Alliance4XR

Innovation alliance to infuse Extended Reality skills into Higher education and Vocational Training

D4.1 Demonstration Plan

Co-funded by the European Union

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Keywords	Project Demonstration Plan; action plan; training course; training workshops; other activities
Abstract (for dissemination)	*The Project Demonstration Plan, deliverable D4.1, defines in detail the plan to be realized to successfully and timely demonstrate Alliance4XR's curriculum. The D4.1 establishes for each partner, including the team that will administer the demonstration activities per institution, the specific activities to be run and their timeframe, performance, success and quality indicators and assessment criteria, and procedures and templates for interacting with target groups to collect feedback to be utilized for the evaluation of the teaching and training material. Those*

	activities will be followed and further deployed in tasks 4.2 and 4.3 within WP4.

Change history

Version number	Date	Implemented by	Changes made
v0.1	**18/02/2025**	**Son Dang**	**First Release**
v0.2	**04/03/2025**	**Son Dang**	**Second Release**
v0.3	**12/03/2025**	**Son Dang**	**Third Release**
v0.4	**17/03/2025**	**Son Dang**	**Final Release**
V1.0	**31/03/2025**	**K. Smagas**	**Version for submission**

Approval procedure

Version #	Reviewed by	Approved by	Institution	Date
V0.4	**George Mallouppas;** **K. Smagas**		**CMMI** **GEO**	**18/03/2025** **24/03/2025**
V0.4		**Joana Silva** **Anders Ostman**	**CEPROF** **Novogit**	**27/03/2025** **28/03/2025**

Abbreviations

Term	Explanation
AI	Artificial intelligence
AR	Augmented reality
CA	Consortium Agreement
DL	Deliverable Leader
DoW	Description of Work
DR	Deliverable Reviewer
EB	Executive Board
EC	European Commission
ECVET	European Credit System for Vocational Education and Training
EQAVET	European Quality Assurance in Vocational Education and Training
EQF	European Qualifications Framework
EU	European Union
GA	Grant Agreement
GANTT	Gantt Chart
GAS	General Assembly

GDPR	General Data Protection Regulation
GenAI	Generative Artificial Intelligence
HEIs	Higher Education Institutions
IXR	Intelligent XR
KPIs	Key Performance Indicators
MR	Mixed reality
NORISK	Name of an Erasmus Mundus Joint Master Course (ERASMUS-EDU-2023-PEX-EMJM-MOB)
PDF	Portable Document Format
PIN	Personal Identification Number
PM	Project Manager
PO	Project Officer
QB	Quality Board
QC	Quality Checker
QM	Quality Manager
R&D	Research & Development
SME	Small and Medium-sized Enterprise
TBA	To Be Announced
TC	Technical Coordinator
TL	Task Leaders
VET	Vocational Education and Training
VR	Virtual reality
WP	Work Package
WPL	Work Package Leader
XR	Extended reality

Disclaimer

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EXECUTIVE SUMMARY

WP4 focuses on implementing the curriculum and training materials developed in WP2 and the platforms and tools created in WP3 through training courses, workshops, and other related activities. The primary objective of Deliverable 4.1 is to provide a comprehensive plan for each partner's multiplier activities, ensuring a cohesive approach to these events.

These action plans outline the composition of the teams responsible for organizing demonstration activities, the specific tasks to be performed, the timeline for execution, and the performance metrics to be used. They also define success and quality indicators, assessment criteria, and standardized procedures for engaging trainees, including structured templates for collecting feedback. It enables a systematic evaluation of the teaching and training materials' effectiveness. The action plans allow the consortium to efficiently manage and synchronize the timeline for all activities within the project's remaining duration. By using these standardized tools, the consortium ensures seamless coordination despite the strict timeline and the concurrent execution of multiple work packages. The set of indicators and assessment criteria helps the consortium monitor the performance, success, and quality of all activities consistently. Additionally, dedicated tools and procedures are put in place to facilitate interaction with trainees, gathering their feedback to evaluate and enhance the XR training initiatives continuously.

Moreover, collaboration among consortium partners in organizing courses, workshops, hackathons, competitions, and special events fosters knowledge sharing and best practice exchange, improving both individual partner competencies and contributing to the overall success of the Alliance4XR project.

Finally, this deliverable proposes the structure and delivery method for mainstreaming of the project's training material and curricula within the partner institutions by specifying content and time. As of March 2025, the project results will be formally adopted and integrated into existing educational and training offerings by at least four (4) consortium partners.

1 INTRODUCTION

Extended reality (XR), which encompasses virtual reality (VR), augmented reality (AR), and mixed reality (MR), is advancing rapidly, driven by improvements in hardware, software, and artificial intelligence. High-end headsets like the Apple Vision Pro, Meta Quest 3, and Microsoft HoloLens 2 are pushing the boundaries of immersive experiences with enhanced resolution, better field of view, and advanced hand tracking. AR applications are becoming more prevalent in industries such as healthcare [1], [2], retail [3], [4], and manufacturing [5], [6], with smart glasses enabling hands-free digital overlays in real-world settings. AI integration is improving the realism of virtual environments and interactions, making XR experiences more responsive and personalized. Cloud computing and 5G are reducing latency, enabling more seamless remote collaboration and real-time XR applications. Companies like Microsoft, Google, and Meta are investing heavily in enterprise XR solutions [7], particularly for training, remote work, and industrial design. However, challenges such as high costs, bulky hardware, and limited content creation tools still hinder widespread adoption. Ethical concerns, including data privacy and the psychological impact of prolonged XR use, are also areas of active discussion. The convergence of XR with the metaverse concept is shaping new ways of socializing, working, and gaming in persistent digital spaces. As technology advances, XR is expected to become more accessible, leading to broader integration into daily life.

1.1 Project objectives

Recent studies and surveys have highlighted a significant gap between theoretical knowledge and practical training in Extended Reality (XR) within tertiary education institutions and vocational training centers. This disparity has contributed to a persistent shortage of industry-relevant XR skills, thereby impeding the efficient development of commercial products and services across multiple sectors. The Alliance4XR project aims to address this issue by co-developing and evaluating a specialized teaching and training methodology tailored to higher education institutions (HEIs) and vocational education and training (VET) centers. This initiative focuses on equipping educators and trainees with the necessary competencies to bridge the XR digital skills gap, with a particular emphasis on engineering disciplines. By implementing this methodology, the project seeks to

enhance the capacity of HEIs and VET providers to respond to both technological advancements and market accessibility challenges effectively. Additionally, the developed training materials will facilitate the alignment of academic curricula with industry requirements, thereby improving employment readiness for students and trainees pursuing XR-related engineering careers.

1.2 Objectives of this report

WP4 of the Alliance4XR project deals with planning the multiplier activities and demonstrates the project curricula in two rounds. This work package is divided into three tasks, namely:

- **"T4.1 Planning of large-scale demonstration activities"** to plan in detail the status under which the material and platform will be tested, used, and evaluated by the users
- **"T4.2 Demonstration and testing of the teaching and training material within Alliance4XR"** to execute the plan for testing the material by the partners' institutions of the consortium
- **"T4.3 Large scale demonstration"** to plan and launch dedicated training events targeting students, professionals and training providers.

1.3 Achievement indicators

The pre-specified achievement indicators for this task are the following:

- The number of tentative lecture courses that can be adopted by the partners' Universities and Training centers: 5
- Number of planned training workshops organized by the partner institutions: 7
- Number of planned special activities (such as summer schools, competitions, academy, vocational excellence events) : 3

1.4 Structure of the document

This deliverable is structured into five primary sections. Following the introductory chapter, the methodology section outlines the detailed objectives of Task 4.1, which represents the core activity of this deliverable and describes the preparatory measures undertaken by all partners to achieve the specified goals. The subsequent section compiles findings from Work Packages 2 and 3 (WP2 and

WP3) related to curricular teaching and training materials, as well as the developed platform and tools. Based on these insights, the action plan for each participating institution is formulated, constituting the central component of this deliverable. The final section presents a synthesis of discussions and conclusions derived from the deliverable. The Annex includes the declaration template used to request information regarding the activities conducted by project partners.

2 METHODOLOGY

The primary objective of this task is to conduct preparatory activities for the demonstration of the Alliance4XR teaching and training materials within the participating universities and training centers. To achieve this, the consortium has developed a comprehensive action plan that aligns demonstration activities with the specific characteristics of each institution.

This action plan will establish the following key components:

► **Administration of Demonstration Activities:** The composition of the administration team responsible for conducting demonstration activities at each institution will be determined based on the registered project teams and the allocation of person-months for Work Package 4 (WP4) from each partner.

