

# P / REFERENCES OF DESIGN

## CO-DESIGN SESSIONS AT REVIGRÉS: WORKSHOP 2.0 TO NURTURING DESIGN-LED INNOVATION IN THE INDUSTRY.

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**ABSTRACT** | This article presents Workshop 2.0's findings from the Co-Design Sessions at Revigrés, a prominent Portuguese ceramic tiles manufacturer. The workshop, part of an ongoing Ph.D. research, was held in March 2023, and involved stakeholders from industry, retail, and research. It tested assumptions about the Chief Design Officer's (CDO) strategic role in evolving a company's product range, educating stakeholders about design value, and enhancing creativity through open communication and collaborative activities. Aligned with design thinking principles, Workshop 2.0 focused on "kinetic tiles" and "smart tiles" themes, aiming to envision innovative ceramic products to position Revigrés as an industry leader.

Facilitated to nurture creative freedom and diverse perspectives, the workshop emphasized empathy, user-centricity, and creative problem-solving. The practical outcome included the ideation phase of four ongoing project proposals.

The hypothesis suggests that design thinking is a potent tool for meaningful connections between brands and users, fostering brand loyalty and innovation rooted in real-world needs. A well-implemented design function cultivates collaboration and creative problem-solving, essential in today's evolving business landscape. Workshop 2.0 exemplifies design thinking's role in shaping a design-oriented culture guided by a CDO for innovation at Revigrés. It highlights the collaborative nature of design thinking as a common practice employed by CDOs, mediating between design and business objectives. The workshop explores empathy, innovative solutions, and a transformative mindset as key elements fostering a culture of design-driven innovation at Revigrés. As Revigrés continues its co-design journey, Workshop 2.0 serves as a visionary experiment offering insights for innovation and design excellence.

## 1. Introduction

### 1.1 Building Design-Led Innovation at Revigrés: A Journey of Co-Creation

This study fits into the scope of ongoing Ph.D. research led, aiming to explore and affirm the role of a Chief Design Officer (CDO) in a corporate environment, having Revigrés as a platform for strategic experimentation.

In the prototyping length of the Ph.D. research, a series of four co-creation design sessions were organized by the research team, engaging various stakeholders from industry, retail, and research fields. Under the format of workshops, they were designed with a focus on innovative product development, and leveraged design principles, techniques, and methodologies to explore two distinct themes within the context of Revigrés, a prominent Portuguese manufacturer of ceramic tiles. The overarching goal of these sessions was to experiment with how to drive design-led innovation and to show the potential strategic role of a CDO within the company. Held between January and May 2023, in three different locations, these workshops aimed to test key assumptions, foster a design-oriented culture, and develop groundbreaking concepts that could shape Revigrés' future product range.

Since these activities are part of a study in which the goal is to assert the CDO role in businesses, the research team approached the workshops with specific assumptions to validate. Previous studies and activities such as case studies and interviews have shown some practices applied in the design function of companies like Philips, 3M, PepsiCo, and J&J, led by CDOs [1; 2; 3]. The inputs gathered in these studies and the literature review prompted several research questions and hypotheses that have since been tested by the research team.

The first assumption aimed to explore how the CDO's strategic responsibility for evolving the product range could lead to more creative solutions and broaden the company's offerings. The second assumption examined whether the CDO's role in educating stakeholders about the value of design would enhance their understanding of the design function and its activities. The third assumption sought to determine if open communication with multidisciplinary participants in the design process could improve creativity and lead to more innovative concept generation. Finally, a fourth assumption delved into the challenge of embedding and scaling up a design culture within the organizational context, making it a key goal for the CDO.

Furthermore, in the organizational context of Revigrés, the Co-Design Sessions emphasized two central themes devised by the research team. The first theme focused on the development of kinetic energy ceramic tiles, exploring how this technology could enhance the product range and boost the company's innovative performance. The second theme, centered around "smart tiles," sought to envision new products, services, and experiences integrated into intelligent ceramic tiles that optimize spaces and fulfill multiple functions. These themes emerged from the research team's design vision to develop multi and plural-function products for Revigrés, as a catalyst of innovation aligned with the strategic guidelines defined to implement a design function within the business environment.

These themes embedded in the Co-design sessions were aligned with the assumptions related to the leadership role of the CDO. Specifically, they test how to rapidly prototype to expand the company's offerings and range of products through design-led processes and innovative concept generation. The construction of the sessions also aimed to educate stakeholders about design processes by incorporating design thinking tools and mindsets into the equation. This approach aimed to achieve quick concepts within the four sessions, ultimately leading to a showcase of the value that design can bring to a company. As a strategy, the overarching goals of this Co-Design Sessions initiative were threefold. Firstly, the research team aimed to build design-oriented innovation processes for Revigrés, ensuring that design played a central role in driving innovation within the company. Secondly, the team sought to explore the implementation of design culture within Revigrés, fostering a mindset of creativity, collaboration, and user-centered thinking. Thirdly, the initiative aimed to develop a range of concepts for innovative multi and plurifunctional products that would position Revigrés as a leading player in the market.

The research team anticipated gaining valuable insights into the impact of collaboration, multidisciplinary practices, and design thinking on product innovation at Revigrés. Specifically, it is projected that the set of workshops establishes an approach to demonstrate the importance of collaboration and multidisciplinary approaches in the creative process. By bringing together stakeholders from various backgrounds, the research team intended to showcase the transformative impact of incorporating design thinking methodologies into project and corporate development. Through a co-creative design-driven process, the workshops were dedicated to developing the concept of “kinetic tiles” and “smart tiles.” It’s anticipated that the sessions capitalize on a wide range of know-how and perspectives by involving stakeholders with diverse expertise.

