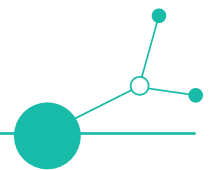


Virtual Reality Innovation Workshops

A tool for transnational collaboration
in care education and MedTech





Executive Summary

This document presents the design, implementation, and lessons learned from testing an innovative Virtual Reality (VR) workshop format for cross-regional collaboration and ideation in the fields of care education, MedTech, and digital health innovation. The tested format explores how immersive VR environments can support transnational exchange, creative collaboration, and joint scenario development when physical meetings are difficult or resource-intensive.

The workshop format was applied in three experimental sessions, including two fully virtual workshops conducted in VR and a complementary in-person session. Participants from different Central European regions collaborated in a shared virtual space using VR headsets and an immersive meeting platform that offers tools such as virtual rooms, whiteboards, pens, breakout areas, and presentation screens. This setup enabled interactive group work, visual sketching, and real-time discussion across borders, simulating the experience of working together in one physical location.

The primary objective of the tested format was to assess whether VR can serve as a feasible, effective, and user-friendly medium for transnational ideation. Particular attention was given to practical aspects such as technical requirements, onboarding needs, participant comfort, facilitation effort, and the suitability of VR tools for collaborative innovation tasks. The workshops also aimed to identify conditions under which VR-based collaboration creates added value compared to conventional online meeting tools.

The results demonstrate that VR workshops can enhance the sense of co-presence and engagement among participants from different regions. The immersive environment supports focused collaboration, spatial interaction, and hands-on co-creation, which are difficult to achieve in standard video conferencing settings. At the same time, the testing highlighted important boundary conditions, including the need for stable internet connections, structured onboarding phases, limited session durations, regular breaks, and a reduced set of enabled tools to avoid cognitive overload for first-time VR users.

Based on the findings, this document provides practical recommendations for designing and facilitating VR-based innovation workshops. These recommendations cover technical setup, agenda design, participant configuration, health and comfort considerations, and documentation of outcomes. The described format is scalable and transferable and can be adapted by educational institutions, innovation intermediaries, training providers, and public or private organisations seeking new approaches to transnational collaboration and digital learning.

Overall, the tested VR workshop format demonstrates strong potential as a complementary collaboration tool for cross-regional innovation processes in Central Europe. By lowering geographical barriers and enabling immersive interaction, VR can support knowledge exchange, skills development, and joint solution design in care-related education and beyond.



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1. Introduction and general information

As part of the [VReduMED pilot actions](#), a series of innovation-oriented workshops was developed to explore the feasibility and added value of Virtual Reality (VR) as a collaborative medium for cross-regional exchange in care education, MedTech and digital health innovation. These activities are designed to create sustainable interest and motivation for introducing VR and AR tools in the care education sector. To achieve this, three different solutions are being tested, demonstrating various options for applying immersive technologies in educational and cross-sectoral cooperation.

Within this framework, two workshops were conducted entirely in Virtual Reality using a VR collaboration platform, in combination with Meta Quest VR headsets. The immersive environment enabled participants from different regions to collaborate in a shared digital space, using tools such as virtual whiteboards, pens and presentation surfaces to jointly develop ideas and scenarios.

To complement the virtual sessions, an additional in-person workshop was organised, providing space for open discussion among care professionals on emerging technologies and their potential application in educational settings. This format added valuable insights by enabling direct dialogue on practical needs, challenges and opportunities related to the integration of VR in care education.

Across all three workshops, participants gained hands-on experience with immersive collaboration and contributed to an evidence-based understanding of the conditions under which VR can meaningfully support transnational cooperation, ideation and innovation processes in care education and related fields.

1.1. Aim and Purpose of the VR Workshop Format

The goal of the innovative, cross-sectoral, and transnational workshops was to design a VR-based concept and carry out proof-of-concept sessions to determine whether virtual reality is a suitable and effective format for transnational ideation. Through the collaboration platform, participants from different partner regions, such as DE, CZ, HU and AT were able to meet virtually, exchange ideas, and collaborate without physical presence. The activity also aimed to identify the organizational, technical, and user-related conditions necessary to run such workshops in the [VReduMED labs](#) program, which provides interconnected VR learning environments in the partner regions to test tools and applications and enable international teaching in both 2D and 3D settings.