► **Specific Activities:** The nature of the activities to be implemented will depend on the classification of each partner, whether as a higher education institution (HEI), small and medium-sized enterprise (SME), vocational education and training (VET) provider, professional association, or EU-wide non-governmental organization. Activities may include but are not limited to, training courses, lectures, workshops, summer school programs, hackathons, competitions, and vocational excellence events. The syllabus or agenda for each event will be preliminarily structured based on the expertise and experience of the respective partner institutions.

► **Timeframe:** Training courses and lectures conducted within HEIs and VET institutions will align with the respective academic semester schedules, while workshops and other events will follow the timeline set by the project Gantt chart and milestones.

► **Performance, Success, and Quality Indicators:** The assessment criteria and key performance indicators (KPIs) for evaluating the effectiveness of the demonstration activities will be aligned with the metrics established in WP2.

► **Procedures for Feedback Collection:** The methods and templates for engaging with target groups to gather feedback on the teaching and training materials will be determined based on each partner's expertise and existing assessment systems. This feedback will be utilized to refine and enhance the effectiveness of the educational content.

To request that information from each partner, the template (attached in the Annex) is sent to all partners, and their feedback is presented in the fourth section.

3 GATHERING THE CURRICULUM (WP2) AND PLATFORM (WP3) DEFINITIONS

3.1 Curricular teaching and training materials

The Alliance4XR curricula for students and educators are designed to provide structured, competency-based learning in alignment with European qualification frameworks, including the European Qualifications Framework (EQF), the European Credit System for Vocational Education and Training (ECVET), and the European Quality Assurance in Vocational Education and Training (EQAVET). Each curriculum strand integrates technical, practical, and ethical components to ensure that learners not only develop proficiency in XR technologies but also gain a comprehensive understanding of the ethical implications associated with immersive environments. The curriculum structure is informed by key insights from focus group workshops and is designed to be adaptable, allowing for modular implementation based on the specific requirements of individual educational institutions.

► **Curriculum for Students**

Table 1: Curriculum for Students

Strand	Learning Outcomes
Strand 1:	

Introduction to XR Technologies	• Define Extended Reality (XR), including but not limited to Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR), and Intelligent XR (IXR) distinguish their applications. • Describe the historical development and future trends in XR technology. • Identify key hardware and software components used in XR environments. • Recognize the ethical implications of XR, including privacy concerns, health and safety risks of XR, and social implications.
Strand 2: XR Hardware and Software Setup	• Demonstrate the ability to set up, configure, and troubleshoot XR hardware (headsets, AR devices, motion tracking systems, etc.). • Compare different XR platforms and development tools (e.g., Alliance4XR, Unity, Unreal Engine, WebXR). • Apply basic programming concepts in XR environments to create interactive elements. • Assess the privacy risks associated with data collection in XR devices and propose leading practices for responsible use.
Strand 3: XR Development for Engineering and Applied Sciences	• Utilise 3D modeling tools to create assets for XR applications. • Develop interactive XR simulations for engineering and applied science applications. • Implement real-time physics and spatial interactions within XR environments. • Analyze ethical considerations in XR engineering applications, including safety, accessibility, inclusivity in virtual spaces, and the impact of GenAI.
Strand 4: Advanced XR Applications Across Industries	• Apply XR solutions to specific industry needs (construction, healthcare, maritime, education, and entertainment). • Design scenario-based training simulations that mirror real-world job environments. • Optimise user interaction and experience design for different audiences.

	• Evaluate ethical challenges in industry-specific XR implementations, such as data security in healthcare and digital labor rights in virtual workspaces.
Strand 5: Collaborative and Multi-User XR Environments	• Create multi-user XR experiences that support real-time interaction and collaboration. • Use networking technologies to facilitate shared virtual spaces. • Develop social XR applications that encourage effective communication and engagement. • Address cybersecurity and user safety concerns in networked XR environments.
Strand 6: Capstone Project – Ethical and Practical XR Solutions	• Design and develop a fully functional XR application addressing a real-world problem. • Integrate ethical frameworks into the project development process, ensuring responsible innovation, including green skills. • Conduct user testing and feedback analysis to improve XR usability and accessibility. • Present findings in a professional demonstration and written report detailing technical execution and ethical considerations.

Breakdown:

- Lecture-based learning: 40% (theory, ethics, case studies).
- Practical hands-on exercises: 50% (development, simulations, troubleshooting).
- Assessment and projects: 10% (capstone project, user testing, presentations).

► Curriculum for Educators

Table 2: Curriculum for Educators

Strand	Learning Outcomes
Strand 1:	• Explore the pedagogical potential of XR technologies in education.

Introduction to XR in Education	• Compare different learning theories related to immersive learning. • Identify challenges in XR adoption for teaching and propose solutions. • Discuss ethical considerations in XR-enhanced learning, including but not limited to student data privacy, inclusion, equity of access, and GenAI.
Strand 2: Understanding XR Hardware and Software for Teaching	• Demonstrate setup and troubleshooting of XR classroom tools. • Evaluate platform compatibility and accessibility features. • Select appropriate XR applications for different educational settings. • Ensure ethical handling of student data and informed consent in XR learning environments.
Strand 3: Pedagogical Strategies for XR Integration	• Develop teaching and learning plans incorporating XR to enhance subject learning. • Apply active learning principles to XR-based instruction. • Assess learning outcomes in XR-enhanced lessons. • Foster inclusive and accessible learning environments in immersive education settings.
Strand 4: XR Content Creation for Educators	• Use XR authoring tools to create interactive learning materials. • Adapt existing 3D content for use in educational settings. • Implement assessment techniques for measuring student engagement in and learning through XR. • Address bias and ethical concerns in XR educational content development.
Strand 5: Evaluating and Improving XR-Enhanced Teaching	• Critically assess student engagement and learning effectiveness in XR lessons. • Collect and analyze student feedback to improve XR teaching methodologies.

	• Reflect on ethical responsibilities in immersive teaching, including green skills, content moderation, and age-appropriate design. • Design an XR-enhanced teaching strand and present it to peers for evaluation.

Breakdown:

- Lecture-based learning: 50% (theory, ethical frameworks, pedagogy).
- Practical workshops: 40% (hands-on use of XR tools, curriculum integration).
- Assessment and peer feedback: 10% (lesson planning, self-evaluation).

3.2 Developed platform and tool

The Alliance4XR mock-up platform functions as a visual prototype, illustrating its fundamental features, user interface, and core functionalities prior to full-scale development. It provides a structured representation of the platform's content management system, interactive learning tools, and real-time collaboration capabilities, ensuring alignment with the requirements of educators, trainers, and industry professionals. A primary focus of the mock-up is its integration with Work Package 2 (WP2), facilitating the incorporation and effective deployment of the training materials developed during this phase.

► **Dashboard:** The Alliance4XR platform's dashboard will offer a user-friendly interface for managing courses, materials, and activities. Featuring quick-access menus, it enables seamless navigation between content management and interactive XR tools, allowing educators, trainers, and industry professionals to efficiently oversee resources, track engagement, and integrate XR-based training.

