TRANSMIXR

TRANSFERABILITY
OF XR AND AI TECHNOLOGIES

OPPORTUNITIES FOR APPLICATIONS ACROSS SECTORS

Results from transferability workshops organized within the TRANSMIXR project.

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Summary

Introduction
TRANSMIXR, transferability, and inspirational creative concepts

TRANSMIXR: A European-funded Project on XR and AI

The future of media experiences – and of the wider Creative and Cultural Sector (CCS) – is being reshaped by rapid advances in eXtended Reality (XR) and Artificial Intelligence (AI). TRANSMIXR stands at the forefront of this transformation. Bringing together 22 organisations from 12 European countries, including universities, research centres, media practitioners, and industry partners, the project aims to reimagine how content is produced, delivered, and experienced across Europe. By combining the power of AI and XR, TRANSMIXR moves beyond passive content consumption toward inclusive, diverse, and participatory media experiences in which citizens become active co-creators. United by a shared vision, the consortium is pioneering innovative media formats and tools that empower both creators and audiences.

Transferability and inspirational creative concepts

As part of this mission, the project also sought to understand how its solutions can extend beyond the original use cases and sectors. Here, we are talking about transferability: the exploration of how TRANSMIXR tools and technologies can be meaningfully adopted and applied in new domains and practices. The aim was not only to identify additional sectors with potential for uptake but also to stimulate imagination of how the TRANSMIXR solutions could practically be adapted and applied within stakeholders' own workflows and sectors.

To achieve this, we used a flexible and modular approach, wherein we developed a Demonstration Box showcasing the TRANSMIXR solutions through curated videos, targeted demonstrators, and hands-on workshop activities. A total of 90 representatives from 21 potential transfer domains were brought together in these workshops, offering them an accessible entry point to the technologies while gathering insights on their needs, expectations, and possible application scenarios. Through guided exercises and structured discussions, participants co-created a wide range of application scenarios, which were later distilled into a set of *inspirational creative concepts*. These concepts represent big-picture ideas that illustrate how TRANSMIXR can unlock new opportunities in sectors beyond the project's initial scope — acting as catalysts for innovation, dissemination, and future collaboration.

Demonstration Box activities

To explore the transferability of the TRANSMIXR solutions, a series of Demonstration Box activities were organized involving a broad range of professionals from sectors such as the agricultural sector, architecture, entertainment, gaming, medical sector, SMART education, and sports.

The Demonstration Box activities combined qualitative and quantitative methods, primarily through **in-person co-creation workshops** complemented by **surveys** at events and conferences. In the workshops, participants — working in small groups — were introduced to the TRANSMIXR technologies through the Demonstration Box video and, where possible, hands-on interaction with specific tools or pilots.

All workshops followed the same principle; first participants were asked to share their first impressions of the TRANSMIXR solutions and then they were asked to ideate how the solutions could be adapted/fit into their own respective sectors (and if they envisioned any other sectors outside their own). The method used within this context was the **SWOT method** to brainstorm the Strengths, Weaknesses, Opportunities, and the Threats of implementing their preferred TRANSMIXR solution into their sector. Groups then presented their insights in plenary, enabling cross-group discussion and further refinement of ideas.

Because workshops were not always feasible at conferences and events, surveys were used as an alternative. These surveys mirrored the workshop questions to ensure comparable results and allowed participants to share their ideas after watching demonstrations and hands-on interaction with tools or experiences.

To translate the insights from the Demonstration Box activities into inspirational creative concepts, the protocol was adapted: participants were asked to imagine **ideal future scenarios** by combining elements of the TRANSMIXR solutions most relevant to their sector.

These richer ideation outputs, together with feedback from earlier pilot evaluations, were analyzed by VUB and merged into broader themes. This process ultimately provided the foundation for formulating the inspirational creative concepts presented later in this booklet.

These creative concepts are not ready-to-market ideas, but rather they provide a big-picture idea of how the TRANSMIXR technologies could be used and adapted to different sectors.

Demonstration Box workshop at the Avdiofestival in Ljubljana, Slovenia October 2024.

Demonstration Box workshop at the UZ Brussel hospital in Brussels, Belgium August 2025.

TRANSMIXR use case technologies overview

Use Case: News Media

The News Media use case focuses on helping journalists and news creators produce innovative, immersive content using XR technologies and generative AI. This use case is led by Agence France-Presse (AFP), the international news agency, along with RTVSLO, the Slovenian public broadcaster. Both serve as "laboratories" to develop and test the **TRANSMIXR Newsroom Toolbox**, which includes:

- T**RANSMIXR Dashboard tool**: used for news monitoring, which aggregates thousands of sources and offers predictive analytics, semantic search, and rich visualizations to detect trends and breaking news.
- **Storypact Text Editor tool**: used for news writing, which optimizes articles using Web intelligence and generative AI for summarization, reformulation, and platform-tailored outputs.
- **CERTH Video Summarization tool**: used for news distribution, enabling quick video summaries and format adaptations.