Observations and feedback gathered during the sessions were expected to provide significant contributions to the understanding of creative processes and design culture. Ultimately, the workshops were envisioned to yield two or more distinct product concepts, arising from collaborative processes with various stakeholders. These concepts were intended to form the foundation for potential final products, showcasing the CDO's contributions through both a contributory structure, guided by designers and specialists, and a collaborative structure, driven by all stakeholders. Additionally, the research team intended these sessions to be a vehicle for the application of new design-led innovation processes within the organizational culture at Revigrés, fostering a transformative design-thinking culture that permeates the entire company.

## 2. Research Methodology

This study explores the experimentation of a process of building design-led innovation at Revigrés through a journey of co-design and multidisciplinary workshops, according to the following research methodology. The co-design sessions were promoted both within the university where the doctoral research undergoes and within Revigrés. The workshop promotion included a detailed description of the objectives of the co-design sessions, the specific objectives of each workshop, the agenda, duration, location, and facilitators' descriptions.

For the university participants, enrolment was open to students, teachers, and researchers from any course or degree. The workshop had a limited capacity of 15 seats and the selection process was based on a first-come-first-served basis. The aim was to encourage a diverse range of perspectives and expertise among the university participants.

For Revigrés' employees and stakeholders, the remaining half of the workshop seats were reserved. The selection process for this group was based on nominations and recommendations from the company's management to ensure representation from different departments and roles within the organization. The research methodology adopted a mixed-methods approach, integrating qualitative and quantitative data collection methods to gather comprehensive data on the impact of design thinking and the role of CDOs in enhancing the innovation process within the company. Data was collected through participant observation, feedback surveys, and interviews.

The research applied a sequential exploratory strategy, which involved an initial qualitative phase (participant observation, document analyses, and interviews) followed by a quantitative phase (feedback surveys) to corroborate the qualitative findings. This approach allowed for a holistic understanding of the co-creation process and the participants' perspectives. The main data collection methods were:

- **Participant Observation:** participant observation was conducted during the co-design sessions to capture real-time interactions, collaboration, and problem-solving processes among the participants. This method allowed the researchers to immerse themselves in the co-creation environment, facilitating and gaining deep insights into the dynamics of the workshops, the facilitation process, and understanding the participants' experiences and interactions.

- Interviews: Semi-structured interviews were conducted with some participants, including Revigrés' employees, students, researchers, and workshop staff, to gather in-depth insights into their perceptions, experiences, and learnings from the co-design sessions. These interviews explored participants' attitudes toward design thinking and the impact of the workshops on their creative thinking.
- Feedback surveys: post-workshop surveys were administered to assess participants' satisfaction with the co-design sessions, the effectiveness of the design thinking methodologies, and their perceptions of the value of design-led innovation at Revigrés. Questions like "What worked well?", "What could be improved", "Ideas?" and "Questions?" were set.
- Document Analysis: Documentation of the co-design sessions, including canvases, brainstorming results, and prototype designs, was analyzed to identify themes, patterns, and innovative concepts that emerged from the workshops. Document analysis provided valuable qualitative data that complemented the interview and survey findings.

Qualitative data from participant observations, interviews, and document analysis were analyzed. The data were transcribed, coded, and categorized into themes and patterns, capturing participants' experiences, challenges, and creative outputs during the co-design sessions. The quantitative data from feedback surveys were analyzed using descriptive statistics, providing insights into participants' overall satisfaction and perceptions of design thinking methodologies.

Triangulation was employed to ensure the validity and reliability of the research findings. Data triangulation involved cross-verifying information from multiple data sources, including participant observation, interviews, surveys, and document analysis. The convergence of findings from different data collection methods added credibility to the research outcomes and was converted into infographics to be communicated to the company and design community.

Ethical considerations were given due importance throughout the research process. Informed consent was obtained from all participants before data collection. Anonymity and confidentiality were ensured to protect participants' privacy and identities. The study complied with the ethical guidelines outlined by the company ethics board.

The research faced some limitations, including a significant diversity of participants, which may limit or influence the generalizability of findings. Additionally, the four-hour duration or even the different participants per challenge of each co-design session may have constrained the depth of insights that could be obtained. Nevertheless, efforts were made to mitigate these limitations and draw meaningful conclusions from the available data. Each workshop data analysis helped to improve the next one, contributing to a continuous improvement in the facilitation procedure and in the session structuring.

### **3. Empathy in Design: A Multifaceted Exploration**

Over the past decade, Design Thinking has emerged as a catalyst for fostering innovation and creativity, particularly in addressing complex, "wicked" problems and driving product and service innovation [4;5]. Central to the potency of Design Thinking is its unique ability to harmonize the desirability experienced by users with the economic viability and technical feasibility of innovative ideas [6]. Design Thinking leverages rapid prototyping, abductive reasoning, and empathy as propelling forces for generating innovative outcomes.

The discourse on empathy in design spans 50 years, with a recent intensification over the last quarter-century. Defined as the ability to perceive the world through others' eyes and feel what they feel [7;8], empathy holds a pivotal role in human-centered design processes. The empathize stage in Design Thinking mandates a collection of experiences, insights, and observations to establish a robust foundation for subsequent design phases.

Empathy, as elucidated by IDEO [9], transcends mere understanding; it involves a profound grasp of the problems and realities faced by the target audience. It necessitates learning about their challenges, latent needs, and desires, emphasizing the importance of understanding their environment, roles, and interactions.

The historical evolution of empathy, as detailed by Lanzoni [10], reveals shifting meanings across disciplines. The methodological incorporation of empathy into design has emphasized explicit cognitive and affective efforts to interpret users' perspectives [11]. Designations such as “complex” [12;13], “re-enactive” [14], or “higher-order” [15] empathy highlight its interpretive and reflective forms.