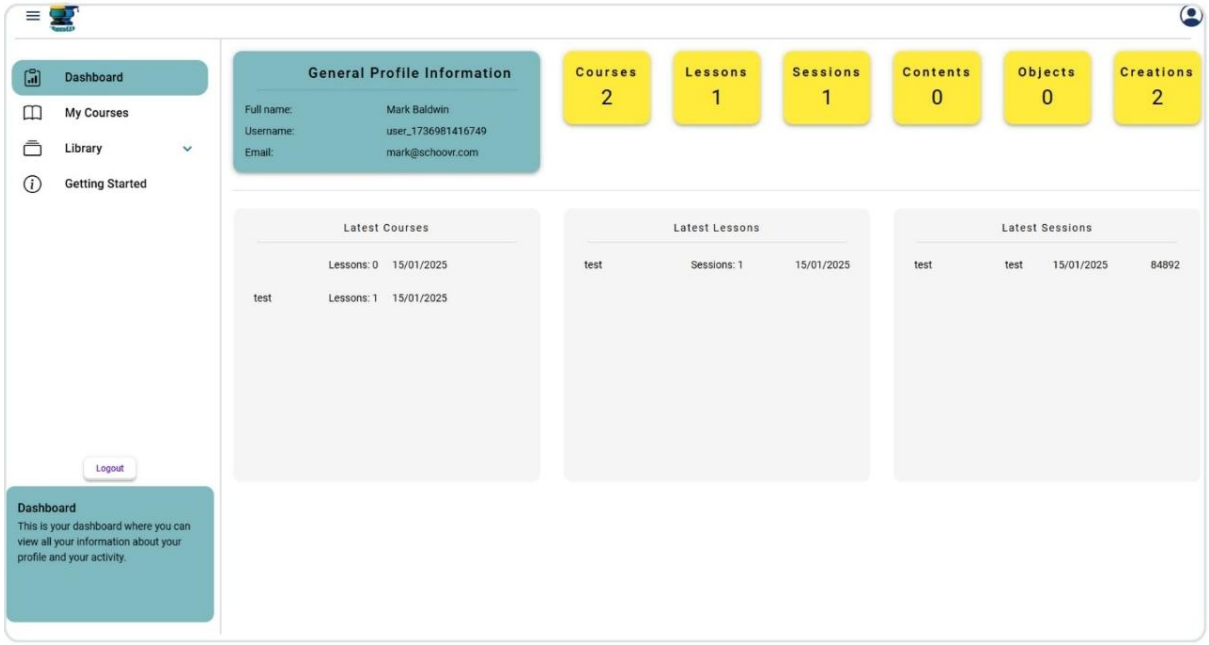


Figure 1: Platform Dashboard

► **Content Management System:** Educators and trainers will be able to upload and organize PDFs, quizzes, interactive content, and 3D assets using a drag-and-drop interface for easy course customization. Embedded multimedia enhances engagement, fostering immersive and interactive learning experiences.

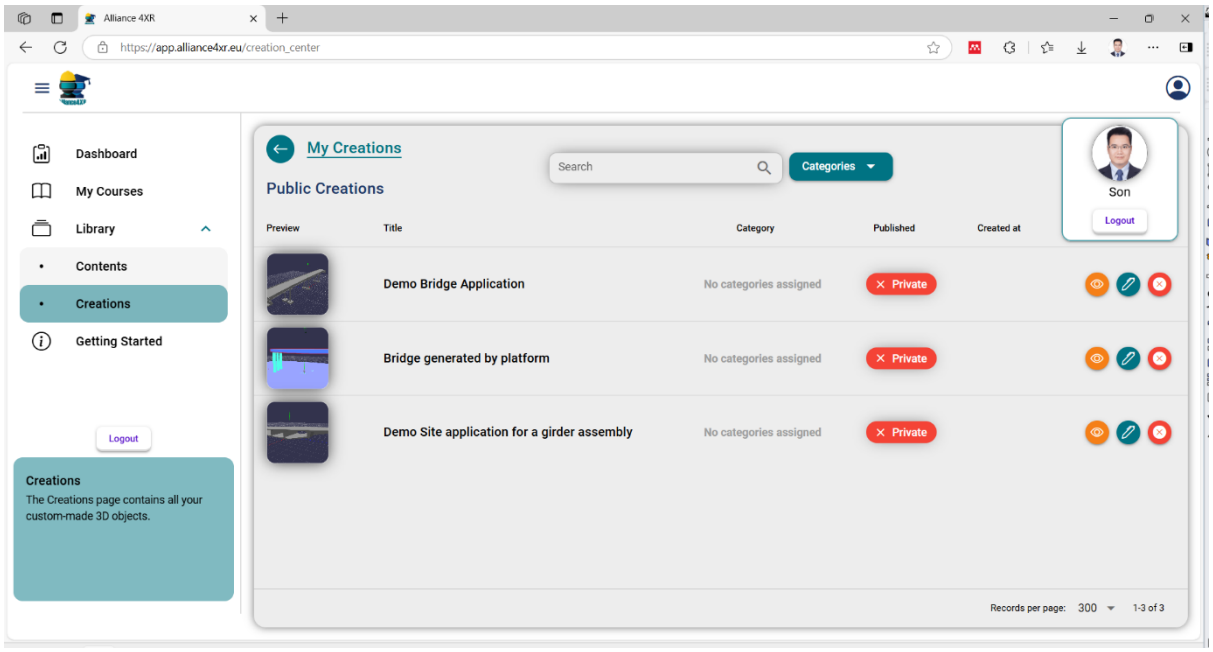


Figure 2: Content Management System

► **User collaboration & engagement tools:** The platform provides immersive training through 3D environments, simulations, and real-time collaboration, tailored to sector-specific needs in industries like structural engineering, maritime,

and energy. Users will be able to create realistic simulations to develop critical skills in a controlled environment, with embedded quizzes and assessments enabling progress tracking. Designed for multi-device compatibility, it supports VR headsets, desktops, tablets, and mobile devices, with browser-based access eliminating the need for high-end hardware enhancing accessibility. Built-in messaging and annotation tools facilitate interaction, feedback, and collaboration, supporting both synchronous and asynchronous learning.

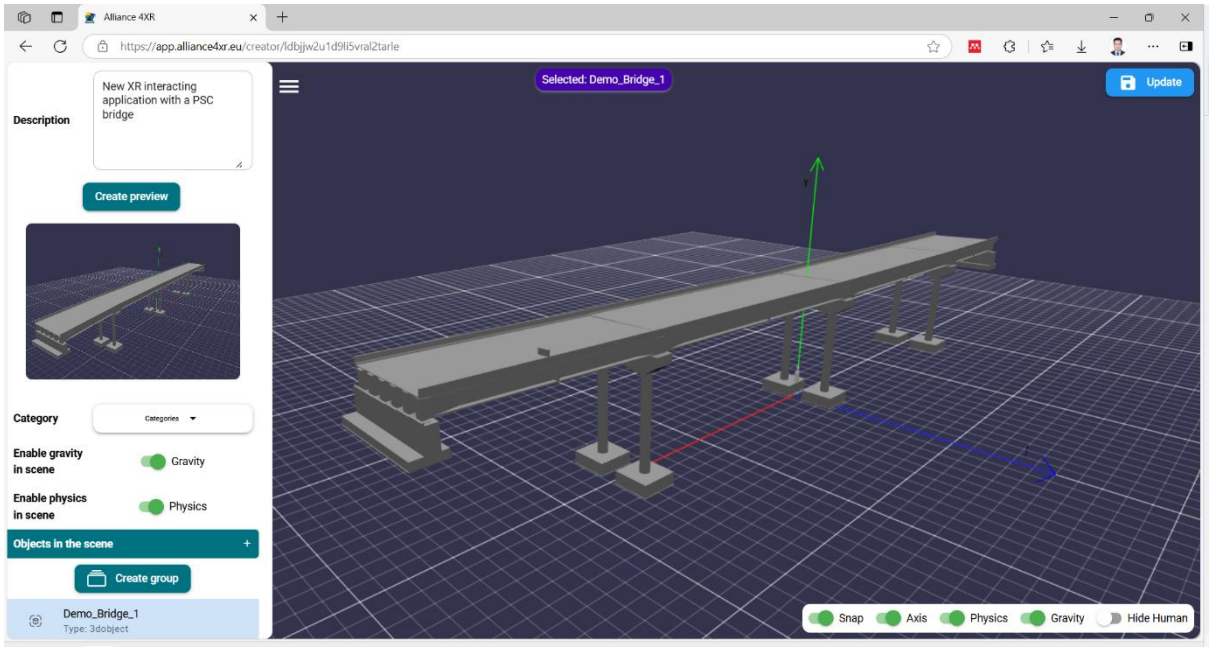
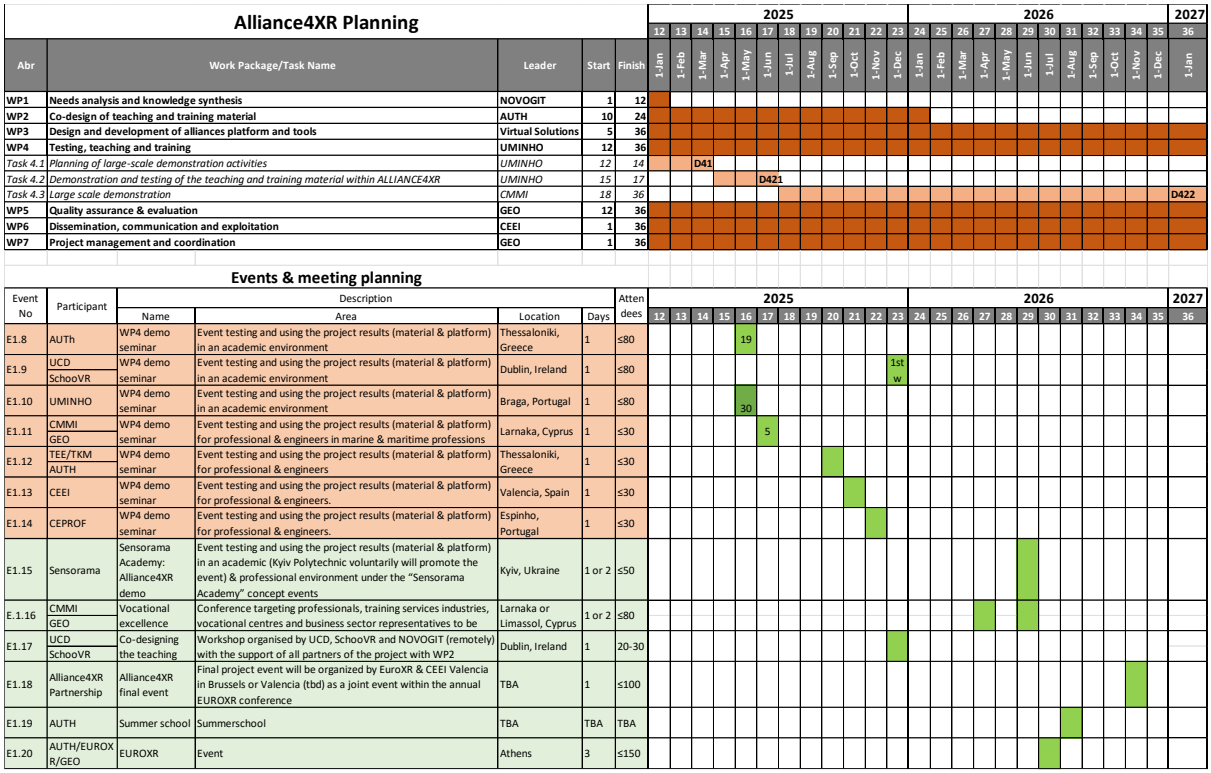


