Report on the Co-Creation Workshop

“Co-designing in Virtual Worlds for boosting innovation”

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9-13 June 2025

T1.3 Elaboration and implementation of co-creation methodologies

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EXECUTIVE SUMMARY

As part of the OPENVERSE project’s field-testing phase, a five-day intensive co-creation workshop titled “Co-Designing in Virtual Worlds for Boosting Innovation” was conducted at the Politecnico di Milano School of Design from June 9–13, 2025. The initiative aimed to explore how immersive environments can enhance collaborative innovation across traditional and emerging industries. The workshop brought together a selected cohort of 36 designers in training currently enrolled in a Master of Science at the School of Design, Politecnico di Milano. Participants have multidisciplinary backgrounds—spanning service design, UX, fashion, immersive media, and strategic design. Notably, all participants were also active users of Virtual Worlds (VWs), offering a valuable dual perspective as both designers and native users of immersive environments.

Seven interdisciplinary teams engaged in a structured design sprint, using VWs as experimental platforms to test and adapt co-creation methodologies. Each group selected an industry challenge (e.g., education, fashion, sports, urban planning), identified a co-creation object (e.g., service, process, or experience), and translated one co-creation tool from the OPENVERSE Toolkit—comprising 48 tools based on the Double Diamond framework—into a Virtual World environment. Platforms tested included Spatial, EngageVR, VRChat, and Unity, among others.

The report presents the workshop structure, its process and resources, and the outcomes of the workshop, as seven immersive prototypes of co-creation tools for VWs. Below an outline of the domain, focus, and tool translated in the virtual environments.

1. Sports – Designing co-watching football experiences in Spatial using “Service Prototyping”.
2. Fashion – Role-playing techwear testing in Unity and Spatial through “Investigative Rehearsal”.
3. Marketing – Enabling knowledge exchange via “Knowledge Fair” in Spatial.
4. Adult Entertainment – Exploring ethical design through avatar-based “Investigative Rehearsal” in VRChat.
5. Museums – Co-designing emotional visitor journeys in Spatial with the “Iceberg Diagram”.
6. Education – Language learning in EngageVR using ”Fishbowl” structured dialogues.
7. Smart Cities – Simulating policy planning through “Investigative Rehearsal” in Spatial.

The translated tools demonstrated how immersive affordances—such as spatial narrative, embodiment, symbolic interaction, and scenario chaining—can support and even feed multi-stakeholder collaboration in VWs.

As a result, the 5-day intensive workshop provided rich, hands-on validation of the OPENVERSE co-creation methodology and toolkit in real-world, immersive settings. It also generated critical insights into platform affordances, tool adaptability, and user engagement dynamics across different industrial domains.

Consequently, it proves foundational in shaping the first version of the OPENVERSE Handbook of Co-Creation Methodologies (D1.1, Version 1, M24) and contributes with insights to the reflection on ethical, human-centric, and interoperable VWs. In particular, it reinforces the potential of VWs not only as tools for prototyping and experimentation but as strategic spaces for inclusive, collaborative innovation across the European industrial and public ecosystem.

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1. Background and rationale

Co-designing in Virtual Worlds for boosting innovation

Led by Prof. Francesca Rizzo, with Riccardo Ventura, Ilaria Mariani, Venere Ferraro

Duration. 5 full Days, 9am - 6pm

This intensive five-day workshop is conceived as a structured experimentation with co-design practices in Virtual Worlds (henceforth, VWs) to investigate their potential in supporting innovation across a spectrum of traditional and emerging industries.
Situated at the intersection of design research and immersive technologies, the workshop engages a cohort of designers in training, each of whom deliberately selected this workshop based on personal interest and prior

experience with VWs—whether as users, creators, or researchers. Their familiarity with these environments provides a strong foundation for critical engagement with both the technological frameworks and design methodologies explored throughout the week.

1.1. Relation to OPENVERSE

This workshop was initiated as a result of an open call for participation in the co-creation activities of **WP1 "Co-creation of open-source tools for the Virtual Worlds"**, disseminated within the School of Design at Politecnico di Milano as part of T1.2 "Calls for participation in the co-creation activities"—open-verse.eu/open-calls. This workshop specifically targeted master's-level students with prior experience and strong interest in design, VWs and immersive media. From the call within the School, **36 designers in training were selected** to take part in the intensive co-creation workshop. Their backgrounds span communication design, interior, arts, fashion, product-service systems, and digital interaction, allowing for a multi-perspective engagement with the potentials and limitations of co-creation in immersive environments. This curated cohort formed a core testing ground for OPENVERSE's co-creation tools and methods, serving both as contributors to the project's methodological development and as representative users exploring the practical challenges of designing within VWs.

The workshop is part of the activities of **T1.3 "Elaboration and implementation of co-creation methodologies"**, which aims to develop guidelines and ad hoc tools for co-creation in immersive environments across various sectors. It is one of the planned co-creation workshops informing the **first version of the OPENVERSE Handbook on co-creation methodologies (D1.1)**. The hands-on experimentation and critical assessment is aimed at tested co-strategies for designing free and open-source solutions for various industries, such as education, business, training, and work. The findings support the project's broader goal of equipping stakeholders—including those from traditional industries such as tourism, real estate, fashion, and healthcare—with actionable approaches for innovation through immersive co-creation and co-design.

The workshop aims to critically explore how VWs can function as settings and catalysts for co-creation, across industries, by experimenting with VW affordances and design tools to understand how these environments can enable, shape, or constrain collaborative design. Drawing from the conceptual and methodological framework of OPENVERSE—including literature review and scoping of co-creation tools developed in prior project phases—participants are equipped with theoretical and operational tools to assess, adapt, extend, and organize co-creation within immersive digital spaces.

Eight VWs are proposed as the experimental platforms for the workshop: Engage VR, Arthur, Resonite, Fortnite, Spatial, Rec Room, VRChat, and Sansar. These platforms vary widely in terms of technological maturity, interaction models, and embedded affordances—ranging from productivity-focused enterprise VWs to gaming-centric social platforms. Each platform's capacity for supporting co-creation was interrogated through practical testing and conceptual analysis.

Throughout the workshop, participants were encouraged to focus their exploration through a set of guiding questions:

- What are the key affordances of VWs that enable or hinder co-creation/co-design in or for industries?
- What strategies or "hacks" can be applied to enhance these affordances and better support innovation-driven co-design processes?
- What objects, services, or experiences can be co-designed by leveraging the specific affordances of selected VWs?

In response to these questions, participants (i) navigated and experimented within different VW platforms, (ii) applied and adapted co-creation tools and methodologies provided by OPENVERSE, (iii) explored industry sectors that stand to benefit from VW-based co-design, and (iv) developed hands-on design proposals situated within

those sectors. Chosen industries included fashion, adult entertainment, marketing and communication, cultural heritage and museum experiences, education and language learning, sport and entertainment, and smart cities/urban planning. Within these domains, participants identified specific processes, services, or experiences as objects of co-creation, which they then developed into operational prototypes within the selected VW environments.

1.2. Cohort of Participants

The workshop brought together a diverse and multidisciplinary cohort of 36 designers in training, all enrolled in the MSc of the School of Design, Politecnico di Milano. The group was deliberately interdisciplinary, representing a broad range of educational and professional trajectories that included **UX/UI design, communication and graphic design, product and industrial design, architecture, interior design, media design, service design, and game design**. Many participants brought prior project experience in areas such as **immersive storytelling and to user experience research, exhibition and spatial design, B2B UX, VR and game development, embodied interaction, AI-integrated interfaces, and extended reality/digital prototyping**, while others had backgrounds in **strategic design, data visualization, or rendering and animation**. This diversity ensured that the workshop addressed VWs from multiple design and conceptual lenses, with participants leveraging spatial, visual, narrative, and systemic design sensibilities. Some joined with conceptual interests in participatory design, co-creation, and the sociotechnical dimensions of virtual interaction.

In terms of **familiarity with VWs**, the overall cohort showed a **moderate familiarity with VWs**, with several participants already possessing **professional or academic experience in VR/AR or immersive environments**, and most others entering the workshop with at least exploratory exposure. While most participants rated their general familiarity as “discrete” to “good,” nearly a third had “high” or “very high” experience with immersive platforms, including direct work in VR/AR development, digital twins, simulators, or extended reality design for education, entertainment, or architecture. This ensured a shared baseline of literacy, while allowing for differentiated engagement across platforms and project phases.

Regarding the **eight VWs introduced in the workshop—Engage VR, Arthur, Resonite, Fortnite, Spatial, Rec Room, VRChat, and Sansar**—the group’s familiarity varied:

- **Fortnite (avg. 1.69/4)** and **VRChat (1.50/4)** were the most familiar environments, reflecting their wider cultural presence and use in entertainment and social design contexts.
- **Spatial (1.47/4)** and **Engage VR (1.28/4)** followed closely, benefiting from their accessibility and relevance to education and co-design.
- Platforms like **Rec Room (1.22/4)**, **Resonite (1.22/4)**, and **Sansar (1.14/4)** were less familiar to the group but served as exploratory grounds for understanding alternative affordances and interaction models.
- **Arthur (1.11/4)** was the least known among the cohort, with limited prior exposure before the workshop.

This distribution of familiarity reflects both cultural and professional trends in platform usage, with stronger knowledge concentrated around socially or publicly prominent platforms, and lesser-known VWs becoming **testing grounds for methodological and experiential experimentation**. This balance allowed the cohort to engage in both critical assessment and creative adaptation of each platform’s co-creation potential.

1.3. Acknowledgement of IPR Ownership and Confidentiality

Participation in the workshop was subject to the intellectual property and confidentiality regulations in force at Politecnico di Milano. In accordance with the University Regulations on Industrial Property (Rectoral Decree, 5 December 2023), students participating in educational activities, including workshops financed or promoted under

research collaborations such as OPENVERSE, are considered non-employee inventors. As such, they acknowledge that while their **moral authorship of any created work is inalienable**, the **exclusive economic and commercial exploitation rights** over any results—whether patentable or not—are assigned to Politecnico di Milano. This applies to any inventions, models, designs, or creative outputs developed within the scope of the project. Students also agreed to provide any necessary information for patent filings and waived future claims over jointly owned rights, in line with OPENVERSE's Grant Agreement (Annex 5), which stipulates that results are either individually or jointly owned by beneficiaries based on their contribution. Furthermore, all participants accepted confidentiality obligations, committing to store and use any confidential information or project-related results securely, and not to disseminate them without prior written authorization from the university. These obligations remain in force until the information becomes public or one year after the course concludes.

2. Structure of the workshop

The workshop unfolded over five consecutive full-day sessions and was structured around seven main phases, each building progressively toward the development and evaluation of co-creation tools in VWs. Each phase was designed to deepen participants' understanding of immersive environments, co-creation practices, and the intersection of the two, with the final aim of exploring how VWs can be strategically appropriated to support innovation across industries.

Table 1. Workshop backbone structure

When	Phase	Activity	Outputs
Day 1	**1. Introduction**	Setting the conceptual and operational foundation	Shared understanding of OPENVERSE goals, WP1 activities, co-creation definitions, and toolkit overview
		Brief and groups	Formation of groups of work and alignment on design brief
Day 1	**2. Industry, Co-Creation Objects, VW exploration**	Identification of context and object of co-creation	Defined target industry and selected object of co-creation (e.g., service, process, artefact)
		VW selection and initial analysis	Selected VW platform and initial rationale; mapped high-level affordances and user agency for co-creation
Day 2	**3. Toolkit Exploration**	Exploration and tool selection	Selected tools from the OPENVERSE toolkit; notes on relevance to chosen VW and scenario
Day 2	**4. Affordance Mapping**	Mapping VW capabilities for co-design	Documented affordance analysis of the selected VW; alignment of affordances with features of the selected tool
Day 2-3	**5. Tool Translation & Design**	Translating the tool into a VW environment	Developed detailed interaction model (scenes, interactions, assets, and user flow) for VW adaptation

Day 3-4	**6. Tool Development in VW**	Implementation of the prototype	Interactive working version of the selected tool inside the chosen VW
Day 5	**7. Lessons Learnt & Recommendations**	Reflection, feedback, and critical evaluation	Documented usability insights, platform limitations, lessons learned; contributions to D1.1

2.1. Introduction

The workshop opened with an introduction to the OPENVERSE project, its objectives, and the specific scope of WP1. Participants were introduced to the state of development of the co-creation methodology and tools identified to support co-creation and co-design in VWs. Special focus was given to the role of this workshop in testing the co-creation potentialities of such tools and contributing to the development of the OPENVERSE Handbook on co-creation methodologies.

To set a common conceptual ground, key definitions are introduced, distinguishing open innovation, co-creation, co-design, and co-production, and framing their relevance in immersive digital contexts. Participants were also presented with an overview of the **eight VWs** selected as possible co-creation settings: **Engage VR, Arthur, Resonite, Fortnite, Spatial, Rec Room, VRChat, and Sansar**.

Alongside the platform overview, the OPENVERSE co-creation toolkit was presented—comprising 48 tools, each positioned within one of the four phases of the Double Diamond design framework (Discover, Define, Develop, Deliver). This toolkit would serve as the methodological backbone for the exercises to follow.

Finally, the design brief was launched: "Through an analysis of VWs, co-creation tools, and first-hand experience with them, the purpose of this workshop is to experiment with co-creation and co-design in VWs, with the aim of enhancing their potential to foster innovation across industries."

Participants were divided into groups of about five people, for a total of 7 groups, each of which would work independently on a full design cycle over the five-day period.

2.2. Industry, Co-Creation Objects, VW Exploration

In this phase, each group began by identifying an industry of reference and defining a specific object of co-creation (e.g., service, process, product, or system) within that industry. With an industry and object in mind, the next step was to imagine a plausible use case situated in their chosen context. This required describing the setting, stakeholders involved, and the purpose of the co-creation process.

Equipped with visors, each group then selected one of the eight VWs to anchor their experimentation, initiating a first in-depth round of observation to understand the dynamics of agency and participation offered by the platform—both for the designer configuring the co-creation environment and for the future participants engaged within it.

2.3. Toolkit Exploration

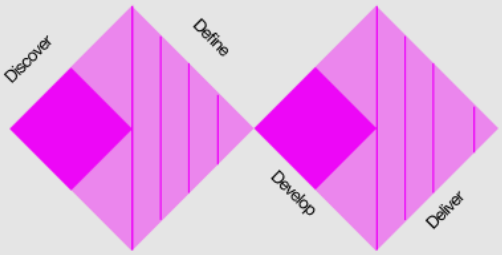
With a defined context in place, each group engaged in a guided exploration of the initial OPENVERSE co-creation toolkit.They explored the **48 co-creation tools** organised according to the Double Diamond framework—a design process model developed by the UK Design Council that structures innovation in four sequential phases: Discover, Define, Develop, and Deliver.[1] Each phase corresponds to a distinct mode of thinking and acting: from understanding problems and identifying opportunities (**Discover**), to framing the challenge (**Define**), generating ideas (**Develop**), and implementing solutions (**Deliver**). Participants assessed the tools' purpose, internal structure, and the type of collaborative dynamics, considering their potential adaptation for immersive VW environments.

[1] The Double Diamond by the Design Council is licensed under a CC BY 4.0 license. https://www.designcouncil.org.uk/our-resources/the-double-diamond/

DOUBLE DIAMOND

Double Diamond

Design Council (2005)



DISCOVER Conduct research and gather insights to deeply understand the problem space and uncover user needs and opportunities.