To illustrate how the Newsroom Toolbox can be used to create immersive content, the use case, in parallel to testing the tools in newsrooms, developed **XR Stories**, exemplified by the **Planica XR** experience: an immersive experience around an international sporting event: the world ski-jumping championships of Planica in Slovenia.

Use Case: Control Room of the Future

The Control Room of the Future use case examines how immersive XR technologies and generative AI can reshape news broadcasting at a time of shifting audience behaviour and rapidly evolving formats. Traditional studio-based production is increasingly limited by ageing workflows and the growing demand for interactive, personalized content — often without the support of large physical infrastructures.

To address this, TRANSMIXR demonstrates how news teams can produce personalized, role-aware TV programmes, repurpose live content across platforms in real time, and enable social XR interaction within fully virtual environments. Led by Immersion with TG4, TUS, CERTH, CWI, VRAI, and Intel, the use case delivered two key applications:

- V**irtual Control Room:** replaces the physical production space and enables staff (remote or co-located) to coordinate, direct, and manage live broadcasts collaboratively in VR.
- **Virtual Studio Environment:** supports immersive content creation using augmented reality, 360° video, and volumetric elements, making it possible to build rich, interactive broadcast experiences without a traditional studio setup

Use Case: Enriching Performing Arts Experiences

The Enriching Performing Arts Experiences use case, led by SATORE with support from HSLU, CERTH, Khora, TCD, CWI and TUS, explores how mixed reality (MR) can deepen audience engagement in live performance. As part of this use case, the team developed:

- **Cadence of Altered Illusions (CAI)**: a mixed reality experience that immerses participants into the life journey of Christian Aiken Isaac.

In CAI, participants (referred to as interactors) move through a series of interactive scenes that trace Aiken's evolution from youth to old age, engaging with his memories, dreams, and emotional states. MR technology blends physical environments with responsive digital elements, transforming real spaces through spatial audio, dynamic lighting, and visual effects.

By merging narrative and mixed reality, this use case demonstrates how emerging technologies can create personalized, emotionally resonant performance experiences that blur the boundaries between reality, memory, and imagination.

Use Case: Democratizing Immersive Storytelling for Cultural Heritage Organizations

The Cultural Heritage sector — spanning archives, libraries, and museums — holds vast collections that often cannot be fully displayed due to spatial, financial, or practical constraints. XR technologies offer promising solutions for making these collections more accessible and engaging, yet adoption remains limited due to high production costs and complex multi-stakeholder workflows.

In response, the TRANSMIXR Cultural Heritage use case, led by NISV with Khora, TUS, CWI and VUB, set out to explore how immersive XR experiences can become more scalable and achievable for cultural heritage organizations. The team developed three complementary applications:

- **VR2Gather**: a social XR authoring tool that supports collaboration and shared visualisation in the pre-production phase, helping CHIs and producers better communicate and plan immersive experiences.
- **The Space Archivists**: a multiplayer VR game designed for young museum visitors (ages 8–14), where players work together as "space archivists" to restore a disrupted archive by solving categorisation challenges across three chambers.
- **Curator Studio**: a template-based authoring tool enabling cultural heritage professionals to customise The Space Archivists game to their own collections, adjusting elements such as game structure, metadata categories, and media content.

Summary of results
Application scenarios

Through co-creation workshops, demonstrations, and direct engagement with stakeholders in the different fields, we were able to gather rich insights into how the TRANSMIXR solutions and technologies can be meaningfully applied and implemented across a wide variety of sectors.

In each sector, several application scenarios emerged, wherein the TRANSMIXR solutions can be implemented to realize these scenarios, forming the base for the creative concepts.

Sector	Application Scenario	TRANSMIXR solutions
Agriculture	Land management	Planica XR
Architecture	Spatial/city planning	Planica XR
Education	Immersive and interactive learning	Planica XR; TRANSMIXR Dashboard tool; Curator studio; Space Archivists
	Virtual classroom	Virtual Control Room & Studio; Space Archivists
	Physical education	CAI
	Skill training	Planica XR
Gaming	Realistic and immersive gaming	Planica XR; Space Archivists
Medical	Debriefing	Planica XR; Space Archivists; CAI; Virtual Control Room & Studio
	Distraction	Planica XR; Curator tool; Space Archivists; CAI
	Education/information support	Planica XR; Space Archivists; CAI
	Wayfinding	Planica XR; Space Archivists

Agriculture

Farmers can use the 3D capturing feature of Planica XR to make a 3D model of their lands to better visualize and manage their lands (e.g., in terms of new developments to be made, visualizing how areas can be used, etc). This visualization would then be visualized in an adapted version of Planica XR where farmers can see an overview of their lands, but also move between different locations for a more detailed view.

