:
1 h

How to do it:
The activity is structured into five main templates, each one dedicated to one point of the design brief.
Each template can reach a certain level of pre-compilation by the design team, in case some information about the project is already in their possession. This can be useful to speed up and facilitate the discussion, which will gradually move from

template to template following the pre-established order. The dialogue between participants will be guided by introductory questions for each template. In some cases, the questions will be integrated into schemes or maps to be filled. Moreover, each template will be equipped with a final section dedicated to the analysis of potential pitfalls or expected outputs.

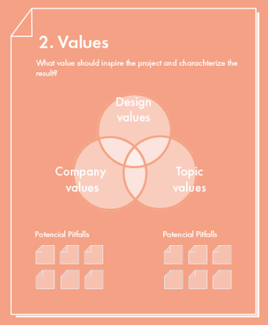
1. **Design objectives:** list all the questions coming to your mind belonging to 4 categories: aims of the project, project questions, design issues and considerations, and design outcomes. Then try to see if some of them have already an answer.

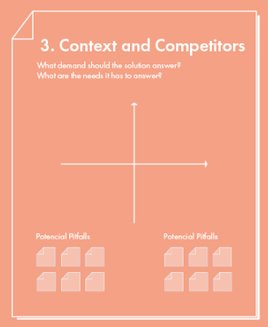
2. **Design values:** write the values of your company and the values that refer to the topic analyzed. Then they will be crossed with the values of design, previously compiled.

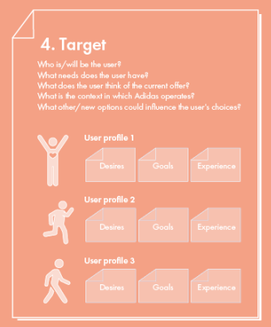
3. **Context needs and competitors:** Complete a pre-created positioning map by adding the client's competitors, examples of inspiration, or those to avoid. The axes' value can be modified accordingly to your project. In our case, we choose to cross the sustainability level with the typology of sports covered by competitors' services.

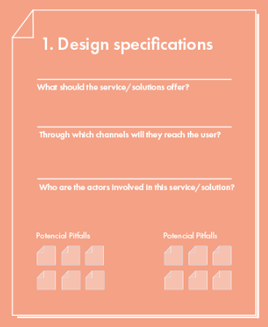
4. **Target:** Create a summary model of personas by answering the reported questions and creating user profiles with the results.

5. **Design specifications:** This last template is the most imaginative one. It proposes possible interesting service directions to identify the most likable ones for the client. They should be provocative and challenging to stimulate discussion and open the company's view on the project, from a solution to a holistic, broad, and comprehensive system.









From the top: Fig. 66 - fig. 67 - fig. 68 - fig. 69 - fig. 70
Templates for design objectives - values - competitors - target and design

Take-away tips from the field experience

- This activity is particularly effective if it is **prepared with a minimum of information about the subject matter,** the more information the designer will be able to get hold of, the better the output of the session will be.
- It is always useful to **prepare post-its in advance** to let shy people, who don't want to talk, the possibility to express their feelings or thoughts.
- The post-its are also relevant to **give rhythms between explanation and discussion intervention.** When there is a post-it, the participants know that it is their time to do something, to talk, to write, etc... So post-its can be used strategically as symbols.
- In this session, precompilation is a good thing but if **pre-compiling too much risks inhibiting collaboration**, as the participants do not know what to do or how they can interact with a template already completed, communicating an impression of bewilderment. There should be balance with white and blank spaces and clear instructions about the things to do.
- It is essential to **generate as many questions as possible** instead of trying to give answers, **nurturing the participant's curiosity and critical thinking.** All the questions generated will be used precisely to probe the level of knowledge and depth achieved by the company on the analyzed topic, identifying gaps to be covered with research.
- This session involves multiple and different steps, and each one of them deserves the same priority and importance. Therefore it is advisable to use tools to **gently divert the flow of conversation** if things go long over just one activity. For example, designers can use timers visible to anyone.

4.3.3. Opportunity 2

1. With the employees

This is a session for converging and consolidating the information learned. At the same time, this session acts as a bridge between the analytical and the generative phase and must launch the participants into a new atmosphere.

Goal
Frame a complete and holistic vision over the topic chosen, identifying promising directions for future work.

Output
The main outputs in this session are visions, clusters of ideas/insights, or strategic decisions to guide the different teams responsible for the project.

Collaboration level
Various. Designers can choose, depending on the project, how deeply they want to collaborate, as I will explain later.

Style of guidance
Steering: stimulating the capacity of stakeholders and users to envision options beyond the existing way of doing things, so to challenge behaviors and conventions.

Design subject-matter
Topic-driven: the team is still exploiting all interesting directions concerning the topic, including also the unconventional and surreal ones. This session converges without closing too much.

Number of sessions
One session, both on-remote and in presence.

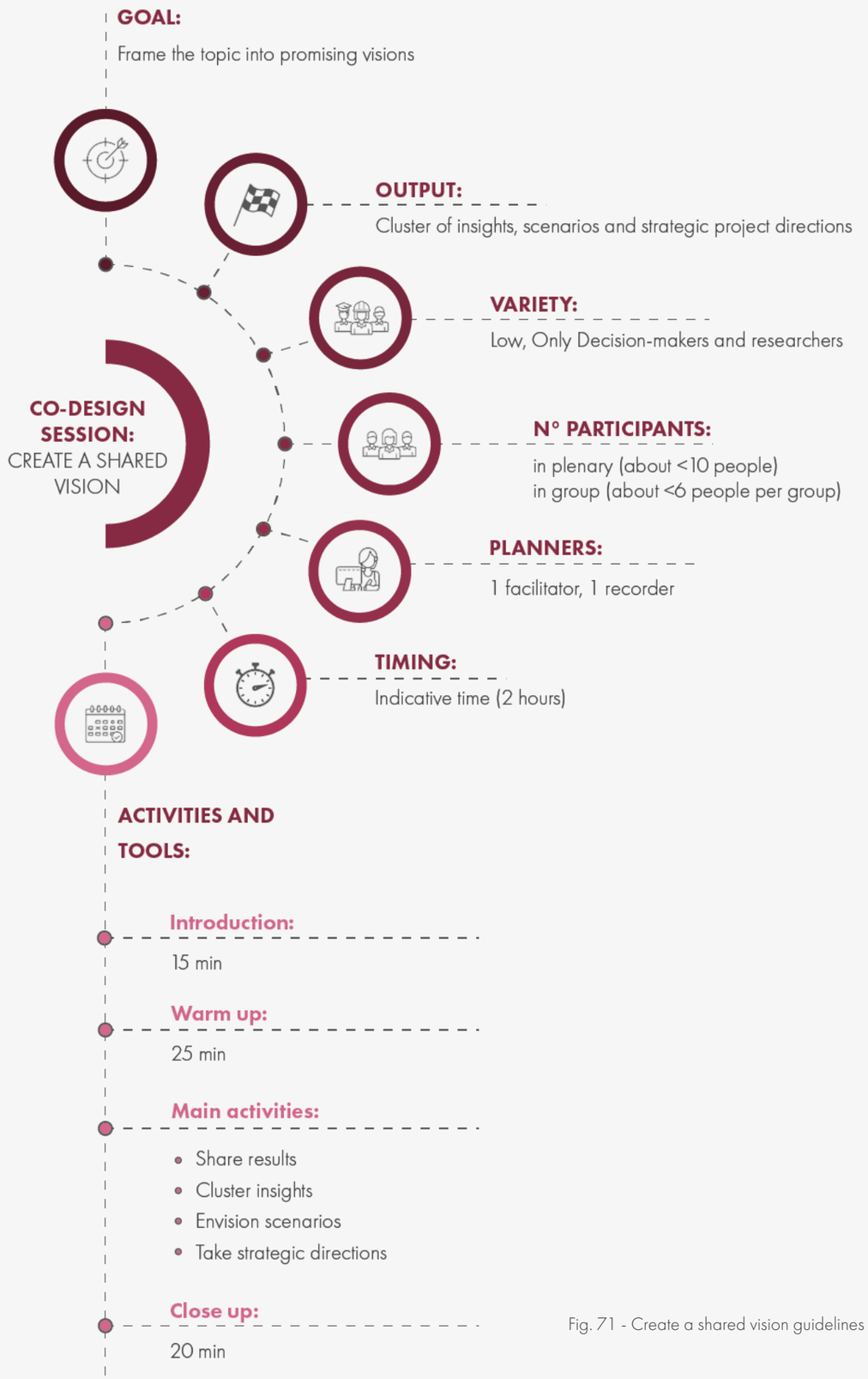


Fig. 71 - Create a shared vision guidelines

Structure of the session

Goal

Map and visualize the complexity of the topic analyzed, identifying possible **future and promising directions.**

Output

The outputs for this session are mainly a **cluster of insights, visions, or scenarios** about the specific topic.

Variety of participants

It is recommended to involve, for this session, the participants to the previous one (Clarify the brief), who also **have decision-making power.**
It is also advisable to **invite the people involved in the research process**, in particular, if the company is making the research in parallel with the design team. In this way, the researcher will be able to contribute their knowledge to the results obtained by the design team, bringing a different vision to the research process.

Number of participants

It is suggested to **keep the same number of participants of the previous session**. Then, depending on the level of collaboration to maintain with participants, it is possible to decide whether to **divide them into groups or to keep the session in plenary.** If the collaboration level is very high, it would be advisable to divide the participants into groups of up to 6 people each, to allow everyone to freely express their opinions and thoughts.

Planners

If the session is in plenary, it is recommended to have at **least one moderator and one recorder.**
If, on the other hand, the participants are divided into a group, it is better to have one facilitator and one recorder per group.

Timing

In presence and on remote: **max 2 hours**. I tried to structure a session working both for online and offline situation.

Possible tips

This session can be articulated in different ways depending on the depth of collaboration level that designers want to achieve.
High depth: The company and the design team start the research phase in parallel. During the session, participants must share the research results, obtain insights, cluster them and eventually create one or more scenarios.
Medium depth: the design team is already in possession of the client's research results. During the session, the designers will share the insights found and participants will cluster them and find scenarios.
Low depth: the design team proposes the already clustered insights looking for a confirmation/discussion on the scenarios with the client.

Activities and tools

1. Introduction

Designers should start introducing the co-design session schedule, possibly making a recap of the last co-design session's results. Infact from the frist session to this one there was the long research phase and participants might have forgotten soem project decisions and information. It can be also a moment for methodology transmission (see 4.3.6.).

2. Warm up

Because it has been a long time from the past session, it is better to repeat the warm-up with the same aims as in the previous session (go look "Clarify the brief"). Remember to **not fall into the trap of thinking that**, because participants already know each other, **it will be meaningless to do a warm-up.** Warm-up is fundamental to establish the collaborative mindset and to work efficiently.

3. Main Activities

The main activities for this session must be converging ones because designers need to **channel all data and info in manageable directions, project inputs**. Still, even if these activities are converging, they don't need to close possible options directions, because they still need to keep a complete view over the subject panorama. For this reason, **voting ideas/ insights rather than closing** toward shared ones preserve from losing groundbreaking inputs with distinctive and unique features and meanings. Moreover, these activities need to start pushing stakeholders out of their daily boundaries, considering that participants already know each other (so the atmosphere is more relaxed) and the session must prepare them for the following generative ones.

From the top: Fig. 72 - fig. 73 - fig. 74
Warm-up
Share research result
Find insights

The kinds of activities will depend on the **depth of collaboration level reached by participants** and also on the current state of the project. In general, I identified four main kinds of activities that designers should perform during this session.

1. **Share results**: these activities aim at **understanding the data found,** merging them to find similarities or discrepancies. Also, they should **transform these data into insights** and into design opportunities.

2. **Cluster insights:** these activities should **create analogies between insights,** helping participants create connections and identifying contact points also where they are not so intuitive and logical.

3. **Envision scenarios:** these activities should push participants out of their boundaries and their daily routine to think about the future. **These activities are based on service design tools for scenario creation**. I tried to identify the best tool for collaboration with people who are not designers.

4. **Take strategic directions:** these activities aim at maintaining order and control after scenario generation, **to assess the consensus and understanding over the discussed panorama.** Generally, they refer to role definition or tasks hypothesis.