DEFINE Analyze and synthesize the research findings to clearly articulate the core problem and create a focused design brief.

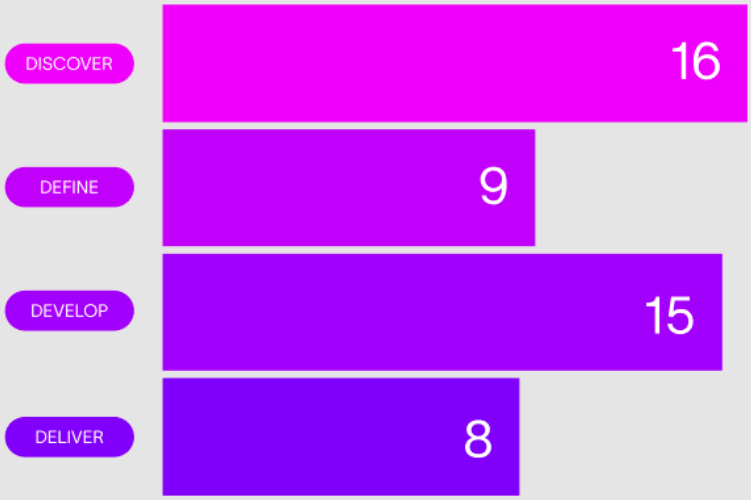
DEVELOP Generate a range of ideas, build prototypes, and test solutions through iterative cycles to refine concepts.

DELIVER Finalize the best solution, implement it, and prepare for launch while continuously testing and improving to ensure effectiveness.

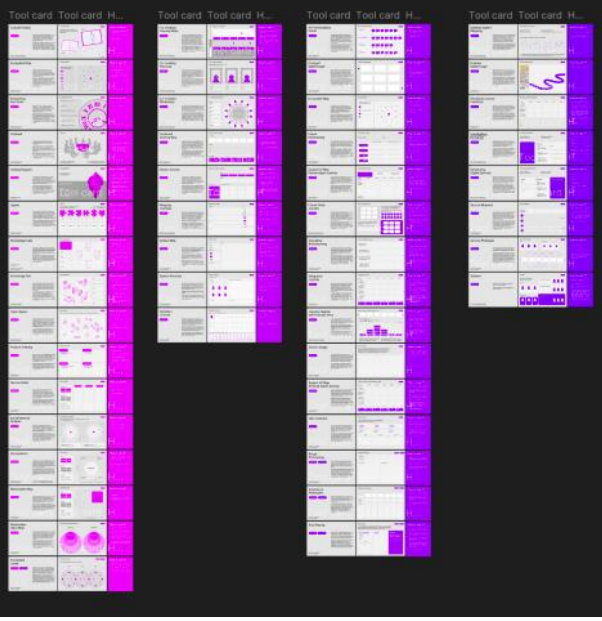
TOOLKIT

48 Tools

divided per DD phase



TOOLKIT



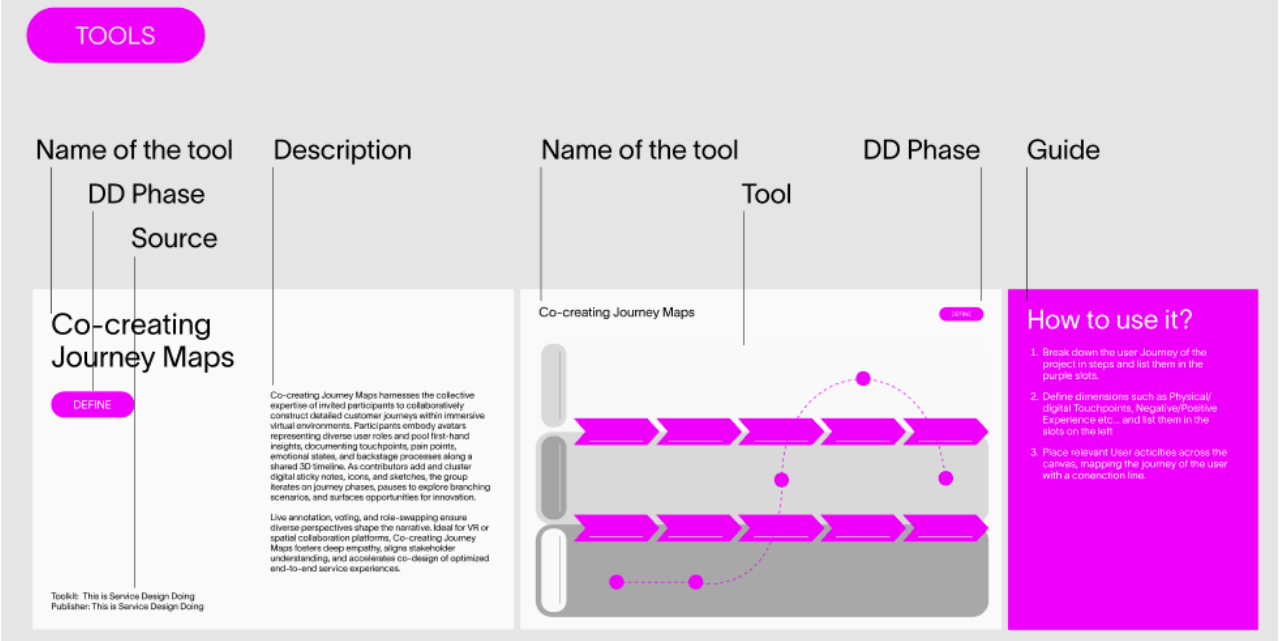


Figure 1. The Double Diamond framework (Design Council, 2005) and the distribution of the 48 co-creation tools identified during Task 1.3 "Elaboration and implementation of co-creation methodologies". The figure illustrates how each tool has been associated with the four design phases—Discover, Define, Develop, and Deliver—composing a structured toolkit. Then, it shows the structure of each tool to outline how they have been conceptually reinterpreted to enhance its applicability, tailoring, and effectiveness for supporting co-creation processes within VWs.

Each group then selected a tool for translation into the VW, documenting its features and rationale for selection. This activity encouraged early reflection on tool-context fit and anticipated the translation process into immersive settings.

2.4. Affordance Mapping

In this phase, each group conducted an **affordance mapping** of their selected VW, focusing on how its features could support or limit the translation of the co-creation tool. Groups analyzed elements such as:

- Spatial layout and navigability
- 3D assets and scene customization
- User interaction capabilities (e.g., voice, gesture, object manipulation)
- Visual and symbolic elements for representing concepts or data

They also reflected on how these affordances could be meaningfully aligned with the goals of their selected co-creation tool and the expectations of their user groups.

2.5. Selection and Translation of Co-Design Tools

Building on the previous phases, groups then formalized the **translation of their selected tool(s) into the VW environment**. This involved a detailed specification of how the tool would look, function, and behave within the virtual space.

Groups were asked to document and reflect on:

1. **Co-creation and co-design potential** – How the tool enables collaborative ideation, decision-making, or production.
   Adaptability to VWs – How well the tool's components and interaction models can be translated.
2. **Immersion potential** – How the sense of presence and emotional engagement may enhance co-creation outcomes.
3. **Opportunity for roleplay and simulation** – How the VW setting supports scenario-based exploration, behavioral modeling, or stakeholder interaction.
4. **Relevance to selected industry** – Why the tool is fit-for-purpose in addressing the group's chosen co-creation object and domain.

At this point, prototypes of the tool were built inside the selected VWs, often combining imported 3D assets, native elements, customized scenes, and interactive scripts. Participants documented this phase through screenshots, short videos, and interaction diagrams.

2.6. Development of Co-Creation Tools in VWs

Each group selected one tool to **develop fully in a selected VW**, transforming it into an interactive prototype or scenario. This phase focused on operationalizing the tool—setting up the environment, arranging user flows, testing spatial configurations, and populating the world with content designed to prompt co-creative actions.

Some groups implemented guided walkthroughs with test users, allowing them to observe how participants engaged with the tool, navigated the virtual space, and responded to the setting and interaction mechanics. This hands-on phase was critical in surfacing issues of usability, scalability, and the real-world applicability of virtual co-creation practices.

2.7. Lessons Learnt and Recommendations

The final phase was dedicated to structured reflection. Each group synthesized feedback from the prototype sessions and critically assessed the overall process of translating, implementing, and testing their tool in the VW.

They were encouraged to report on:

- What aspects of the tool worked effectively in the VW?
- What limitations did they encounter—technical, methodological, or experiential?
- How did the immersion, roleplay, or spatiality of the VW affect collaboration?
- What would they recommend to those planning to organise co-creation/co-design in VWs?

This phase produced a rich set of insights that directly feed into WP1's ongoing development of the co-creation methodology and will be incorporated into **D1.1 "Handbook of Co-Creation Methodologies"**. It also provided a critical space for designers in training to consolidate their learning about the practical affordances and challenges of working within VWs as collaborative design environments.

3. Workshop Results

Bringing together 36 designers in training allowed the exploration and testing of the affordances of VWs for co-creation across sectors. The following synthesis presents the main results of each group and extracts overarching insights that inform future applications and methodological evolution.

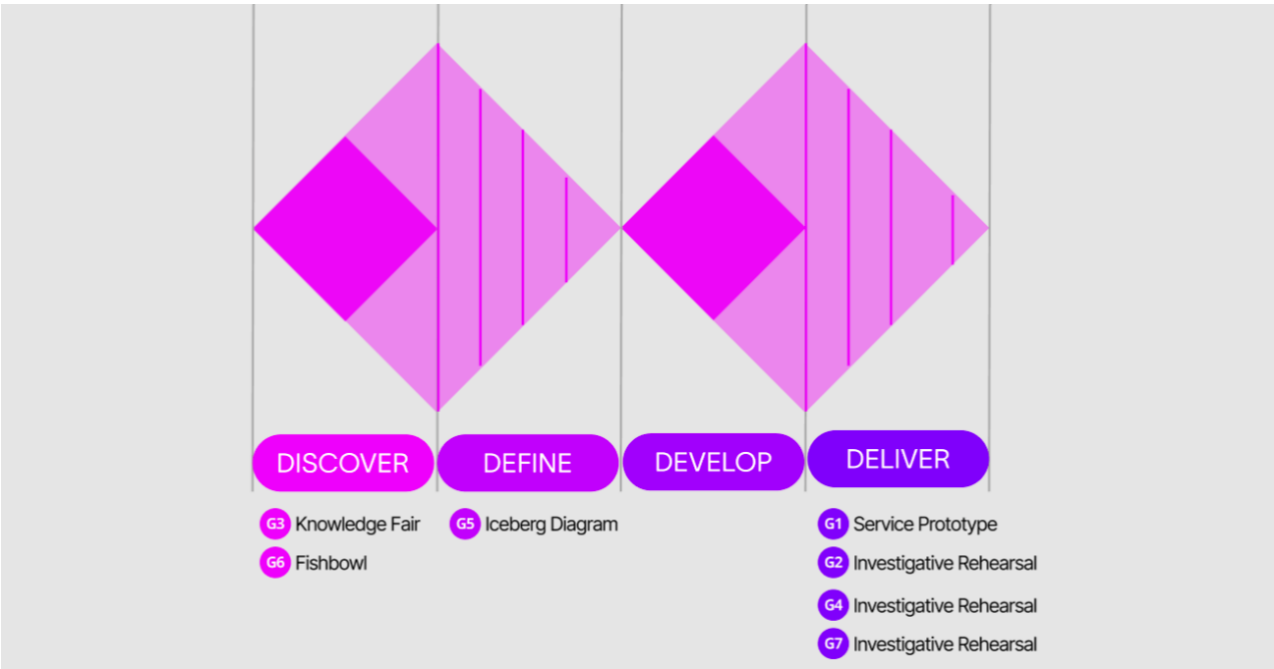


Figure 2. Tool distribution per DD phase

Table 2. Summary table

Group	Industry	DD Phase	Co-Creation Tool	VW Used	Role of VW Affordances in Co-Creation
G1	Sport	Deliver	Service Prototype	Spatial	Enabled spatial journey mapping, real-time role-based feedback, and immersive scenario walkthrough using portals and sticky notes.
G2	Fashion	Deliver	Investigative Rehearsal	Spatial + Unity	Supported realistic simulation (Unity) and spatial sequencing (Spatial); role-based interaction in wearable testing environments.
G3	Marketing	Discover	Knowledge Fair	Spatial	Enabled parallel ideation, knowledge booths, media sharing, and spatial distribution of themes to structure early divergent thinking.
G4	Adult Entertainment	Deliver	Investigative Rehearsal	VRChat	Provided high emotional fidelity through avatar roleplay, embodied interaction, and custom-triggered scenarios for ethical service design.
G5	Museum	Define	Iceberg Diagram	Spatial	Used layered spatial metaphor, voice/image uploads, and reflective prompts to scaffold emotional and interpretive co-design.
G6	Education	Discover	Fishbowl	EngageVR	Enabled structured dialogue via voice zones, role-based seating, and sticky notes; strong presence but limited content persistence.
G7	Smart Cities	Deliver	Investigative Rehearsal	Spatial	Enabled policy simulation via scene chaining, symbolic exaggeration, and role-based stakeholder walkthroughs.

Group 1. Sport / Co-Watching Football in Spatial

Use case & object of co-creation. G1 addressed the growing demand for shared media experiences by focusing on co-watching football matches in a virtual environment. The object of co-creation was a **service** that enables fans to gather, watch, and comment on live games within an immersive VW. The selected industry is sports media and entertainment, motivated by engagement trends and the desire for social presence in remote events.

VW selection & affordance mapping. The team selected **Spatial** for its low barrier to entry, browser-based access, real-time interaction, and embedded multimedia support. They effectively linked Spatial's affordances to the task of engaging fans and stakeholders in a realistic co-design scenario. Whiteboards, sticky notes, and collective annotation spaces were used to enable stakeholders to comment on and shape each phase. Affordances for spatial layout, real-time avatar presence, and screen sharing allowed participants to immerse themselves in the process as if they were navigating a real-world venue.

Tools selected.

- Discover: Envisioning the future
- Define: Mapping journeys
- Develop: AI functionalities cards
- Deliver: Service prototype

Tool implementation & translation. Among several mapped tools, the team implemented a **Service Prototype** as the primary vehicle for stakeholder co-design. They created a **"Central Hub"** where the full fan journey could be visualized and navigated. Through the use of portals, visitors could move between phases of the journey (e.g., pre-match engagement, live match commentary, post-game analysis), observing user perspectives at each stage. They explored how co-watching could be collaboratively designed and improved, exploiting the central hub and portals to support co-creation around phases of the experience, indicating a strong move into design development, after initial problem framing. Spatial's feedback features were used to allow stakeholders to comment and iterate on the design. The co-creation occurs through role-based interactions, where participants play fan, organizer, or marketer to annotate and evaluate service aspects.

VW affordances exploited:

- Portals: to simulate different moments of the service (pre-match, during match, post-match).
- Whiteboards & Sticky Notes: to support asynchronous feedback from stakeholders.
- Spatial layout: allowed mapping the journey spatially, giving form to service touchpoints.