Virtual reality Auditorium with slide presentation screen and individual breakout session rooms with whiteboards.



2. Digital Collaboration Methods in Transnational Settings

This chapter outlines the digital collaboration approaches relevant for cross-regional cooperation and explains why Virtual Reality was selected as the format for the proof-of-concept workshops conducted in this activity. It summarises commonly used online collaboration options, the specific toolset applied, and the practical insights gathered from the VR sessions.

2.1. Advantages of Virtual Reality Compared to Traditional Online Collaboration

The VR-based approach provided an immersive, shared environment in which participants from different regions could interact with one another as if they were present together. Compared to conventional online meetings, the virtual reality setting offered:

- **Stronger sense of co-presence:** Participants met in the same virtual room with customized avatars, rather than on separate video tiles, which supported more natural interaction.
- **Hands-on collaboration tools within the VR space:** Whiteboards, pens, and presentation surfaces were part of the environment and could be used jointly and immediately. In VR they offer more haptic feeling, than using a mouse in online meetings.
- **Focused participation:** The immersive format reduced side activities and supported concentrated ideation, which is essential for creative sessions.

These characteristics were central to assessing whether VR is a suitable and effective format for transnational ideation.

2.1.1. Overview of Common Online Collaboration Tools

Due to financial and time constraints, it is often difficult to meet in person for transnational collaborations. Therefore, online tools like Microsoft Teams, Zoom, and Google Meet are being used. These platforms typically offer features such as:

- **Video and audio conferencing**
- **Screen sharing**
- **Chat and file exchange**
- **Breakout rooms**
- **Shared documents via integrated cloud services**

Such tools are highly effective for coordination meetings, information exchange and structured presentations.

However, because they present participants as video windows, they offer limited spatial presence and little tactile interaction, making them less suited for dynamic ideation workshops that require interactions, visual sketching or spatial referencing.

This gap motivated the evaluation of an immersive virtual reality alternative as part of the practical testing carried out in this activity.



2.1.2. Tools Applied in VR Workshops

A VR collaboration platform offering a user-friendly environment for immersive group work was selected and tested by the project partners beforehand for the practical testing activities. The platform provides the following essential features:

- different layouts of virtual rooms suited for meetings or ideation,
- breakout areas, whiteboards and writing/drawing tools,
- a virtual presentation screen, and
- the ability to load logos, images and 3D objects.

These functions enabled structured interaction, visual sketching and collaborative scenario development in the virtual environment.

2.1.3. Data Collection from VR Workshops

Virtual Reality workshops offer several practical options for documenting progress and capturing outcomes. The selected platform allows hosts and facilitators to **take screenshots or short video recordings** directly within the virtual environment, which can be used to document group interactions, visual outputs on whiteboards, and relevant moments during the ideation process. These materials support later analysis, reporting, and comparison across sessions.

In addition to manual documentation, the **virtual room itself remains available to the host after the session**, preserving elements such as sketches, notes, drawings created by participants. This persistent room state enables a more comprehensive review of the workshop's development and allows the content to be revisited during follow-up workshops or in subsequent evaluation steps. As a result, insights generated during the session remain accessible beyond its duration and can be extended or refined in later work phases.



3. Preliminary Testing and Conception

This chapter outlines the preliminary research, internal testing, and the resulting conceptual design of the VR workshop format developed during the preparatory phase. It describes how suitable tools were identified, how their usability was evaluated, and how these insights were translated into a structured workshop design.

3.1. Preliminary Testing and Findings

3.1.1. Tool research and selection

First a short market research was conducted before planning the workshops to evaluate VR meeting applications suitable for immersive, cross-regional collaboration. [MeetinVR](#) was selected because it offered the following:

- an accessible **free trial mode**,
- **simple and easy** to understand onboarding for new VR users,
- essential ideation features such as **virtual rooms, pens, whiteboards and presentation surfaces**, and
- compatibility with the **Meta Quest headsets** available in all established [VReduMED labs](#).