In the realm of design responsibilities, empathy aligns with beneficent and egalitarian design, often associated with democratic approaches like Co-design and participatory design [16;17;18]. Linked to care work and ethics [19], empathy fosters inclusivity, especially where diverse needs are poorly met by standard features [20].

Empathy proves integral to product and service relatability and sustainability [21; 22]. In business solutions, it becomes a strategic component for remaining relevant in the market, preventing the creation of solutions that miss the mark [23]. Across this angle, in design processes, empathy operates as both a tool for designing and a means of gaining insights into users' needs [24]. Design Thinking, as a collaborative approach, naturally integrates participants' empathic insights into the process, fostering social sensitivity [25].

Despite varied definitions, empathy in design is methodologically perceived as a deliberate and reflective tool. Recognizing its passive dimension elucidates its foundational, automatic role before becoming an intentional activity. For effective design methodologies, emphasis on the passive side of empathy is crucial, understanding that it operates tacitly before becoming a consciously intended activity enabling reflective and imaginative techniques for user research and concept development [26].

In inference, the multifaceted exploration of empathy in design reveals its indispensable role in fostering innovation, inclusivity, and user-centered solutions within the design thinking framework. Understanding its nuanced dimensions and embracing both its passive and intentional facets enriches the design process, ensuring a clearer view of how empathy operates and can be harnessed in design practice.

## **4. Workshop 2.0: Nurturing Creativity through User-Centered Design**

The second workshop in the Co-design Sessions series marked a crucial juncture in the journey toward design-led innovation at Revigrés. Held on the 22nd of March at Aveiro University, this workshop strategically bridged the gap between the inspirational spark ignited in Workshop 1.0 and the concrete prototypes that would take form in Workshop 3.0. In Workshop 2.0, the mission was clear: to delve into the world of ideation, with a keen focus on understanding users and the contexts in which they interact with products, services, or experiences.

Particular emphasis was placed on cultivating empathy among participants, turning it into a cornerstone for ideation. Empathy in this context goes beyond mere sympathy; it entails immersing oneself in the user's world, understanding their perspectives, and feeling their needs. Despite the workshop's short duration, this approach underscores the criticality of thorough user research in design projects. The workshop emphasized the imperative for designers to immerse themselves in users' needs, aspirations, and challenges.

Workshop 2.0 employed immersive activities to encourage participants to envision scenarios from the users' perspectives. Its foundation was laid in Workshop 1.0, where participants were introduced to the main themes and framed proposals, serving as inspiration for this session [27].



## 4.1 The Attendees

Anchored in the larger mission of design-led innovation, Workshop 2.0 laid the groundwork for transformative product development and was a dynamic convergence of minds, drawing participants from diverse backgrounds. This cohort included 16 individuals who brought unique perspectives and expertise to the table. Among them were students, educators, and researchers spanning a multitude of academic disciplines. Complementing this academic cohort were Revigrés employees, representing various facets of the company's operations. This eclectic blend of participants formed the very bedrock of Workshop 2.0, guaranteeing a rich spectrum of insights and experiences.

Participants were thoughtfully grouped to ensure equitable representation across various dimensions, including the gender balance, with an equal distribution of 50% male and 50% female participants, as shown in Figure 1. Furthermore, these groupings considered different areas of expertise, thereby reflecting a comprehensive cross-section of knowledge domains. The represented areas spanned the realms of design, sea sciences, commercial operations, material engineering, production, logistics, financials, product management, quality, and R&D.

Team configurations mirrored the themes explored in the Co-Design Sessions and reflected the diversity of proposals generated during Workshop 1.0. In teams A and C, the Smart Solutions challenge took center stage, while teams B and D embraced the Kinetic Tiles challenge. These teams retained the same names as the proposals that had emerged from Workshop 1.0, even though the composition of team members had changed.

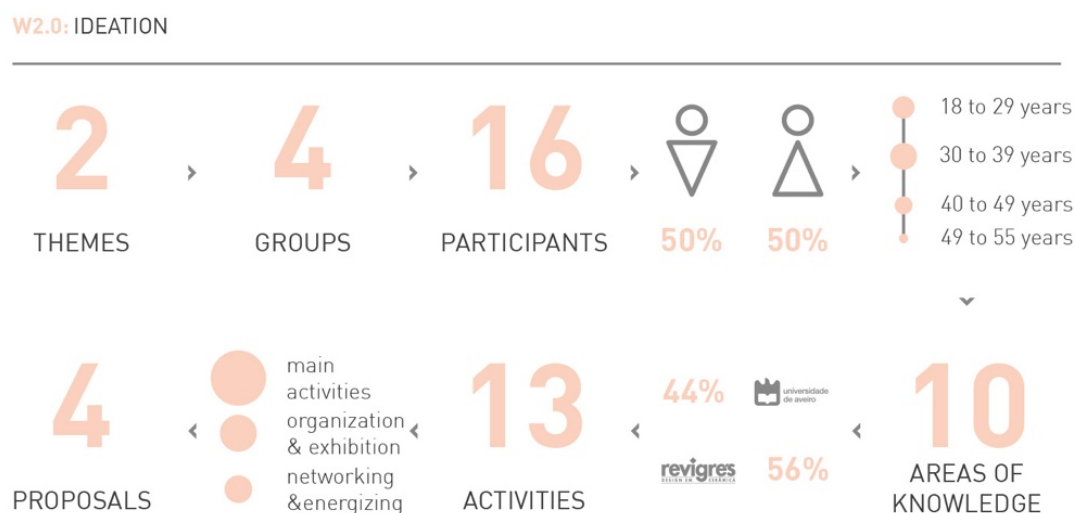


Figure 1. Workshop 2.0 in numbers (source: authors).