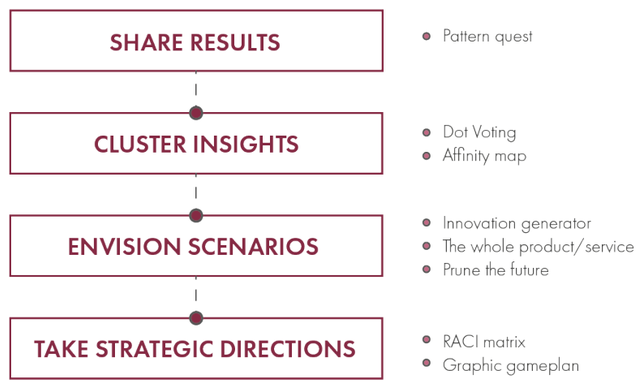


Fig. 75 - Main activities suggestion scheme

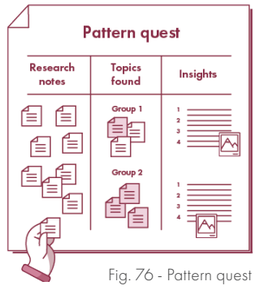


Fig. 76 - Pattern quest

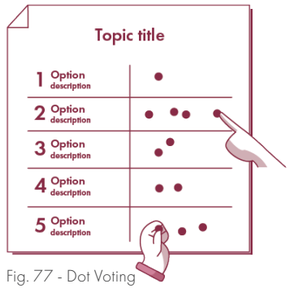


Fig. 77 - Dot Voting

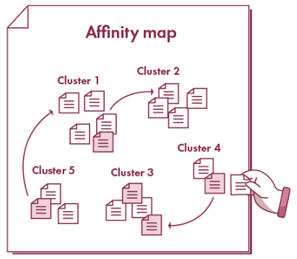


Fig. 78 - Affinity map

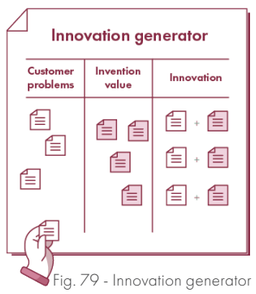


Fig. 79 - Innovation generator

Suggested Activities:

I will report each of the suggested activities with their related source to be consulted.

1. Pattern quest: this activity aims at **identifying similarities and patterns in research data, creating insights.** Participants should post on the wall all the research notes, grouping them into common topics. Each topic will be analyzed by a small group of participants that will transform notes into stories, quotes, drawing. The results will be discussed together. *(Frog design, 2019)*

2. Dot voting: This activity provides the simplest way to **identify clusters of interests** in a group of insights. Designers will give participants a certain number of dots to vote their favorite idea/insights. Giving too many dots risk identifying just one big cluster, losing a unique hotspot while giving just one dot risk identifying too many clusters without a real preference. In case of hypo, Dot voting can be done with a laser pointer or Mentimeter tools to keep the voting anonymous. *(Gray et al., 2010)*

- Affinity map:
This activity helps discovering **embedded patterns in your data** (and sometimes break old patterns) of thinking by sorting and clustering language-based information into relationships.
It can also give us a sense of where most people's thinking is focused. *(Credits to Jiro Kawakita)*

3. Innovation generator: this activity helps **teams identify scenarios.** It is base on three categories: Customers'/Prospective and Problems, invention/Value, and Innovation. Participants will fill the first column with the customer needs, taking them from research. Then they will identify inventions that can solve them, taking them from the competitors' analysis of the research. Finally, combining the two columns, they can try to think of a new invention that can bring innovation to the topic. *(Sehlhorst, 2011)*

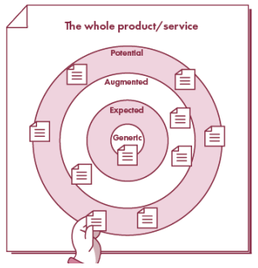


Fig. 80 - The whole product/service

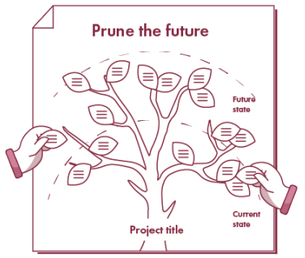


Fig. 81 - Prune the future

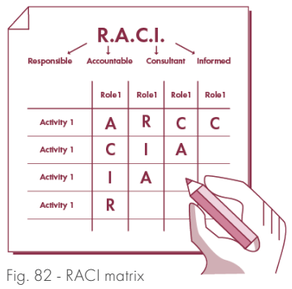


Fig. 82 - RACI matrix

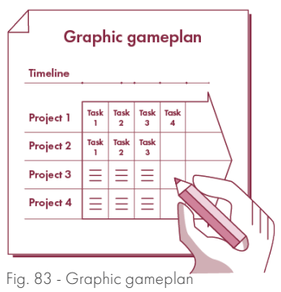


Fig. 83 - Graphic gameplan

-The whole product/service:
This activity aims at **pushing your project into the future.** Participants should gradually fill 4 concentric circles starting from the inner one.
Circle 1: **Generic Project** – vision and mission
Circle 2: **Expected Project** – the minimal conditions customers expect from your project.
Circle 3: **Augmented Project** – aspects of your project that go beyond customer expectations.
Circle 4: **Potential Project** – what could be done to your project to attract and keep customers. *(Credits to Theodore Levitt)*

-Prune the future:
This activity helps to show the **possible developments of a topic's future**, using a tree metaphor. In the inner part of the treetop, participants should write notes related to the current state of the project, (coming from the research) clustering them into branches. Then in the outer part of the treetop, they should write the project's aspects of the future, variables already in progress, or simply potentials. After clustering them again into new branches, participants will discuss the emerged shape of the tree. *(Hohmann , 1995)*

4. RACI matrix:
This matrix will **tackle the responsibility problem directly,** through the help of 4 categories:
Responsible - the doer of the work.
Accountable - the accountant for the work that the Responsible person does. Only one Accountable for each task.
Consulted - they provide input, opinions, and advice.
Informed - they are just kept up-to-date on progress or completion.
On an axis of the matrix, the team should list all the projects' tasks while on the other, all the project's roles. Then, the group will assign levels of responsibility. *(Gray et al., 2010)*

- Graphic gameplan:
This activity aims at **directing the team towards its goal** defining a practical action plan based on small steps.
Participants will choose a project, set its milestones, and agree on the first step required to accomplish it. Then they will decide on a second, third step until they are satisfied. *(Gray et al., 2010)*

What we did: session structure

Goal
Explanation of the research phase done, and creation of insights' clusters based on the latter. We decided to avoid the scenario creation for this session, therefore we worked on them later internally to just our design team.

Output
A big map containing all the insights, organized in clusters of meaning and relevance.

Variety of participants
Low variety. The participants were the same as the previous session and we didn't need to involve the researchers considering that the research was done before the start of the project itself.

Number of participants
In this session, we reached a total of 15 participants, excluding us as the design team. We decided to keep this session in plenary because the collaboration level that we wanted to maintain with the client was pretty low. We didn't look for high interaction but more for a high understanding of the process and the things done.

Planners
The whole team of four designers attended the workshop. We divided the facilitation between two designers, while the other two members were mainly responsible for transcribing anything said and solving possible logistical issues.

Timing
3 hours. The timing for this session was perfectly balanced and we even finished in advance compared to the schedule. However, if we had introduced more interactive activities, we would have run out of time considering that explaining all our research work took a lot of time.

Possible tips

This was the least interactive session in all the projects because we mainly had to explain the research done and the insights found. Then only the last part of the session was dedicated to questions and activities. This was important to show participants how a service designer does the research phase, which is very different from the one made by a business company. It is important also to teach them the usercentered approach through our results.
This was also an ice-breaker activity, giving them the confidence to address also the areas in which the data were missing or not sufficient.

2.1. What we did: main activity

In this paragraph, I will explain the main central activity carried out during the co-design session. This activity was created by Anna Meroni, Daniela Selloni and Martina Rossi. For this hanbook I revisited and standardized it for this context.

Title:
Insights Cluster

Object of activity:
This activity aimed to give participants a complete panorama over the topic analyzed, showing how all insights and data were mainly user-centered and focused on the user's needs. All different perspectives were still part of the same system.

Number of participants:
In this session, we were 15 people, but any number of participants is fine. Remember that the more participants you have, the harder it will be to make decisions about insights and cluster them into groups.

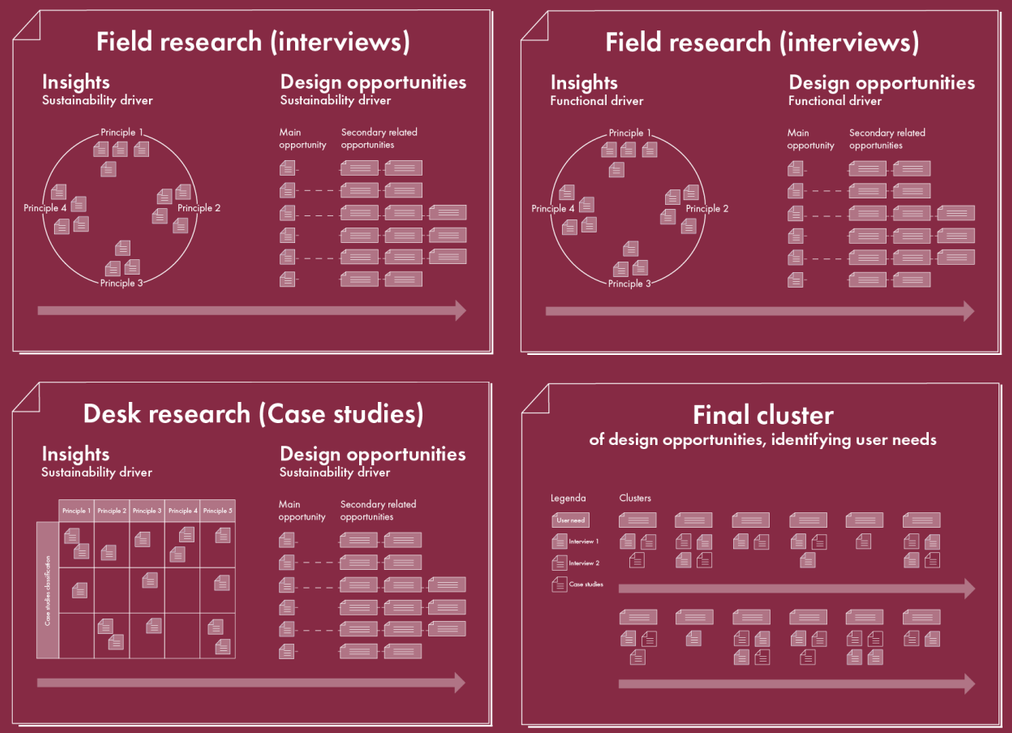
Duration of activity:
From 30 min up to 1 h. In our case, we spent 45 min.

How to do it:
After the explanation of the research phase, we prepared three templates showing all the insights collected.
The first template focused on the insights found through interviews, analyzed through the lenses of sustainability.
The second templated focused on the functional drivers, and

the insights collected were obtained again from the interviews. The last template collected all insights coming from benchmarking (in particular case studies and shop exploration), organizing them through sustainability drivers.

Then all insights were translated into design opportunities or project possibilities that will help the designers in the future ideation step. Participants will take some time to navigate the three maps, analyzing or adding insights where needed, following their knowledge and experience.

After 15 minutes for each template, participants will move to the last template for this activity, a white big canvas in which they will find all the design opportunities again. They will have to cluster them according to similarity criteria.
Each group of design opportunities identified should be labeled with a tag describing it and representing a User Need. At the end of the session, we obtained 17 mini-cluster, which can be seen also as pre-scenarios.



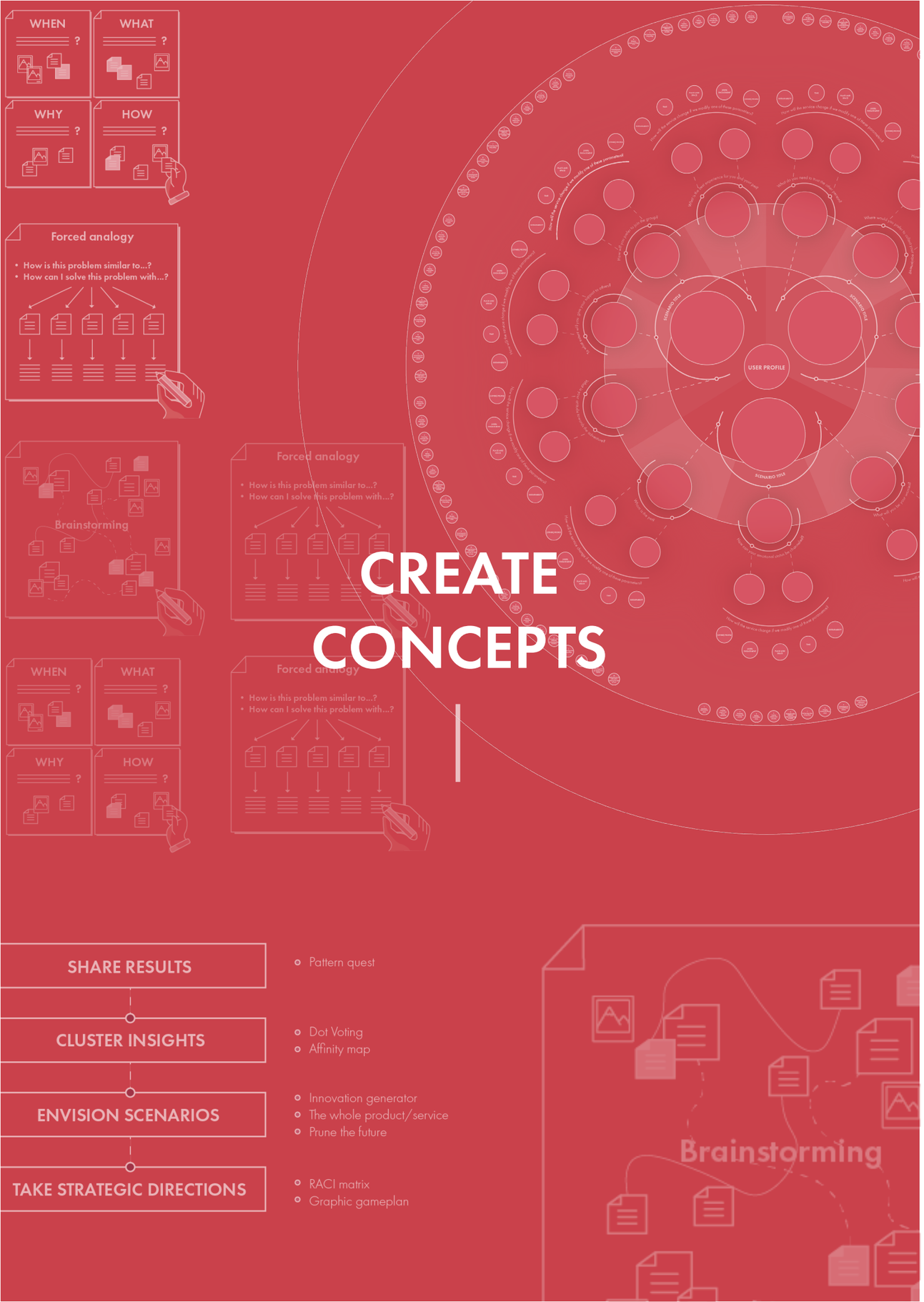
On the top row from the left: Fig. 84, fig. 85 - Interview insights template based on sustainability and on functional drivers
On the bottom row from the left: Fig. 86, fig. 87 - Case studies insights template, Final cluster of design opportunities