Figure 3: Interact with 3D content

► **Student access:** Students will be able to join courses via a unique PIN system, simplifying onboarding and enhancing security while ensuring GDPR compliance. This streamlined access eliminates administrative barriers, providing a user-friendly 1and secure learning experience.

4 ACTION PLAN - PER INSTITUTION

From April 2025 until the project's conclusion, all demonstrations and evaluations of the teaching and training materials within the Alliance4XR project will be conducted as part of Tasks 4.2 and 4.3. The following provides an overview of these tasks within the project's Gantt chart, along with their tentative schedule.



Alliance4XR Planning

Abr	Work Package/Task Name	Leader	Start	Finish
WP1	Needs analysis and knowledge synthesis	NOVOGIT	1	12
WP2	Co-design of teaching and training material	AUTH	10	24
WP3	Design and development of alliances platform and tools	Virtual Solutions	5	36
WP4	Testing, teaching and training	UMINHO	12	36
Task 4.1	*Planning of large-scale demonstration activities*	*UMINHO*	*12*	*14*
Task 4.2	*Demonstration and testing of the teaching and training material within ALLIANCE4XR*	*UMINHO*	*15*	*17*
Task 4.3	*Large scale demonstration*	*CMMI*	*18*	*36*
WP5	Quality assurance & evaluation	GEO	12	36
WP6	Dissemination, communication and exploitation	CEEI	1	36
WP7	Project management and coordination	GEO	1	36

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1-Jan 1-Feb 1-Mar 1-Apr 1-May 1-Jun 1-Jul 1-Aug 1-Sep 1-Oct 1-Nov 1-Dec | 1-Jan 1-Feb 1-Mar 1-Apr 1-May 1-Jun 1-Jul 1-Aug 1-Sep 1-Oct 1-Nov 1-Dec | 1-Jan

D41 D421 D422

Events & meeting planning

Event No	Participant	Description: Name	Description: Area	Location	Days	Attendees
E1.8	AUTh	WP4 demo seminar	Event testing and using the project results (material & platform) in an academic environment	Thessaloniki, Greece	1	≤80
E1.9	UCD SchooVR	WP4 demo seminar	Event testing and using the project results (material & platform) in an academic environment	Dublin, Ireland	1	≤80
E1.10	UMINHO	WP4 demo seminar	Event testing and using the project results (material & platform) in an academic environment	Braga, Portugal	1	≤80
E1.11	CMMI GEO	WP4 demo seminar	Event testing and using the project results (material & platform) for professional & engineers in marine & maritime professions	Larnaka, Cyprus	1	≤30
E1.12	TEE/TKM AUTH	WP4 demo seminar	Event testing and using the project results (material & platform) for professional & engineers	Thessaloniki, Greece	1	≤30
E1.13	CEEI	WP4 demo seminar	Event testing and using the project results (material & platform) for professional & engineers.	Valencia, Spain	1	≤30
E1.14	CEPROF	WP4 demo seminar	Event testing and using the project results (material & platform) for professional & engineers.	Espinho, Portugal	1	≤30
E1.15	Sensorama	Sensorama Academy: Alliance4XR demo	Event testing and using the project results (material & platform) in an academic (Kyiv Polytechnic voluntarily will promote the event) & professional environment under the "Sensorama Academy" concept events	Kyiv, Ukraine	1 or 2	≤50
E.1.16	CMMI GEO	Vocational excellence	Conference targeting professionals, training services industries, vocational centres and business sector representatives to be	Larnaka or Limassol, Cyprus	1 or 2	≤80
E1.17	UCD SchooVR	Co-designing the teaching	Workshop organised by UCD, SchooVR and NOVOGIT (remotely) with the support of all partners of the project with WP2	Dublin, Ireland	1	20-30
E1.18	Alliance4XR Partnership	Alliance4XR final event	Final project event will be organized by EuroXR & CEEI Valencia in Brussels or Valencia (tbd) as a joint event within the annual EUROXR conference	TBA	1	≤100
E1.19	AUTH	Summer school	Summerschool	TBA	TBA	TBA
E1.20	AUTH/EUROXR/GEO	EUROXR	Event	Athens	3	≤150

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Figure 4: Project GANTT and training events for WP4

4.1 AUTh

► **Organization:** ARISTOTLE UNIVERSITY OF THESSALONIKI (HEI – Greece)

► **Administer team for demonstration activities:**

Table 3: AUTh's Administer team for demonstration activities

Title	First name & Last name	E-mail	Role	Ref. ID (Orcid)
Prof.	Efstratios Stylianidis	sstyl@auth.gr	Leading	0000-0002-0188-5117
Dr.	Aikaterini Stamou	astamoy@topo.auth.gr	Team member	0000-0001-8606-9516
Mr.	Alexandros Skondras	skondrasal@gmail.com	Team member	0000-0002-6869-3312
Mr.	Ioannis Tavantzis	tavantzisioannis@gmail.com	Team member	0000-0003-1549-2645
Mrs.	Eleni Karachaliou	elenakarachaliou@gmail.com	Team member	0000-0002-6654-3775
Mrs.	Aikaterini Bakousi	kbakousi3@gmail.com	Team member	0000-0002-2445-1602
Mrs.	Zoi-Eirini Tsifodimou	zoieirini@plandevel.auth.gr	Team member	0009-0003-6023-7261

Mrs.	Ifigeneia Skalidi	ifigeneiaskalidi@gmail.com	Team member	0000-0002-6992-1006

► Tentative activities and timeframe for training course/lecture

- Activity name and type: The course E4.1-Photogrammetry.
- Target trainee: Students, Educators
- Tentative syllabus and estimated Teaching Hours:

Table 4: AUTh's tentative syllabus and estimated teaching hours

Strand	Estimated Hours
Strand 1: Introduction to XR, state-of-the-art, market needs, and training trends	4 hours
Strand 2: XR Content Creation in Photogrammetry	4 hours
Strand 3: Capstone project- evaluation (self-paced process)	8 hours
Total Hours for Educator Curriculum	16 hours

  - Lecture-based learning: 30% (theory, ethics, case studies).
  - Practical hands-on exercises: 60% (development, simulations, troubleshooting).
  - Assessment and projects: 10% (capstone project, user testing, presentations)
- The course "E4.1-Photogrammetry" is offered during the summer academic semester at the Faculty of Engineering, School of Spatial Planning and Development, Auth. Out of the 13 lectures, 2 are planned to incorporate content from the ALLIANCE4XR curriculum.