Step Into the Future: The Digital Twin Farm

TRANSMIXR

What if farmers could step inside a living, breathing digital twin of their land—where every field, slope, and tree is captured in 3D? Using Planica XR's 3D capturing feature, farmers can create a virtual replica of their farmland and explore it as though they were walking across their property in real life.

Instead of just imagining possibilities, they can see them unfold in an immersive environment:
- Walk across future orchards before planting a single tree.
- Test new irrigation layouts by flying above their fields.
- Visualize barn expansions or solar panel installations in context.
- Zoom in to problem areas, like erosion zones or underperforming patches, for targeted solutions.

Opportunities & Impact:
- **Smarter decisions:** Farmers can evaluate investments and land use changes before committing resources.
- **Reduced risk & cost:** Virtual planning avoids costly trial-and-error in real life.
- **Empowerment:** Even small-scale farmers gain access to advanced visualization tools usually reserved for large enterprises.

Ana, a farmer managing 40 hectares, often struggles to decide where to expand, how to lay irrigation, or whether to invest in new facilities. Maps and sketches only go so far —they can't show her how changes will really look and feel.

With Planica XR's 3D capturing feature, Ana creates a digital twin of her farm. Wearing the headset, she first views her land from above—seeing slopes, fields, and paths in detail. Then she "steps inside" the model:
- She places a greenhouse in different spots, walking around to test sunlight and tractor access.
- She simulates irrigation layouts, spotting issues before pipes are ever laid.
- She explores the hillside vineyard she's been considering, standing between rows that don't exist yet.

By the end, Ana has a clear vision and plan. She avoids costly trial-and-error, uses resources more efficiently, and feels confident in her long-term decisions.

The added value? Immersive visualization turns farm planning into an experience— helping farmers like Ana test ideas, minimize risk, and design their future with clarity.

Architecture

Similar to the agriculture scenario, architects can utilize the 3D capturing feature of Planica XR to visualize floor- and city plans for a better overview. They can also move between locations and areas for a more detailed view, which can be useful for decisions of further development in those areas. Adapting Planica XR to support multi-user usage, architects can also collaborate and co-design in the virtual environment more efficiently.

Designing the Future: From Blueprints to Walkable Worlds

Imagine stepping into a city before it exists. An architect slips on a headset and is transported into a living, three-dimensional model of an urban landscape. Streets unfold, buildings rise, and green spaces breathe with possibility. With Planica XR's 3D capturing feature, what was once flat lines on paper becomes a walkable world—an immersive environment where floor plans and entire city districts can be explored in true scale.

An architect begins the day by importing 3D-captured scans of a development site into Planica XR. Instantly, flat floor plans transform into an immersive, full-scale model. Walking through the design, the architect can test proportions, spot spatial challenges, and visualize how buildings interact with their surroundings — something that 2D drawings could never reveal.

With a simple command, they jump across locations: from the street-level view of a proposed plaza to the rooftop of a high-rise, gaining perspective on both the human experience and the skyline impact.

Opportunities & Impact:
- Efficiency Gains: Faster iteration and decision-making by experiencing buildings and cities at true scale.
- Collaborative Innovation: Multi-user VR environments enable architects, planners, engineers, and stakeholders to design together seamlessly.
- Public Engagement: Complex plans become understandable for citizens, encouraging inclusivity and transparency in development.
- Sustainability Insight: Virtual simulations reveal environmental and mobility impacts before construction begins.

Later, colleagues join the same VR environment from different offices. Together, they explore circulation flows, test different material options, and adjust layouts in real time. What once took weeks of sketches, markups, and revisions is now a fluid, collaborative design session inside the model itself.

Architectural planning shifts from siloed, technical processes to a shared experience where design decisions are informed, transparent, and collaborative. Costs and risks are reduced, community trust is strengthened, and the future of cities becomes a vision people can experience together before it's built.

By the end of the day, the architect has not only refined their vision but also aligned the entire team — engineers, planners, and partners — around a shared spatial experience. Planica XR has turned the design process into an immersive, collaborative exploration that saves time, reduces uncertainty, and brings clarity to complex decisions.

Education

In the immersive and interactive learning scenario, educators can design and adapt experiences tailored to their subject or specific student groups. The TRANSMIXR dashboard could function like a search engine, allowing educators to gather and summarize information on chosen topics. This content would then be stored in a database and integrated into the Curator tool, which transforms it into a gamified educational social VR experience using the Space Archivists template. For learning activities that don't require a collaborative setting, educators could instead use the Interview Room in Planica XR. Here, students can watch short videos answering mock exam questions, followed by a brief quiz to reinforce their knowledge – making it a useful tool for test and exam preparation.

From Search to Storyworlds – Learning that Feels Like Discovery

Imagine if every topic an educator wanted to teach could instantly transform from a static textbook chapter into a living, interactive world. With TRANSMIXR, teachers don't just prepare lessons—they design adventures of knowledge. A history lecture becomes an expedition curated from multiple sources, a biology class becomes a collaborative puzzle inside a 3D ecosystem, and test prep transforms into an interactive game show where students practice under exam-like conditions, but with the fun of play.