Take-away tips from the field experience

- This is one of the most complex sessions for designers. "Sharing a common vision" **must not be confused with other types of meeting like teambuilding ones.** In that case, the meeting aims to create relationships, to build trustworthy bonds, or to make people speak about their problems.
On the other hand, in this case, **the output should be about project innovation,** and every goal revolves around the product/service progress.
Still, inside the project's process, there are moments more related to strengthening the team's relations, through role definitions, strategic decisions, plans, etc... Moreover, this session should not to be confused with alignment meetings, that refer to a different opportunity in this handbook.

- It is very complex to organize this session also in terms of activities. Designers often don't know which activities are the best, because they should search for activities that are **convergent and divergent at the same time,** namely that are framing tools.

- Often participants don't know what to expect from this session because they have no knowledge of design concepts like insights or scenarios. Therefore it is very important for designers to:
- **Introduce appropriately these concepts** so that they will be clear for everyone at the beginning of the session;
- Use language and tools that spontaneously push people towards these topics, **making them understandable intuitively.**



OBSTACLE 3 - GENERATE IDEAS

4.3.4. Opportunity 3

1. with the end-users
2. with the employees

In this opportunity, the company generates innovative ideas, tackling all possible perspectives. Instead of just putting inside the shoes of somebody, it is better to have that somebody at the table and co-design with him/her. Therefore, I structured this opportunity by dividing it into two sessions: with the employees and users.

Goal
Generate valuable and promising design concepts.

Output
A Report/template/map containing a whole panorama o design concepts defined by specific key features.

Number of sessions
It is better to have one session per user category. In fact, these activities are exhausting and should be kept as short as possible, moreover, it is better to organize more than one session but with different participants.

Style of guidance
Steering. Participants are pushed to think differently and openly, challenging their norms in a form of suspension of disbelief.

Design subject-matter
Concept-driven. In this session, we have a shift from a topic-driven to a concept-driven way of working.

Collaboration level
High level. For the first time, the session is mainly in the hands of people that should manipulate completely the tools interacting deeply with everything surrounding them.

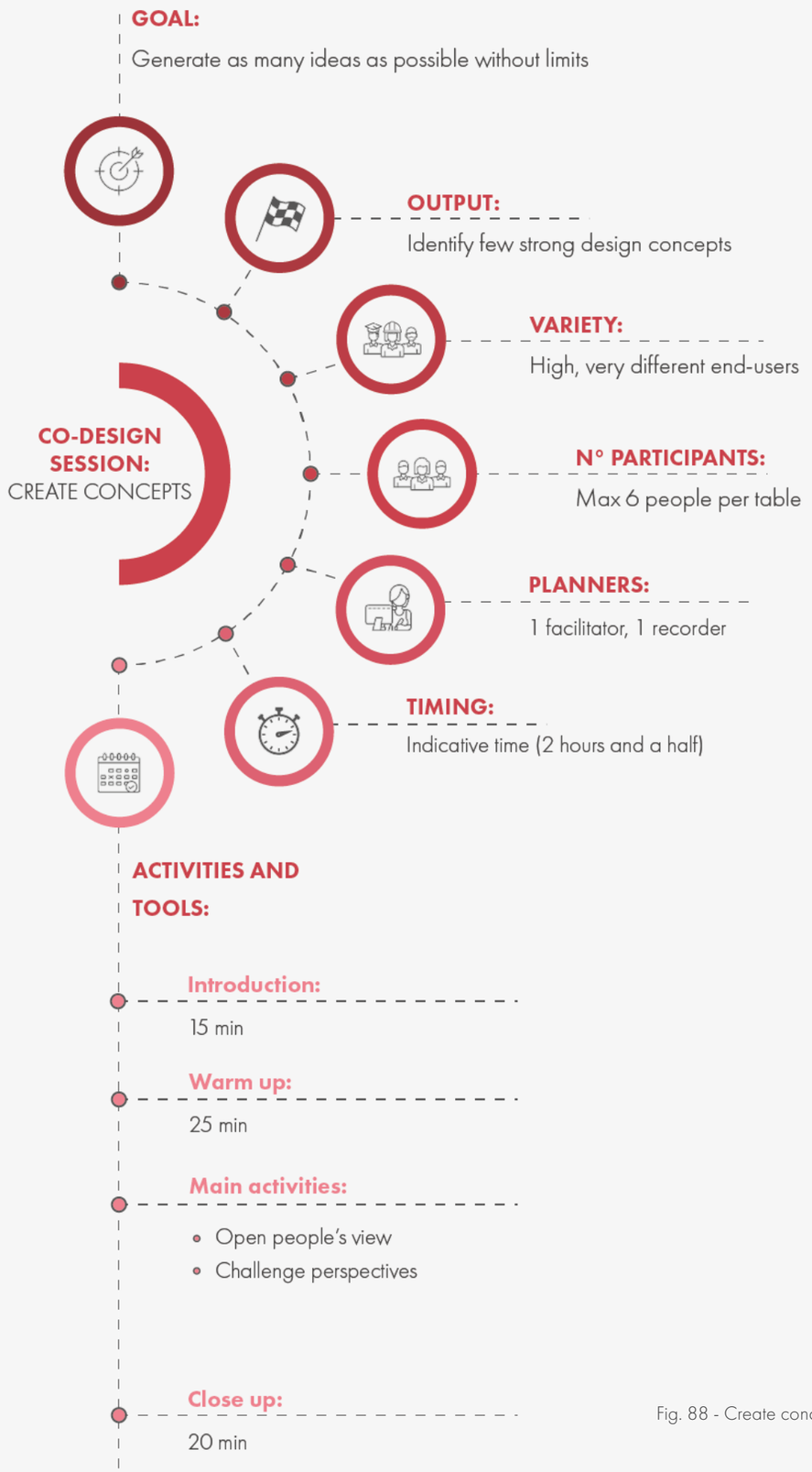


Fig. 88 - Create concepts guidelines

Structure of the session with users

Goal

Generate multiple ideas breaking the boundaries of reality and daily routine.

Output

Identify multiple and promising design concepts, understanding their key features.

Variety of participants

Participants in this session meet specific **qualitative criteria** for designers. Their recruitment can result troublesome for a client company, so the designer must help the company as much as possible, proposing candidates or sending documents beforehand that will **explain better the requirements and how to search for them.**

> **Possible tips**
>
> It would be better for company representatives to not participate in the session. The company participation risks to unbalance the session, making participants uncomfortable and creating a situation of confrontation and not cooperation. In fact, the guideline about vertical differentiation will break.

Number of participants

To effectively manage the participants, each discussion table should **not host more than six people (excluding facilitators)**. If the design team has sufficient resources for these sessions, it is recommended to **create more than one table,** involving a high number of participants. In this way, it is possible to organize multiple activities both internally and between the tables.

Planners

As with the previous session, the number of planners depends on the number of participants. Generally, you need **two designers per table, one facilitator, and one recorder.**

Timing

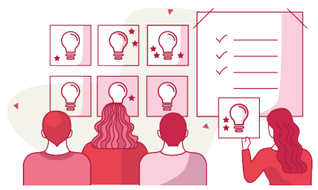
In presence and on remote: max 2,5 hours. Generative activities are very **exhausting on a cognitive level,** requiring considerable energy even though they are fun activities, precisely because people are not used to them. Therefore **creative activities cannot last too long** because, after a while, the participants' will get tired, and the output quality will significantly decrease.

> **Possible tips**
>
> It is recommended to take time to prepare this session, coming up with preliminary ideas, and preparing materials to stimulate creativity. A white canvas can be confusing for users, especially at the beginning of the session. If there is the possibility to choose, it is best to have the co-design with users first, and then organize other sessions so that the users' results will guide all future decisions.

Activities and tools

1. Introduction

It is important to start the session with a short introduction, which will explain the session's schedule and the order of activities. In this case, **it is not fundamental to show the methodology** used, which could be of interest to a company, as much as to **illustrate the rules of co-design,** creating a relaxed and lively atmosphere in which it is impossible to make mistakes.



From the top: Fig. 89 - fig. 90 - fig. 91
Warm up activity, start of the topic exploration, generation of free ideas.

2. Warm up

The warm-up is a fundamental activity in this session, but due to lack of time especially in on-remote, companies tend to skip it or to consider it irrelevant since it is interpreted as a simple ice-breaking activity. However, contrary to the previous session, participants don't know each other and are total strangers, so they need to present themselves. Also, the designer needs to use this as a moment to define **participant's roles, establishing a sense of democracy and equality.**
Then, especially in these generative sessions, the warm-up has another meaningful function: **warming-up participants preparing them to be creative.** Just like during a workout, if we don't warm up, we won't perform well, getting hurt. So for generating ideas, people need to warm up as well otherwise, the session will be unproductive. Therefore I suggest choosing activities that stimulate the users, triggering them even if in a very playful way. They can be real games and can be combined effectively with the surrounding space, including the possibility to drink/ eat.

3. Main activities

This session can be considered **the most divergent one** during the project, as the main objective of all activities is to open up interesting opportunities and stimulate the emergence of new inspirations and insights.
Therefore, **there will not be converging moments** because it is still too early for designers to identify promising directions inside all the ideas generated, and also the final users have no decision-making power therefore, rather than find just one perfect concept, it is better instead to make sure to have probed all the possibilities.
The most suitable activities are divided between **framing and inspiring ones,** and will alternate carefully during the session according to this order. At first, they will aim at:

1. **Open the participants' view** over the topic, making them experiment with different sides of it.

2. **Challenge their perspective:** pushing participants further, out of their boundaries and the limits of reality and present time.

Designers should approach **end-users as people who do not know the world of design** and who have never participated in workshops of any kind.

For this reason, inspiring tools that are too free and without limits can appear extremely disorienting and intimidating.
The risk is higher when they are used at the start of the session when users are not yet sufficiently warmed up.
Therefore as an initial activity, it would be better to think about something not too imaginative to give users confidence in their natural creative ability.

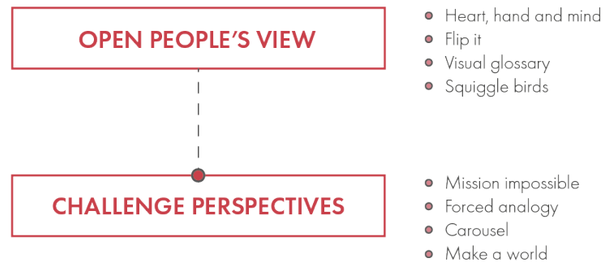


Fig. 92 - Main activities suggestion scheme

Fig. 93 - Heart, hand and mind

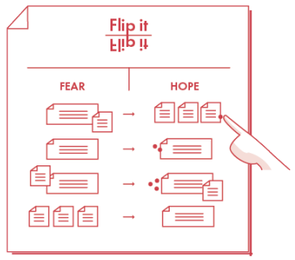


Fig. 94 - Flip it

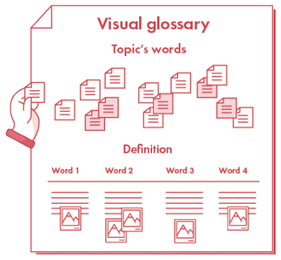


Fig. 95 - Visual glossary

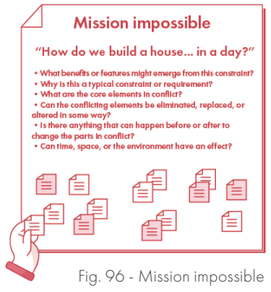


Fig. 96 - Mission impossible

Suggested activities

I will report each of the suggested activities with their related source to be consulted.