► Tentative activities and timeframe for the training workshop

- Activity name and type: Training session (hybrid) in AUTh's lecture E4-1-Photogrammetry, Faculty of Engineering, School of Spatial Planning and Development, AUTh.
- Duration (days): 1
- Target trainee: Students.
- Target total attendees: 80
- Event programming:
  - Introduction to basic XR/AR principles (2 hours)
  - Hands-on practice of Alliance4XR platform (2 hours)

- Self-study process/case study (8 hours)

- Planned time: 19/05/ 2025

► Tentative activities and timeframe for the training workshop

- Activity name and type: Summer School Program
- Duration (days): 2-5 days
- Target trainees: Students, Educators
- Tentative programming: TBA
- Planned time: Summer of 2026

► Performance, success, and quality indicators and assessment criteria:

Table 5: AUTh's assessment criteria

Assessment criteria and KPIs	For training course	For summer school
• Engagement Metrics:		
Number of students and educators actively using XR strands	80	40
Time spent in immersive learning environments	Average of 10 minutes per participant	Average of 30 minutes per participant (in non-continuous sessions
Participation in interactive discussions and hands-on projects	Pre- and post-questionnaires evaluating the workshop, content, and knowledge achieved	40 (Project work is part of the school
• Learning Outcomes		
Improvement in technical proficiency with XR development tools	30% of students demonstrate proficiency	80% of students demonstrate proficiency (final exam)
Successful completion of capstone projects demonstrating real-world application	80% of students complete their course	90% of students complete their course
Assessments on ethical considerations and leading practices in XR	70% of student's awareness of the ethical and leading practices of XR (i.e., through questionnaires)	90% of student's awareness of the ethical and leading practices

		of XR (i.e., final exam)
• Platform Usability & Adoption		
User feedback on ease of use and accessibility	questionnaires to receive participants' feedback	questionnaires to receive participants' feedback
Number of educators trained and integration of XR into teaching	N/A	N/A
Effectiveness of support materials and tutorials for non-technical users	Non-technical users can also be interrogated about the effectiveness of support materials included in the platform	N/A
• Industry Relevance		
Alignment of student projects with real-world industry challenges	dissemination of the tools and platform with students, teachers, and industry stakeholders	Project Work connects with real industrial cases
Industry partner involvement in curriculum validation and project mentoring	1-2 industry partners for the validation of the curriculum and mentoring of the project	Companies' participation in the summer school program
Adoption of the curriculum in vocational and higher education programs	it will be offered to at least one course in a Bachelor's or Master's curriculum	N/A

► **Feedback and evaluation:**

- Procedures: At the end of the event, feedback will be collected through feedback questionnaires.
- Templates for interacting with target groups: Surveys for students, tutors, and trainees.
- Survey approaches and online tools: Miro Boards or Mentimeter.

4.2 UMINHO

► **Organization:** UNIVERSIDADE DO MINHO (HEI – Portugal)

► **Administer team for demonstration activities:**

Table 6: UMINHO's Administer team for demonstration activities

Title	First name & Last name	E-mail	Role	Ref. ID (Orcid)
Prof.	Jose Matos	jmatos@civil.uminho.pt	Leading	0000-0002-1536-2149
Dr.	Son Dang	sondn@civil.uminho.pt	Team member	0000-0002-3341-3034

► Tentative activities and timeframe for training course/lecture

- Activity name and type: lecture at the NORISK (Erasmus Mundus Joint Master Course) – hybrid (10 students at UMInho and 10 students online)
- Target trainees: Students, Educators
- Tentative syllabus and estimated Teaching Hours:

Table 7: UMINHO's tentative syllabus and estimated teaching hours

Strand	Estimated Hours
Strand 1: eXtended Reality (state-of-the-art, market needs and training trends, XR taxonomy)	3 hours
Strand 2: Holographic computing	3 hours
Strand 3: AR basic application prototyping using game engine (Unity, MRTK, Azure Spatial Anchors) for site instruction, 4D simulation and automation	6 hours
Strand 4: AR advance applications for bridges	6 hours
Strand 5: Evaluating	2 hours
Total Hours for Educator Curriculum	20 hours

    - Lecture-based learning: 30% (theory, ethics, case studies).
    - Practical hands-on exercises: 60% (development, simulations, troubleshooting).
    - Assessment and projects: 10% (capstone project, user testing, presentations)
- The Norisk Master course follows the typical HEI semester, which starts in September and ends in March every year.

► Tentative activities and timeframe for the training workshop

- Activity name and type: training workshop-hybrid
- Duration (days): 1

- Target trainee: Students, Educators, Researchers, Developers, Administrators etc.
- Target total attendees: 80
- Event programming:
    - Welcome session and introduction to the Alliance4XR project
    - Lectures and theoretical presentation
    - Platform introduction
    - Interaction with the Platform
    - Application development
    - Round table discussion
- Planned time: 29-30 May 2025

► **Performance, success, and quality indicators and assessment criteria:**

Table 8: UMINHO's assessment criteria

Assessment criteria and KPIs	For training course/lecture	For training workshop
• Engagement Metrics:		
Number of students and educators actively using XR strands	20 students	20-30 in-person 50-60 online
Time spent in immersive learning environments	Average of 0.5 hours per student/participant	
Participation in interactive discussions and hands-on projects	Pre- and post-questionnaires evaluating the course, content, and individual confidence levels.	
• Learning Outcomes		
Improvement in technical proficiency with XR development tools	30% of students/participants demonstrate proficiency	
Successful completion of capstone projects demonstrating real-world application	80% of students/participants complete their course	
Assessments on ethical considerations and leading practices in XR	75% of students/participants' awareness of the ethical and leading practices of XR	
• Platform Usability & Adoption		
User feedback on ease of use and accessibility	questionnaires to receive student's/participants' feedback	
Number of educators trained and integration of XR into teaching	1-2	3-5

Assessment criteria and KPIs	For training course/lecture	For training workshop
Effectiveness of support materials and tutorials for non-technical users	100% of the learning material will be uploaded to the platform	Non-technical users will assess the effectiveness of the platform's support materials.
• Industry Relevance		
Alignment of student projects with real-world industry challenges	Students will develop XR applications for site works related to civil engineering	Disseminate the tools and platform with participants and companies
Industry partner involvement in curriculum validation and project mentoring	1-2 civil engineering partners	1-2 industry partners to validate the curriculum and mentor the project.
Adoption of the curriculum in vocational and higher education programs	1 HEI master course	1 HEI/VET.

► **Feedback and evaluation:**

- Procedures: At the end of the event, feedback will be collected through digital evaluation surveys.
- Templates for interacting with target groups: Surveys for students, tutors, and trainees and interviews of civil engineering professionals.
- Survey approaches and online tools: Google Docs.

4.3 Sensorama

► **Organization:** Sensorama Academy (SME – Ukraine)

► **Administer team for demonstration activities:**

Table 9: Sensorama's Administer team for demonstration activities

Title	First name & Last name	E-mail	Role	Ref. ID
Mr.	Sergii Tereshchenko	st@sensoramalab.com	CEO	N/A

► **Tentative activities and timeframe for the training workshop**

- Activity name and type: Training Workshop
- Activity overview: Education (including lectures, workshops, and courses) at Sensorama Academy is provided free of charge, subject to competitive

student selection. To successfully pass the selection, you must have previous development experience and be able to explain your motivation and interest in immersive technologies, such as VR and AR.

Figure 5: Previous Sensorama Academy activities

(source: © 2018 Sensorama Inc https://sensoramalab.com/ua/academy)

- Duration (days): 1
- Target trainees: Students, Educators
- Target total attendees: 50
- Event programming:

Table 10: Sensorama's training workshop tentative program

Time	Activity name	Description
9:00 – 9:30 AM	Registration & welcome coffee	Participants are registered. Networking
9:30 – 10:30 AM	Presentation: XR technologies in higher education & vocational training	Participants gain an understanding of XR training trends, challenges, and market needs.
10:30 – 11:30 AM	Introduction to the Alliance4XR online platform	Participants learn how to navigate and use the Alliance4XR platform. Presentation part
11:30 – 11:45 AM	Coffee break	Break for refreshments.
11:45 AM – 12:45 PM	Hands-on session 1: Getting started with the platform	Participants create accounts, explore platform features, and try creating content on the platform. Moderated workshop
12:45 – 1:45 PM	Hands-on session 2: Creating & managing training content	Educators create sample learning courses; students test usability and provide feedback.