## 4.2 Program and Methodologies

Workshop 2.0 adhered to a well-defined schedule to ensure optimal utilization of time and resources as illustrated in Figure 2. The workshop spanned a focused four-hour duration, with each phase meticulously structured to facilitate the exploration of user-centered scenarios and the application of design methodologies.

To initiate the workshop, participants were greeted with an introductory presentation. The facilitator, a member of the research team, set the stage by providing context about the Ph.D. project and the objectives of the Co-design Sessions. This initial presentation offered participants a clear understanding of the workshop's scope and objectives. A concise definition of design thinking methodologies and a set of workshop rules set the foundation for creative exploration with a design mindset. These rules included directives like staying focused on tasks and time constraints, ensuring that all voices were heard and respected, and emphasizing active participation and recording of ideas. The aim was to encourage a mindset of exploration, experimentation, and learning, fostering a space where all participants felt

comfortable and confident in sharing their ideas without hesitation, even seemingly unconventional ones. Following an engaging Superpower Icebreaker activity was led. This exercise aimed to break the ice and introduce participants to the group. Each participant was given a card and a colored marker and asked to create a superhero persona, complete with a name, superpower, and visual representation. This activity set a creative tone for the workshop.

After group formation, at their respective tables, participants immediately gained access to a card detailing the initial challenge and the proposal relevant to their group. Participants spent approximately 10 minutes analyzing and discussing the proposal description that had emerged from the previous workshop. Subsequently, participants embarked on a structured brainstorming session using the Ox tool [28]. They were tasked with understanding their assigned proposal, defining its purpose, target audience, and potential development and implementation methods. This ideation process encouraged participants to think critically about their proposals.

To maintain enthusiasm and stimulate creativity, a dance-based energizer activity was employed, playing a vital role in keeping participants engaged and motivated throughout the workshop.

Participants were dared to create personas aligned with their challenges. Using a canvas, participants defined persona traits, created visual representations, crafted biographies, identified expectations, needs, and frustrations, and even gave their personas a voice. This exercise promoted empathy and a deeper understanding of potential users.

To avoid fatigue a diverse and engaging coffee break was set, allowing participants to recharge, interact, and network. This break provided a conducive environment for informal discussions.

Afterwards, scenarios were generated using the AEIOU methodology [29]. Participants defined scenario elements, including activities, space, interactions, and objects, and their relationships with users using the materials offered. This structured approach enabled teams to transform their ideas into tangible scenarios. The Six Thinking Hats methodology was followed, aiming to help participants generate ideas considering the personas and scenarios previously created. Participants donned different "hats" representing distinct thinking perspectives (white, green, red, blue, yellow, and black). Each perspective encouraged diverse thinking about their proposals, fostering the generation of creative solutions [30].

After this exercise, each group had the opportunity to present their generated ideas and inputs achieved during the workshop to all participants. This phase allowed for the sharing of concepts and provided a platform for feedback and discussion among participants.

The workshop concluded with a feedback session, where participants reflected on the activities and shared their thoughts. An after-work drink offered an informal setting for further networking and discussions. This feedback loop was essential for refining future workshop sessions and improving the overall design process.