1. Heart, hand and mind: The object of this game is to **examine an issue from another perspective,** and finding significance. Participants should list all the topic's/project features answering the questions below, then scoring them from 1 to 10.
Heart: What makes it emotionally engaging?
Hand: What makes it tangible and practical?
Mind: What makes it logical and sensible?
(Credits to Swiss educational reformer)
-Flip it: this activity shows that **perspectives are made, not born**, and teaches participants to see challenges as opportunities. Participants should write all their **Fears** and issues about the topic, then they should try to reframe, to flip them into **Hopes**, and voting the most promising.
(Gray et al., 2010)
-Visual Glossary: This activity aims to **define a set of terms** to give the group a **common vocabulary** (in particular, if the topic chosen is controversial, vague, or abstract). Participants should brainstorm all phrases and terms related to the topic and discuss which terms are the most common and of the highest priority. Then they should try to define them with words and then with pictures and drawings.
(credits to James Macanufo)

2. Mission Impossible: This activity challenges constraints, **changing foundational aspect** that makes an idea or a process "impossible" in function or feasibility. For example: "How do we build a house...in a day?"
Designers should **prepare questions that engage both emotions and ratio.** Then participants should discuss them: finding possible benefits or features emerging; identifying core elements in conflict and how they can be eliminated or replaced; reflecting if time, space, or the environment affect it.
(credits to James Macanufo)

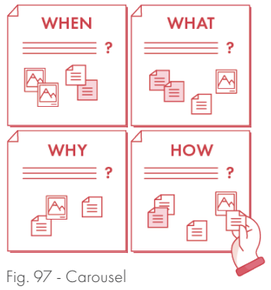


Fig. 97 - Carousel

Fig. 98 - Make a world

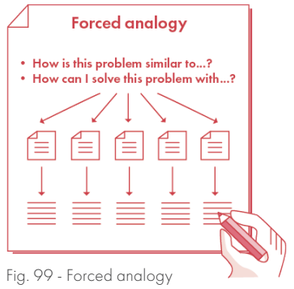


Fig. 99 - Forced analogy

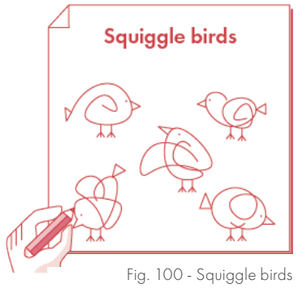


Fig. 100 - Squiggle birds

- Carousel: This activity aims at collecting opinions and **contributions from all participants** on different aspects of the issue at stake. It is a form of **guided brainstorming**. Beforehand designers should list all the topic's aspects with some powerful questions on different papers. Then they give each paper to a group, leaving 2-3 minutes to write or draw their answers. Rotate the papers until every group has answered all the questions.
(Gray et al., 2010)
- Make a world: The activity aims to create a three-dimensional **model of a desired future state**, appealing to visual, auditory, and kinesthetic learners because of its layers of interaction. Inside the **desired scenario,** each group should **imagine an idealized version of it,** brainstorming its new attributes, and physically create them using all different kinds of art supplies. Then each group should discuss its idea with others.
(Emberley, 1972)
- Forced Analogy: This activity aims at **breaking how we categorize things** pushing people to see them from different angles, opening new possibilities. Participants should write random things about the topic chosen and random attributes over some cards. The cards will be shuffled, and participants should find analogies between them guided by these questions: "How is this problem similar to...? How would I solve this problem with...?"
Designers can also prepare the cards in advance. *(Gray et al., 2010)*

Extra activities:

In certain situations, underlined in the "Possible tips" sections, it may be necessary to take specific actions to solve issues.

- Squiggle birds: This activity can be done as a quick (just 5 minutes) exercise to stretch people's visual thinking muscles. It can be done if, after warm-up, participants still feel uncomfortable drawing. Participants should draw random doodles, then designers will show how to transform them into birds. After two or three birds participants will make the transformation themselves. *(Credits to Chris Glynn)*

Structure of the session with employees

Goal

Generate multiple ideas without limits of any nature (feasibility, costs, technology, etc...).

Output

Identify a few and promising design concepts, understanding their key features.

Variety of participants

High variety. It is suggested to invite **employees coming from different departments**, involving also the ones that are not generally considered, starting from the bottom of the hierarchical pyramid. Still, it is important to **keep a focus also on vertical differentiation**, therefore, if the gap between participants risks being too high, it is better to divide them (putting them in two separate groups or making two different sessions).

Possible tips

As mentioned, innovation comes from anywhere within the company, and this session is the only one in which participants cannot have decision-making power because they don't have to take action. Therefore anybody inside the company can participate and shouldn't be excluded just because of his/her position. In this case, however, it is common to find "hypos" or open tensions or conflicts between different departments. Designers should be able to manage them thanks to some of the "Extra activities" suggested.

Number of participants

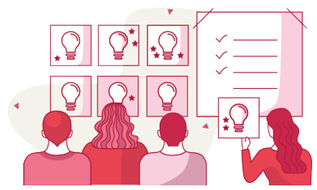
To effectively manage the participants, each **discussion table must not host more than six people (excluding facilitators).** If the design team has sufficient resources for these sessions, it is recommended to create more than one table, involving a high number of participants. In this way, it is possible to organize multiple activities both internally and between the tables.

Planners

As with the previous session, the number of planners depends on the number of participants. Generally, you need **two designers per table, one facilitator, and one recorder.**

Timing

In presence and on remote: max 3 hours. **Generative activities are very exhausting** on a cognitive level, requiring considerable energy even though they are fun activities, precisely because people are not used to them. Therefore **creative activities cannot last too long** because, after a while, the participants' will get tired, and the output quality will significantly decrease.



From the top: Fig.101 - fig.102 - fig.103 Warm up activity, start of the topic exploration, generation of free ideas.

Activities and tools

1. Introduction

The session should start with a short **recap of the previous sessions** and the **schedule description** with the order of the activities. It can also be important to **briefly explain co-design methodology**, making participants understand the value of what they are going to do. This will create excitement and, at the same time, will manage potential skepticism. It can be also a moment for methodology transmission (see 4.3.6.).

2. Warm up

As said before, the warm-up is a fundamental activity in particular for this kind of session. Its **ice-breaking power can be very useful** considering that **participants may not know the others** (despite working at the same pace), or they might be **guided by prejudice towards them**. In fact, they might believe to have nothing in common, and that communication will be difficult and conflictual even if they never really talked with each other before.
Therefore, the warm-up is the moment in which **designers should establish the "third space".** A "free zone" in which everybody will get to know others like it is the first time, **redefining roles and establishing a sense of democracy and equality.**
Then, warm-up is also fundamental to **stretch the creativity muscles of people** and to prepare them for the following intense activities. If participants are not ready to be creative, they might refuel a feeling of skepticism and mistrust, also involving others in this negativity and affecting the session output.

3. Main activities

As mentioned before, **this session is primarily divergent,** aiming at unleashing people's creative potential and letting their imagination flow. It is important to remind participants that this session is about opening and not closing, creating the **right environment for conversing** without being too practical and operational, and **without being hasty**, wanting to arrive in three hours to the final solution.

As for the previous session, the most suitable activities are divided between **framing and inspiring ones.** At first, they will aim at:

1. **Open the participants' view** over the topic, making them experiment with different sides of it.

2. **Challenge their perspective:** pushing participants further, out of their boundaries and the limits of reality and present time.

In this case, there are some differences between the activities for the users and the ones from the company.
In fact, a client **company's knowledge about the topic is very different,** on an experiential level, from the one the users have because it is more deep and technical.
Therefore, also the **activities can be more technical**, referring to some topic aspects that are generally not considered creative and showing how, in reality, they can be.
Moreover, the company might have a bit of knowledge over design practices (even coming from business literature) and therefore, it is possible to **organize more complex activities.**
Eventually, activities should **consider the company's structure,** paying attention to address its different roles, in a way that doesn't create unbalances of power and contribution.

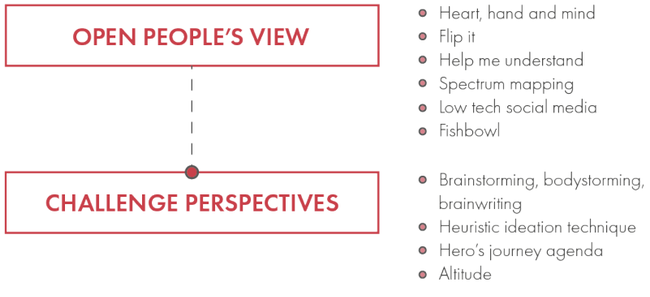


Fig. 104 - Typologies of activities

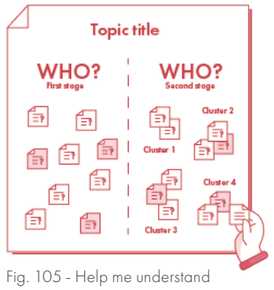


Fig. 105 - Help me understand

Fig. 106 - Spectrum mapping

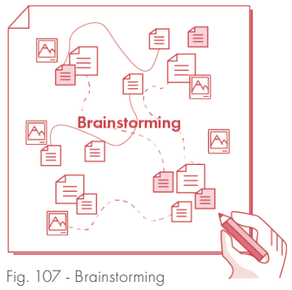


Fig. 107 - Brainstorming

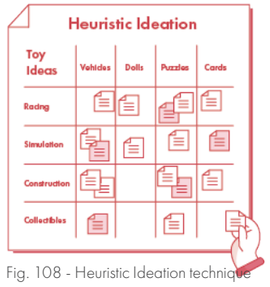


Fig. 108 - Heuristic Ideation technique

Suggested activities

Some of the suggested activities were explained in the previous section "Co-design with end-users".

1. Heart, hand and mind: explained in teh previous co-design session with users
- Flip it: explained in teh previous co-design session with users

- Help me understand: this activity aims to **give voice to all the employees' questions** about a topic, forcing their curiosity. In a large white space visible to all the players, write the topic of the meeting and the following words: "WHO?", "WHAT?", "WHEN?","WHERE?", and "HOW?". Start with the first question participants should silently write down as many questions as they can that begin with the word WHO. then all similar questions should be clustered according to similarity. *(Kaner et al., 1996)*
- Spectrum Mapping: This activity aims at **identifying people's perspectives over some ideas** (previously generated by designers or during a collective brainstorming). Then, organize them into a meaningful spectrum, **obtaining a holistic view** of them. Participants should write over some post-its their points of view concerning that idea (in anonymity).
Once all the sticky notes are posted, the group should sort them, clustering the similar ones together and leaving the outliers alone, and then discuss the results. *(Gray et al., 2010)*

2. Brainstorming, Bodystorming, Brainwriting:
This activity aims to **generate ideas** thanks to multiple contributions, **focusing on quantity instead of quality.** Starting from simple question/ topic participants should write, tell, or draw all the ideas that come to their mind without thinking or worrying about what others might think. From the craziest ideas is built innovation. The ideas can also be mimed in a sort of roleplay moment to create even more a light and crazy atmosphere. *(Gray et al., 2010)*
- Heuristic Ideation Technique: This activity aims at **generating new ideas** thanks to the combination of three heuristics/principles:
1. A new idea comes from **remixing the attributes** of an existing idea. 2. A new idea is best understood by **describing its two essential attributes**. 3. A compelling idea comes from a **"surprising/unusual" attribute combination.**
Participants should define the two categories of attributes (see fig. for example) for their topic and start populating the matrix gradually combining them. (*Tauber, 1972)*
- Hero's Journey Agenda: This activity aims to create a sense of adventure, **building common understanding and**

Fig. 109 - Hero's journey agenda

Fig. 110 - Low-tech social media

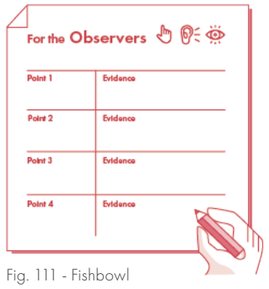


Fig. 111 - Fishbowl

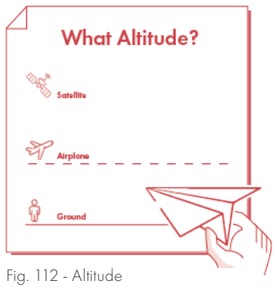


Fig. 112 - Altitude

excitement for the meeting.
The hero's journey starts in the "known" world with an "adventure call" (What are we going to do? Why is it important?). Then the hero is going to meet his helpers (warm-up tools, experts, etc...).
Then the hero will cross the threshold, the border with the "unknown" world, where he finds "pitfalls", exploring the problem space (framing activities). Then he generates new power, solving problems, and creating solutions (inspiring activities). Eventually, there is the return, defining together "How do we take this back to work?"
(Gray et al., 2010)

Extra activities

In certain situations, underlined in the "Possible tips" sections, it may be necessary to take specific actions to solve issues.
I have identified three activities that can help when needed:

- **The Low Tech Social Network:** The activity aims to introduce participants by **co-creating a visual network of their connections.**
Participants should create their avatars, adding two words that described their interest as tags, and posting them on the wall. Then participants should find connections between all the avatars, drawing lines between them with specific labels ("friends with" or "went to school with" or "went mountain climbing with...").
(Gray et al., 2010)
- **Fishbowl:** This activity aims at **creating the right environment for listening** and being heard. Participants should create two concentric circles.
In the inner circle seats, the players engage in conversation over a specific aspect of a topic. In the outer circle seats, participants act as "observers" and should write all discussion points and evidence that come out of the conversation. After 15 minutes, switch seats and roles and repeat over a different aspect. *(Kaner et al., 1996)*
- **Altitude:** This activity aims to **keep people focused at the right level** to serve the goals of the meeting, **avoiding being too abstract or too practical.**
Make a paper plane for anyone and decide together the "right" altitude level for the conversation. Whenever the flow is going too high (abstract) or too low (operational), participants can float their airplane as a signal to the group.
(Gray et al., 2010)

What we did: session structure

Goal
Framing the scenarios, previously created, to evaluate all their perspectives and points of view, generating multiple promising design concepts.