Meet Anna, a high school history teacher. She wants to teach the Cold War in a way that sticks. Using the TRANSMIXR Dashboard tool, she searches for materials —articles, videos, timelines—and curates them in her dashboard. With one click, the Curator tool transforms the content into a mission: her students step into a VR archive where they must unlock classified documents, connect political events, and piece together a narrative of the Cold War.

Later, as exams approach, Anna switches gears. She uploads short video answers to typical exam questions into Planica XR. Her students enter the Q&A scene, watch the videos, and then immediately test themselves with short quizzes. Instead of dreading revision, they feel engaged, motivated, and better prepared.

The result: Anna spends less time struggling with resources, her students enjoy learning, and the school gains a reputation for innovative, immersive teaching.

Opportunities & Impact:
- Tailored Learning Journeys: Educators can adapt content to different classes, subjects, and student needs.
- Boosted Engagement & Retention: Gamified VR encourages active participation, making complex topics easier to grasp and remember.
- Blending Collaboration and Autonomy: Group-based missions foster teamwork, while solo VR Planica sessions support self-study and exam readiness.
- Efficient Teaching Tools: Educators save time collecting and transforming resources, freeing energy for creativity and teaching.
- Future-Ready Skills: Students gain not only knowledge but also digital fluency, collaboration, and problem-solving skills needed in modern workplaces.

In the Virtual classroom scenario, teachers can adapt the VR classroom setting depending on the subject being taught with the Virtual Control Room & Studio. Students and teachers can meet in the virtual classroom for better interaction and collaboration, which could also contribute to cultural exchanges between students in different countries. Adding a gamification layer, collaboration among students can also be enhanced. The Social XR component of the Space Archivist makes collaboration and communication possible in VR. .

The Future of Teaching and Learning: Empowering Teachers, Engaging Students

Imagine a learning space where the walls of a classroom dissolve and every subject comes alive in fully immersive, customizable environments. With TRANSMIXR's Virtual Control Room & Studio, teachers can instantly transform the setting: a medieval castle for history, a living cell for biology, or a newsroom studio for media literacy.

Students step into these spaces through Social XR, collaborating with classmates as if they were side by side. With a gamification layer, learning transforms into quests, challenges, and co-creations, making lessons not only more engaging but also more memorable.

Opportunities & Impact:
- Personalized Environments: Teachers can adapt settings to spark imagination and enhance comprehension of complex subjects.
- Active, Playful Learning: Gamification boosts motivation, turning lessons into adventures rather than tasks.
- Collaboration by Design: Students solve problems together, building critical teamwork and communication skills.
- Stronger Knowledge Retention: Immersive, experiential learning helps students understand and remember concepts more deeply.
- Teacher Empowerment: Educators gain tools to experiment with interactive storytelling, scenario-based learning, and dynamic simulations.
- Engaged Classrooms: By blending fun, immersion, and collaboration, classrooms become spaces students want to be part of.

Mr. Jensen is preparing a history lesson on ancient Rome. With the TRANSMIXR Virtual Control Room, he transforms the classroom into a bustling Roman forum. When the lesson begins, Maria and her classmates step into the social XR experience, each assigned a gamified role—senators, traders, citizens. Guided by Mr. Jensen, they must work together to solve a historical mystery. Instead of listening to a lecture, Maria debates, negotiates, and discovers knowledge through play, while Mr. Jensen watches engagement soar.

Later, in biology, Ms. Alvarez shifts the classroom into a 3D human body. Maria's team navigates through organs, racing against the clock to diagnose a virtual patient. Collaboration becomes essential, and students who are usually quiet find their voice. For Ms. Alvarez, teaching feels more rewarding as she sees students taking ownership of their learning.

Sometimes, other schools join these virtual sessions too. Even when students are in different physical locations, they meet in the same immersive world, sharing perspectives and learning side by side.

For Maria and her teachers, TRANSMIXR turns lessons into adventures, classrooms into creative studios, and learning into experiences they'll remember.

In the Physical Education scenario, educators can make use of the CAI experience. The use of MR (mixed reality) experiences can be beneficial to increase participation among those students who may feel less comfortable participating in a classroom setting with other students. This way, educators can also better follow the learning progress of the students. The student would also be represented by a virtual character, which would be made possible by the volumetric capturing feature of Tale Weaver, thus providing a movement-realistic representation of the student.

Redefining Physical Education: The Confidence Gym

TRANSMIXR

A virtual-first training ground where every student can safely discover their physical abilities, social confidence, and unique pace of growth—before carrying that confidence into the real world.

The Educational Value:
- Education: Supports inclusivity, personalised learning, and confidence building.
- Healthcare & Therapy: Offers structured motor skills and social interaction training for diverse needs.
- Sports & Fitness: Opens new approaches to skill development, analysis, and engagement.