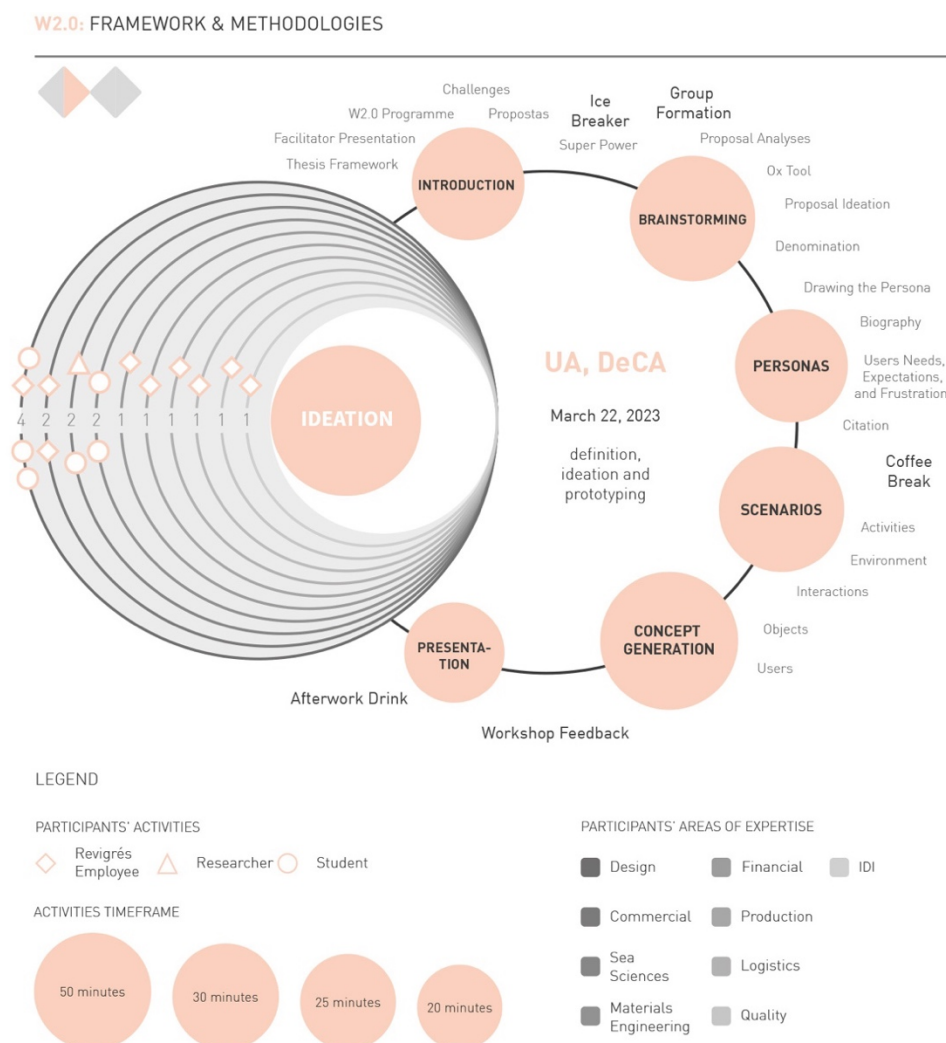


Figure 2. Workshop 2.0 framework and methodologies (source: authors).

### 4.3 Space Organization, Ambiance, and Materials

The spatial organization of Workshop 2.0 was purposefully curated to stimulate creativity and facilitate immersion in design methodologies. The chosen classroom at Aveiro University, with its proximity to the department overseeing design curricula, was a strategic choice. This location not only provided an ideal setting for ideation but also embodied the workshop's commitment to the principles of design. Inspirational visuals adorned the walls, serving as catalysts for creative thinking and imaginative exploration.

An array of selected materials was thoughtfully provided to catalyze the ideation process. Over 600 Playmobil figures, including human and animal figurines, were available to participants, enabling them to craft dynamic and interactive scenarios. Additionally, a rich Playmobil collection of scenery components spanning living rooms, bedrooms, kitchens, bathrooms, outdoor spaces, markets, operational machines, workshops, and factory tools, offered a rich tapestry for scenario construction. These materials were carefully arranged to encourage participants to blend and adapt pieces to construct their own unique interpretations of the scenarios.

Further, 150 rectangular cardboard pieces were available, which, when folded, formed hats. In addition to this, 16 canvases, one for each group, were supplied for exercises such as brainstorming, personas, scenario generation, and the six thinking hats exercise. A card containing the Co-design session themes and proposal descriptions was distributed to each group from the outset, tailored to their specific theme and proposal. Plus, 24 small cards were provided, each describing the characteristics of the hats in the Six Thinking Hats exercise, facilitating idea generation.

This selection and organization of materials created an environment where participants could unleash their creativity and explore innovative ideas in a structured yet open manner.

#### 4.4 Workshop 2.0 Core Activities: Exponentiating Empathy and Critical Thinking

Workshop 2.0 marked its commencement with a crucial exercise aimed at facilitating a profound comprehension of proposed ideas and their target audiences. The principal objective was to elucidate the rationale underpinning each proposal, its intended beneficiaries, the potential for development, and the strategies to accomplish it. This exercise was allotted 25 minutes, underscoring the centrality of ideation within stringent time constraints.

During this phase, workshop participants embarked on a collaborative journey of ideation, steered by what the OX Tool [28]. This tool was designed to establish a comprehensive perspective of each proposal. Participants engaged in a rigorous and structured discussion, addressing the tool's predefined queries, encompassing the "why", "how", "with whom", and "for whom" dimensions of the proposal. This multifaceted exploration entailed a comprehensive exploration of the proposal's purpose, feasibility, anticipated benefits, and distinctive attributes. Participants probed into the reasoning behind the proposal's potential effectiveness and the logistics to execute it. This encompassed delineating requisite tools and resources.

Participants cultivated an understanding of the proposal's target users, by scrutinizing the users' tasks, areas where the proposal could aid, and the associated pain points and challenges. This inquiry illuminated user needs, and aspirations, grounded in benefits and challenges.

The exercise also considered potential collaborators and partners, including external entities and pertinent Revigrés departments, which might play pivotal roles in the proposal's realization.

The comprehensive knowledge garnered during this phase was essential in laying a solid foundation for subsequent design and development phases. Additionally, participants were encouraged to utilize visual aids, such as drawings or low-fidelity prototypes, to effectively communicate their ideas within the group. Subsequently, the workshop introduced the Personas methodology, reinforcing the significance of comprehending users and cultivating empathy. Workshop participants were tasked with defining representative user profiles pertinent to their assigned proposals, thereby establishing a profound connection with these personas to engender more impactful solutions. This exercise was accorded 25 minutes, allowing participants to immerse themselves in the creation and exploration of user personas. The structured approach encompassed several key steps: defining general traits, "drawing" the persona, shaping a biography, and quoting them. Throughout the exercise, participants were reminded that this process was dynamic, with elements influencing each other. The numbering of the steps in the canvas merely served as a guide, allowing flexibility within the exercise structure.

While this exercise fostered a deep understanding of users and their needs, it was crucial to realize that comprehending the design proposal should go beyond users. It should encompass the broader context, including the interactions between users, activities, environments, interactions, and objects [29]. This underscores the importance of constructing scenarios, the third core exercise of this session. The overarching objective was to empower teams unfamiliar with the design process by leveraging the AEIOU tool, which provided structure and guidance. This exercise was time-constrained, allocated to a 20-minute time frame to encourage efficient knowledge gathering and scenario construction that holistically incorporated user experiences.

Participants commenced by delineating scenario elements: activities, environments, interactions, objects, and users. They analyzed activity sequences, spatial characteristics, interaction dynamics, object impact, and user roles. This process unveiled the scenario's complexities, prompting inquiries into user motivations and needs.