Output
A template that reports a clear collection of all the ideas generated during the session, identifying also possible spotlights by users.

Variety of participants
High variety. We made two different co-design sessions, selecting participants based on the target categories identified. The requisites for participants' recruitment were very broad and based only on their outdoor interaction. Therefore we tried to differentiate and involve people coming from different ages, sex, ethnicities, and backgrounds.
We put a special focus on inclusivity, dedicating a whole session to users with "fragilities" (any form of obstacle to practice an outdoor activity, from having a disability to having a child or simply being lazy).

Possible tips

We organized two sessions with the users. In the sessions, there were also some company representatives, which made the session facilitation a bit more challenging. They behave primarily as observers of the session, letting the users speak freely but at the same time putting pressure on them.

Number of participants
In this session, we reached a total of 15 participants, excluding us as the design team. We divided the group into two smaller teams of 6/7 people each.

Planners
The whole team of four designers attended the workshop. We divided the facilitation between two designers, each responsible for one group, while the other two members were mainly responsible for transcribing anything said and solving possible logistical issues.

Timing
3 hours. We decided to keep this session longer to be sure to complete everything, aiming to finish a little bit sooner to not exhaust our participants too much.

Possible tips

It was hard for the client company to recruit people for these co-design sessions because it didn't have a proper network to contact users and because privacy and legal restrictions were refraining them from inviting anybody. For the second session, we had to intervene and find ourselves participants for the session. In fact we needed participants with specific qualitative requirements ("fragilities") that were impossible to find using a digital database tool.

What we did: main activity

In this paragraph, I will explain the main central activity carried out during the co-design session. This activity was created by Anna Meroni, Daniela Selloni, and Martina Rossi. For this handbook, I revisited and standardized it for this context.

Title: Deep Dive template

Object of the activity:

This activity aims to lead participants to create and generate ideas, considering the complexity of the topic addressed under every perspective. It is structured in small steps and is divided into different levels, to create a linear structure for people that are not used to handling pure “creative chaos”. Therefore, the activity’s structure will go from scenario analysis to individual ideas generation.
It is a suitable activity if the subject matter is very broad and open to many different points of view and interpretations. It is also designed for users not accustomed to generative sessions, because the template levels are associated with a gradual increase in the degree of creative freedom for the user, passing from completion exercises to pure generation exercises without boundaries.

Number of participants:

Participants cannot discuss too many services in just one session. We saw that each table can analyze a maximum of 6 services, dedicating an amount of 15 minutes per service, otherwise: or the activity will take too much time; or participants will not dedicate enough time to each service. It is relevant to make these considerations because having just one table means that the designers can present max six service solutions. On the other hand, having more tables means sharing more service solutions.

Duration of activity:

1 h

How to do it:

Before the session, it is necessary to carry out several preparatory operations, creating a template organized on five concentric rings:

- **First ring:** The center of the template will be occupied by the type of user analyzed, the actors in this co-design session (it could be generic end-users or more specific subjects).

- **Second ring:** The end-user section is surrounded by a second ring dedicated to the project scenarios, represented with graphic illustrations or descriptive text. The scenarios exemplify the context in which the end-users act.

- **Third ring:** The design team needs to carry out a preliminary brainstorming on the insights from the research. Therefore, the third ring is focused on service solutions (preliminary concepts), each referring to their scenario.

- **Fourth ring:** It focuses on the discussion on service solutions that will be analyzed according to 3 systems:
  - Service options (at least two for each concept and previously prepared), to open the discussion in a guided and practical way.
  - **5 categories:** Time, place and space, engagement, other people, and sustainability. Participants should imagine how the service will look like through the lens of that category.
  - **Sustainability drivers:** 10 parameters to understand how to adapt or modify the service to respect the envirnmental change.

- **Fifth ring:** It focuses on overturning people’s perspectives. We took inspiration from cards for humanity (Idean), adapting them to our context and inviting people to step in the shoes of other different users.

We finished with a Freeride brainstorming moment of 15 minutes, asking participants to suggest to us any idea coming to their mind regarding the topic analyzed.

4. 3. Opportunities development

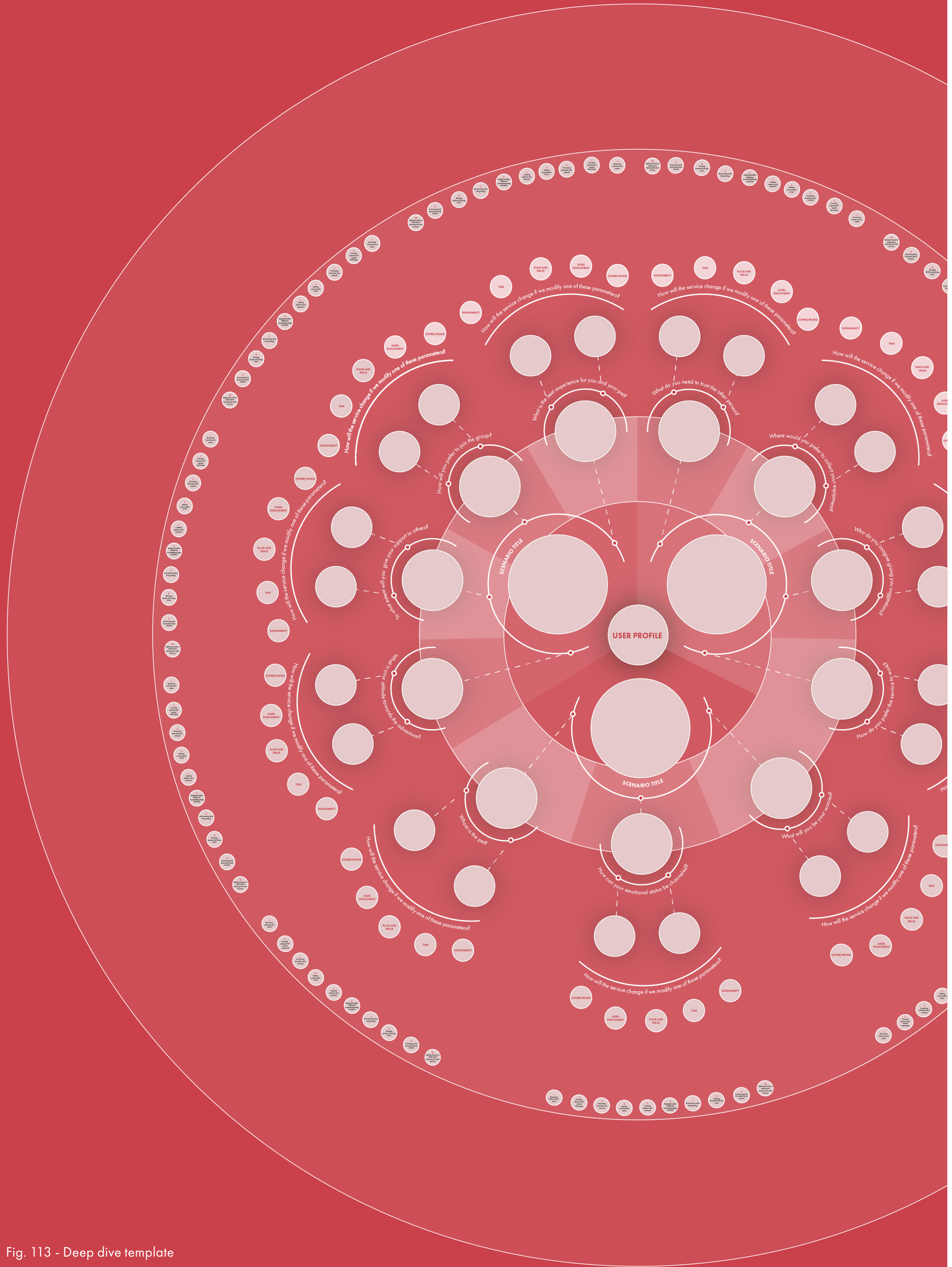


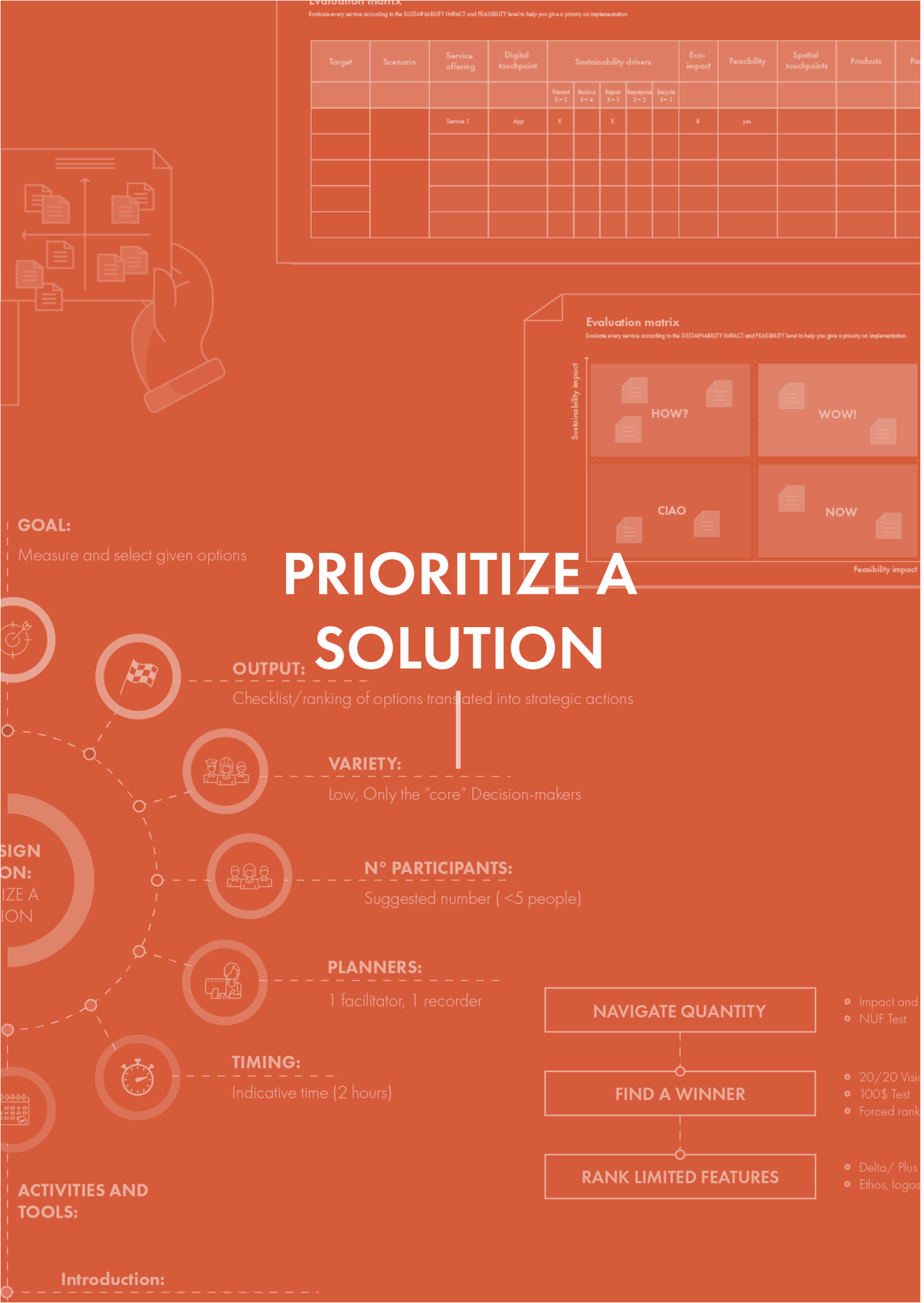
Fig. 113 - Deep dive template

Take-away tips from the field experience

- **The more sessions designers can organize** with different participants, the better it will be because innovation comes from everywhere and is the result of a mixture of different points of view, even the unusual or unexpected ones.

- Generating ideas is an exciting practice for the participants but **it is extremely tiring** as most people are not trained in being creative. Therefore, it is best to **keep the sessions short, giving space to the preparatory activities** and never skipping them. Moreover, it is better to reach the maximum level of abstraction following subsequent and incremental steps, to keep the excitement higher.