How TRANSMIXR tools make it possible:

- **Immersive education:** Educators can create immersive MR lessons that guide students step-by-step.
- **Mixed Reality (MR) Environments:** Students who may feel uncomfortable in traditional PE classes can participate via MR experiences, reducing pressure while still engaging in physical activity. This encourages inclusivity and higher participation.
- **Volumetric Capture:** Each student can be represented by a movement-realistic virtual character. This avatar not only mirrors their performance but also allows them to practice skills and receive feedback in a safe, private space.

Imagine a PE class where the gym doors open into a dual space: the physical floor of the gym, and a parallel virtual arena where every student has an avatar that moves as they do. In this safe environment, students practice new movements without the fear of being judged, stumbling, or standing out. They see their own progress reflected in their avatar—whether it's perfecting a basketball shot, mastering a yoga pose, or running a relay.

For students with social anxieties or autism, the arena extends into predictable and structured social simulations. Here, they can rehearse interactions with peers, practice empathy, and learn to collaborate on team-based activities—all at their own pace.

Teachers become coaches of confidence, using playback and analysis tools to show progress visually, not just verbally. A student sees how their avatar's sprint time improves week by week, or how their posture aligns during a jump. Each small win becomes visible, celebrated, and motivating.

The "Confidence Gym" turns PE into a personalised journey rather than a public performance. Over time, as students master skills in the safe space, their confidence begins to spill over into the real gym floor—and eventually into everyday life. The line between virtual and real shrinks, but their sense of achievement grows.

In the Skill training scenario, Space Archivists can be used to provide an interactive VR environment in which students in technical/practical fields can train and practice skills – such as handling heavy machinery – in a safe manner. The 3D capturing feature of Planica XR could be used to visualize environments in which these training scenarios would take place, e.g., in an industrial complex. The Inspector scene in Planica XR can also be adapted to visualize certain technical components to give a better overview of what they look like, where the interaction feature could provide students with the ability to trial and error abstract solutions.

Learning Without Limits: Safe, Immersive Skill Training in VR

TRANSMIXR

Imagine a training ground where heavy machinery, complex industrial environments, and intricate technical components are always within reach — but without any risk to the learner.

Using the TRANSMIXR Curator tool and Space Archivists template to design interactive VR skill-training environments, paired with the 3D capturing and inspector scene capabilities of Planica XR, students can step into fully immersive scenarios that mirror real-world conditions. They don't just observe — they practice, experiment, and problem-solve hands-on in a safe, controlled, and endlessly adaptable virtual world.

Opportunities & Impact:
- Safety First: Learners can practice handling dangerous or heavy equipment without risk of injury, ensuring both safety and confidence before stepping into real environments.
- Adaptability & Customization: With Planica XR's 3D capturing, training scenarios can be customized to replicate specific industrial complexes, factories, or technical settings unique to different sectors.
- Enhanced Understanding: The inspector feature allows students to virtually "open up" machines, explore components in detail, and test solutions in an intuitive, visual way.
- Cost Efficiency: Organizations reduce expenses related to equipment wear-and-tear, consumables, or setting up physical training grounds.

Elena is a 20-year-old apprentice in mechanical engineering. Before entering her first real factory floor, she steps into a VR environment.

In the VR environment, designed by her professor with the TRANSMIXR Curator tool and Space Archivists template, Elena finds herself standing in a photorealistic replica of an industrial complex — created with Planica XR's 3D capture. She's tasked with operating a heavy robotic arm used for welding. She grips the virtual controls, and as she experiments, she makes a few errors. Sparks fly in the simulation, but unlike reality, there's no risk — she resets and tries again.

Later, in an inspector scene, she zooms inside the machine, seeing every technical component in detail. She manipulates parts, trying out solutions to a simulated malfunction, gaining a deep understanding of how everything fits together.

By the time Elena sets foot in the real factory, she's not a hesitant beginner but a confident, well-prepared problem-solver — ready to engage with the machinery because she's already mastered the skills in VR.

Gaming

In the Realistic and immersive gaming scenario, Planica XR and Space Archivists could be combined into one VR-gaming application template for game developers to provide more realistic gaming experiences. Here, the 3D capturing feature of Planica XR can be used to capture 3D and 360º environments, and the Space Archivists template would be used for the social gaming aspect. Game developers can choose themselves what kinds of games they want to develop, but both these TRANSMIXR solutions combined provide more realistic and immersive VR-gaming experiences.

Gaming Without Boundaries: Real Worlds, Shared Adventures in VR

Imagine VR games where reality itself becomes the playground. With Planica XR, developers can capture lifelike 3D and 360º environments—from real city streets to mountain trails—transforming them into immersive, explorable stages for gameplay. Layered onto this is the Space Archivists social XR template, enabling players to interact, co-create, and compete within these realistic worlds. Together, they offer game developers a ready-made foundation to build the next generation of social, hyper-realistic VR experiences.