This made the platform a practical option for testing VR-based workshops.

3.1.2. Get to know the application

In order for innovation workshops to be held efficiently in VR, it is important to understand the mechanics of the used VR application and how it works. Therefore, small test sessions with project partners were held beforehand to become familiar with the application, assess controller handling, and evaluate the support of core interactions such as navigation, pen/whiteboard usage, and content presentation. In addition, partners specifically tested breakout arrangements, collaborative drawing tasks, the loading of 3D-models, presenting slide decks within the virtual room, and different meeting-room layouts in order to define the most suitable setting for the workshops. These exploratory tests helped define the minimum feature set required during live workshops and confirmed that only basic functionality should be enabled for participants to keep the environment manageable.

3.1.3. Operational constraints identified

From these early trial sessions, following guidelines were identified, that influenced the design of the subsequent workshop:

1. **Hardware preference:** Prefer Meta Quest 3 over Quest 2 due to smoother performance and higher frame rates.
2. **Session duration:** Limit continuous VR segments to **approx. 45 minutes**, and plan **10-20-minute breaks** to mitigate eye fatigue or motion sickness, especially for VR-beginner participants. This aligned with the findings of previous formats, where stakeholders were involved in practical VR sessions.
3. **Onboarding needs:** Include a structured introduction and familiarisation phase in the agenda, performed individually in each region and tailored to participant needs.



4. **Initial acclimatisation:** Reserve a short period at the start so participants can get used to the controllers and the feel of a VR meeting before starting content-related tasks.
5. **Small participant group:** Keep participant numbers small, to reduce speaking overlap and keep facilitation efficient.
6. **Lean feature set in VR room:** Enable only basic functionality for participants in the virtual room to avoid confusion and keep interaction manageable for first-time users.

These preliminary insights confirmed feasibility and provided concrete parameters for structuring the full workshops.

3.2. Conceptual Design of the VR Workshop Format

Based on the requirements identified during preliminary testing, the workshop concept relies on a minimal yet functional VR setup that supports cross-regional ideation without overwhelming first-time VR users. The environment is intentionally designed to offer only the tools necessary for collaborative scenario development, such as shared work surfaces and basic interaction instruments, ensuring that participants can focus on content creation rather than on technical complexity. The selected application, in combination with the Meta Quest headsets, meet these needs while remaining easy to deploy across all participating VR laboratories.

3.2.1. Participant Configuration

In line with the testing insights, the concept specifies small, mixed participants with a approx. six participants total, typically 1-2 per organisation, to ensure manageable facilitation, minimise interaction interference, and support focused discussion in an immersive setting.

The format addresses three essential stakeholder groups for cross-sector ideation in the project context: **care experts, MedTech companies, and VR experts.**

3.2.2. VR innovation workshop concept

Based on these findings, the following workshop block structure was designed and can be used or adopted for future formats:

Introduction Block (30min)	In person introduction to VR technology (handling, navigation, ...) and the VReduMED project, based on individual needs of participants in each region
Hands-on VR-Block (15 min)	Hands-on VR platform - getting to know the controls and navigation
Break (10 min)	short break to prevent early exhaustion or motion sickness
Input from Experts (15 min)	Input from VR/Medtech or care experts for inspiration for the following innovation session
VR Innovation Session (20 min)	Transnational Brainstorming Session in VR
Feedback (30 min)	Feedback session from participants



4. Conducting the Virtual Reality Workshops

This chapter summarises how the workshops were carried out in practice. While Chapter 3 describes the conceptual development of the workshop format, this chapter outlines the practical implementation steps, the preparations undertaken in the [VReduMED labs](#), and the tools used to support interaction and documentation. In addition, visual examples from the workshops illustrate how the VR environment and supporting equipment were employed.