1:45 – 2:45 PM	Lunch break	Break for lunch.
2:45 – 3:45 PM	Co-defining the teaching & training curricula for XR	Discussion on collaboration strategies between academia & industry
3:45 – 4:00 PM	Short break	Break for refreshments.
4:00 – 4:45 PM	Closing discussion & evaluation	Participants reflect on key takeaways and provide feedback via an online evaluation form.

- Planned time: before Jul 2026

► Performance, success, and quality indicators and assessment criteria:

Table 11: Sensorama's assessment criteria

Assessment criteria and (KPIs)	For training workshop
• Engagement Metrics:	
Number of students and educators actively using XR strands	20
Time spent in immersive learning environments	In total, at least 2 hours were spent in XR during the event.
Participation in interactive discussions and hands-on projects	At least 20 responses in quizzes and 30 registered accounts
• Learning Outcomes	
Improvement in technical proficiency with XR development tools. (Ability to navigate, upload, and access software, data, and 3D designs for training courses).	At least 70% of participants stated that their technical proficiency in using the Alliance4XR platform for XR education improved after this workshop.
Successful completion of capstone projects demonstrating real-world application. (Successful creation of a training module integrating XR content, simulations, or datasets. Ability to identify key challenges in XR adoption and solutions for curriculum alignment. Knowledge of best practices for structuring XR-focused training courses. Understanding of collaboration strategies between academia, research, and industry in XR education).	At least 70% of participants complete the sample course.
Assessments on ethical considerations and leading practices in XR	At least 70% of participants stated in the survey that their awareness of the ethical and leading practices of XR improved after this workshop
• Platform Usability & Adoption	

Assessment criteria and (KPIs)	For training workshop
User feedback on ease of use and accessibility	At least 70% of users express confidence in using the Alliance4XR platform after the training.
Number of educators trained and integration of XR into teaching	At least 20
Effectiveness of support materials and tutorials for non-technical users	At least 70% of users find the tutorials and documentation useful in guiding their use of the platform
• Industry Relevance	
Alignment of student projects with real-world industry challenges	Case studies and industry-driven insights are incorporated into at least one learning scenario
Industry partner involvement in curriculum validation and project mentoring	Feedback from industry professionals is integrated into curriculum improvements.
Adoption of the curriculum in vocational and higher education programs	A roadmap is established for formal adoption in at least one university or vocational training program

► **Feedback and evaluation:**

- Procedures: The evaluations will be sent at the end of the workshop. Participants will be asked to fill in a structured online evaluation form via QR code for easy mobile access (Typeform or Google Forms) covering:
  - Platform usability and accessibility.
  - Effectiveness of training content.
  - Industry relevance and curriculum alignment.
- Templates for interacting with target groups: Collecting feedback from students, tutors, trainees, and event audiences through Kahoot (live discussions) and Google Forms.
- Other approaches and online tools: Kahoot quizzes to vote live for more active participation in discussions.

4.4 TEE/TKM

► **Organization:** Technical Chamber of Greece / Section of Central Macedonia (Professional associations – Greece)

► **Administer team for demonstration activities:**

Table 12: TEE/TKM's Administer team for demonstration activities

Title	First name & Last name	E-mail	Role	Ref. ID (Orcid)
Mrs.	Eleni Doulgeroglou	eldo@central.tee.gr	Team member	N/A
Mrs.	Christiana Polyzou	christianapol@gmail.com	Team member	0000-0001-6486-4981

► **Tentative activities and timeframe for training course/lecture**

- Activity name and type: training course – onsite
- Target trainee: Engineers (members of the Technical Chamber of Greece)
- Tentative syllabus: XR in the engineering sector with emphasis on BIM, safety engineer with the use of XR, XR education of engineers with the use of Alliance4XR platform, use of XR in Climate Change and Environmental Protection.
- Estimated Teaching Hours as per Table 13.

Table 13: TEE/TKM's tentative syllabus and estimated teaching hours

Strand	Estimated Hours
Strand 1: Introduction, benefits of using XR in the field of Engineers	0.5 hours
Strand 2: Best Practices	0.5 hours
Strand 3: Hardware and Software	1.5 hours
Strand 4: XR Content Creation	2 hours
Strand 5: Evaluating	0.5 hours
Total Hours for Educator Curriculum	5 hours

    - Lecture-based learning: 60% (theory, ethics, case studies).
    - Practical hands-on exercises: 30% (development, simulations, troubleshooting).
    - Assessment and projects: 10% (capstone project, user testing, presentations)
- One-day training course/workshop will be defined on-demand.

► **Tentative activities and timeframe for the training workshop**

- Activity name and type: training workshop - onsite
- Duration (days): 1
- Target trainee: Engineers
- Target total attendees: 30
- Event programming: N/A
- Planned time: mid to end of September 2025

► **Performance, success, and quality indicators and assessment criteria:**

Table 14: TEE/TKM's assessment criteria

Assessment criteria and KPIs	For training courses and workshop
• Engagement Metrics:	
Number of students and educators actively using XR strands	30
Time spent in immersive learning environments	Average of 10 minutes per participant
Participation in interactive discussions and hands-on projects	Pre- and post-questionnaires evaluating the workshop, content, and knowledge achieved
• Learning Outcomes	
Improvement in technical proficiency with XR development tools	30% of participants demonstrate proficiency
Successful completion of capstone projects demonstrating real-world application	80% of participants complete their course
Assessments on ethical considerations and leading practices in XR	70% of participants' awareness of the ethical and leading practices of XR
• Platform Usability & Adoption	
User feedback on ease of use and accessibility	questionnaires to receive participants' feedback
Number of educators trained and integration of XR into teaching	N/A

Effectiveness of support materials and tutorials for non-technical users	questionnaires to receive participants' feedback
• Industry Relevance	
Alignment of student projects with real-world industry challenges	Dissemination of the tools and platform with engineers
Industry partner involvement in curriculum validation and project mentoring	1-2 engineers for the validation of the curriculum and mentoring of the project.
Adoption of the curriculum in vocational and higher education programs	N/A

► Feedback and evaluation:

- Procedures: At the end of the event, feedback will be collected through digital evaluation surveys.
- Templates for interacting with target groups: Surveys for trainees and trainers.

4.5 CMMI

Organization: Cyprus Marine and Maritime Institute (Research Organisation – Cyprus)

► Administer team for demonstration activities:

Table 15: CMMI's Administer team for demonstration activities

Title	First name & Last name	E-mail	Role	Ref. ID (Orcid)
Dr.	Panagiota Photiou	panagiota.photiou@cmmi.blue	Team member	0000-0001-6165-1593
Dr.	George Mallouppas	george.mallouppas@cmmi.blue	Team member	0000-0002-4580-0525

► Tentative activities and timeframe for training course/lecture

- Activity name and type: training course - hybrid
- Target trainee: Students, Industry Professionals
- Tentative syllabus and estimated Teaching Hours:

Table 16: CMMI's tentative syllabus and estimated teaching hours

Strand	Estimated Hours
Strand 1: Exploring Green Technologies for Shipping Decarbonisation (i) Identify key components, i.e., alternative propulsion systems and design characteristics of the vessel (ii) Comparative assessment of green technologies	4 hours
Strand 2: Coastal Fleet Operations: Best Practices for the Engine Room and Vessel Inspection (i) Examine the factors that affect the efficiency, fuel consumption, and emissions of the engine/vessel (e.g., machinery thermography, emission analysis, visual inspection of engine room)	4 hours
Strand 3: XR Content Creation for Training & Simulations	4 hours
Strand 4: Evaluating Performance (i.e., through quizzes)	2 hours
Total Hours for Educator Curriculum	14 hours

  - Lecture-based learning: 55% (theory, ethics, case studies).
  - Practical hands-on exercises: 30% (development, simulations, troubleshooting).
  - Assessment and projects: 15% (capstone project, user testing, presentations)
- This training course will last for a week, and trainees will receive a certificate upon completion according to the project GANTT and milestones.