1 Central Hub
Teleport every touchpoint
Co-creation tools
Post-its, pens, papers, voice & text chat, avatars ...
Upgrade
Share
Service Prototype
Design tools-Deliver Stage
People (1)
workshop1 (You)
Mute All
Press '/' to type


1 Central Hub
Teleport every touchpoint
Co-creation tools
Post-its, pens, papers, voice & text chat, avatars ...
Upgrade
Share
2
Co-watch
People (1)
workshop1 (You)
Mute All
Press '/' to type


2 Prematch Room
Social lunges Fan bars
Avatars, gestures, voice chat
Minigames and polls
Marketing materials
Upgrade
Share
fans
Games
Portal to Main
workshop1
People (1)
workshop1 (You)
Mute All


4 Marketing Room
Marketing kiosk Team jersey
Merchandised products Try on
Upgrade
Share
Leisure and Entertainment Area
People (1)
workshop1 (You)
Mute All
Mini soccer field

Figure 3. Service Prototype implemented in Spatial to support co-design of a co-watching football experience. The Central Hub and journey portals allowed stakeholders to collaboratively explore and reflect on different phases of the fan experience. Created by Efe Eren Can Bakir, Sofia Robles Ramirez, Aranza Villarreal Alcala, Arianna Albertini, Sıyuan Yan, Yuxin Zhang.

Impact on co-creation. Spatial allowed mid-stage co-design activities like journey walkthroughs, commenting, and ideation on existing concepts, but was less suitable for early divergent ideation due to tool limitations (no flexible sketching, constrained feedback mechanics). The VW made the journey visible and navigable, enabling reflection and refinement.

Insights & lessons learnt. The VW helped visualize both the global journey and its granular parts, allowing for parallel understanding of system-level and user-level dynamics. Key insights included the tension between conceptual fluidity and platform limitations. Spatial's restricted sticky note usability, low-fidelity object control, and lack of undo functionality presented clear challenges. However, the team also found that these constraints pushed them to simplify their design for clarity and user flow. Importantly, the prototype allowed stakeholders to **visualize and interact** with the fan journey, creating space for experiential discussion around user needs.

Reflection. The group concluded that while Spatial supports mid-to-late-stage design validation well, it is **less suitable for early-stage ideation**. As such, VWs should be paired with external tools or richer environments for full-cycle co-creation processes. Their work showcased how VWs can simulate emotional and spatial aspects of a service in a compelling and participatory way.

Group 2. Fashion / Techwear Showcase in Spatial + Unity

Use case & object of co-creation. G2 selected the **fashion industry** with a focus on digital-to-physical prototyping of **techwear garments**. The object of co-creation was a **service-experience hybrid** that allows designers and end-users to test garments' behavior under various simulated conditions (light, temperature, motion). The group identified several pressing challenges in the fashion industry, spotting as urgent the need to accelerate prototyping cycles, gather and test ideas at scale through global crowdsourcing, and respond rapidly to emerging cultural trends—all while reducing R&D costs and staying closely aligned with consumer expectations. VWs are seen as an opportunity to experiment with NFT-based wearables, opening new pathways for value creation and personalization to co-develop the future of fashion in real time.

VW selection & affordance mapping. The team adopted a **hybrid approach** combining **Spatial** for communication and navigation and **Unity** for environmental simulations. Spatial was chosen for its low barrier to entry and support for real-time interaction, while Unity enabled reactive material behavior modeling. Portals in Spatial were used to enter scenario spaces, with role-based access for wearers and observers. Unity's affordances—such as animation of garment textures under variable lighting—enabled the "performance testing" of techwear items. The simulation was organized into stages: entering via a portal, engaging in role-based interaction (wearer/observer), and returning for reflection. Key affordances used included Unity's ability to simulate environmental conditions and Spatial's navigable portals and spatial mapping. This allowed the team to **embed testing activities in situ**, showing the techwear's properties and performance live in the VW.

Tool selected.

- Discover: Cultural probes
- Define: Co-creating personas
- Develop: Innovative brainstorming
- Deliver: Investigative Rehearsal

Tool implementation & translation. The selected tool was **Investigative Rehearsal** (Deliver phase), which the group adapted to a distributed multi-scene VW experience. In Spatial, users were guided through a showcase hub, entered testing rooms via portals, and performed tasks with wearable objects. Unity simulations were triggered by entering specific environments, demonstrating clothing responsiveness. Observers were given tools for reflection and annotation. The experience was divided into structured steps: enter the portal, perform role-based activity, return and reflect.

VW affordances used:

- Unity simulation: enabled material reactions (light, motion, temperature).
- Spatial portals and role-based rooms: structured user journeys into testing stages.
- Interactive object manipulation: to explore how wearables behave dynamically.

Figure 4. Investigative Rehearsal tool translated into Spatial + Unity to simulate performance testing of techwear garments. Role-based environments enabled immersive observation and dialogue between designers and users. Created by Kexin Ma, Clara Agustin's, Rina Su, Mingyang Song, Yuchen Zhang.

Impact on co-creation. This group used the VW to test and rehearse real-world scenarios, showing co-creation in a performative, semi-final stage. The VW served as a simulation environment, capturing experiential feedback and demonstrating functionality. However, feedback cycles were short and ideation was predetermined, suggesting a low-to-medium degree of open co-creation.

Insights & lessons learnt. The environment successfully simulated **product interaction under variable conditions**, capturing the nuance of garment testing and supporting stakeholder dialogue around usability and aesthetics. However, Spatial's limited interactivity and basic feedback tools constrained collaborative depth. Integration between Unity and Spatial required preparatory scripting and wasn't editable by users in real time. Still, the combination demonstrated the **power of combining immersive simulation with spatial storytelling** for co-design.

Reflection. The group identified a clear trade-off between immersive fidelity (via Unity) and collaborative flexibility (via Spatial). While Spatial helped structure the experience and enabled stakeholder navigation, it lacked the interactivity for early co-ideation. Unity delivered high-fidelity simulations but lacked open collaboration. This project showed how **cross-platform workflows** may be necessary to support different phases of co-creation in VWs.

Group 3. Marketing / Knowledge Fair in Spatial

Use case & object of co-creation. G3 tackled co-creation in the **marketing and communication industry**, focusing on how diverse stakeholders (creatives, strategists, clients) could jointly surface insights to shape innovation strategies. The object of co-creation was the **knowledge exchange process**—specifically enabling divergent thinking in early-stage ideation.

VW selection & affordance mapping. The team selected **Spatial** for its **presentation-like structure**, accessible interface, and real-time interaction capacity. Spatial zones were used as **thematic knowledge booths**, where stakeholders could view, upload, and comment on different marketing topics or assets. The ability to embed external files and create dedicated interaction areas was seen as a core enabler of ideation.

Tool selected.

- Discover: Knowledge Fair
- Define: Co-creative workshops
- Develop: Experience prototype
- Deliver: Sbtext

Tool implementation & translation. The implemented tool was **Knowledge Fair** (Discover phase), translated into a virtual environment composed of spatially distributed thematic areas. Each booth represented a key area in campaign ideation—product vision, customer insight, brand storytelling, etc.—and contained visuals, content prompts, and feedback anchors. Participants acted as contributors, reviewers, or strategists. The VW hosted parallel knowledge sharing through spatial navigation, where users could annotate and respond to each display. Spatial's download/upload capability and asset placement features were used to simulate **material sharing**, a vital component in marketing collaboration. The aesthetic consistency and spatial layout gave the prototype high functional coherence. The **working environment was visually and functionally coherent**, mimicking a showroom with dedicated zones.

VW affordances used:

- Spatial zones and interaction points: acted as booths for different marketing ideas.
- Media boards and upload functions: facilitated content sharing and stimulus exchange.
- Live co-presence: enabled real-time ideation, comment threads, and cross-dialogue.

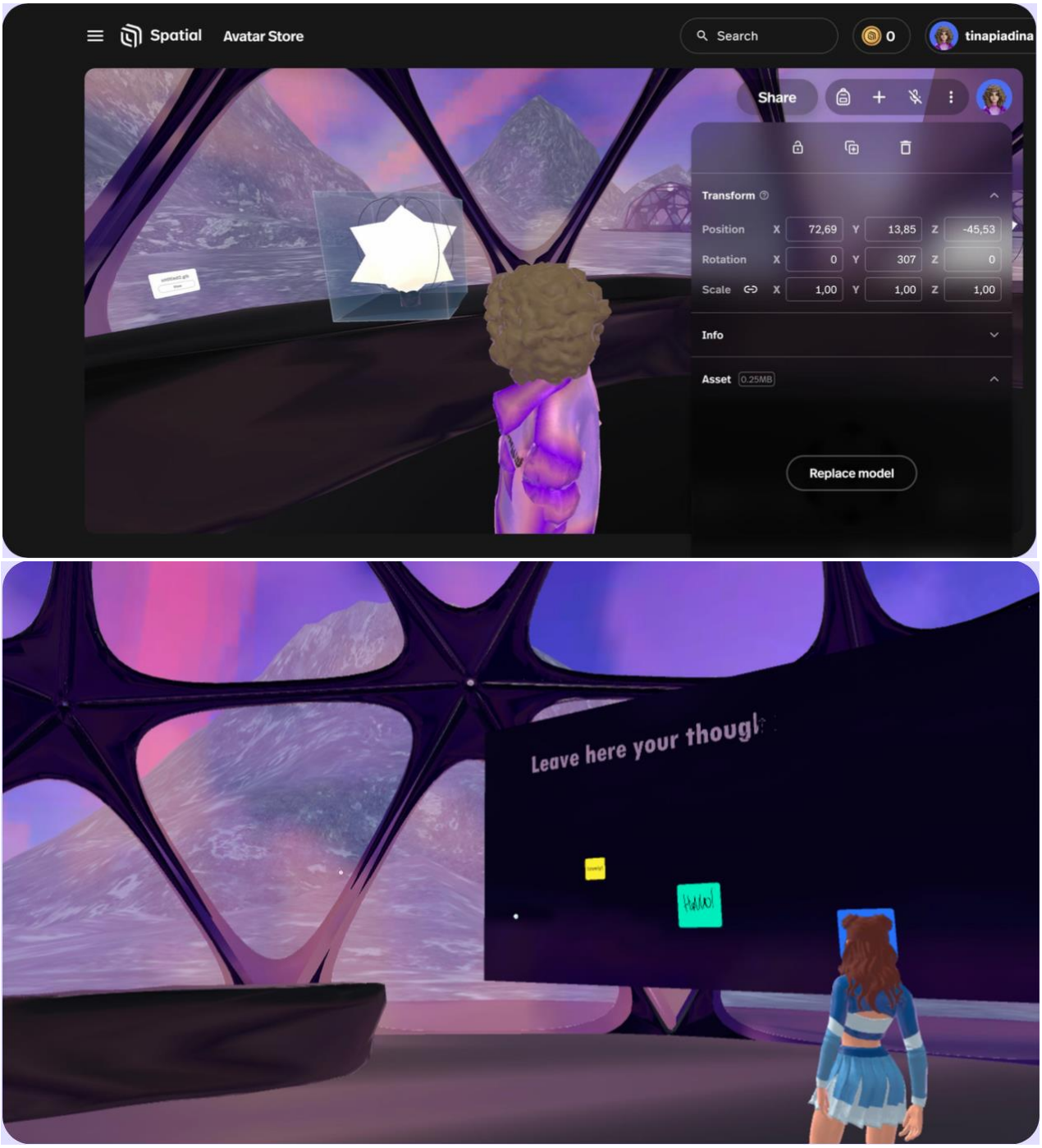


Figure 5. Knowledge Fair implemented in Spatial, with thematic booths and interactive areas enabling early-stage stakeholder engagement, idea surfacing, and distributed input collection. Created by Gaia Ranzani, Martina Stucchi, Giulia Montelli, Chiara Aliverti, Yifan Lu.

Impact on co-creation. The VW amplified early collective brainstorming, allowing stakeholders to contribute in parallel. However, friction emerged from asset control issues (e.g., host-only object movement) and limited chat integration. The VW's strength lay in creating a structured yet open space for divergent thinking and knowledge surfacing.

Insights & lessons learnt. The group demonstrated how **VW-based spatial layouts** can structure brainstorming. Participants could explore themes at their own pace, view others' contributions, and generate inputs in a distributed yet connected way. Challenges were noted in collaborative manipulation of objects—only hosts could move certain

items—and in the integration of assets from Blender. Users unfamiliar with Spatial's interface also struggled with simple navigation and interaction mechanics (e.g., emotes, chat visibility). Therefore, object manipulation issues (e.g., host-only control), difficulty importing complex visuals, and weak feedback tracking limited iterative depth. Real-time voice or chat interaction was underused, highlighting that affordance **potential does not equal effectiveness** without facilitation.

Reflection. The prototype proved valuable for supporting **early-phase discovery and idea surfacing**, especially in distributed stakeholder groups. Spatial worked well for thematic differentiation and visual framing. However, the absence of collaborative co-editing and feedback clustering suggests it needs pairing with other tools for deeper synthesis and refinement.

Group 4. Adult Entertainment / Safe Immersive Service Design in VRChat

Use case & object of co-creation. G4 selected the **adult entertainment industry**, a domain often neglected in co-design research due to ethical complexity. Their object of co-creation was a **service** aimed at enabling emotionally safe and respectful interaction spaces, particularly for sex workers and long-distance couples. The group focused on **designing with and for marginalized communities**, making inclusivity and ethical design core priorities. G4 put in place co-creation for engaging stakeholders in designing a respectful and emotionally safe environment. Through shared decision.making, they want to co-design tools, values, and boundaries that support diverse experience, creating a space where all users feel seen, heard, and protected..

VW selection & affordance mapping. The group selected **VRChat** for its strong **avatar embodiment and personalization possibilities, expressive range, and openness to customization**. Affordances exploited included personalized avatars, scenario-based room building, embedded interactions, and voice-based real-time dialogue. VRChat's social nature and custom scripting allowed high emotional realism and freedom of movement—essential for testing boundaries and behavioral norms.

Tool selected.

- Discover: Sociometrics
- Define: System scenario
- Develop: Innovative brainstorming
- Deliver: Investigative rehearsal

Tool implementation & translation. The tool is **Investigative Rehearsal** (Deliver), applied to **three distinct scenarios**, each represented in a separate VRChat room: Emotional boundary testing; Simulated long-distance interaction; Observer/ethicist role feedback. Each scenario was implemented through custom-designed rooms, role-based entry points, and trigger-based transitions, props, and voice zones. Interactions were designed to elicit affective feedback and expose latent barriers. Stakeholders were invited to test the flow and report reactions using embedded cues and feedback scripts.

VW affordances used:

- Avatar-based roleplay: enabled testing of emotional comfort and interpersonal boundaries.
- Custom worlds and triggers: allowed condition-specific scenario creation.
- Embodied interaction: was critical to testing spatial and affective features of the service.

Figure 6. Investigative Rehearsal translated into VRChat across three scenario rooms. Custom avatars and trigger-based interactions enabled emotionally sensitive co-design and ethical reflection. Created by Michelle Mei, Riccardo Di Marco, Michela Pace, Daniela Perez Ardila, Inkar Raissova.

Impact on co-creation. VRChat's immersive presence and expressive interaction enabled co-design that was both behavioral and ethical. The group used it to simulate interaction in real use contexts, therefore observing direct reaction of users in order to grasp their pain points. This was deep participatory design, though with predefined boundaries—more exploratory validation than co-conceptualization.

Insights & lessons learnt. G4 pushed **ethical design via lived simulation**, using VW affordances to **surface discomfort, pleasure, and boundary crossing** in real time. Their layered design and inclusion of multiple user perspectives allowed rich co-reflection. Still, VRChat's lack of built-in feedback logging, limited moderation tools, and privacy complexity made controlled iteration difficult.