Simultaneously, participants commenced the construction of the scenario, placing it at the center of the canvas. This visual representation was facilitated with Playmobil figurines and scenario pieces, lending a tangible dimension to the visualization of the scenario's key components.

The latter part of Workshop 2.0 beckoned participants to venture into solution and decision space, initiating a phase of collaborative ideation. This phase relied on Edward de Bono's Six Thinking Hats methodology, renowned for its capacity to stimulate innovative idea generation by encouraging problem-solving from six distinct yet complementary perspectives. This methodology is extensively employed in design leadership and various corporate and problem-solving contexts, since it harnesses different modes of thinking, offering a systematic approach to arrive at effective conclusions efficiently [30]. The scientific basis of this technique introduces structured thinking into group discussions, countering unstructured and biased thinking, which often leads to irrational decisions and favoritism toward specific ideas [31].

Likewise, the methodology advocates parallel thinking, where team members collectively focus on specific aspects of an issue, ensuring systematic consideration of diverse perspectives. It assigns specific thinking roles, symbolized by colored "thinking hats." Each thinking signifies a unique approach [30], depicted in Figure 3.

This exercise unfolded over 50 minutes, comprising specific stages for each thinking hat. Since each thinking hat represented a distinct mode of problem-solving, it ensured a structured and comprehensive exploration of ideation and idea generation.

This structured approach emphasized adherence to allotted times for each stage, fundamental to the exercise's success. It also encouraged participants to document their thoughts to expedite the process. Notably, all participants donned the same thinking hat (thinking approach) simultaneously, minimizing personal biases and conflicts. The exercise unfolded through structured stages, promoting diverse thinking and collaborative problem-solving. This approach offered participants a systematic framework to explore the proposal's problems comprehensively, stimulate creativity, and analyze both benefits and risks, ultimately leading to well-rounded and innovative solutions, which resulted in a set of ideas to be pursued in workshop 3.0.

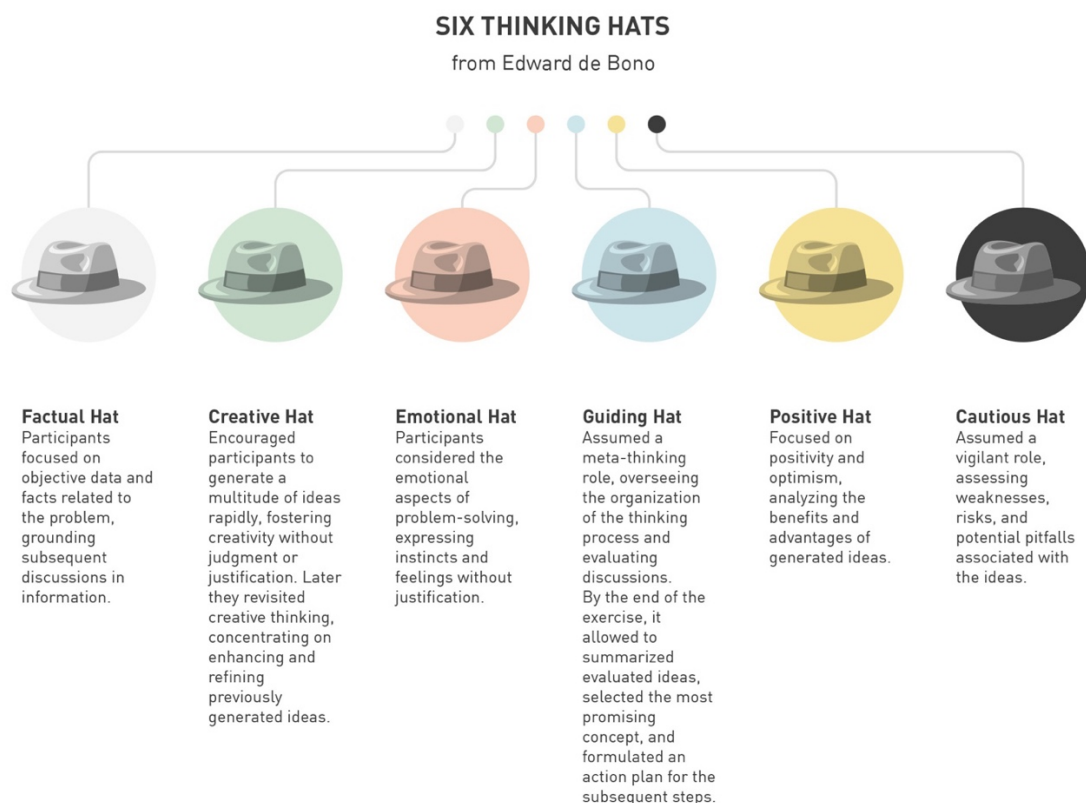


Figure 3. Six Thinking Hats methodological structure applied in Workshop 2.0 (adapted by the authors).

## 5. Insights Gained from Workshop 2.0

Building upon the foundational sparks ignited by Workshop 1.0, Workshop 2.0 served as the fertile ground where inspiration metamorphosed into tangible ideas through a meticulous exploration of users and contexts. The workshop was governed by directives emphasizing focus, time management, and inclusivity, fostering an environment conducive to experimentation, exploration, and learning. The main insights achieved in this workshop were “Empathy as a Central Driver of Innovation”.

### Empathy as a Central Driver of Innovation

Empathy emerged as the keystone of innovation during Workshop 2.0, substantiating its indispensable role in the design process. The personas exercise, deeply rooted in design thinking principles, facilitated a profound comprehension of users that transcended conventional demographic boundaries. This empathic approach, as advocated by design scholars like Brown [5], Liedtka and Bennett [32; 33], reached beyond surface-level user needs, delving into their motivations, aspirations, and challenges. The personas exercise not only provided a practical tool but emphasized empathy as a pragmatic necessity in designing products intricately attuned to human experiences.