This isn't just gaming—it's world-building from reality itself, where players can meet, strategize, or play inside authentically captured spaces, while still enjoying the creativity of game mechanics.

Opportunities & Impact:
- For Developers: A ready-to-use template that fuses realistic 3D capture with social interaction, cutting development time and opening creative freedom for diverse VR games.
- For Players: Immersive, lifelike environments paired with engaging social play that deepen connection and replayability.
- For the Industry: A leap forward in VR realism that sparks cross-sector opportunities—from cultural heritage and tourism to education and training.

Liam is a 22-year-old gamer and aspiring game streamer. After slipping on his VR headset, he enters a new title built on the TRANSMIXR gaming template.

The environment, captured with Planica XR's 3D and 360º tools, places him in a photorealistic mountain village — every cobblestone, tree, and shadow feels real. Within this world, powered by the Space Archivists social XR template, his friends' avatars appear at his side.

They embark on a cooperative quest: defending the village from raiders. Liam takes up a bow, while his teammates strategize in real time, their voices and gestures naturally integrated into the VR space. The action feels authentic because the environment is so true-to-life.

Later, they switch to a competitive mode, exploring another captured environment — an abandoned factory — where they face off in a team battle against evil robots. The realistic setting changes how they play: they use real-world cover, vertical space, and authentic sightlines to outsmart their opponents.

By the time Liam streams his session, his audience is captivated not just by the gameplay, but by how real and immersive the world feels. For Liam, this isn't just another game — it's a shared adventure in worlds that feel alive.

Medical

In the debriefing scenario, medical professionals can meet in virtual spaces across departments/hospitals for debriefing and discussion on course of action before procedures take place. Here, the Virtual Control Room & Studio can be combined with the 3D capturing feature of Planica XR to visualize the VR environment of the medical department office – and medical professionals can dictate which office or room should be visualized depending on the nature of the debriefing meeting (e.g., in a specific department, in an operating room, etc.).

Debriefing can also be done through a combination of the Mixed Reality (MR) component of CAI and the social XR component of Space Archivists. Nurses who are on shift to care for the same patient can meet in the MR experience to share what has been done for the patient and what still needs to be done. This solution would be especially beneficial for nurses who may need to stay overtime if the next nurse has a delay arriving on time for the switch. Additionally, the MR component of CAI can also be adapted to provide nurses with instant and real-time access to care logs showing what has/still needs to be done for a patient as well as guided instructions with item locations to further care for the patient. This solution is especially beneficial for nurses who are new in the field or to the hospital.

The Virtual Ward Round: Immersive Collaboration for Better Care

What if medical teams could step into a shared, intelligent virtual space that feels as real and responsive as their own hospital corridors? The Virtual Ward Round reimagines medical debriefing and patient handovers as immersive, interactive experiences powered by TRANSMIXR tools.

Training Moment: A junior nurse, unfamiliar with the ward, uses the same MR system to orient themselves—receiving step-by-step guidance for patient care tasks while still connected to the handover conversation. Together, these experiences show how TRANSMIXR can turn stressful, high-stakes handovers into efficient, human-centered, and safe moments of care coordination.

Morning debrief: A cardiac surgery team gathers in a virtual replica of the operating theatre. The lead surgeon, connecting remotely from another hospital, walks the team through the day's procedures, using the Virtual Control Room & Studio. Everyone can see the exact room setup thanks to Planica XR's capture.

Afternoon handover: Nurse Clara is finishing her shift in the ICU. Normally, she'd need to wait for her replacement who is running late. Instead, she logs into the MR handover space. With CAI's mixed reality overlay, her colleague instantly sees the real-time patient logs, what medications have been given, and which tasks are pending. Clara points out the exact location of supplies through MR guidance.

Training moment: A junior nurse, unfamiliar with the ward, uses the same MR system to orient themselves—receiving step-by-step guidance for patient care tasks while still connected to the handover conversation. Through the social XR capabilities of Space Archivists, this collaboration can happen both in the hospital room and in fully virtual roundtables across institutions.

Opportunities & Impact:
- Improved patient safety: Virtualized debriefings ensure everyone shares the same situational awareness, reducing miscommunication before procedures.
- Smoother nurse handovers: MR-enabled care logs provide clarity and continuity, even during delays or stressful shifts.
- Knowledge transfer: New or junior staff benefit from guided, context-aware instructions, helping them adapt quickly to new hospital settings.
- Cross-institutional collaboration: Specialists from different hospitals can join virtual debriefings in simulated operating rooms, sharing expertise without physical travel.

In the Distraction scenario, TRANSMIXR solutions can be used — either individually or in combination — to help patients stay calm during stressful or anxiety-inducing procedures. Patients may choose to immerse themselves in a calming VR environment, with Planica XR offering 3D and 360º views of natural settings. Alternatively, they can play VR games created through the Curator tool in Space Archivists. These games can be tailored by hospital staff to suit different patient age groups and procedure durations, ensuring they are both engaging and soothing. The CAI's MR component can also be layered with either option, allowing patients to see both the real and virtual environments simultaneously — giving them a greater sense of comfort and control when needed.