Reflection. VRChat's affordances were essential for emotional fidelity and interaction variety. **Simulated immersion is used to expose deep experiential design variables**—a key insight for co-designing sensitive services. Challenges included managing controversial content in public VWs, limited moderation mechanisms, and a lack of integrated feedback collection systems. **Ethically complex and behaviorally rich** use of VW with respect to key principles such as **ethical stakes, inclusion dynamics, and participatory equity**. The overall methodological clarity and **domain-specific sensitivity** resulted in one of the most thoughtful implementations of co-creation in the workshop.

Group 5. Museum / Iceberg Diagram for Visitor Experience in Spatial

Use case & object of co-creation. G5 explored **co-creation in cultural heritage**, focusing on participatory design of museum experiences. The selected object was the **visitor journey**, emphasizing emotional, cognitive, and reflective engagement. The group sought to visualize how visitors' reactions and expectations can shape exhibit design.

VW selection & affordance mapping. **Spatial** was chosen for its **navigable layout, voice notes, and content uploading capabilities**. The group created a multi-layered 3D "iceberg" model, each level accessible via portals or spatial descent. Visitors were prompted to respond with **voice clips or images**, reflecting how each exhibit made them feel or think. These interactions were designed to simulate co-creative feedback across emotional and intellectual dimensions. The metaphorical format allowed deep engagement with user expectations and values.

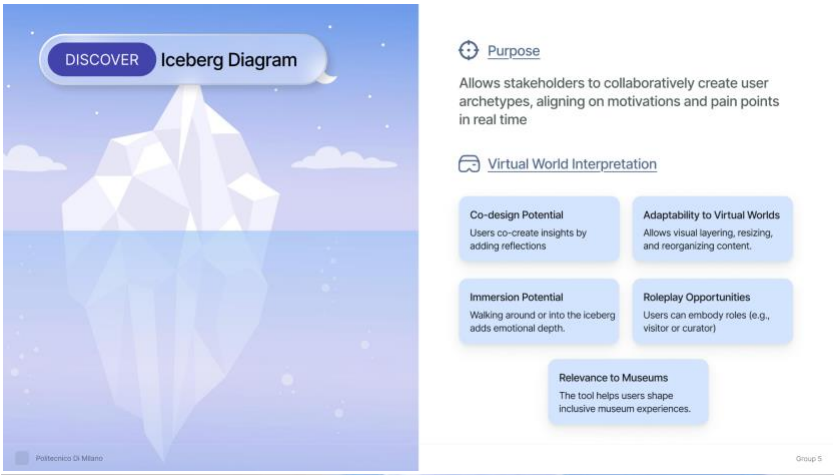
Tool selected.

- Define: Iceberg diagram
- Define: Co-creating personas
- Develop: Ecosystem map
- Deliver: Desktop walkthrough

Tool implementation & translation. G5 chose the Iceberg Diagram (Define phase) and translated it into a participatory exhibit, structuring reflections across four levels of user experience: emotions, meaning, reflection, and societal interpretation. The VW prototype implemented this as a multi-layered space in Spatial, where users could move between levels and contribute insights through different modalities. Each layer of the iceberg corresponded to a co-creation depth: surface reaction, interpretation, societal reflection. Prompt boards asked questions like "What emotion did this trigger?" or "How does this relate to your beliefs?" Participants' responses accumulated across layers.

VW affordances used:

- Layered spatial metaphor: replicated levels of engagement through movement.
- Voice recording and image uploading: allowed visitors to contribute emotional and visual feedback.
- Spatial prompts: triggered reflection and interaction.



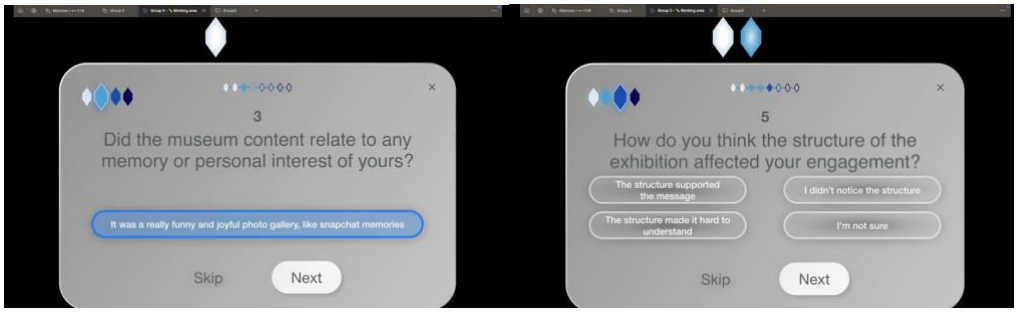


Figure 7. Iceberg Diagram recreated in Spatial using a multi-layered spatial metaphor. The group designed immersive prompts and feedback zones to co-create deeper visitor engagement strategies. Created by Mehmet Aflazi, Tuana Toraman, İlke Skkuzu, Özlem Yilmaz, Bipasa Das.

Impact on co-creation. Spatial helped externalize abstract insights into tangible layers, making emotional and meaning-based co-design possible. The group was still in exploratory conceptualization, with low-fidelity implementation and limited cycles of stakeholder feedback. Affordances enhanced reflective participation but not yet iterative design.

Insights & lessons learnt. The tool successfully scaffolded **depth-based reflection**, allowing visitors to interact with content and contribute evolving meaning. However, limitations in **feedback clustering, anonymous moderation, and interaction tracking** reduced analytical usability. Role-playing was minimal, and stakeholder diversity was not fully simulated.

Reflection. The use of the iceberg metaphor successfully facilitated **layered, reflective co-design**, but would benefit from enriched interactivity and structured analytics. The group used metaphor and **spatial verticality** to elicit layered insights—powerful for curatorial dialogue. The result is an interesting view of **how designing museum experiences can become participatory**, while including digital layers. There are potentialities for active multi-user scenario development and clearer post-response curation.

Group 6. Education / Language Learning with Fishbowl in Engage VR

Use case & object of co-creation. G6 addressed **co-creating educational experiences**, particularly for **language learning**. The object of co-creation was the **learning journey**, specifically focusing on how learners and educators can collaboratively improve curricula and structure sessions to improve fluency and immersion. The process was designed to involve both learners and educators in designing adaptive and inclusive pedagogical flows. The VW served as a **simulated learning environment** to experiment with spatialized dialogue and feedback.

VW selection & affordance mapping. G6 selected Engage VR for its educational focus, classroom templates, and voice spatialization. The VWs features allow for **custom environments**, voice chat, spatialized audio, and role-based movement between participation zones.

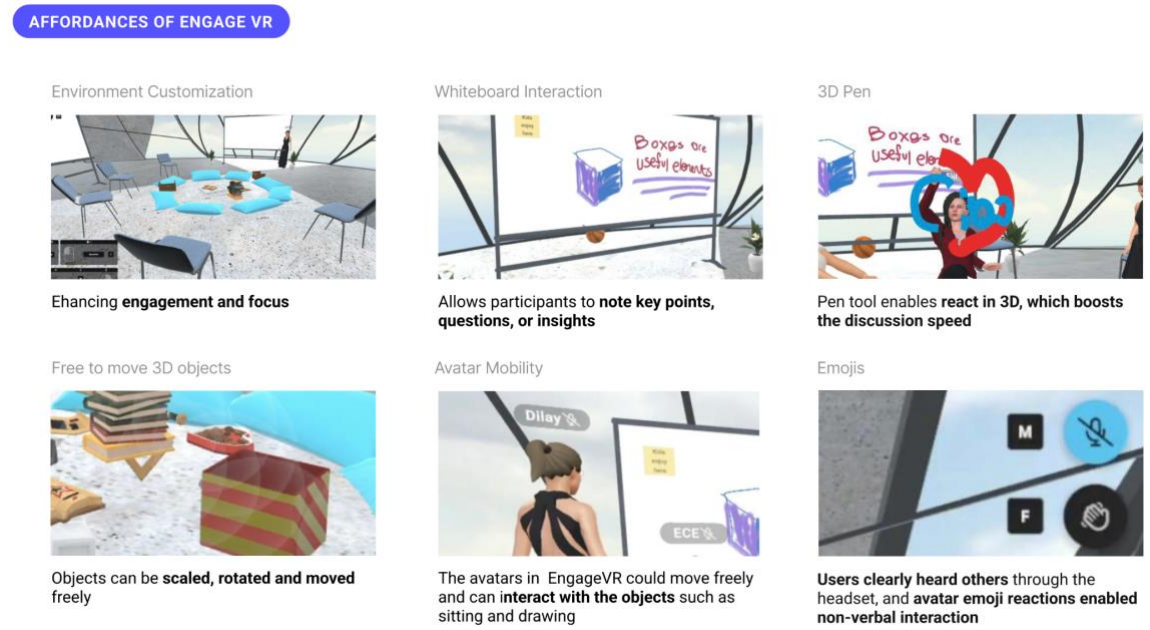
Tool selected.

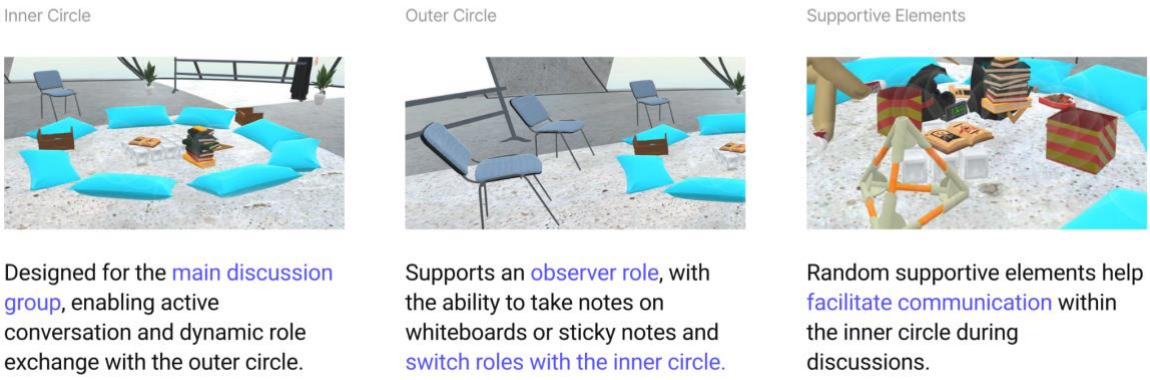
- Discover: Fishbowl
- Define: Co-creative workshop
- Develop: System UX map
- Deliver: Desktop system mapping

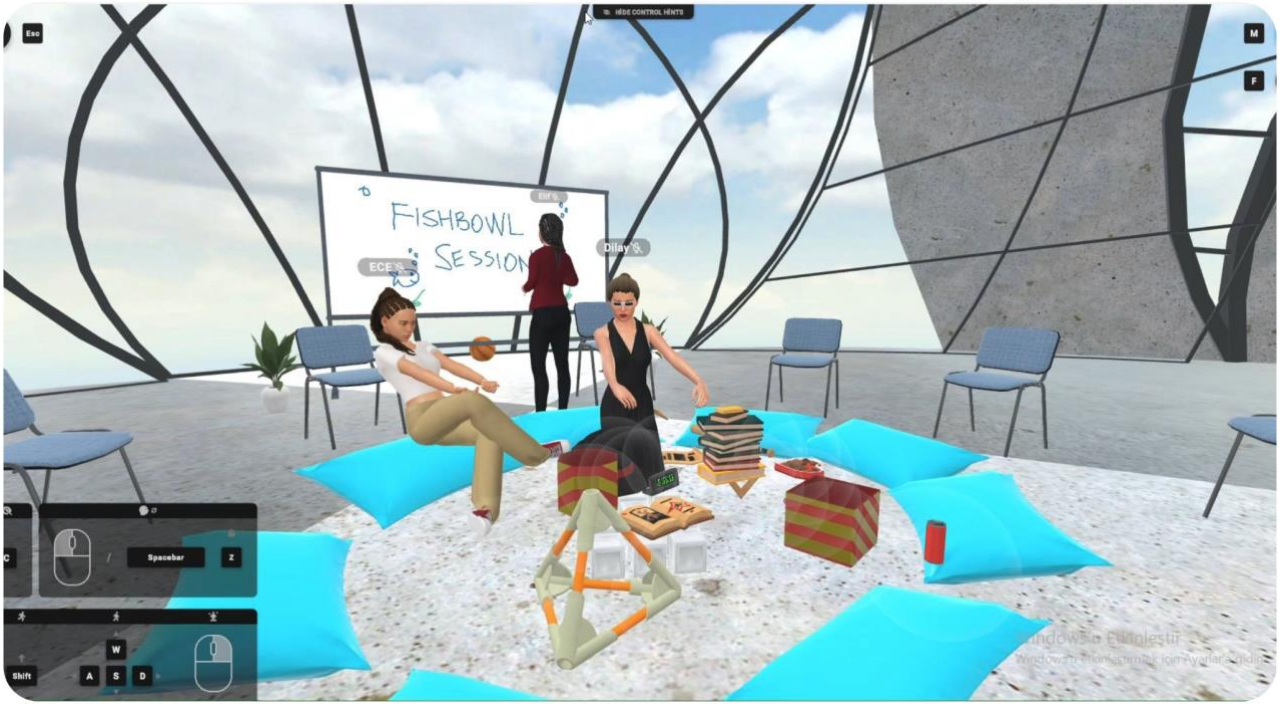
Tool implementation & translation. The group recreated a Fishbowl setting (Discover phase), reimagined as a central virtual hub in the VW. The environment recreated conversational setups, where learners in the "inner circle" shared experiences, while observers in the "outer circle" noted and commented. The tool was therefore translated into a modular reflection space. Engage VR supported this setup through room segmentation, audio zones, and role-based seating. Sticky notes were used to capture learning barriers or tips. Discussions were audio-recorded, and user movement between roles was used as a proxy for engagement.

VW affordances used:

- Voice-based spatial dialogue: recreated public-private discussion zones.
- Sticky notes and boards: enabled collecting and reacting to dialogue points.
- Role-based spatial division: outer/inner circle allowed learner-observer dynamics.







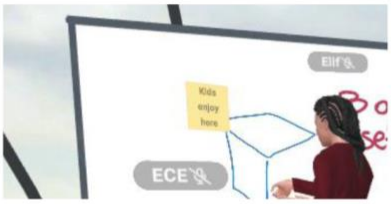
TEST OUTPUTS

Free to move 3D objects

Free to add and edit 3D elements to discuss and develop ideas.

Users can edit only the objects they created, and these objects disappear when the creator leaves the session.

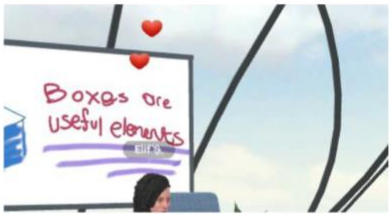
Sticky Notes



Everyone can add sticky notes and place them freely.

Excessively free movement of sticky notes can cause a messy layout.

Emoji



Emojis are useful for expressing emotions and voting ideas quickly.

Emojis appear too briefly (less than two seconds), making them hard to notice.