4.1. Setup and Preparation

Prior to the workshop date, the virtual reality room was fully prepared and configured by the host, including the activation of only the required core functions and the upload of all presentation materials. Once the room was ready, the access code for participants was generated and distributed so they could join the workshop environment at the scheduled time. In addition, a backup Microsoft Teams call was initiated to ensure that communication could continue seamlessly in case of technical issues or connection interruptions during the VR session.

Before each workshop, a suitable physical room was prepared with free space to allow safe movement while wearing VR headsets. The Meta Quest devices were pre-installed with the VR application and tested in advance. To support facilitation and troubleshooting, an external monitor stream was set up to mirror the participant's virtual reality view. This allowed on-site VReduMED partners and observers to follow what was happening in the virtual room and to support participants with tool handling or navigation when needed.



External monitor setup showing the VR view used for support and facilitation.



4.2. Onboarding

Onboarding followed the conceptual design established in Chapter 3 and unfolded in two stages:

- In-lab introduction: Participants learned basic VR handling, fitted the headset correctly, and received safety and comfort information.
- In-VR familiarisation: After entering the virtual collaboration room, participants spent several minutes practicing navigation, interacting with whiteboards and pens, and adjusting to the environment.

A short break was scheduled early in each session to prevent early fatigue, especially among participants with limited VR experience.

4.3. Execution of Workshop Sessions and Innovation Task

The VR workshops followed a structured sequence that aligns with the conceptual flow defined in section 3.2.2. While the exact timing and focus varied slightly between sessions, each workshop incorporated an **introduction**, a hands-on **familiarisation phase**, an **input segment**, a **collaborative ideation block** in VR, and a concluding **feedback round**.

During the introductory phase, participants were welcomed, briefed on the aims of the session, the [VReduMED](#) project, and supported in onboarding into the VR environment. The hands-on familiarisation phase allowed participants to practice navigation and tool handling before entering the main session flow.

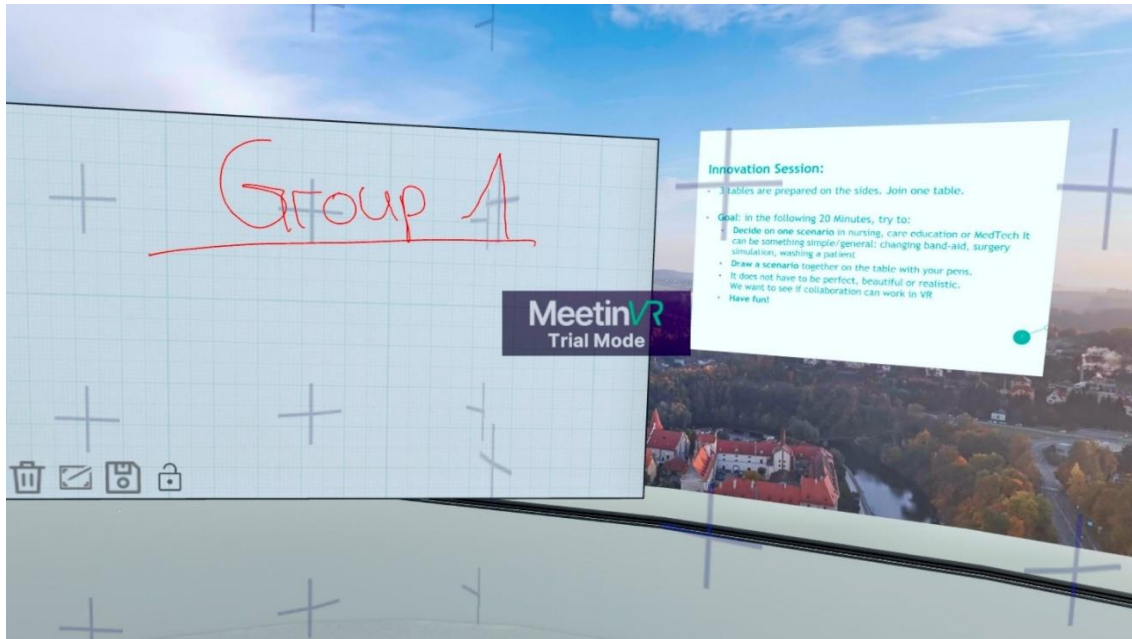
Once all participants were connected in the shared virtual collaboration room, the session continued with an input segment from VR experts. Presentation materials were displayed directly inside the VR environment on a large virtual screen to ensure all participants regardless of their geographical location could follow the content clearly.