Even though it is recognized that to be effective this exercise needs to be deeply explored, the exercise unfolded with a fluid, non-linear dynamic, enabling participants to adapt persona profiles as necessary. This malleability allowed for nuanced storytelling based on action, enriching the understanding of personas' experiences and interactions. Furthermore, the integration of personas in group projects brought a human touch to the design process, ensuring technical solutions resonated with users on a profound level.

### Decision-Making Dynamics in the Process of Innovation

Design thinking, intricately woven into Workshop 2.0, provided the methodological scaffold for innovation. The Six Thinking Hats methodology, a prominent tool, showcased its applicability in design strategy. Drawing from Bono's [30] insights, the methodology fostered collaborative thinking, systematic problem-solving, and diverse perspective exploration boosting the decision-making process. This methodology encourages participants to metaphorically put on different hats, representing various lenses of analysis applied to a single problem, opportunity, or challenge.

Drawing from design leadership literature, particularly from Boland and Collopy [34], the methodology's impact on collaborative thinking, innovation stimulation, and conflict resolution aligns seamlessly with the demands of managing design processes, strategies, and teams through technology-enabled systems. In the context of Workshop 2.0, the Six Thinking Hats methodology not only streamlined collaborative efforts but also enhanced the decision-making process by offering a structured approach to problem-solving. The method encourages participants to view challenges from different angles, promoting objective thinking and minimizing counterproductive interactions. This approach not only ensures efficiency but also addresses conflicts inherent in design teams, leading to well-rounded evaluations and, ultimately, significant outcomes. As a crucial tool in the design leader's arsenal, the Six Thinking Hats methodology exemplifies how different perspectives can imprint various reactions in decision-making, a fundamental aspect of strategic design leadership. From a facilitator's standpoint, this approach proved to be instrumental as highlighted by the participants in workshop feedback uncovered in Figure 4.

## W2.0: GROUPS &amp; THEMES

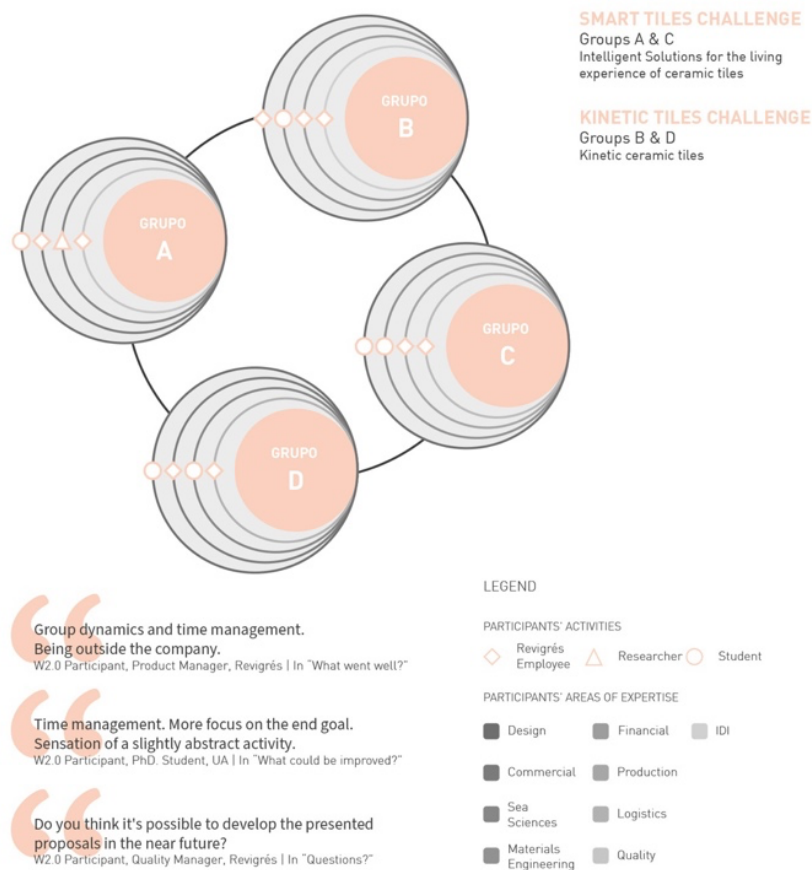


Figure 4. Workshop 2.0 group structure and participants' feedback (source: authors).

## Holistic Approach of Design in Innovation

The holistic approach surfaced prominently in Workshop 2.0, extending beyond technical considerations to embrace societal, economic, and environmental implications. This holistic perspective, harmonized with multidisciplinary collaboration, aligns with design scholars like Cross [35]. Analyzing users and constructing scenarios showcased how a multifaceted examination enriches the design process. This holistic view resonates not only in the design domain but also reverberates in the strategic role of CDOs within organizations. A CDO, as a strategic leader, should integrate this comprehensive approach into the company's ethos, addressing design as a key player in business strategy and innovation [36].

Within the course of the workshop, all groups demonstrated a holistic approach to their projects, considering not only the technical aspects but also broader societal, economic, and environmental implications. Several scenarios crafted by the groups went beyond the immediate technical application of the ceramic products. They considered how these products would fit into and enhance users' lives, creating a more enjoyable, sustainable, and efficient lifestyle. This goes beyond functionality to address the emotional and experiential aspects of design. This holistic perspective is crucial in the field of design, especially when proposing innovative solutions that are intended to have a real-world impact. It reflects an awareness that a successful design isn't just about the product itself but also about how it fits into and transforms the larger ecosystem.