Redefining Patient Care: One Journey at a Time

TRANSMIXR

How can we reduce patient anxiety, improve procedural efficiency, and optimize staff resources—all at once? With TRANSMIXR tools, immersive VR experiences can transform stressful medical moments into calming, manageable "healing journeys" that benefit both patients and professionals.

A young patient arrives for a procedure, visibly anxious. Traditionally, multiple nurses may be needed to reassure them, prolonging preparation time. Instead, the nurse explains the procedure, then introduces a calming VR experience. Within moments, the child is engaged and relaxed—less fearful, more cooperative. Parents, seeing their child at ease, are calmer too. The procedure proceeds more smoothly, requiring fewer staff to intervene, and the nurse can focus fully on clinical tasks.

The Clinical Value:
- Improved patient cooperation: Calmer, more focused patients allow procedures to start and finish more quickly.
- Time and resource savings: Fewer nurses are needed solely for emotional reassurance, freeing staff to concentrate on clinical delivery.
- Better patient outcomes: Lower anxiety levels support smoother recoveries and may reduce hospitalization duration.
- Enhanced family experience: Parents and relatives feel reassured when they see their loved one calm and comfortable, improving the overall care experience.

For patients with longer stays, gamified VR experiences offer more than entertainment: they reduce boredom, encourage mobility, and foster social connection with friends, family, or fellow patients—all of which support recovery and potentially reduce hospitalization time.

How TRANSMIXR tools make it possible:

- **Immersive environments with Planica XR:** Patients can step into soothing natural landscapes through 3D and 360º VR, helping them relax and focus on calming surroundings during stressful or painful procedures.
- **Customizable VR games via Space Archivists:** Hospital staff can easily design tailored experiences through the Curator tool—adapting games to specific age groups, procedure types, or time durations. This ensures engagement is not only fun but clinically appropriate.
- **Mixed Reality with CAI:** For patients who need reassurance and a sense of control, CAI's MR component allows them to remain aware of both the real and virtual environments simultaneously. They can see staff and clinical surroundings while still benefiting from immersive distraction, striking the right balance between comfort and focus.

In the Education/support scenario, both medical professionals and patients can benefit from VR technology. For medical professionals in training, Space Archivists can be used to provide an interactive VR environment in which they can train and practice skills – such as learning new equipment or how to conduct certain procedures hands-on – in a controlled environment. Here, the MR component of CAI can also be used to better see what they're doing with their hands in the real environment. The 3D capturing feature of Planica XR could be used to visualize environments in which these training scenarios would take place, e.g., in an operating room. The Interview scene in Planica XR can also be used for children or nervous patients to learn about their (or other) procedures to feel prepared for their appointment.

From Fear to Fluency: Learning in a Virtual Clinic

TRANSMIXR

What if both medical professionals and patients could step into a safe, immersive environment where the unknown becomes familiar, practice becomes second nature, and fear is transformed into confidence? By weaving together TRANSMIXR tools—Space Archivists, CAI, and Planica XR—we create a "Virtual Clinic" that allows doctors to train with real-world precision and patients to explore their journey with curiosity instead of fear.

This Virtual Clinic concept turns the often intimidating world of healthcare into an interactive, supportive, and confidence-building space where every user—doctor or patient—can see, feel, and prepare for what lies ahead.

Opportunities & Impact:
- For Medical Professionals: Safe, hands-on training with realistic environments; mixed reality (CAI) enhances precision by letting them see their own hands; lowers risks and costs while boosting confidence and retention.
- For Patients: Immersive VR stories reduce fear and build trust; children and anxious patients feel more prepared for procedures.

Elena is a medical student in her second year. She puts on the VR headset and enters a fully recreated operating room captured with Planica XR. Using the Space Archivists template, she practices a new surgical technique, repeating it until her movements are smooth. The CAI MR template lets her see her own hands as she maneuvers instruments, blending her tactile sense with digital feedback. She feels ready to step into a real operating theatre.

Down the hall, 8-year-old Amir is preparing for his first MRI scan. Instead of dreading the unknown, he dons a headset where he can watch a Q&A (via Planica XR's interview scene) about his procedure as well as some instructions walking him through what the machine looks like, what sounds he'll hear, and how he should lie still. By the time his real appointment comes, Amir is calm, confident, and curious rather than fearful.

In this Virtual Clinic, doctors gain mastery while patients gain peace of mind—proving that immersive technology can turn the intimidating world of healthcare into a place of learning, preparation, and support.