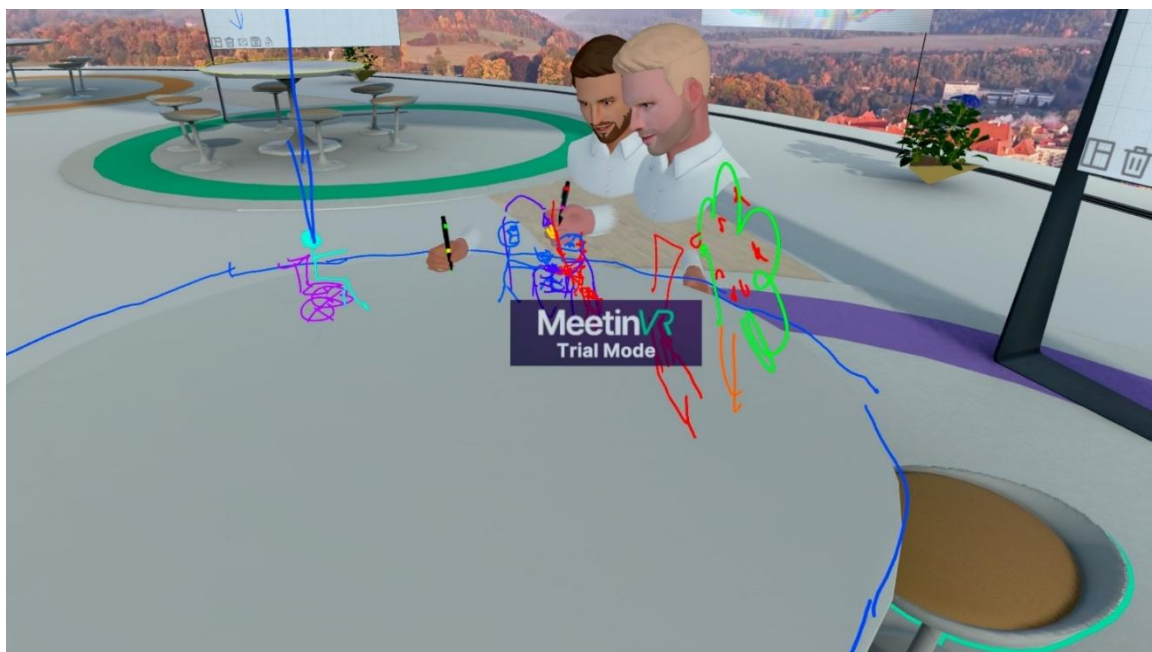
Presentation of slide sets in the VR meeting room using the virtual screen from VR expert, for inspiration of the upcoming innovation session



The central part of each workshop consisted of the VR innovation session. Participants were assigned to breakout areas within the VR application, where they worked together at virtual tables. Here they completed the innovation task, which involved selecting a scenario from nursing, care education, or MedTech and collaboratively sketching it using VR pens. This setup enabled focused group work and supported natural co-creation within the immersive environment.



Innovation task in a breakout area: participants are divided into groups and working together on a shared virtual table. The task is pinned next to the whiteboards so that participants can look at it again.



Collaborative sketching and scenario development during the innovation task in VR

After the ideation phase, all participants had the possibility to reflect on the outcomes and share feedback on usability, comfort, and perceived value of the VR setting. This final exchange supported the evaluation of the session and provided important input for the workshop format.



5. Findings and Recommendations

The three VR-based workshops conducted in this activity generated several practical insights concerning technical performance, user comfort, content-related aspects of collaboration, and the effectiveness of tools within the virtual environment. The following sections summarise the key findings and resulting recommendations.