- It can be **difficult to convince the company to organize co-design sessions also with the user**s, and to communicate them the value of their insights. It might happen that the company will not give the design team enough time or resources, but it can still be interesting to try to organize a session with users (also with o budget), showing to the company its value and contribution to the final result.



4.3.5. Opportunity 4

1. With employees

In this opportunity, collaboration is aimed at expanding or assessing given options, adding interests, feasibility, and concreteness. The struggles of decision-making activities can be lightened if leveraging the involvement coming from the previous generative co-design sessions.

Goal
Identify quantitative or qualitative metrics to assess the value of projects' options that lead to taking action.

Output
The possible outputs are enrichments, ranking, prioritisations and assessments that can be considered as pre-prototypes.

Number of sessions
One session on-remote and in presence. Because it can be very time-consuming, it can be useful to divide the remote sessions into two/ three close appointments.

Style of guidance
Facilitating, converging sessions tend to have the highest conflicts and designers should remain supportive and neutral to avoid them.

Design subject-matter
Concept-driven, this session works on practical and concrete options like concepts or products/services features.

Collaboration level
High level. In this session the collaboration with the client reaches its peak and it cannot be decreased.

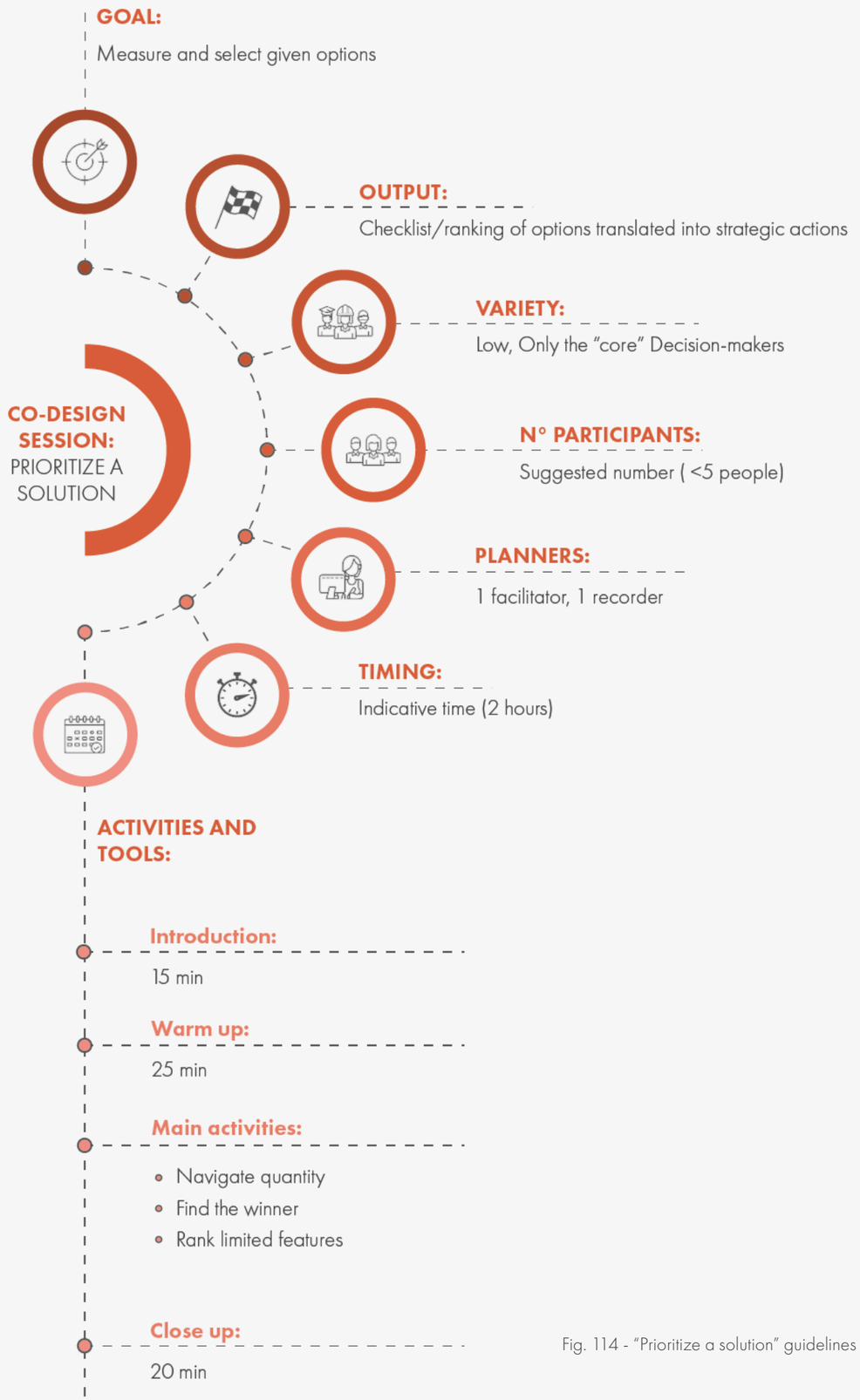


Fig. 114 - "Prioritize a solution" guidelines

Structure of the session

Goal

Give value to the all the options provided in order to measure and select them ad take action to the development of the project.

Output

Provide a checklist/ranking of options to translate into strategic actions and decisions to obtain a pre-prototype.

Variety of participants

Low variety. In this session, It is required the participation of the design/project team members with sufficient **decision-making power to take concrete actions.**

> **Possible tips**
>
> The best participants for this session are strategic decision-makers. It is too early to invite executive and operative figures that risks, with their realistic approach, to put a stop to a process that still needs to be imaginative and long term. In this session, designers need people who are willing to take risks.

Number of participants

A very low number of people.
Convergent sessions have a high potential for conflicts and complex management.

Therefore, I recommend keeping a rather small number of participants (approximately <5 participants). In this way, the designer will be able to devote sufficient attention to each participant and to intervene in case of conflict, in such a way to facilitate the reach of unanimity in the event of voting or prioritization.

Planners

At least two designers. A single moderator is sufficient to manage the session and another designer in charge of transcribing it and marking the arguments and the most relevant moments. In this case, **it is recommended for the moderator to be the most responsible designer** and head of the project, as he may find him/herself answering or discussing very delicate and highly responsive questions.

Timing

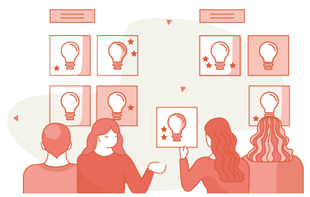
In presence and on remote: max 2 hours. I tried to structure a session working both for online and offline situation. This session includes c-level partcipants, so it is better to keep the time shorter.

> **Possible tips**
>
> It is helpful to send materials in advance before the session to give a recap of the work done, keeping everyone on track. This can help in shortening the introduction of the session to save time.

Activities and tools

1. Introduction

Introduction becomes fundamental because decisions cannot be taken if there is not alignment between team members and if the company is not updated with the latest project development. It is best to **keep the introduction longer than usual,** making sure that the recap is exhaustive, letting everybody into the project mood. For this purpose, it can be helpful to **send recap materials to the participants in advance.** In this way, designers can fully use their time without wasting half of it just in explanations of the previous work. It can be also a moment for methodology transmission (see 4.3.6.).



From the top: Fig. 115 - fig.116 - fig. 117 Warm-up, Evaluate options, select and prioritize the bes ones

2. Warm up

In this session, warm-up activities should be used strategically. Participants are already supposed to know each other, representing just the core people responsible for the project, so there is no need to spend time for presentation or ice-breaking. Moreover, the activities performed in this session will be mainly analytical and less generative, and participants' brain doesn't need to warm-up for these kinds of everyday activities. Instead, the Warm-up should be used to **investigate the level of knowledge and involvement of participants** about the project, making a recap of anything relevant so that everybody will have the same tools to analyze it.
Warm-up is also helpful to analyze **possible hotspots of conflicts** that can create obstacles in the session flow, risking to stop or slow down the work.

3. Main activities

As mentioned, the activities in this session are mainly convergent because their goal is to **close as much as possible the range of available options and directions.**
According to the level of the project, the team will choose **closing and framing activities**, based on three criteria:

1. **Navigate quantity:** In this situation, designers have multiple options that need to be restricted to a limited choice. These activities represent a more general level of selection, because the team needs to choose between different and not very detailed ideas. The activities aim to give the participants the **right tools to make a choice** and to analyze ideas under different metrics. Depending on the context, **it is necessary to identify specific measurement parameters** (as I will show in the example taken from the case study).

2. **Find a winner:** This is an intermediate step concerning the choice or prioritization of a few but already partially developed ideas. Generally, these activities are helpful to identify just one item, concept, or idea among a group. These activities should go **deeper in the analysis of each option** and the evaluation must be done with **qualitative and quantitative tools.**

3. **Rank limited features:** These activities are useful for a higher level of detail. The project team must **prioritize the features of a single idea** to understand which ones to keep, to change or to eliminate, and for which features it is necessary the consultation of an expert.

During a single session, designers can decide to go through all of these phases or to focus just on one of them, according to their specific situation.

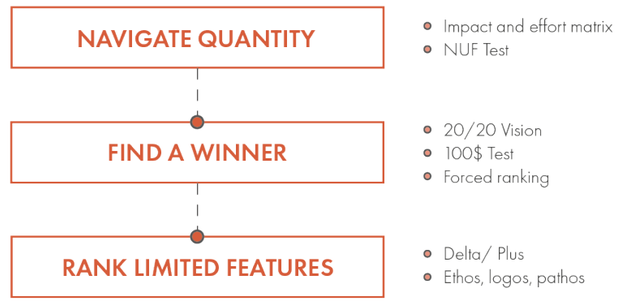


Fig. 118 - Typologies of activities

Suggested activities:

I will report each of the suggested activities with their related source to be consulted.

1. Impact and Effort matrix: In the decision-maker exercise, there are two important variables: the **effort to implement an action and its potential impact.** Crossing these variables into a matrix can give a new perspective over a concept's value, permitting to identify Wow concepts, concepts to forget, very feasible concepts, or hard but interesting ones.
(Gray et al., 2010)
- NUF test: This activity **gives a reality check to the options** provided, identifying the most promising one. The ideas will be analyzed and scored through three criteria: **to what degree is it new, useful, and feasible?** Each concept should be rated quickly from 1 to 10, following the "gut" feeling.
(Adaptation of a testing process used for patents)

2. 20/20 Vision: This activity focuses on **getting group clarity** about which project or **ideas will be more of a priority than the others.** Participants should list the benefits for each project/idea under analysis without following a specific order. Then participants should compare two projects/ideas putting on top the one more relevant and repeating the process until all the ideas have been compared and prioritized.
(Hohmann, 1995)

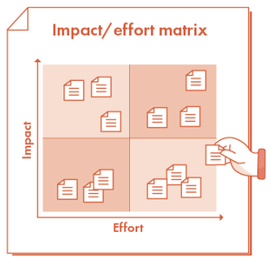


Fig. 119 - Impact/effort matrix

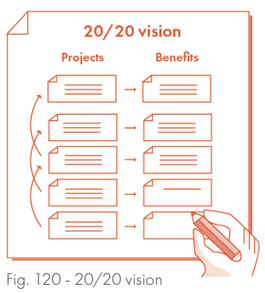


Fig. 120 - 20/20 vision

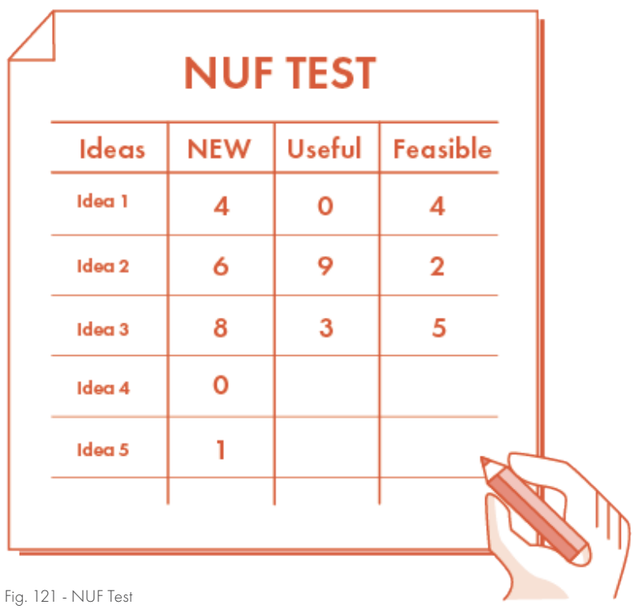


Fig. 121 - NUF Test

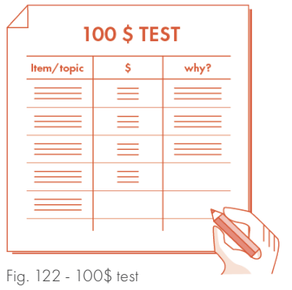


Fig. 122 - 100$ test

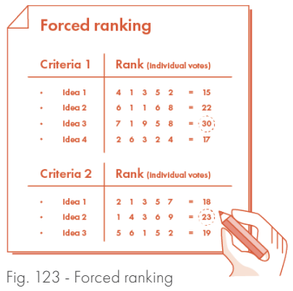


Fig. 123 - Forced ranking

Fig. 124 - Delta/Plus

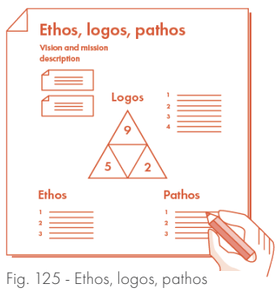


Fig. 125 - Ethos, logos, pathos

- 100$ Test: This activity aims to **prioritize a specific list of items/features,** attributing an imaginary monetary value to each one of them. The team will have a collective 100$ to distribute to each feature to determine its relevance inside a list. Using **the concept of cash captures more of the participants' attention,** keeping them engaged in the conversation. *(Gray et al., 2010)*
- Forced ranking: This activity aims to **make the group agree on a single, ranked list of items,** forcing them to make difficult decisions.
Participants need to decide on criteria for ranking ideas and, because forced ranking makes the group judge items closely, the **criteria should be as clear as possible.**
If there are multiple dimensions to a ranking, it is best to rank the items separately for each criterion, and then combine the scores to determine the final ranking. It is suggested to have lists of about 10 items, to consent comparison without becoming overwhelming.
(Gray et al., 2010)