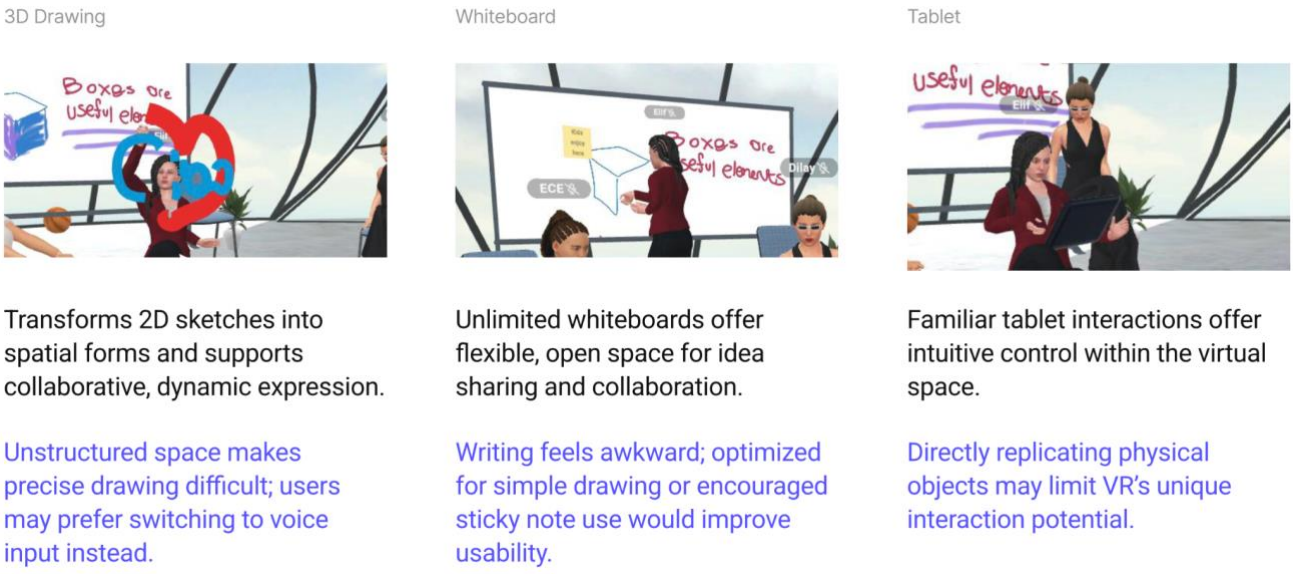


Figure 8. Fishbowl tool implemented in Engage VR with spatialized audio, role-based zones, and reflective boards, enabling collaborative dialogue and iterative curriculum design. Created by Elif nur Çakir, Duygu Can, Dilay Aslan, Ece Yalim.

Impact on co-creation. Engage VR was particularly effective for spatial conversation scaffolding, supporting semi-structured reflection. The group demonstrated that early ideation and mutual understanding can be enhanced through embodied roleplay. Yet the platform lacked advanced co-authoring and persistent editing capabilities—feedback could be lost when users exited.

Insights & lessons learnt. The VW supported **realistic learner interaction** and presence, but suffered from **content persistence issues**—sticky notes vanished when users left, and editing rights were inconsistent. Still, the Fishbowl model enabled role awareness and promoted **reflection-in-action** and simulated turn-taking. Usability issues included excessive freedom of sticky notes and lack of persistent editing rights. Moreover, it lacked flexibility in asset management—users could only edit objects they created, and those disappeared when users left. Despite this, the group offered one of the most **comprehensive usability critiques**, mapping how tool limitations affect engagement, presence, and control.

Reflection. This work exemplified pedagogical experimentation in VWs, showing how spatial and audio affordances can shape learning dialogue. It confirmed that VWs can **structure reflective, social learning**, but current tools must better support feedback storage and asynchronous continuation. It also exposed gaps in current VW platforms for structured educational design, especially around persistence, accessibility, and content layering. Fishbowl's logic worked spatially but required better digital tool integration for real-time and post-session use.

Group 7. Smart Cities / Urban Planning in Spatial

Use case & object of co-creation. G7 tackled **urban co-planning**, focusing on **air pollution scenarios for awareness and mitigation**. The object of co-creation was the **planning and governance process**, structured as a participatory simulation engaging stakeholders such as citizens, planners, policymakers, and engineers. The objective is using simulation to allow stakeholders to explore, test, and critique proposed interventions.

Tool selected.

- Discover: Problem framing
- Discover: Knowledge Fair

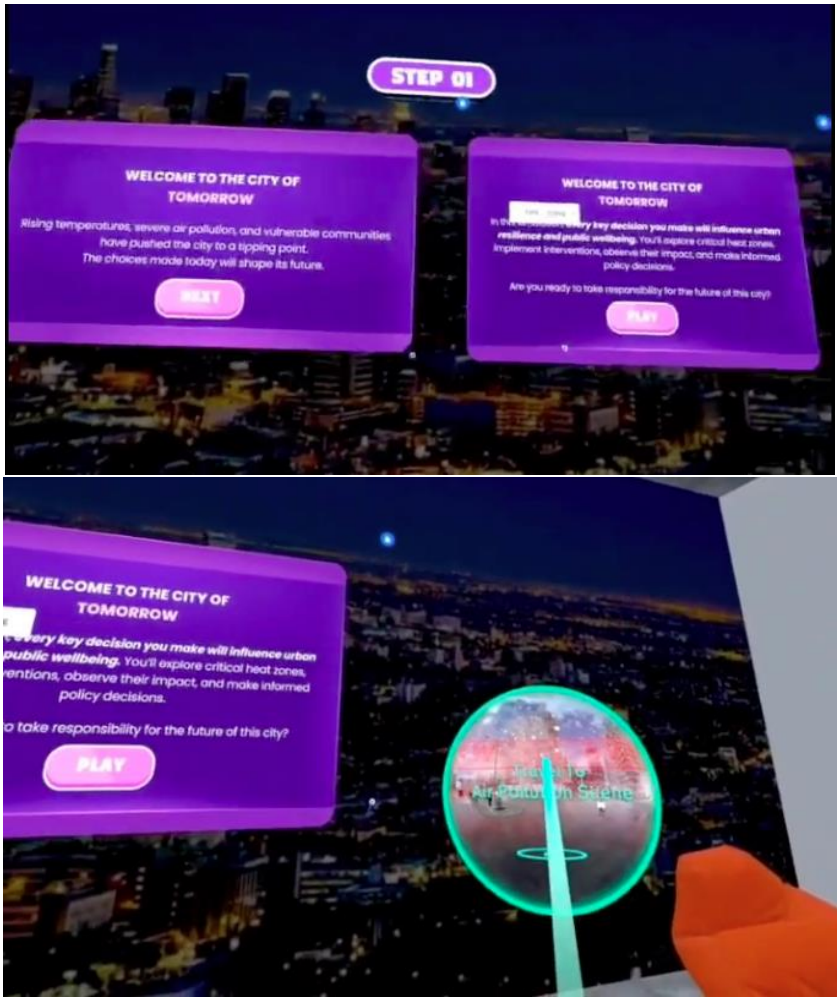
- Define: System scenario
- Develop: experience prototype
- Deliver: Investigative rehearsal

VW selection & affordance mapping. Spatial was selected for its scene chaining, visual annotation, and support for walkthroughs. A sequence of rooms simulated planning phases—from data exploration to policy decision—each populated by relevant props and dialogue stations.

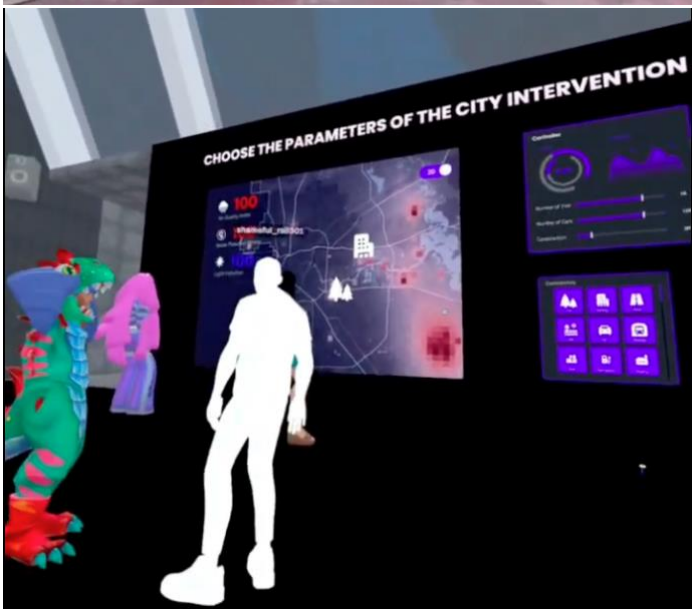
Tool implementation & translation. G7 implemented **Investigative Rehearsal** (Deliver) as a role-based exploration. The tool is translated into a walkthrough-style prototype in Spatial consisting of scenes tied to specific phases and stakeholders—citizen, planner, engineer. Stakeholders walked through rooms, made decisions, and viewed the consequences. The simulation presented augmented representations of planning scenarios—exaggerated elements that clarified choices and stimulated roleplay. The VW prototype used Spatial's layout zones, feedback boards, and audiovisual markers to structure engagement. Participants could move between zones, enact roles, and engage in planning dialogues informed by visual representations. Prompts encouraged feedback on decisions' visibility, impact, and fairness.

VW affordances used:

- Scene-based navigation: allowed structuring planning phases.
- Stakeholder role areas and dialogic zones: organized collaborative design spaces.
- Feedback prompts and symbolic exaggeration: enhanced engagement and provocation.




Air Pollution Scene


CHOOSE THE PARAMETERS OF THE CITY INTERVENTION


What if every LA street had trees?


Vote Now
Vote count: 32/87
add more bikes

Figure 9. Investigative Rehearsal adapted in Spatial to simulate urban co-planning. Scene-based navigation and stakeholder roleplay allowed participants to test and critique planning scenarios. Created by Estıfanos Eyasu Yimam, Duru Kalay, Beatrız Lara Espinosa, Luo Fengrong, Duan Muzi, Lı Xıngyu.

Impact on co-creation. This was a highly developed, immersive co-creation process, where VWs enabled experiential exploration of complex policy dynamics. G7 used VWs not just to simulate reality, but to augment it for learning, indicating a strong move toward co-design validation. They also captured user reflections, making the loop nearly complete.

Insights & lessons learnt. The work showed how **augmented simulation** helps users experience abstract governance trade-offs. Spatial was effective in **scaffolding scenes, layering content, and supporting discussion**, though lacked analytics and deeper interactivity. The group articulated a distinction between simulation and augmentation, designing for provocation rather than fidelity. This allowed clearer insight into how decisions play out across stakeholders and contexts.

Reflection. Advanced integrations of **policy design and VW immersion**, showing how VWs can scale co-creation by **simulating complex systems** in approachable ways. Visual storytelling is identified as effective in inviting role-based participation and critique. Advanced thinking on how VWs can scale participation, structure comparative scenario testing, and elicit experiential understanding of complex urban issues. Tool limitations were noted around feedback persistence and analytical granularity.

4. Insights

The workshop experimented with co-creation across diverse industries and objects, demonstrating how the association of VWs spatial, interactive, and immersive affordances can be purposefully aligned with specific phases of the design process in order to inform it.

4.1. A Focus on co-creation

Across the 5-day workshop, the seven groups explored how the co-creation potential of VWs has varying levels of complexity, depth, and alignment to different stages of the design process. Although the groups selected tools independently, an initial pattern emerged in their collective choices: most tools were adapted to support either early divergent phases of Discover or late-stage experiential validation of Deliver—phases which tend to be the most welcoming for collaboration. Tools from the Develop phase—which involve synthesis, iteration, or prototyping—were not experimented. The results acknowledge, therefore, a limit in scale and scope, with 3 VWs experimented, and not across all the Double Diamond design phases. Still, it has already surfaced how VWs are not equally suited to all moments of the co-design and co-creation processes, with their impact depending strongly on how their affordances are aligned with the design phases, the object of co-creation, and the type of stakeholder engagement intended.

G3 tested the affordances of VWs in supporting **early ideation in the Discover phase** through their translation of Knowledge Fair into Spatial. This group achieved the most complete implementation of distributed brainstorming in a VW context. Spatial zones and thematic booths enabled multiple users to contribute asynchronously to different dimensions of a campaign design challenge. The impact on co-creation was high in terms of divergent thinking and idea surfacing, but less effective for synthesis or deep iteration. Tool limitations—particularly host-only object control and limited annotation mechanics—hampered collaborative depth. As a result, the group showed that early co-

creation is feasible in VWs, but only if facilitated with clarity and paired with robust back-end documentation strategies.

In the education domain, G6 used Engage VR to simulate a Fishbowl conversation setup for language learners and educators. Their implementation highlighted the strengths of VWs in scaffolding semi-structured reflection and social role-play. By dividing the room into voice-zoned circles, they facilitated structured dialogue and movement between roles. The co-creation process supported mutual understanding and ideation in early stages, but suffered from technical constraints. Feedback often disappeared after sessions, and notes could not be persistently managed across users. These usability issues diminished the sustainability of engagement, yet the group clearly demonstrated the role of spatial dialogue and embodied roles in fostering educational co-creation.

In the **Define phase**, G5's museum project used the Iceberg Diagram to scaffold co-creation through layered reflection. Spatial was employed to externalize user insights across emotional, interpretive, and cognitive dimensions. The metaphorical framework translated well into the spatial medium, and while actual stakeholder interaction remained low-fidelity, the approach showed how VWs can support the elicitation of tacit knowledge and value-driven dialogue. The group remained in the exploratory phase of co-creation, with limited iteration or feedback loops, but effectively mapped out how metaphorical spatialization can facilitate engagement with abstract experiential layers of a service.

During the Deliver phase, mid- to late-stage validation and experiential simulation emerged as particularly well supported. G1's sports use case demonstrated how Spatial could be used effectively to map a complete user journey and engage stakeholders in immersive walkthroughs of the fan experience. Co-creation here was situated in the refinement and validation phase, where visualizing the entire journey—made possible through portals and scenario segmentation—enabled shared reflection. However, the group also noted that Spatial's constrained sketching and annotation tools limited early ideation, highlighting a common pattern: co-creation in VWs is strongest when centered on navigating, exploring, and iterating on semi-formed ideas rather than generating concepts from scratch. This pattern repeated in G2's hybrid use of Spatial in conjunction with Unity for the fashion showcase. Their implementation of Investigative Rehearsal within a structured, role-based environment supported stakeholder immersion into the techwear testing process. Yet their co-creation remained primarily performative—garment behavior was observed and responded to, rather than designed collaboratively. The group reached a low- to medium-level of open co-creation, as stakeholder inputs were integrated post-experience rather than actively shaping the prototype in real time.

G4's adult entertainment project emphasized ethically charged co-design in VRChat. Their use of role-based investigative rehearsal across three emotionally and socially sensitive scenarios demonstrated that co-creation can extend beyond functional refinement to include behavioral validation and boundary negotiation. Here, the VW was critical for testing spatial, interpersonal, and emotional features of a service in real time. While the group did not engage stakeholders in co-conceptualization per se, they facilitated experiential co-reflection, which in turn informed iterative redesign. Their approach underlines the potential of VWs to support deep participatory engagement, particularly in domains where conventional methods struggle to recreate lived experience. However, limitations in feedback tracking and moderation highlighted the need for structured reflection channels in sensitive contexts.

G7's urban planning simulation marked the most systematic and high-fidelity deployment of co-creation in the workshop. Their use of Investigative Rehearsal to simulate stakeholder walkthroughs of planning scenarios showed how VWs can be used not only to test systems but to provoke critical dialogue around decision impacts. By exaggerating elements of urban plans (e.g., pollution levels, zoning constraints), they enabled experiential understanding of policy trade-offs. Co-creation here was not just exploratory or reflective—it included the iterative testing of governance decisions with multiple stakeholders. This work showcased VWs as effective tools for experiential governance prototyping, even if analytical tracking and interaction granularity remain limited.