► Tentative activities and timeframe for other activities

- Activity name and type: Vocational Excellence Event - hybrid
- Duration (days): 1-2
- Target trainee: Students, Educators, Researchers, Developers, Administrators etc.
- Event programming:
  - Introduction of project, Presentations by VET experts
  - Panel discussion (industry professionals, public representatives, educational trainers)
  - Networking.
- Planned time: June 2025

► Performance, success, and quality indicators and assessment criteria:

Table 17: CMMI's assessment criteria

Assessment criteria and KPIs	For training course	For Vocational excellence event
• Engagement Metrics:		
Number of students and educators actively using XR strands	30	80
Time spent in immersive learning environments	Average of 0.5 hours per student	5 minutes per professional/business sector representative
Participation in interactive discussions and hands-on projects	Pre- and post-questionnaires evaluating the	Pitch presentations followed by an interactive discussion.
• Learning Outcomes		
Improvement in technical proficiency with XR development tools	30% of students demonstrate proficiency	Pre- and post-questionnaires evaluating the improvement in technical development
Successful completion of capstone projects demonstrating real-world application	80% of students complete their course	N/A
Assessments on ethical considerations and leading practices in XR	70% of student's awareness of the ethical and leading practices of XR (i.e., through questionnaires)	Pre- and post-questionnaires evaluating the knowledge gained in know-how on ethical considerations and leading practices in XR.
• Platform Usability & Adoption		
User feedback on ease of use and accessibility	Learning material will be translated into consortium languages	
Number of educators trained and integration of XR into teaching	N/A	N/A
Effectiveness of support materials and tutorials for non-technical users	100% of the learning material will be uploaded to the platform	
• Industry Relevance		
Alignment of student projects with real-world industry challenges	Courses to be developed will address actual maritime challenges	
Industry partner involvement in curriculum validation and project mentoring	1-2 maritime industry partners	

Assessment criteria and KPIs	For training course	For Vocational excellence event
Adoption of the curriculum in vocational and higher education programs	integrated in at least one VET	

► **Feedback and evaluation:**

- Procedures: At the end of the event, feedback will be collected through digital evaluation surveys.
- Templates for interacting with target groups: Surveys for students, tutors, trainees, and interviews with maritime industry professionals.

4.6 UCD

► **Organization:** University College Dublin (HEI – Ireland)

► **Administer team for demonstration activities:**

Table 18: UCD's Administer team for demonstration activities

Title	First name & Last name	E-mail	Role	Ref. ID
Dr.	Rachel Farrell	rachel.farrell@ucd.ie	Leading	N/A
Mrs.	Marelle Rice	marelle.rice@ucd.ie	Team member	
Mr.	Mark Baldwin	mark@schoovr.com	Team member	

► **Tentative activities and timeframe for the training course/lecture**

- Activity name and type: XR Technology for Digital and Green Skills
- Target trainee: Open to students across the university from courses including engineering, education, and computer science.
- Tentative syllabus:
    - UCD's XR Technology for Digital and Green Skills module offers an introduction to mixed reality by integrating augmented, virtual, and extended reality technologies. Students explore foundational concepts and hands-on applications of immersive systems, equipping them with the skills needed to drive innovation in sustainable digital solutions.

- Originally offered as an option for School of Education students (the module was called Immersive Technology in Education) and now in its second year, the module is set to expand its curriculum with Alliance4XR strands. During 2025, it will be available to a broader range of students, including those from engineering, education, and computer science.

- Estimated Teaching Hours:

Table 19: UCD's tentative syllabus and estimated teaching hours

Strand	Estimated Hours
Strand 1: • Define Extended Reality (XR), including but not limited to Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR), and Intelligent XR (IXR) distinguish their applications. • Describe the historical development and future trends in XR technology. • Identify key hardware and software components used in XR environments.	4 hours
Strand 2: • Apply basic programming concepts in XR environments to create interactive elements. • Demonstrate the ability to set up, configure, and troubleshoot XR hardware (headsets, AR devices, motion tracking systems, etc.). • Compare different XR platforms and development tools (e.g., Alliance4XR, Unity, Unreal Engine, WebXR).	4 hours
Strand 3: • Utilise 3D modeling tools to create assets for XR applications. • Develop interactive XR simulations for engineering and applied science applications.	6 hours

• Implement real-time physics and spatial interactions within XR environments.	
Strand 4: • Apply XR solutions to specific industry needs • Awareness of the ethical and leading practices of XR	6 hours
Strand 5: • Create multi-user XR experiences that support real-time interaction and collaboration.	4 hours
Self-paced learning: Capstone project- evaluation (self-paced process)	6 hours
Total Hours for Educator Curriculum	30 hours

    - Lecture-based learning: 20% (theory, ethics, case studies).
    - Practical hands-on exercises: 60% (development, simulations, troubleshooting).
    - Assessment and projects: 20% (capstone project, user testing, presentations)
- This module will run from September to December 2025 (a two-hour session each week over a twelve-week period).

► Tentative activities and timeframe for the training workshop

- Activity name and type: Training Seminar (Hybrid)
- Duration (days): 1
- Target trainee: Students, Educators and Researchers
- Target total attendees: 80
- Event programming:
    - Welcome and presentation of the day's session
    - Project Alliance4XR presentation
    - Introduction to basic XR/AR principles (2 hours)
    - Hands-on practice of Alliance4XR platform (2 hours)
    - Evaluation of the workshop
    - Planned time: December 2025

► Performance, success, and quality indicators and assessment criteria:

Table 20: UCD's assessment criteria

Assessment criteria and KPIs	For training course	For training workshop
• Engagement Metric		
Number of students and educators actively using XR strands	20 students	20-30 in-person 50-60 online
Time spent in immersive learning environments	Average of 1 hour per student/participant	Average of 0.5 hours per student/participant
Participation in interactive discussions and hands-on projects	Pre- and post-questionnaires evaluating the course, content, and individual confidence levels	Pre- and post-questionnaires evaluating the training seminar
• Learning Outcomes		
Improvement in technical proficiency with XR development tools	30% of students are expected to demonstrate proficiency	30% of participants expected to demonstrate proficiency
Successful completion of capstone projects demonstrating real-world application	80% of students are expected to complete the module	80% of students are expected to complete the module
Assessments on ethical considerations and leading practices in XR	70% of student's awareness of the ethical and leading practices of XR (i.e., through questionnaires)	70% of student's awareness of the ethical and leading practices of XR (i.e., through questionnaires)
• Platform Usability & Adoption		
User feedback on ease of use and accessibility	Questionnaires to receive student's/participants' feedback	Questionnaires to receive participants' feedback
Number of educators trained and integration of XR into teaching	2-4	3-6
Effectiveness of support materials and tutorials for non-technical users	The bright-space module with uploaded content will complement the curriculum material. It will include Getting Started guides and information	The UCD team will provide hands-on support during the session. Online tutorials and guides will also help support participants.
• Industry Relevance		

Alignment of student projects with real-world industry challenges	Students will develop XR applications related to computer science and engineering	Students will develop XR applications related to computer science and engineering
Industry partner involvement in curriculum validation and project mentoring	1-2 Industry partners	1 Industry partner
Adoption of the curriculum in vocational and higher education programs	XR Technology for Digital and Green Skills Module – 5 Credits. Offered to students across the university	XR Technology for Digital and Green Skills Module – 5 Credits. Offered to students across the university

► **Feedback and evaluation:**

- Procedures: Implement real-time evaluations during the workshop and distribute a detailed survey immediately after the session, keeping it open until the event concludes.
- Templates for interacting with target groups: Use concise, targeted feedback forms tailored for students (e.g., Likert scales, open-ended questions) and educators (focusing on XR integration and material usability), and also the trainers, with a follow-up survey a few weeks later to assess long-term impact.
- Other approaches and online tools: Leverage platforms such as Mentimeter, Miro, or Padlet to more effectively attract and analyze user evaluation feedback.

4.7 CEEI VALENCIA

► **Organization:** CENTRO EUROPEO DE EMPRESAS E INNOVACIÓN DE VALENCIA (Business Innovation Centre – Spain)

► **Administer team for demonstration activities:**

Table 21: CEEI VALENCIA's Administer team for demonstration activities

Title	First name & Last name	E-mail	Role	Ref. ID
Ms.	Laura Sánchez Membrives	laura.sanchez@ceei.net	Communication Manager	26747774Q
Ms.	Carmen Renovell Giner	carmen.renovell@ceei.net	Team member	29177753E

► **Tentative activities and timeframe for the training workshop**

- Activity name and type: Training workshop-hybrid
- Duration (days): 1
- Target trainees: Students, Educators, and Professionals
- Target total attendees: 30
- Event programming:
    - Welcome and presentation of the day's session
    - Project Alliance4XR presentation
    - Lectures and Theoretical part
    - Presentation of the Platform
    - Interaction with the Platform
    - Evaluation and next steps
- Planned time: before Dec 2025