3. Delta/ Plus: This activity aims to **generate constructive feedback** over the features of an idea, uderstanding what to keep and what to change. Participants will list everything repeatable and positive of an idea under the Plus column, while they will list everything that needs to be changed under the Delta column.
(The earliest known use is at The Boeing Co circa 1980)
- Ethos, Logos, Pathos: This activity aims to **evaluate the project communication quality** through the three Aristotle principles. One participant will roleplay with the audience, and the others will score his/her speech from 1 to 10 basing on three criteria:
Ethos/credibility: Who are you, and what authority do you have on the topic?
Logos/ logic: How clear and consistent is your reasoning? How do your facts measure up against my facts?
Pathos/ Emotion: How vividly memorable and motivating is your message?
(Credits to James Macanufo)

What we did: session structure

Goal
Our goal was to identify at least four final concepts to work on, from a massive amount of ideas coming from the previous generative sessions.

Output
A checklist representing all the ideas classified and scored by different parameters: sustainability impact, spatial touchpoints, digital features, partners, and feasibility.

Variety of participants
Low variety. In the first session, the client invited also people who were not decision-makers, and who were not able to participate in the discussion. Therefore in the second session, they decided to bring just the core team to speed up and facilitate the work.

Possible tips

Our initial plan was to organize just one single workshop, but during the session, we discovered that the time scheduled was not enough to complete the goal, and we had to organize a second one. This happened mainly for two reasons: we invited too many people who were not decision-makers; we spent too much time recapping all our work and all the services envisioned. It would have been better to inform participants partially before the session to save time.

Number of participants
A very low number of people.
In the first session, there were too many people (10 participants), and it was almost impossible to make concrete decisions about the classification of each idea. Therefore in the second session, the client came just with the core team of 5 people.

Planners
As in the previous sessions, all the design team participated in the workshop. This time facilitation was in the hands of the most responsible members of our group. In fact, the facilitators should be able to manage a very tense and delicate atmosphere, and to answer challenging and sometimes even provocative questions.

Possible tips

It is important to give people different ways to choose between options. In particular, leveraging on different abilities (like gut or logic) so that the choice process won't be too frustrating.

Timing
On remote: 2 hours. We underestimated what challenge was, for our client, to make decisions towards so many options. Therefore at the end of this first session, we were forced to schedule another one with the client, to finish the necessary work.

What we did: main activities

In this paragraph, I described the three main activities organized during the sessions that were standardized specifically for this handbook.

Title:
Fast Dot Voting

Object of activity:
Keep the participants' attention high during the explanation of each idea and obtain a first draft of the company's preferences through instinct and fast votation.

Number of participants:
This activity can work with any number of people. In our case, we had 10 participants.

Duration of activity:
It is a fast activity to nudge instinctual preferences, so it should last less than 5 minutes.

How to do it:
The facilitator explained briefly all the ideas inside a scenario, then gave three minutes for participants to vote their favorite. Each person is allowed to vote for just one idea. After the votation, the results are virtually projected to anyone and discussed together. We structured the votation using the Mentimeter software that was connected to our slides through a QR code.

Title:
Evaluation matrix

Object of activity:
This is a revisitation of the previously described “Impact and effort matrix.” Therefore it aims to evaluate the ideas, organizing them into four clusters based on two variables: impact and feasibility.

Number of participants:
It is better to perform this activity with few people, to facilitate taking a decision. We performed it with five participants.

Duration of activity:
1 h

How to do it:
Participants will decide together the position of each service along with the matrix, identifying for each a value in feasibility or impact. The ideas with low feasibility and low impact will go in the “Ciao” quadrant, dedicated to the dismissed concepts. The ideas with low feasibility but the high impact will go in the “How” quadrant, representing interesting ideas with unknown or complex technical issues. The ideas with high feasibility but the low impact will go in the “Now” quadrant, representing what can be done immediately without high risks for the company. The ideas with high impact and high feasibility will go in the “Wow” quadrant, dedicated to the best ideas that a company can implement.

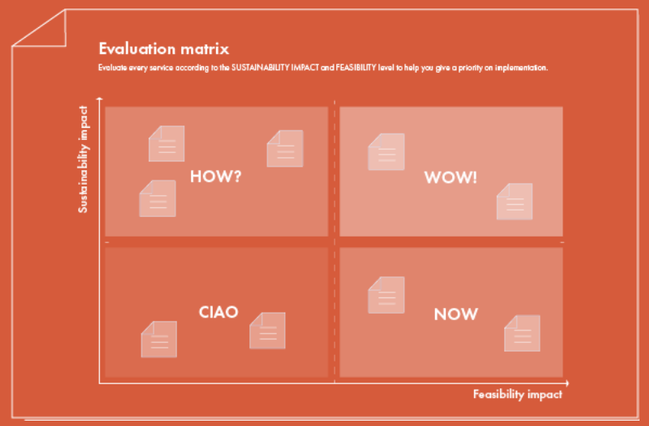


Fig. 126 - Evaluation matrix

Title:
Service offering Framework

Object of activity:
This activity aims to measure the impact of each service solution under different points of view: the sustainability, location of the service, digital touchpoints, and partners required to implement it.

Number of participants:
It is better to perform this activity with few people, to facilitate taking a decision. We performed it with five participants.

Duration of activity:
This activity can be very long depending on the number of services analyzed. It is suggested to start this activity together during the session, but to finish it later as homework for the client company, taking all the time necessary to complete all the information.

How to do it:
The template for this activity can be reproduced also as an excel file to facilitate the company work after the co-design session. Participants need to fill together all the impact categories dedicated to each idea. The categories of impact might be specific depending on the current project and might have different parameters to measure them. In our case, each category was provided with guiding questions to help people identify a value comparable with others.

Target	Scenario	Service offering	Digital touchpoint	Sustainability drivers					Eco-impact	Feasibility	Spatial touchpoints	Products	Partners
				Prevent X= 5	Reduce X= 4	Repair X= 3	Repurpose X= 2	Recycle X= 1					
		Service 1	App	X		X			8	yes			

Fig. 127 - Service offering framework

Take-away tips from the field experience

- Decisionmaking activities are **very time-consuming**, in particular for people who are not used to design tools and matrices and who might feel overwhelmed by information. Designers should always **consider this extra time** to avoid inconveniences like the ones that happened to us.

- If the company is not involved enough in the project process, it might feel **scared to take risks** or it might feel to **not have enough control over the situation** to be able to take these risks. Therefore, instead of jumping immediately inside decision-making activities, it is better to take some time for information sharing and to recap all the project steps.

- If there is no time for this information sharing moment, it can be useful to **prepare materials in advance** to send to the company. However, designers should remember to **keep these materials concise**, otherwise the company will not have the time to read them and it will become again a lost work.

OBSTACLE 5 - LEARN AND TRAIN

4.3.6.
Opportunity 5

1. With employees

In this session, collaboration is aimed at helping the efficiency of the standard learning process leveraging the collective intelligence of the group. Co-design has the double power to help transmit two methodologies, the service design/project one and its own.

Goal
Sharing the designers' experience, transferring knowledge during the course of the project so that every step can be replicable by the client company.

Output
The outputs are generally reports, frameworks, guidelines, or also handbooks to help the client replicate and scale the project done and the information learned.

Style of guidance
??x

Design subject-matter
???

Number of sessions
In a continuous learning process there are regular moments for methodology sharing, that generally correspond to the project workshops. There can also be special workshops dedicated to methodology transmission.

Collaboration level
Medium level. Designers can decide how to balance information sharing, making it more passive (explaining things) or interactive (through activities).

Fig. 128 - "Learning by doing" guidelines

Structure of the session and intra-session moments

Possible tips

This is not simply a regular session because methodological transmission moments must be integrated from the very beginning of the project during each workshop, creating a continuous learning process. These moments might be integrated with a dedicated session, generally at the end of the project.
In this paragraph, I will talk about both the moments and the session, specifying if the things said are valid for both or just for one of them.

Goal

Moment: Explain the reason of the designers' choices, giving a sense/value to the following session's actions.
Session: Share and transmit service design and co-design methodology to the client, recapping all the things done and focusing on the most unclear/problematic steps.

Output

Moment: Mini-report, guidelines, or instructions to guide participants throughout the following activities and actions.
Session: Extended report, guidelines, or framework for future application of these methodologies.

Variety of participants

Moment: It depends on the kind of session that designers are carrying out.
Session: Participants should be the ones that were always present during the project course and that have learned by doing it because this session is an extensive recap of all the moments previously lived.

Number of participants

Moment: It depends on the kind of session that designers are carrying out.
Session: For this reason, generally, the number of participants depends on the project size.

Planners

Moment: It depends on the kind of session that designers are carrying out.
Session: 1 facilitator and 1 recorder

Timing

Moment: It depends on the kind of session that designers are carrying out.
Session: Suggested time: 2 hours. It should be a wrap-up, festive occasion so there should be also time for final comments, answers, and greetings.

Possible tips

During the project, it can be helpful to understand what the client is understanding from a methodological point of view. Some steps might have been less clear, requiring a bigger focus during the last meeting.

From the top: Fig. 129 - fig.130 - fig. 131
Explanation, Questions and clarifications, end of the work

Activities and tools

1. 2. Introduction and Warm-up

Moment: It depends on the kind of session that designers are carrying out.
Session: This might be the only session without a proper warm-up or introduction. The atmosphere is light and cheerful because this meeting corresponds to the end of the project, therefore participants already know what to expect from it. It can still be useful to organize warm-up activities if, for example, the meeting is organized before the project's end or if the level of understanding is pretty low. Participants should feel free to ask questions, even to question the methodological relevance or value of some steps or activities because Co-design methodologies are not dogmas.

3. Main activities

These transmission moments/sessions risk being boring or unattractive. People will not pay attention, considering them less relevant compared to the rest of the activities. Explanation and lesson-like parts should be balanced with interactive/ training-like ones. It is relevant to specify what can be learned from each of the following session activities, showing their value in terms of methodology. The facilitator can be helped by three main kinds of framing activities:

1. **Test consensus:** these activities aim to check the participants' understanding of a topic, assuring that everybody is thinking in the same direction, under the same perspective.

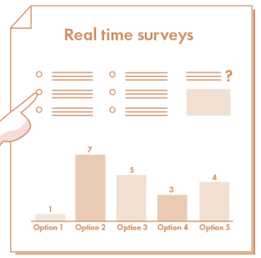


Fig. 133 - Real time surveys

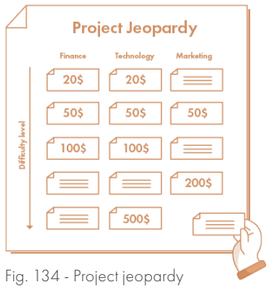


Fig. 134 - Project jeopardy

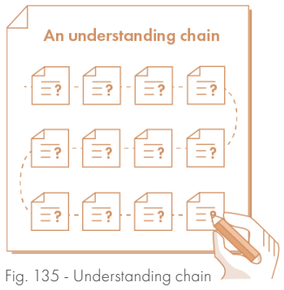


Fig. 135 - Understanding chain

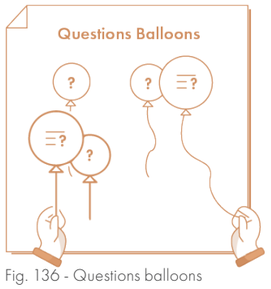


Fig. 136 - Questions balloons

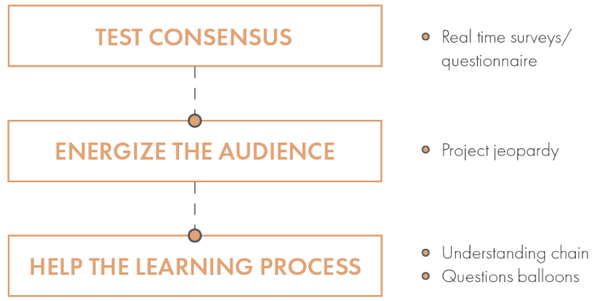


Fig. 132 - Typologies of activities

2. **Energize the audience**. These activities help the facilitator to keep high the attention level, constantly nudging people, and avoiding boring and flat discussions.
3. **Help the learning process.** These activities help the understanding process challenging the participant's beliefs and helping the formulation of critical thinking.