Adopting a comparative lens, several key themes emerge regarding the impact of VWs on co-creation.

Affordances impact and even shape co-creation type requiring to choose the VW depending on the activity to be performed. Tools that leveraged spatial layout, role-based navigation, and scenario walkthroughs (G1, G7) tended to foster experiential or systems-level co-creation. In contrast, tools that depended on rich annotation, co-authoring, or dynamic feedback (G3, G5, G6) often struggled due to platform limitations.

VWs support more than idea generation, contributing to value creation along the entire process. As demonstrated by G4 and G7, VWs could enable experiential co-creation—letting stakeholders "live" the consequences of a design or decision, and respond emotionally, socially, and behaviorally. This dimension is rarely possible in traditional co-design workshops and underscores VWs' unique potential.

Feedback continuity and persistence remain a major issue. Across all groups, persistent feedback mechanisms—such as editable boards, data export, or integrated analysis—were recognized as absent or insufficient. Without these, the insights from co-creation risk being transient or anecdotal, making iterative loops difficult to manage.

Co-creation in VWs flourishes when the experience is carefully scaffolded and methodologically structured. Groups that incorporated clear interaction flows, staged environments, and explicit prompts for participation—such as G3 (Marketing), G6 (Education), and G7 (Smart Cities)—demonstrated higher levels of focused engagement and meaningful stakeholder input. In these cases, participants could rely on step-by-step navigation, role-based positioning, or/and guided reflection points, which helped them understand when and how to contribute. This structured approach gave form to the co-creation process, reducing ambiguity and cognitive overload in the virtual space. Conversely, groups that adopted a more open-ended exploratory model without defined interaction sequences or prompts often encountered more diffuse or uneven contributions. Without a shared rhythm or roadmap, some stakeholders engaged passively, vaguely, or confusedly, and even often struggled to situate their input within the overall process. Nevertheless, this openness also created room for unexpected forms of participation, particularly when emotional, behavioral, or interpretive responses were being elicited. Nevertheless, additional reflection suggests that structure and freedom are not mutually exclusive, but rather complementary. Co-creation in VWs may be most effective when initial structure guides entry and orientation, while open-ended elements allow for creative divergence or deeper personal expression. Designing for co-creation in immersive environments thus calls for a balance between clear frameworks to engagement, with enough flexibility to accommodate emergent contributions and diverse interaction styles.

4.2. Systematizing Lessons Learnt and Reflections

Across the seven groups, the workshop uncovered a wealth of practical insights into how co-creation can be facilitated, constrained, or even redefined within VWs. The lessons learnt and reflections gathered during the 5-day workshop reveal the multidimensional challenges and opportunities associated with translating co-creation into immersive settings with specific affordances and agencies. Below, common themes and tensions are identified while also spotlighting specific contributions made by each group.

4.2.1. Common Lessons Across Groups

A recurring observation concerns the **disconnect between tool logic and platform affordances**. While each group selected and reimagined a co-creation tool from the OPENVERSE toolkit, not all platforms supported the core interactions that these tools typically rely on—such as simultaneous editing, feedback persistence, sketching capabilities, or branching dialogue. Tools that were more spatial or dialogue-based (e.g., *Investigative Rehearsal*, *Fishbowl*) tended to fare better in translation than those requiring iterative prototyping or visual synthesis. **Handling persistent content** is also a challenge. The groups encountered issues where collaborative boards or notes were deleted when users left the session, or where only the host could manipulate key elements. This is linked to the possibility of building **iteration and feedback loops.** Although their importance was widely acknowledged, it was often difficult to implement. The platforms that lack features for tracking contributions, logging annotations over time, or clustering stakeholder inputs for analysis spur limitations to linear or "one-shot" co-creation engagements, rather than iterative cycles of refinement able to build on previous sessions. The lesson here is clear, and concerns that either the VW is chosen due to specific affordances, all well known in advance, or co-creation needs to adapt to the contingency of the setting. These practical limitations point to the **fragility of current co-creation infrastructures** in VWs, especially for asynchronous or distributed collaboration. Future approaches may require external tools to supplement internal platform features or custom plug-ins that enable continuity across sessions.

On a positive note, the reflections pointed to an underexplored strength of VWs: their **capacity to trigger emotional, ethical, and behavioral insights**. In particular, G4 and G7 demonstrated how simulated interaction and

roleplay can surface user needs that are difficult to articulate in traditional design settings. This emotional depth opens new frontiers for participatory design, especially in contexts involving vulnerability, identity, or policy trade-offs.

4.2.2. Group-Specific Reflections and Lessons

G7 (Smart Cities) delivered one of the most advanced applications of co-creation in Spatial, showing how immersive environments can function as **augmented policy labs**. By combining **scene-based navigation**, **role-based engagement**, and structured **what-if simulations**, the group enabled stakeholders to experience the implications of urban planning decisions—such as air pollution interventions—in a dynamic and participatory way. The integration of **feedback prompts**, visual exaggeration, and immersive storytelling allowed participants to test possibilities as well as what would happen by applying certain policies, reflect on outcomes, and articulate responses within the spatial environment. This setup demonstrated that VWs can significantly enhance policy co-creation by **transforming abstract governance trade-offs into tangible, experiential interactions**. However, the group also highlighted critical limitations in terms of **data analytics, feedback tracking, and interaction depth**. While participants could engage meaningfully in each scenario, the platform lacked tools to synthesize their contributions systematically or compare feedback across different roles or phases. The key lesson is that while VWs hold significant promise for making complex policy deliberation more accessible and interactive, **greater analytical and synthesis functionalities are required to support structured decision-making and evidence-based iteration**.

G5 (Museum) revealed how **spatial metaphors** can easily be adopted to scaffold reflective engagement, encouraging users to go through **representation/enactment of abstract concepts** into the VW as a setting where to share layered insights. While the group achieved a compelling conceptual translation, **interaction remained largely passive and lacked iterative development**. Their reflection pointed to the potential of using metaphors for co-design in cultural settings but also the need for enhanced interactivity and mechanisms for curating visitor input. Similarly, G1 (Sport) exploited Spatial's portals and journey walkthroughs for allowing stakeholders to experience a service concept in action, promoting reflection. While this feature was particularly appreciated, the poor usability of sticky notes and whiteboards was highlighted, calling for improved annotation tools and undo functionalities. Their key takeaway was that Spatial supports experiential discussion and validation but requires external tools or environments for early ideation.

G3 (Marketing) successfully created a distributed ideation space using booths in Spatial but encountered friction due to **host-only object control** and weak chat integration. They highlighted that affordances alone are not enough—without facilitation and robust user management, potential remains unrealized. Their lesson was to supplement VWs with structured back-end processes or parallel tools to support idea synthesis and follow-up.

G4 (Adult Entertainment) offered a particularly rich reflection on the **ethical stakes of co-design**. Their use of VRChat enabled behavioral rehearsal in sensitive scenarios, offering insight into emotional boundaries and interpersonal needs, as well as reflection on the need to secure a safe space for co-creation. However, they noted that VRChat lacked built-in feedback logging and moderation tools, which made iteration and control difficult in ethically complex domains. Their key takeaway concerns the need to carefully moderat and intentionally design activities and spaces for inclusivity and safety.

G2 (Fashion) highlighted the challenges of working with **hybrid technological environments**, particularly the combination of Spatial and the Unity toolkit. While Unity enabled high-fidelity simulations of wearable behavior under different conditions, it lacked the collaborative flexibility needed for iterative co-design. Spatial, on the other hand, provided structured navigation and interaction but proved insufficient for deeper design iteration. The group recognized that while Spatial's current affordances support light brainstorming and moodboarding, they are not yet intuitive enough and may increase **cognitive load**—especially for stakeholders with lower digital literacy. As such, co-creation in these environments is not equally accessible to all participants, pointing to the need for more inclusive interaction models and simplified user interfaces.

G6 (Education) demonstrated how voice zones and role-based seating in Engage VR could effectively scaffold structured participation and reflective dialogue. However, significant usability issues—particularly the **non-persistence of user-generated content and limited editing rights**—undermined the continuity of co-creation. Because certain elements such as sticky notes or annotations disappear once the session ends or the generating user exits, co-creation must occur within a tightly bounded time frame. This makes the process highly synchronous and places the burden on facilitators or participants to extract and document insights in real time, before data are irretrievably lost. Although the VW itself persists, many of the collaborative artifacts created within it do not. The group's thoughtful critique highlighted that these platform constraints affect not only technical functionality, but also the rhythm, sustainability, and depth of engagement over time.

4.3. Takeaways

The results of the workshop highlight several converging tendencies in the design approaches and strategic decisions made by the groups involved in the co-creation activity. First, the cohort showed a clear tendency to select VWs with **medium-to-high levels of co-creation affordances**, with **Spatial** emerging as the platform of choice for five out of seven groups. Its ease of access, spatial organization, and visual structuring were consistently recognized as enablers, despite known technical limitations. VRChat and Engage VR were selected by the remaining groups for their strengths in expressive interaction and educational scaffolding, respectively.

Interestingly, while each group made independent choices during the tool selection phase, a **pattern of convergence** emerged around Investigative Rehearsal suggesting shared intuitions about which formats are more translatable to immersive environments. The translated tools covered three out of the four phases of the Double Diamond model: groups choose Discover, Define, and Deliver, yet none selected tools from the Develop phase.

A number of **cross-cutting insights** emerged from this hands-on exploration. First, the workshop showed that **tool translation into VWs is feasible**, but **requires a conceptual abstraction.** Tools need to be reimagined not in terms of their core functionality, which remains unaltered,, but in relation to the specific object of co-creation, the roles of those activating the process, and the context in which co-creation unfolds. Rather than following a one-size-fits-all formula, the enabling translation depends on situational interpretation—how spatial, visual, and interactive dimensions are leveraged to fit the tool's intent. This translation often entailed repurposing symbolic elements (e.g., booths, hubs, avatars) to express processual steps or stakeholder roles. This highlights the need for clear inspirational guidance, adaptable frameworks, and concrete examples that illustrate how different tools can be meaningfully enacted in VWs.

Second, the **fit between a tool's collaborative logic and a platform's affordances proved critical and inspirational**. Tools that demanded strong feedback mechanisms, asynchronous collaboration, or systematized analysis faced friction in platforms that lacked persistent data structures or open co-editing. Conversely, tools designed for dialogic exchange or exploratory rehearsal (e.g., Knowledge Fair, Investigative Rehearsal) were easily aligned with platform affordances like spatial segmentation, real-time voice, and symbolic visualization.

Third, **roleplay and spatial visualizations clearly enhanced stakeholder engagement**. Projects that enabled users to inhabit different viewpoints or move through staged environments (e.g., G1's match journey, G7's urban policy rooms) created meaningful spaces for empathy, reflection, and experiential feedback. The embodied navigation of co-creation journeys allowed stakeholders to reflect on individual and systemic impacts in a way not easily replicable in 2D settings.

At the same time, the workshop surfaced the **structural limitations of current VWs for co-creation and co-design**. Common issues included poor support for feedback clustering, lack of versioning or persistent annotations, host-only object control, and inconsistent user rights. These limitations often hindered iterative design and collaborative synthesis—critical phases of co-creation.

Several groups addressed these limitations through **multi-platform integration**, combining the immersive capabilities of Unity or the visual richness of Figma with the navigation and feedback space of Spatial. These hybrid workflows point to a growing recognition that no single platform currently offers a complete co-design ecosystem, and that linking tools across channels can help support different phases of collaboration—from immersion to documentation.

Finally, the workshop confirmed that **immersion and presence—achieved through spatial metaphors, voice, and avatar embodiment—significantly contribute to participation and engagement**. Participants reported feeling more invested in the co-design process when they could move through environments, perform roles, and react to visual or sensory cues. These findings reinforce the idea that **experiential context matters in co-creation**, and that VWs are particularly suited for simulating systems, prototyping futures, and enabling layered stakeholder reflection.

Overall, the workshop showed that co-creation in VW is technically feasible, methodologically rich, and emotionally powerful, but also infrastructure-dependent and highly context-sensitive. Future direction may concern building smarter bridges between immersive engagement and co-design logic—ones that can sustain not just participation, but also learning, iteration, and collective ownership of the design process.

Annexes

Annex I. Introductory presentation

Annex I contains the presentation delivered on Day 1 of the workshop, which introduced participants to the context, objectives, and methodology of the co-creation activities. The presentation outlines the workshop's alignment with the OPENVERSE project, specifically within WP1/T1.3, and explains its rationale—exploring how VWs can support co-design and innovation across sectors. It also details the overall structure of the five-day programme, including phases, expected outputs, and the design tools to be used. The presentation served as the foundational briefing to orient participants, set the thematic and methodological scope for the hands-on activities that followed, and therefore steer their activities during the week.

Annex II. List of attendees

Annex II provides a comprehensive list of all participants in the workshop. For each individual, it includes their name, a short professional or/and academic background, country of residence (rather than origin), their self-declared familiarity with Virtual Worlds, and the working group they belong to. This annex supports the reading of the report by allowing readers to understand the composition of each group as results are presented, and reflects the multidisciplinary and international character of the cohort that contributed to the co-creation activities.

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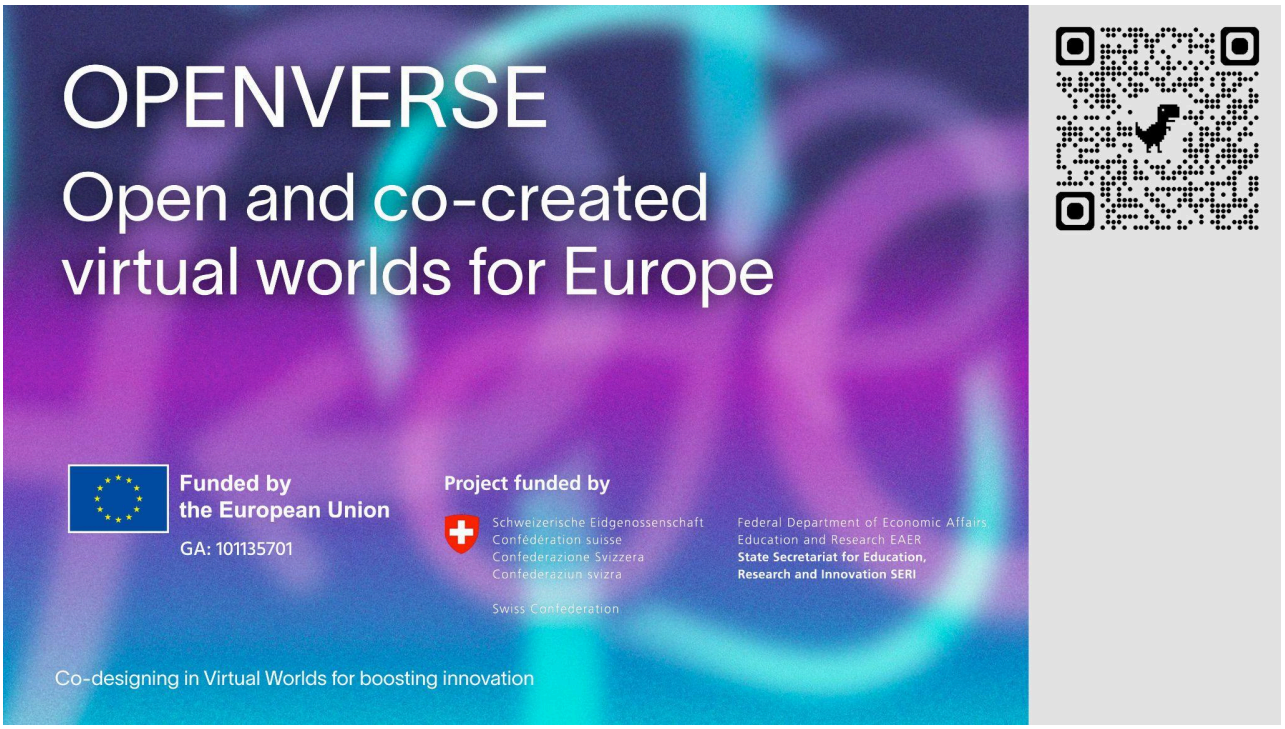

MISSION

The purpose of OPENVERSE is to establish European Virtual Worlds characterised by openness, transparency, inclusivity, ethical and environmental responsibility, and to enhance EU's technological sovereignty.