5.1. Technical Aspects

A **stable and fast internet connection** proved essential for the smooth operation of the VR workshops with multiple participants. During one of the sessions, the virtual room collapsed due to insufficient bandwidth, forcing the group to switch to Microsoft Teams as a temporary backup solution. Slow connections also affected the loading times of 3D models, which significantly delayed parts of the workshop flow.

Based on these experiences, it is recommended to:

- Ensure **high-speed internet** at all involved locations.
- **Meta Quest 3 devices** are preferred over older generation for better frame rate
- Include a **backup communication channel** (e.g., MS Teams) in the planning to maintain contact in case of connection failures.
- Allow **additional time for loading heavier VR assets** such as 3D models, or preload them prior to the workshop.
- Provide an **external display** (screen or projector) streaming a participant's VR view, so that on-site staff and observers can see what participants are viewing in real time and provide immediate guidance if questions arise or issues occur.

These considerations are particularly relevant for future VR-based sessions with multiple participants joining from different regions.

5.2. Participant Health & Comfort Aspects

The Meta Quest headsets provided a comfortable fit and were generally suitable for longer sessions. However, experience from the workshops showed that extended or continuous VR usage can lead to **eye fatigue** and symptoms of **motion sickness**. These observations were consistent with feedback from earlier VR activities.

To address this, the agenda frequently included **regular breaks**, which allowed participants to rest and return to the session refreshed. The breaks were particularly important for users without prior VR experience.

Recommendations include:

- Integrating scheduled breaks into the workshop structure.
- Monitoring participant comfort throughout the session.
- Providing clear guidance during onboarding regarding how to handle discomfort.



5.3. Content-Related Observations

The presentation of slides within the VR environment worked very well and supported clear, structured communication. The use of defined **breakout sessions** for ideation tasks proved effective, offering participants a quiet and focused space to collaborate without interruptions.

However, it took some time for participants to familiarise themselves with the available tools, especially the **VR pens** used for writing on virtual whiteboards. After a short adjustment period, participants were able to use the tools effectively, but onboarding and practice time remain essential components of the workshop setup. Based on the observations from the workshops, the following recommendations are derived:

- **Allocate sufficient onboarding time** to allow participants to familiarise themselves with VR tools, the pens used for writing and drawing on virtual whiteboards.
- **Provide a short, guided tool-practice phase** before starting ideation tasks, ensuring that all participants can use the VR interaction features confidently.
- **Use clearly defined breakout rooms** for ideation, as they support uninterrupted and focused collaboration.
- **Continue using slide presentations in VR**, as they proved effective for communicating information and structuring the workshop flow.
- **Offer quick support during the tool-learning phase**, especially for participants with no prior VR experience.
- **Keep instructions concise and visual**, as this helps participants navigate and operate the tools more easily within the virtual environment.

5.4. Tools Identified as Useful

Several tools within the VR environment were highlighted as particularly valuable:

- **Virtual presentation screen**, which supported clear slide-based inputs.
- **Pens**, enabling participants to draw and write directly in the virtual space.
- **Logo and asset loading**, which allowed the inclusion of visual materials relevant to the workshop content.
- **Documentation tools**, such as screenshots and videos, allow hosts to document workshop progress, capture visual outputs, and revisit the virtual room after the session for follow-up analysis or subsequent workshops. These tools enhanced the collaborative experience and contributed to a more natural, hands-on form of interaction.

5.5. Contribution of the Workshop Format to VR Adoption in Care Education

The workshop design tested within this activity can serve as a scalable and transferable format for introducing VR technologies into care education. By enabling participants to interact directly with VR tools, collaboratively develop care-related scenarios, and become familiar with immersive learning environments, the workshops create a practical bridge between innovation and educational application.

The structure of the workshops, particularly the onboarding, scenario-based ideation and hands-on tool usage, offers a blueprint that educational institutions can adopt to explore new teaching formats, stimulate digital competencies in learners, and support the integration of VR-based training modules into curricula.