## Creating and Aligning Values to Innovate

The imperative of aligning project values with societal, economic, and business values emerged as a guiding principle in Workshop 2.0. Market viability, a central concern for businesses, was ingrained in the analytical fabric of the workshop. Sustainable innovation, responding to global trends and crises, unfolded organically



in the projects, underlining the contemporary emphasis on environmentally conscious practices. Global applicability, another facet explored, aligns with the strategic goals of internationalization, a pursuit often integral to companies' growth strategies. The workshop revealed that creating and aligning values is not just a design consideration but a strategic move that resonates with the *zeitgeist*, emphasizing the profound impact design can have on business and society [37].

During the workshop, group questions and considerations delved into market feasibility, technology readiness, and economic viability indicating a pragmatic awareness of the challenges in implementing innovative solutions. This business-oriented thinking is crucial in ensuring that the proposed designs are not just creative exercises but have a practical pathway to implementation and success in the market. All groups showcased a commitment to sustainable innovation. Whether it was in developing tiles with clean energy-generating capabilities, reusing water vapor in manufacturing processes, or promoting a circular economy, the projects aimed at advancing not just product innovation but also sustainable and environmentally conscious practices in their respective domains.

The recognition of the international scale in project indicates an understanding of the global nature of design and innovation. It suggests that these projects are not confined to local contexts but are envisioned to have applicability and impact on a broader, potentially global, scale.

### **The Strategic Role of Facilitators in Workshop 2.0**

Workshop 2.0 at Revigrés brought forth a crucial insight into the role of a facilitator in steering multidisciplinary groups toward a design-led process. The intricate dance between aligning values and workshop goals with diverse participant perspectives emerged as a cornerstone for success, akin to aligning society values with the goals of a corporation. The challenge lay in harmonizing the diverse thoughts of participants, each carrying their professional and disciplinary nuances, into a coherent and purposeful design narrative.

The workshop emphasized the paramount need to instill empathy among participants. Facilitators played a pivotal role in fostering an environment where participants shifted from a mindset of rapidly seeking solutions to a thoughtful contemplation of users' needs. This shift, though fundamental to design thinking, proved challenging, highlighting the resistance to moving beyond conventional problem-solving approaches. Participants needed guidance to navigate this mental shift, showcasing the facilitator's influence in shaping mindsets toward a user-centric approach.

Moreover, the difficulty in encouraging participants to view projects holistically became apparent. The innate inclination to focus on specific aspects or individual contributions hindered a comprehensive understanding of the project's broader impact. Facilitators, acting as orchestrators, skillfully guided participants to embrace a holistic perspective, linking diverse elements into a coherent and impactful design strategy.

The facilitator's role extended beyond guidance—it was about creating a well-organized workshop ecosystem. This structure incentivized dynamic and proactive ideation, steering participants away from siloed thinking. A well-orchestrated workshop, much like a well-structured company, cultivates an environment conducive to collaboration, innovation, and adaptability.

## **6. Discussion**

Workshop 2.0 at Revigrés emerged as a crucible for testing the fundamental assumptions and hypotheses integral to the Co-design Sessions' overarching goal — affirming the strategic role of a CDO. This workshop, strategically positioned between inspirational ignition and tangible prototype creation, provided profound insights into the dynamic interplay of design leadership and facilitation.



The Co-design Sessions sought to understand how a Chief Design Officer could strategically steer the evolution of a product range, educate stakeholders about design value, and foster open communication for enhanced creativity. Workshop 2.0 unveiled the intricate dance of the CDO as a design leader. The methodology grounded in design thinking principles validated the hypothesis that design thinking is not just a methodology; it's a potent tool for establishing meaningful connections between the brand and users. The CDO, as a proponent of design's value, emerged not merely as an educator within the company but as a transformative figure within the corporate ecosystem.

The insights gained underscored the facilitator's pivotal role in steering multidisciplinary groups toward a design-led process. This role echoed the broader responsibility of a CDO in bridging, balancing, and giving voice to diverse perspectives — be it business goals, users' needs, or team decisions. The facilitator's influence in instilling empathy, fostering holistic perspectives, and guiding mindset shifts mirrored the challenges faced by a CDO in harmonizing diverse thoughts into a coherent design narrative. The well-organized workshop ecosystem, essential for dynamic ideation, mirrored the need for structured leadership within organizations.

The workshop illuminated the imperative of implementing more empathic, holistic, and decision-making methodologies into the innovation process. Design thinking principles served not just as tools but as transformative agents. The Six Thinking Hats methodology showcased its applicability in design strategy, aligning seamlessly with the demands of managing design processes and teams. This emphasis on structured problem-solving methodologies validated the hypothesis that design-led approaches equip companies to respond effectively to evolving market trends, emerging technologies, and shifting consumer expectations.

The user-centric approach, cultivated through immersive activities and empathic exercises, became the bedrock for ideation. This aligned with the hypothesis that placing the user experience at the heart of innovation fosters brand loyalty and fuels innovation rooted in real-world needs. Furthermore, the workshop showcased that design, when integrated into corporate culture, propels a transformative shift toward collaboration and creative problem-solving.

In summary, Workshop 2.0's insights serve as a blueprint for future Co-design Sessions, transcending the boundaries of technical proficiency. The dynamic interplay of design leadership and facilitation emerges as a guiding light for the CDO's strategic role. The emphasis on empathy, holistic methodologies, and a user-centric approach resonates with the broader goals of the Co-design Sessions — building design-oriented innovation processes, fostering a design culture, and developing concepts positioning Revigrés as a market leader. These insights serve not only as markers for the journey but as transformative elements shaping a design narrative that extends beyond individual workshops, steering Revigrés into a future of innovation and design excellence.

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