VISION

The vision of the OPENVERSE project is to create inclusive, open, and ethically responsible European Virtual Worlds, enhancing the European Unions's technological sovereignty in the global arena.

STRATEGY

Its strategy involves integrating diverse technological expertise, fostering collaborative innovation, and ensuring interoperability, privacy, and security in digital environments.

OPENVERSE PROGRAM

1

Jan 2025

Scoping and analysis of existent Virtual Worlds

117 elements scoped for a final shortlist of 8

2

Feb 2025

Scoping and analysis of existent Toolkits and Tools

110 toolkits scoped and 167 Tools for a shortlist of 100 and 48 selected

3

Mar to Apr 2

ONGOING

Co-creation with innovators

Methodology with guidelines and tools to be experimented in workshops

What are Virtual Worlds?

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VW HISTORY

1960s

Early VR concepts and first VR headset prototype (Ivan Sutherland)

1980s

Term "Virtual Reality" coined; first social virtual worlds (Habitat)

1990s

Emergence of multiplayer online worlds (Active Worlds, Ultima Online)

2003

Launch of Second Life, enabling user-generated content and social interaction

2010s

VR resurgence (Oculus), AR blending real and virtual (Pokémon Go)

2020s

Rise of the Metaverse; major tech investments in connected virtual worlds

DEFINITION

"(VWs) are persistent, immersive environments, based on technologies including 3D and extended reality (XR), which blend physical and digital worlds in real time, for a variety of purposes such as designing, making simulations, collaborating, learning, socialising, carrying out transactions or providing entertainment."

European Commission. (2023, July 11).
An EU initiative on Web 4.0 and virtual worlds: A head start in the next technological transition. p.2

USER-GENERATED CONTENT

DEFINITION

Digital content that involves a degree of personal contribution, is published for accessibility to public or group discussions, and is created outside professional routines.

Naab, T., & Sehl, A. (2016, October).
Studies of user-generated content: A systematic review.

Roblox 2006

Platform hosting millions of user-generated experiences created using the programming language Lua and the platform's game engine, Roblox Studio.

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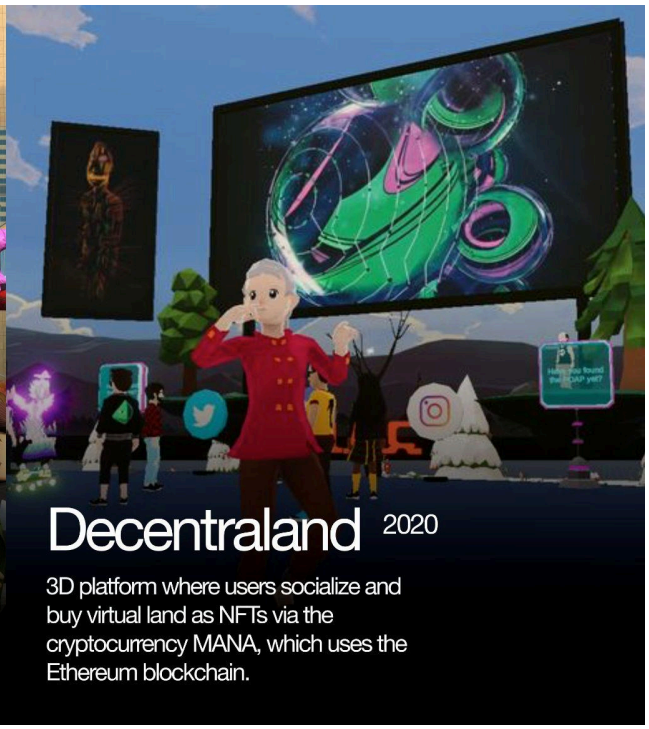
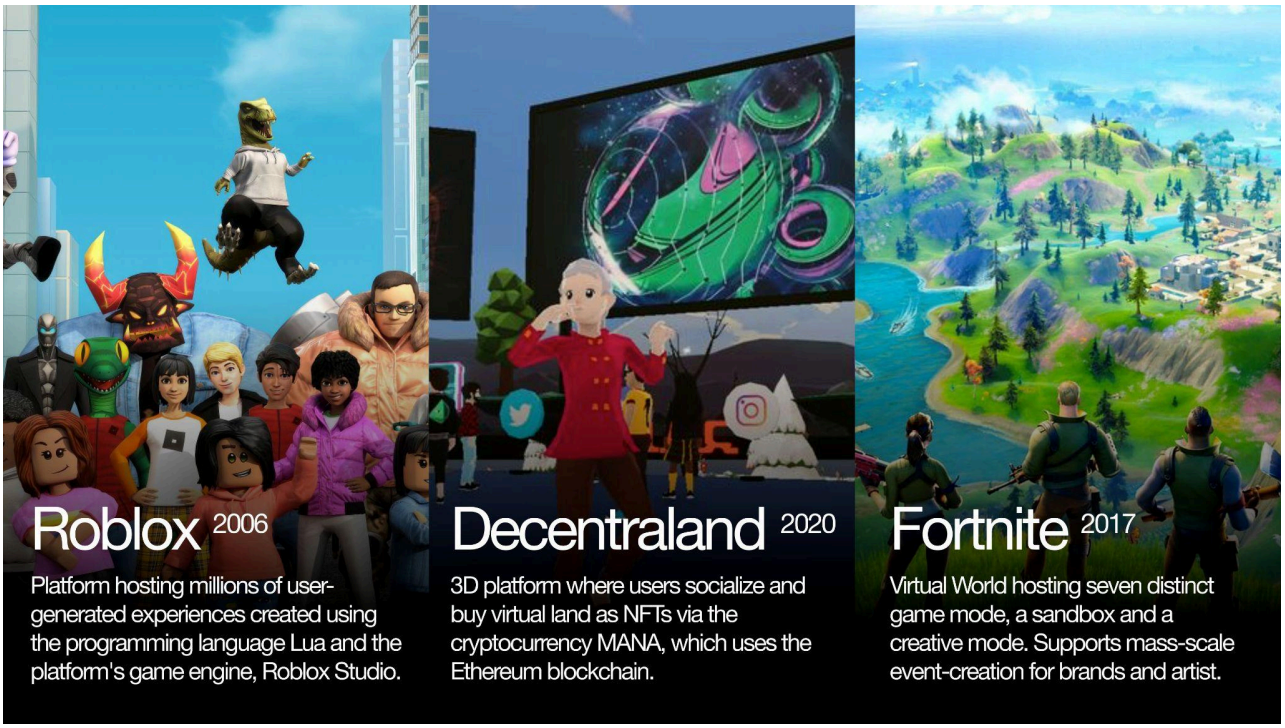


Decentraland 2020

3D platform where users socialize and buy virtual land as NFTs via the cryptocurrency MANA, which uses the Ethereum blockchain.



Why Research User-Generated Content in Virtual Worlds?

Virtual worlds are becoming mainstream digital spaces

Platforms like Roblox, Fortnite, and Decentraland attract millions of users daily.

Users are not just players, but also creators

The shift from content consumption to content creation is redefining how we interact online.

UGC drives engagement, creativity, and innovation

User-made content increases platform stickiness and fosters community-led innovation.

Boosting multi-stakeholder co-creation

Designing for and with users in immersive environments opens up new research questions around co-creation, participation, and digital tools.

Open innovation, Co-creation, Co-design & Co-production

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Co-designing in Virtual Worlds for boosting innovation

9th - 13th June 2025

DEFINITION

Open innovation is a process that engages users and stakeholders at every stage of development, from ideation through design and into final production.

Co-Creation → Co-Design → Co-Production

Elaborated from Chesbrough, H. (2019).
Open Innovation Results: Going Beyond the Hype and Getting Down to Business. https://doi.org/10.1093/oso/9780198841906.001.0001

OPEN INNOVATION

Co-Creation

Users & organizations collaborate for the creation of concepts for solutions.
(Prahalad & Ramaswamy, 2004a)

Elaborated from Prahalad, C. K., & Ramaswamy, V. (2004). Co-creation experiences: The next practice in value creation.

Co-Design

Users & organizations shape the functional, aesthetic and experiential aspects of the solution.
(Sanders & Stappers, 2008)

Elaborated from Sanders, E. B.-N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design.

Co-Production

Users & organizations actively participate in the production and implementation of the solution.
(Ostrom, 1996).

Elaborated from Ostrom, E. (1996). Crossing the great divide: Coproduction, synergy, and development.

OPENVERSE

Open and co-created virtual worlds for Europe

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Funded by the European Union
GA: 101135701

Project funded by
Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Swiss Confederation

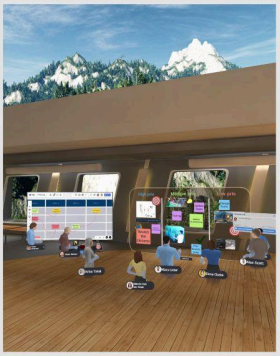
Federal Department of Economic Affairs
Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

Co-designing in Virtual Worlds for boosting innovation

9th - 13th June 2025

Fortnite

Primarily a third-person battle royale shooter, Fortnite also includes a Creative mode where players design and share their own games and experiences. The platform fosters social play with voice and messaging across teams of up to four players.



Arthur VR

Designed for enterprise collaboration, Arthur enables organizations to meet and work together in virtual reality. It offers flexible, infinite office spaces accessible from anywhere, boosting productivity with a suite of digital tools.

EngageVR VR

EngageVR is a versatile virtual reality platform designed for education, training, and corporate events. It enables organizations to create immersive meetings, workshops, and presentations with interactive 3D environments.

VRChat VR

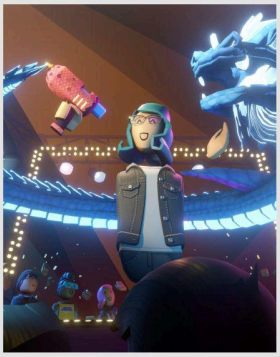
An immersive social VR platform where users embody custom avatars to play games, socialize, and create content. With a vibrant global community of creators and entertainers, VRChat allows for shared experiences and user-generated worlds.

Resonite

Resonite is a virtual platform focused on immersive music and live events, allowing artists and fans to connect in interactive digital spaces.

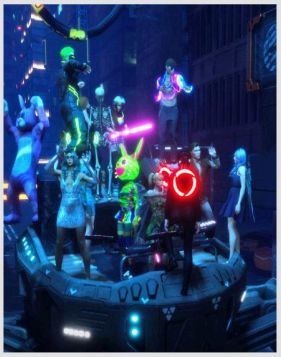
Spatial VR

Spatial is a 3D metaverse platform and free online gaming space where creators and brands build and share interactive environments.



RecRoom VR

A cross-platform, massively multiplayer online VR game with a built-in creation system. Users explore millions of player-made rooms, socialize, and design their own virtual inventions.



Sansar

A creative playground for virtual explorers, Sansar lets users build and share interactive 3D spaces with detailed avatars featuring facial and body animations.

Co-designing in Virtual Worlds for boosting innovation

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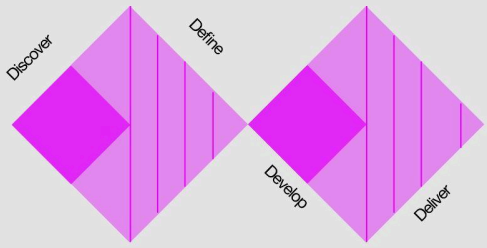
CAN DESIGN FRAMEWORKS HELP UNDERSTAND CO-CREATION IN VIRTUAL WORLDS?

DOUBLE DIAMOND

Double Diamond

Design Council (2005)



DISCOVER Conduct research and gather insights to deeply understand the problem space and uncover user needs and opportunities.

DEFINE Analyze and synthesize the research findings to clearly articulate the core problem and create a focused design brief.

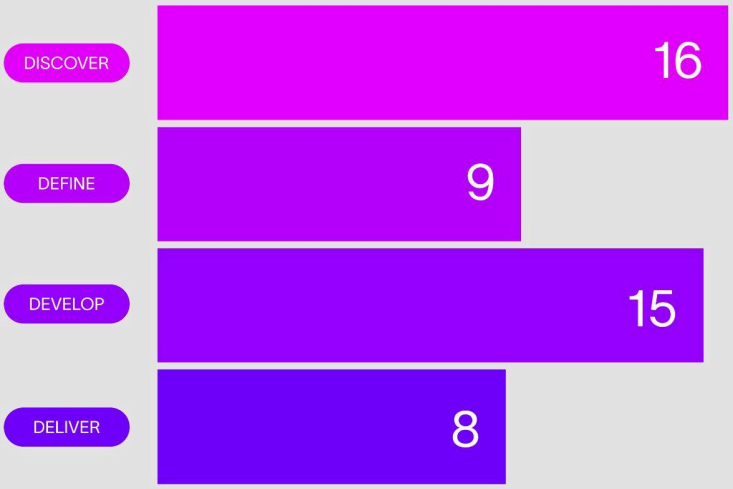
DEVELOP Generate a range of ideas, build prototypes, and test solutions through iterative cycles to refine concepts.

DELIVER Finalize the best solution, implement it, and prepare for launch while continuously testing and improving to ensure effectiveness.