Suggested activities:

1. Real time surveys/questionnaire: these tools will help designers **assessing immediately the room consensus** preparation and understanding without judging the participants. Ex. Mentimeter, Surveymonkey, etc...

2. Project jeopardy: This activity aims to **re-energize the audience and gamifying meetings**. Designers should prepare in advance a set of question-and-answer cards about aspects of the project, placing them on the wall, divided into categories of topic and points value. Then participants should try to answer one by one until there is a winner. *(Gray et al., 2010)*

3. Understanding chain: This activity helps to **create meaningful linear speeches,** shifting from a content focus to an audience focus. Designers should categorize the audience into groups, barinstorming questions that **frame what people want to know.** They should rearrange all these questions creating the basic structure of their communication. *(Gray et al., 2010)*
- Questions balloons: This activity helps participants **manage and create questions.** During the session, each participant should write over a balloon a question and let it float in the air. Every time a question has been answered the balloon will be popped loudly, giving a signal to the audience.
(Gray et al., 2010)

What we did: session structure

Possible tips

In this paragraph, I will focus mainly on the final workshop of this internship project that was dedicated to methodology and experience sharing and transmission. In reality, we started our methodology transmission to the client team from the very project beginning. In fact, each workshop done, started with a short methodological introduction under the form of a small presentation. We didn't do it only for the workshop with the end-users, for whom the methodology was not so relevant. All these small presentations collected together generated the methodological wrap-up for all the projects done, and that is better and deeply discussed in the workshop described below.

Goal

Our goal was to share our experience with the client team, recapping all the work done and transmitting our methodology.

Output

We delivered the final project contents, and we also developed a methodological framework to help them for the future application of co-design.

Variety of participants

Low variety. This session participants were almost the same as the previous sessions, namely decision-makers or people with high responsibilities about the project development. We also had the participation of designers coming from another consultancy agency who were curious about our work and results.

Number of participants

In total there were 7 participants. We didn't know beforehand how many people the client team had invited to the workshop, therefore, we were ready to manage also a high number of people, if necessary explaining things that otherwise we would have taken for granted.

Planners

As in the previous sessions, all the design teams participated in the workshop. We shared the facilitation to give a voice to everyone.

Timing

On remote: 1. 45 hours. We had to recap and explain the huge work done without making it boring or repetitive, but still being complete and clear, and at the same time leaving space for the client interaction.

Possible tips

It is important to always keep a flexible schedule (also for presentations, speeches and lesson-like workshops) so that if designers run short on time they can rearrange its structure to fit the new limits.

What we did: main activities

Title: Interactive presentation

Object of activity:
We organized just one main activity, reflecting the goal of the whole session: delivering final content to the clients, sharing our knowledge and methodology, clarifying possible doubts, helping them to replicate it in the future.

Number of participants/ Duration of activity:
This activity can work with any number of participants.
It was structured to last 2 hours, but because of technical issues, we were forced to shorten its duration to 1.45 hours, skipping some steps.

How to do it:
The activity consisted of a big presentation incorporating all the methodology transmission moments done in the previous sessions, and presenting their related outputs, showing the gradual project changes and modifications through time. The presentation followed the extended double diamond and, at the end of each phase, we created a small interactive moment during which we asked for participants' opinions. We tried to understand their impressions on that phase, how difficult it might be to replicate it, how useful it was, how different from their normal way of designing, etc... These interactions were possible thanks to the Mentimeter tool, scanning a QR code inside the slide. We concluded by offering them an extended booklet with all our work, a poster representing our methodological framework, and a certificate of completion of the journey, acknowledging them as service design explorers.

Take-away tips from the field experience

- It can be very difficult to make participants **feel the value of the methodological moments**. Sometimes they seem too vague, unrealistic, unfeasible, and impossible to implement inside a big structured and hierarchical company. Participants' interest might lower down **if they believe that what they are learning is impossible to apply** in their environment.

- It is very important to **test the participants' understanding of the work done** before doing the final recap workshop. In doing so (we did an interview and a sort of preparatory session), we understood that they didn't understand properly the co-design sessions that we organized. In that case, they were the subject of observation and not our collaborators therefore, they **needed also the other perspective on the topic** in order to learn that phase.

- Moreover, a lot of steps during the project were done by our design team alone, and we just presented the result to the client team. At the end of the project, the client's **understanding of the whole process was incomplete,** with some missing steps that needed to be filled through the final recapping workshop, during which we also **examined all the work that we did alone.**

- We couldn't obtain all the feedbacks we wanted from the client because we run late in time, rushing to explain all our contents. However, we should have g**iven more relevance to the interaction with the client,** skipping the contents parts that were already clear to them and in their possession.

5

5.1. Answering the research questions

The pandemic and its influence to this thesis

I developed this thesis during a period of considerable changes and transformations that significantly influenced co-design methodology. **We are living in a period of transition,** and people and businesses do not know whether to approach it as a new normal or with a consequent return to the status quo. Anyway, the pandemic has forced companies and designers to find **alternative ways to practice co-design methodology,** experimenting directly in the field and in real-time with new systems, tools, and strategies. They started to lay the foundations for a new way of doing co-design, even if the rules for a future co-design model are still to be written, because for now, we just have hybrid or embryonal forms.
Developing in this context, **my thesis reflects these transformations:** if the theoretical experience and litirature referred to a physical co-design model, the field research carried out (through the interviews, and the internship project) instead focused exclusively on the new model of digital co-design, on the attempts of companies to adapt to these challenges. It was again evident that these two worlds **(Desk and field research) were in conflict on some aspects,** because of the sudden change brought by Covid-19, and that push me to propose hybrid co-design models and **guidelines suitable for both a digital and physical context,** avoiding opting for solutions suitable for only one of these two worlds.

How may we help companies understand the full potential of the co-design method in all its implications and context of use?
How may we diffuse its practice and knowledge for the project's innovation purposes?

The choice of **a handbook proved to be the best method for transmitting co-design methodology to a private company.** Indeed an organization does not have the time to benefits from complex but complete contents such as academic or scientific texts, while instead, it usually uses more accessible texts, such as toolkits, which are not exhaustive or complete, leaving the company in doubt as to what concerns the realization of a whole co-design session. It was, therefore, necessary to create something in the middle, offering **direct and easy information** but at the same time always correlating the contents to a precise context, with concrete examples in such a way as to enhance the complexity of the method but at the same time **offering practical options and applied knowledge.**

During the realization of the handbook, I noticed some interesting topic of discussion:
The context of the large private company is, in most cases, resistant to collaboration and collaborative design. One of the main reasons concerns the underlying incompatibility between the performance engine (repeteability and predictability of traditional ongoing operations) and innovation and design (unpredictability and non-routine).
Most companies still maintain a strongly hierarchical structure in which information sharing is absent, and decision-making power is gathered at the top of the business pyramid. Even if this structure is gradually leaving place to flat management systems, in a period of uncertainties and crisis (like the one that we are living in now), it seems to return to its popularity. **This type of structure differs from any collaborative system nature,** which cannot be integrated inside the company's processes. Co-design can occasionally be carried out by consultants outside the company, as an unusual activity in parallel with the normal company ones. Unfortunately, **co-design cannot become a regular innovation practice** inside a company, being perceived as a strange experiment, interesting once in a while. **A nice to have, but not fundamental practice** for the compnay's success.

Another resistance concerns the **corporate culture and the level of information sharing.** If a company has an internal design department, it does not mean that they will be able to collaborate. The design department is often like an island or an internal agency inside a company, and communication with others departments is often absent, to the point that other **employees have no idea of the design department's activities and value creation.** This might lead to strong resistance to the adoption of new methodologies, like co-design, because **lack**

of information means a lack of trust and curiosity, nurturing, on the opposite, skepticism. Moreover, being a relatively new methodology, many designers are not familiar with it, and even those who learned it at university are unable to apply it in a large company without mentoring or further study because they do not have experience in that field. Therefore communicating its value is even more challenging. In this way, designers become crazy thinkers closed in their room doing mysterious things, or on the other hand, design has to **conform with the business logic** losing part of its power.

The last resistance comes from the co-design metrics. **Co-design cannot be measured** because **it is not based on KPI, quantifiable data, or metrics** to show the immediate return of investment. It is not easy to convince a company to adopt this methodology without these kinds of data, because co-design value is not just about results but it is also about the whole process. It is not about numbers but it is about people.

How may we give designers guidelines to organize co-design sessions? How may we create and offer modular structures of co-design sessions specific to different problems and contexts?

Co-design sessions are **extremely context-related**, therefore the first step toward the identification of a co-design model was the **analysis of all the possible context of the use** in which co-design can happen during a service design project. Then I analyzed deeply five of them, basing the creation of these models on the internship case study project that I did together with Politecnico di Milano.
I noticed that co-design is structured by the **definition of a set of variables** that, from context to context, will change following a common logic. This allowed me to create five modular sets of guidelines specific for each co-design.

How may we help designers find the best tools for each problem and situation, helping them in their redesign to adapt to the context?
Is it possible to propose customized and modular tools solutions?

A co-design is also based on the use of tools, but it is not made exclusively by them. It is important to remember that a **co-design is not a traditional business meeting with the application of funny, crazy, and designerly like activities.** Instead of developing yet another toolkit, I decided to focus on **helping designers building a new activity** adapting it to the situation, offering them a possible range of inspirational activities that they should reinterpret without using them as they are both in the form and the contents.

5.2. Final considerations

Contribution to the design reasearch

This thesis aims to **help designers (or other design experts) apply the methodology of co-design** when needed inside a private company. Under the form of a handbook, the thesis will provide designers with the necessary knowledge to enrich their competencies, in particular when **facing complex problems** that cannot be addressed anymore with simple problem-solving logic.
This thesis aims to be a hybrid between an academic paper and a toolkit, offering a **theoretical contribution to the topic**, but at the same time also offering forms of **applied knowledge,** showing practical guidelines, tools, and examples from case studies.

Limitations

My thesis developed around very specific constraints which conditioned its development.
The context: the big private company. This was the perfect context in which analyzing the co-design application because of its diffusion and popularity. On the other hand, it also presented multiple obstacles related, in particular, to its nature, as I already expressed in the previous paragraph. Moreover, it was very **complex to enter in contact** with such big companies using co-design or **finding the right people** to talk with.

The internship project. My internship project corresponded

perfectly to the ideal context of the application for co-design. It was a big international company in the retail field, aiming to develop services through the new methodology of co-design, experimenting, and trying something new for their standards. However, exactly, for this reason, the implementation of co-design was challenging, going against their traditional and hierarchical structure. They aimed to try to implement this methodology in their everyday structure, but this result to be almost impossible and incompatible with their strict schedule.
Another limitation is related to the retail field, in fact, n this sector the users' involvement was still quite limited and the majority of the workshops were done with the client company.

The period. As I previously mentioned, the thesis was deeply influenced by the current pandemic that society and businesses are living and lots of my choices were limited by it. I couldn't perform any co-design session live or attend any co-design session organized by other companies except the one in which I was working. Companies were all restructuring their ways of collaborating, not only with clients and users but also internally, making communication even more difficult. Therefore the co-design models I propose are suitable for the period considered, however, co-design will evolve and change again in the future, perhaps very quickly, and **some of my considerations may no longer prove to be valid in a new context.**

Opportunities for further research

First of all, it would be interesting to test the co-design models created in the handbook **on other service design projects,** as a way to verify their solidity and enrich their completeness.

Also, it would be interesting if these projects **do not belong to the retail sphere,** but to other fields of application of service design (like telco, banking, healthcare, etc...) to verify the accuracy of the handbook and if there should be some context-related fixings.

Tackling new service design projects is also helpful to deepen all the opportunities found in the handbook and to develop the ones that, for reasons of time and resources, I was unable to analyze. These opportunities will complete the panorama of action for a designer who wants to approach co-design since, even if less frequent, it is possible to find them during a project.

Then, the applicability of the models can be tested through the **perspectives of other service designers or companies** willing to experiment with co-design, also considering that the handbook is originally targeted to them. In my thesis, the handbook was partially tested during the internship case study, during which I was one of the designers in charge of the project. The contribution of other designers to this work will be fundamental, to check, in addition to the correctness of the contents, the communication, and clarity of the presentation.

Looking at a broad spectrum of opportunities, it could be interesting to expand my research by investigating **other fields than service design** in which to apply co-design:
for example, studying how the application of co-design would change for product design, public innovation, or strategic design projects.
It can be helpful also to investigate **other contexts instead of just the big private company:**
analyzing, for example, if and how the application of co-design would change in a small-medium company or start-up.

6.1. References

6.2. Acknowledgments

6.1. References

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