In the Wayfinding scenario, the 3D capturing feature of Planica XR would provide new nurses, medical professionals, and new ambulance drivers a realistic and true representation of the hospital/departments/routes to find their way around and practice routes. The same hospital-wayfinding experience could be used for virtual tours intended for patients. Here, the experience could benefit from a gamified component, such as Space Archivists, to make the virtual tour more engaging and interactive. Patients, especially children, can feel calmer if they already know where to go and what the hospital looks like before their visit. By also making it a fun experience for them in advance they will make that same positive correlation when they eventually come for their hospital visit.

Immersive Pathways – Training for the Unexpected

What if medical professionals could prepare for the most critical moments without risk, practicing not just medicine but the journeys that save lives? With VR-powered wayfinding and immersive training, hospitals and emergency services unlock a new dimension of learning—safe, realistic, and endlessly adaptable.

A new ambulance driver grips the wheel, heart steady but focused. Instead of navigating through unpredictable city traffic, they're inside a fully immersive simulation—every road, every hospital entrance, every detour recreated in lifelike 3D. Here, they can explore, repeat, and master the safest routes without ever endangering a patient. If a road closes tomorrow, a new simulation appears the next day, ensuring they're always prepared for the unexpected.

Meanwhile, inside the hospital, a new nurse walks the corridors—not in real life, but virtually. Wearing a headset, they explore the hospital's departments before ever stepping foot on the ward. They practice transferring patients, checking if stretchers fit through narrow doors, and planning the fastest routes to emergency units. Even before their first shift, they already know the layout, reducing hesitation in real situations.

Across departments, staff share these simulations, collaborating on optimal pathways and procedures. This collective learning ensures not just efficiency but also a culture of preparedness.

Opportunities & Impact:
- Safer Training: Professionals learn critical navigation skills without real-world risks.
- Adaptive Learning: Environments update dynamically with real-world changes (e.g., road closures, new hospital wings).
- Collaborative Knowledge: Experienced staff guide trainees virtually, sharing insights and feedback.
- Cross-Departmental Insight: Staff explore each other's departments to plan more efficient emergency responses.
- Patient Empowerment: Virtual tours, made engaging and fun, reduce anxiety—especially for children—before hospital visits.

How TRANSMIXR tools come to life:

- **Planica XR (3D capturing):** Captures hospitals, departments, and routes in photo-realistic detail. New ambulance drivers, nurses, and medical staff can safely practice navigating these environments before entering them in real life
- **Virtual Tours for Patients:** The same hospital-wayfinding experience can be repurposed as calming, informative tours for patients.
- **Gamified Layer with Space Archivists:** Especially for children, gamification makes hospital exploration fun and interactive. By experiencing the hospital in advance as a positive, game-like journey, they arrive calmer and more prepared for their visit.

This booklet aims to share the results and insights gathered from the transferability workshops and activities conducted within the TRANSMIXR project. Its purpose is to inspire organisations inside and outside the project's original domains by illustrating how XR and AI solutions can be meaningfully adapted across sectors. By presenting the creative concepts, reflections, and lessons learned, the booklet seeks to spark conversations, broaden perspectives, and encourage stakeholders to imagine how TRANSMIXR — and similar emerging technologies — can be integrated into their own practices and workflows. This booklet serves as a resource to support cross-sector innovation, promote wider uptake, and ensure that the tools and experiences developed through TRANSMIXR can continue to create value well beyond the project's initial scope.

Conclusion

The work carried out and presented in this booklet show that there is strong potential of TRANSMIXR technologies to inspire innovation far beyond their original domains. By engaging stakeholders across sectors such as the agricultural sector, architecture, entertainment, gaming, medical sector, SMART education, and sports, the study showed that XR and AI solutions can be meaningfully adapted to address a wide range of real-world challenges. Through Demonstration Box activities and co-creation ideation exercises, participants co-created 11 inspirational creative concepts, several of which were identified as highly feasible and impactful, particularly in fields like education and the medical sector. These results validate the power of participatory, user-centred methods to stimulate cross-sectoral dialogue and generate new ideas.

What became apparent as an important aspect in several discussions was the question of sustainable uptake and long-term impact of technologies. Some important considerations that were highlighted included: ensuring technical stability and usability, addressing resource constraints, supporting digital literacy, navigating human and organisational factors, and meeting ethical and regulatory requirements. These insights underline that while XR and AI hold broad promise, successful adoption depends on tailoring solutions to specific sectoral needs through co-design and ongoing collaboration with end users.

By proactively exploring transferability, we can ensure that developed technologies do not remain confined to a narrow set of use cases but instead have the opportunity to benefit a wider ecosystem. This approach maximises the return on invested effort and fosters a culture where innovations can evolve, adapt, and find new relevance over time.

The process used for this work (combining demonstrations, participatory workshops, and scenario-based ideation) offers a practical model that other organizations can replicate. It shows how structured cross-sector exploration can reveal new opportunities, strengthen stakeholder engagement, and support more sustainable, future-proof innovation trajectories.

Credits

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We hope this booklet inspired you to explore the wonderful opportunities of XR and AI!

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Our Consortium

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