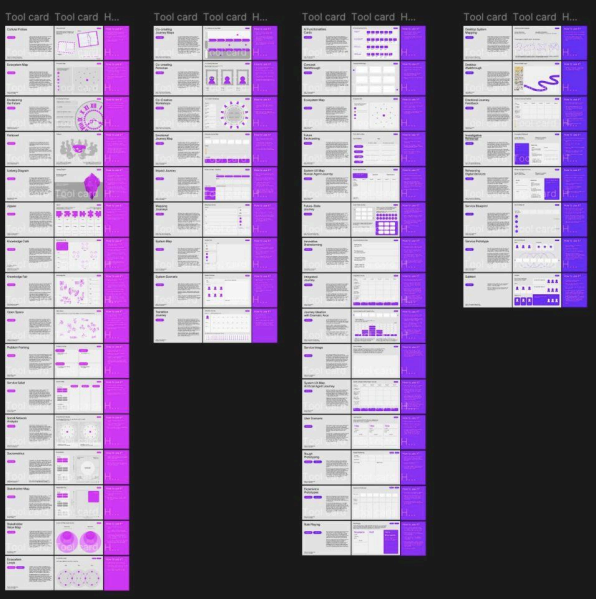
TOOLKIT

48 Tools

divided per DD phase



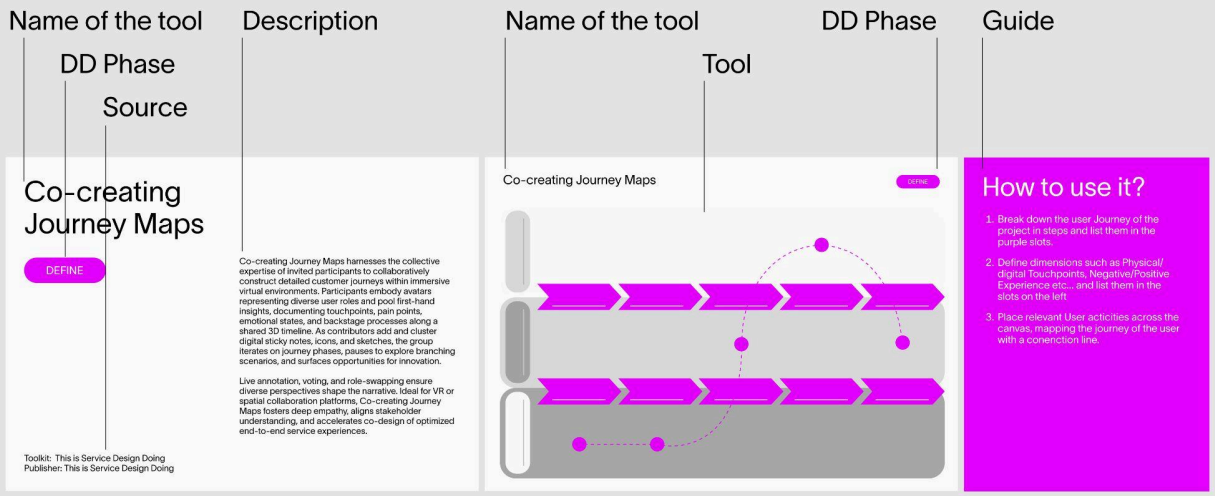
TOOLKIT



Co-designing in Virtual Worlds for boosting innovation

9th - 13th June 2025

TOOLS



TOOLKIT

The purpose of the OPENVERSE toolkit is to provide users with intuitive methodologies and tools to foster innovation in virtual worlds across different industries.

The 48 tools included in the toolkit are organized according to the phases of the Double Diamond framework, supporting each stage of the design process.

16 DISCOVER

9 DEFINE

15 DEVELOP

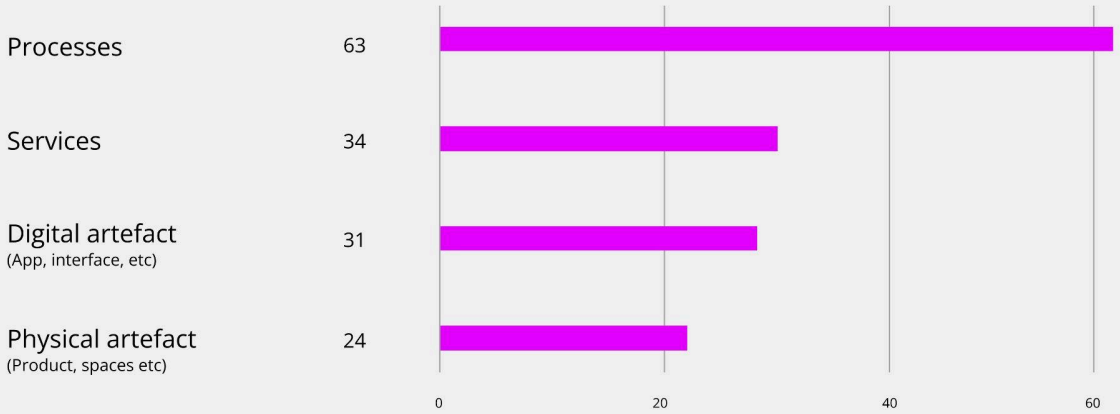
8 DELIVER

INDUSTRIES

Cultural heritage Museum	Education	Biotechnology	Agri-food Industrial Ecosystem
Tourism	Healthcare	Sport	Proximity and social economy ecosystem
Media & Entertainment	Real estate	Music	Textiles Ecosystem
Art	Marketing Retail	Industrial design	Mechanical engineering
Urban planning Smart cities	Automotive & Manufacturing	Adult entertainment	Construction sector
Fashion			

EXPERTS SAY

What kinds of objects should be co-created in Virtual Worlds?



EXPERTS SAY

What do you want to co-create?

Which collaboration processes do you need to activate?

What tools from the toolkit can support it?

Brief launch

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BRIEF

Through an analysis of Virtual Worlds DELIVERABLE 1 co-creation tools DELIVERABLE 2 and firsthand experience DELIVERABLE 3 the purpose of this workshop is to experiment with co-design in Virtual Worlds aimed at enhancing their potential to foster innovation across industries.

DELIVERABLE 1 Conduct an analysis of the affordances of VWs and of the agency users have within them for a specific industry.

DELIVERABLE 2 Conduct an analysis of at least 4 tools in terms of collaborative potential, adaptability to virtual worlds, immersivity and roleplay.

DELIVERABLE 3 After having prototyped and tested 1 tool in a virtual world, create a presentation focused on the lessons learnt in this workshop and recommendations.

GROUPS

Split in groups of 5 people

List names of group members at this spreadsheet

GROUPS

Every group also has a dedicated Figma board to work collaboratively (Link in the spreadsheet)

STEPS

1. Select an industry

2. Define an object of co-creation

3. Explore virtual worlds and understand affordances for your object and industry for co-creation

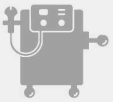
DELIVERABLE

4. Select at least 1 tool per phase from the toolkit and analyse them

DELIVERABLE

5. Select 1 tool to be recreated in the virtual world

Prototype and test the tool in the virtual world



Create a presentation explaining lessons learnt and takeaways

DELIVERABLE

Co-designing in Virtual Worlds for boosting innovation

9th - 13th June 2025

JOURNEY

Monday	Tuesday	Wednesday	Thursday	Friday
Frontal lecture	VWs exploration	At least 4 Tools selection	1 Tool selection	Reflection on lessons learnt and takeaways
Toolkit Introduction	Toolkit exploration	Deliverable preparation	Lo-Fi Prototype of the tool in virtual worlds	Presentation Preparation
Group Creation	DELIVERABLE 1 Virtual worlds analysis by 18:00 of Tuesday	DELIVERABLE 2 Tools analysis by 18:00 of Wednesday	Test of the tool in virtual worlds	DELIVERABLE 3 Final presentation by 14:00 of Friday
Object of co-creation selection				

JOURNEY GLOSSARY

Frontal lecture	Lecture about openverse, virtual worlds, co-creation and brief launch
Toolkit Introduction	Introduction to the structure and the elements of the toolkit
Group Creation	Creation of groups for work for the week
Object of co-creation and industry selection	Selection of an object of co-creation among Services, Process, Physical/Digital objects and of an industry from the slides.
VWs exploration	Entrance in virtual worlds and exploration of their potentials, affordances and user agency,
Toolkit exploration	Exploration of the Figma file and observation of co-creation tools
DELIVERABLE 1 by 18:00 of Tuesday	Analysis of Virtual Worlds Affordances and User Agency for the selected Object for selected Industry

At least 4 Tools selection	Selection of at least 1 tool per DD phase from the toolkit.
Deliverable preparation	Analysis of the tools selected and deliverable writing
DELIVERABLE 2 by 18:00 of Wednesday	Analysis of tools selected in terms of collaborative potential, adaptability to virtual worlds, immersivity and roleplay

1 Tool selection	Selection of 1 tool among the chosen four.
Lo-Fi Prototype of the tool in virtual worlds	Prototyping of the toolnin one or more virtual worlds.
Test of the tool in virtual worlds	Usage and testing of the selected tool in one or more virtual worlds.
Reflection on lessons learnt and takeaways	Elaboration of lessons learnt, takeaways and opportunities.
Presentation Preparation	Presentation writing and reflection on digitalization challenges, lack/proficiency of skills, recommendations.
DELIVERABLE 3 by 14:00 of Friday	The ultimate output of the workshop will be a PRESENTATION, focused on the lessons learnt in this workshop and recommendations to give to who wants to co-create in virtual worlds.

OUTPUT

DELIVERABLE 1

VIRTUAL WORLDS ANALYSIS

Analysis of Virtual Worlds in terms of Affordances and User Agency for the selected object of co-creation for selected Industry

- DEFINITION OF OBJECT OF CO-CREATION
- SELECTED INDUSTRY
- VIRTUAL WORLDS AFFORDANCES
- USER REQUIREMENTS FOR CO-CREATION

by 18:00 of Tuesday

OUTPUT

DELIVERABLE 2

TOOLS ANALYSIS

Analysis of tools selected in terms of collaborative potential, adaptability to virtual worlds, immersivity and roleplay

- CO-CREATION POTENTIAL
- ADAPTABILITY TO VIRTUAL WORLDS
- IMMERSIVITY
- ROLEPLAY

by 18:00 of Wednesday

OUTPUT

DELIVERABLE 3

FINAL PRESENTATION

The ultimate output of the workshop will be a **PRESENTATION**, focused on the lessons learnt in this workshop and recommendations to give to who wants to co-create in virtual worlds.

- LESSONS LEARNT
- RECOMMENDATIONS
- DIGITALIZATION CHALLENGES
- OPPORTUNITIES/CHALLENGES
- LACK/PROFICENCY OF SKILLS

by 14:00 of Friday

Thank you ^^

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Co-designing in Virtual Worlds for boosting innovation 9th - 13th June 2025

Annex II. List of attendees

Annex II provides a comprehensive list of all participants in the workshop. For each individual, it includes their name, a short professional or/and academic background, country of residence (rather than origin), their self-declared familiarity with Virtual Worlds, and the working group they belong to. This annex supports the reading of the report by allowing readers to understand the composition of each group as results are presented, and reflects the multidisciplinary and international character of the cohort that contributed to the co-creation activities.

ID	Name Surname	Short Bio / Job Title	Country of Residence	Familiarity with VWs	Group
ID01	Mehmet Aflazi	UX designer with experience in service and UI design.	Italy	Discrete	G5
ID02	Clara Agustina	Visual designer with 5 years' experience across industries; focus on creative direction, branding, data visualization, and UI/UX.	Italy	Discrete	G2
ID03	Ilke Akkuzu	Digital and Interaction Designer with background in architecture and UI/UX design experience.	Turkey	Discrete	G5
ID04	Arianna Albertini	Designer with experience in UX, communication, and VR for engineering and education; interested in bridging the experiential and technical dimensions of VR application.	Italy	Good	G1
ID05	Chiara Aliverti	Interior designer currently specializing in UX/UI and interaction design.	Italy	Discrete	G3
ID06	Dilay Aslan	Architect with a Bachelor's degree and short professional experience in BIM QA/QC	Türkiye	Discrete	G6
ID07	Efe Eren Can Bakır	Industrial designer with experience in digital product design and mentoring	Italy	Discrete	G1
ID08	Elif Nur Cakir	UX designer focusing on immersive environments and the ethical dimensions of co-creation in Virtual Worlds.	Italy	Good	G6
ID09	Duygu Can	UX designer focused on multisensory and emotionally rich experiences in digital environment, as Virtual Worlds.	Italy	High	G6
ID10	Bipasa Das	UX and digital systems designer, interested in interdisciplinary applications of UX.	India	Discrete	G5
ID11	Riccardo Di Marco	Interior designer specialized in exhibition and retail design, exploring how such domains can leverage Virtual Worlds and their possibilities.	Italy	High	G4
ID12	Muzi Duan	Digital and interaction designer with game design experience through internships in gaming companies.	Italy	Good	G7
ID13	Duru Kalay	Interaction designer interested in the intersection of architecture and VR, focusing on spatial experience, immersive environments, and digital twins especially.	Italy	High	G7
ID14	Beatriz Lara Espinosa	Graphic and UX/UI designer interested in interactive and shared virtual environments for communication and ideation.	Italy	Good	G7
ID15	Xingyu Li	UX and product designer from China, focused on service design and virtual display systems.	Italy	Very high	G7
ID16	Yifan Lu	Digital art and UX designer with strong interest in immersive technologies.	China	Very high	G3
ID17	Fengrong Luo	UX/UI and industrial designer.	Italy	Discrete	G7

ID18	Kexin Ma	Interaction designer with over 5 years' experience, exploring VR storytelling for emotional and therapeutic experiences.	Italy	Good	G2
ID19	Michelle Mei	Digital and Interaction designer.	Italy	Discrete	G4
ID20	Giulia Montelli	Designer with an interior design background, focusing on narrative and interaction in spatial design for events and games.	Italy	Good	G3
ID21	Michela Pace	Digital and interaction designer with bachelor's in Interior Design, interested in rendering, animation, and visual communication.	Italy	Good	G4
ID22	Daniela Pérez Ardila	UX/UI designer with 5+ years of international experience in digital products, currently focusing on emerging tech in digital and interaction design.	Italy	High	G4
ID23	Inkar Raissova	Communication and graphic designer interested in Virtual Worlds and how they shape new forms of interaction, storytelling, and visual culture.	Kazakhstan	Discrete	G4
ID24	Gaia Ranzani	Media designer interested in immersive digital storytelling and emotionally engaging narratives. Interested in Virtual Worlds as immersive narrative settings for spatial exploration, events and games, able to emotionally engage users and push the boundaries of digital storytelling.	Italy	Good	G3
ID25	Sofia Robles Ramirez	UX and strategic designer with experience in service and digital product design, passionate about collaboration and prototyping with a strong user-centered perspective.	Italy	Good	G1
ID26	Mingyang Song	UX and UI designer with a background in architecture; exploring VR-related design applications and future possibilities.	China	Discrete	G2
ID27	Martina Stucchi	Communication designer with a passion for visual projects and immersive platforms in entertainment, especially music and events.	Italy	Discrete	G3
ID28	Rina Su	B2B UX designer with three years of experience, interested in approaches to Virtual Worlds which go beyond entertainment.	Italy	Discrete	G2
ID29	Tuana Toraman	UX designer with a focus on user-centered processes; interested in Virtual Worlds as platforms for collaborative interaction and as ways to better explore user needs.	Italy	Good	G5
ID30	Aranza Villarreal Alcala	Industrial designer from Mexico currently training as digital and interaction designer	Italy	High	G1
ID31	Ece Yalim	UX/UI designer with experience in AI-based apps and mobile games development, mainly in the entertainment industry. Interested in exploring how VR and immersive technologies are innovating interface design.	Turkey	Discrete	G6
ID32	Sıyuan Yan	Interaction designer with a background in VR/AR game development, specialized in user research, data analysis, and interaction architecture design to create intuitive and engaging user experiences.	Italy	Very high	G1
ID33	Betul Özlem Yilmaz	Interior architect currently training as digital and interaction designer, focused on designing immersive community activities to foster dynamic and engaging experiences for users.	Turkey	Good	G5
ID34	Estıfanos Eyasu Yimam	Former architect turned UX designer with focus on seamlessly integrating Virtual Worlds into everyday user experiences.	Italy	Very high	G7

ID35	Yuchen Zhang	UX designer exploring Virtual Worlds for participatory experiences.	Italy	Very high	G2
ID36	Yuxin Zhang	Product design background, currently training as digital and interaction designer, focusing on exploring user experience in digital and immersive environments, and especially Virtual Worlds as spaces blending digital and physical.	China	Discrete	G1