► **Performance, success, and quality indicators and assessment criteria:**

Table 22: CEEI VALENCIA's assessment criteria

Assessment criteria and KPIs	For training workshop
• Engagement Metrics:	
Number of students and educators actively using XR strands	30
Time spent in immersive learning environments	Average of 0.5 hours per participant
Participation in interactive discussions and hands-on projects	Pre- and post-questionnaires evaluating the workshop, content, and knowledge
• Learning Outcomes	
Improvement in technical proficiency with XR development tools	minimum 15 of 30 can prove progress
Successful completion of capstone projects demonstrating real-world application	80% of participants complete their course
Assessments on ethical considerations and leading practices in XR	75% of participants' awareness of the ethical and leading practices of XR
• Platform Usability & Adoption	
User feedback on ease of use and accessibility	questionnaires to receive participants' feedback
Number of educators trained and integration of XR into teaching	3-5

Assessment criteria and KPIs	For training workshop
Effectiveness of support materials and tutorials for non-technical users	Non-technical users will assess the effectiveness of the platform's support materials, which are included within the platform.
• Industry Relevance	
Alignment of student projects with real-world industry challenges	Disseminate the tools and platform with participants and companies
Industry partner involvement in curriculum validation and project mentoring	1-2 industry partners to validate the curriculum and serve as mentors for the project.
Adoption of the curriculum in vocational and higher education programs	It will be offered to at least one VET

► **Feedback and evaluation:**

- Procedures: Evaluations will be sent after the training session and will also be discussed orally during the session.
- Templates for interacting with target groups: feedback from students, trainees, trainers, and participants in general will be collected
- Other approaches and online tools:
    - Live Polls & Quizzes, for example, "Rate this course in one word using a live poll!" or "On a scale of 1-10, how confident do you feel about the topic now?"
    - Emoji Feedback
    - One-Word Check-In
    - Sticky Note Wall (Physical or Digital)
    - Before & After Reflection

4.8 CEPROF

► **Organization:** Centros Escolares de Ensino Profissional (VET provider – Portugal)

► **Administer team for demonstration activities:**

Table 23: CEPROF's Administer team for demonstration activities

Title	First name & Last name	E-mail	Role	Ref. ID
Mrs.	Joana Silva	ceprofprojectmanagement@gmail.com	Organiser/PM	N/A

Mr.	Diogo Silva	diogosilva@espe.pt	VET teacher	N/A
Mr.	André Reis	andrereis@espe.pt	VET teacher	N/A

► Tentative activities and timeframe for the training workshop

- Activity name and type: Training Workshop Online or Hybrid
- Duration (days): 1
- Target trainees: Students, Educators, and Professionals
- Target total attendees: 30
- Event programming:
    - Welcome and Presentation of the Agenda
    - Introduction of the Alliance4XR project
    - What is eXtended Reality, and how can it be integrated into VET?
    - Presentation of the Platform
    - Interaction with the Platform
    - Evaluation of the workshop
- Planned time: Before Dec 2025 (probably November 2025)

► Performance, success, and quality indicators and assessment criteria:

Table 24: CEPROF's assessment criteria

Assessment criteria and KPIs	For training workshop
• Engagement Metrics:	
Number of students and educators actively using XR strands	At least 30
Time spent in immersive learning environments	Average of 1 hour per participant
Participation in interactive discussions and hands-on projects	Participants will be invited to participate in the discussions and activities, as well as to fill out an evaluation questionnaire at the end of the workshop to assess the event, its content, the platform, and the knowledge acquired
• Learning Outcomes	
Improvement in technical proficiency with XR development tools	At least 50% of the participants will have to mention their improvements (through the questionnaire or by the teachers' feedback)
Successful completion of capstone projects demonstrating real-world application	80% of participants complete their course

Assessment criteria and KPIs	For training workshop
Assessments on ethical considerations and leading practices in XR	80% of participants' awareness of the ethical and leading practices of XR
• Platform Usability & Adoption	
User feedback on ease of use and accessibility	Participants' feedback will be gathered in questionnaires
Number of educators trained and integration of XR into teaching	At least 2
Effectiveness of support materials and tutorials for non-technical users	The non-technical users will also be interrogated about the effectiveness of support materials included in the platform (feedback gathered through questionnaires)
• Industry Relevance	
Alignment of student projects with real-world industry challenges	The program will be prepared with the relevance of students' internships in mind. It will also be disseminated to companies.
Industry partner involvement in curriculum validation and project mentoring	At least 1 industry partner will validate the curriculum and mentor the project.
Adoption of the curriculum in vocational and higher education programs	At least 1 VET school will be involved, plus at least 1 company that employs and gives internships to students

► **Tentative activities for the training course:**

- Along with the implementation of the Alliance4XR project, CEPROF might form a course structure (on demand) for their institution, aligning with their usual standards and mainstream offerings.

5 CONCLUSIONS

Training courses and workshops on extended reality (XR) play a vital role in equipping students and educators with the knowledge and skills needed to navigate the rapidly evolving digital landscape. These hands-on learning experiences provide students and professionals with the opportunity to explore immersive technologies, develop technical proficiency, and apply XR concepts to real-world scenarios. By engaging in structured training, students can enhance their creativity, problem-solving abilities, and adaptability, which are essential for careers in technology-driven industries. For educators, XR workshops introduce

innovative teaching methods that make learning more interactive and engaging, resulting in improved knowledge retention and increased student participation. By integrating XR into education, training programs bridge the gap between traditional learning and modern technological advancements, fostering a dynamic and future-ready academic environment.

Beyond formal training, activities such as summer schools, hackathons, and competitions provide practical platforms for students, educators, and professionals to apply their XR skills in collaborative and competitive settings. These events encourage innovation, teamwork, and critical thinking by challenging participants to develop creative solutions using immersive technologies. Students gain hands-on experience, networking opportunities, and exposure to industry trends, preparing them for careers in XR-related fields. Educators benefit by learning how to incorporate XR into their teaching strategies and staying updated on the latest technological advancements. Professionals, on the other hand, can refine their expertise, explore new applications, and connect with industry leaders, enhancing their career prospects. Ultimately, these activities help drive the adoption of XR across various sectors, fostering a culture of continuous learning and technological advancement.

In parallel with the curriculum development for teaching and training materials in WP2 and the development of platforms and tools in WP3, WP4 focuses on their implementation through training courses, workshops, and related activities. The core objective of Deliverable 4.1 is to provide a comprehensive plan for the multiplier activities conducted by each participating partner. These action plans outline the composition of teams responsible for organizing demonstration activities, the specific activities to be executed, the implementation timeline, and the associated performance metrics. Additionally, they define success and quality indicators, assessment criteria, and standardized procedures for trainee engagement. It includes the use of structured templates to collect feedback, enabling a systematic evaluation of the effectiveness of the teaching and training materials.

By defining an action plan for each partner, the consortium can effectively manage and synchronize the timeline of all training activities within the remaining duration of the Alliance4XR project. Given the strict timeframe and the simultaneous execution of multiple work packages, this structured approach ensures seamless

coordination. Additionally, by implementing a standardized set of indicators and assessment criteria, the consortium can systematically monitor the performance, success, and quality of all activities.

Furthermore, dedicated procedures and tools are established to facilitate interactions with trainees and collect their feedback, providing a foundation for continuous evaluation and enhancement of XR training activities. Importantly, collaboration in organizing training courses, workshops, hackathons, competitions, and special events enables knowledge sharing and the exchange of best practices among consortium partners. This process not only strengthens the competencies of individual partners but also contributes to the overall success of the Alliance4XR project.

Finally, this plan will enable the partnership to test the material, refine it, and deliver a comprehensive training package by the end of the project, with the project partners serving as early adopters. This plan will also connect to WP5 and D5.2, “ALLIANCE4XR’s validated methodology, recommendations, and white paper”, as well as WP6, contributing to the guidelines of how other institutions can adopt the project results.

ANNEX

Template to request the action plan from each partner:

Alliance4XR.eu

Task T4.1 includes all the preparatory activities to demonstrate the ALLIANCE4XR teaching and training material in the partners' Universities and Training centers. The consortium will elaborate on an action plan and define the focus of the activities to be run per institution based on their specific characteristics.

Please provide the following info from your organisation's side:

1 ORGANIZATION

Name: ...

Short name: ...

Country: ...

Type: (higher education institutions, SMEs, VET providers, professional associations, or EU-wide network non-governmental organizations)

2 ADMINISTER TEAM FOR DEMONSTRATION ACTIVITIES

Title	First name & Last name	E-mail	Role	Ref. ID (Orcid)
...	...	...	...	...

3 TENTATIVE ACTIVITIES AND TIMEFRAME

3.1 For training course/lecture

- Activity name and type: (training course, chapter or course, lectures, etc.: is it online/offline/hybrid)
- Target trainee: Students or Educators (or both)
- Tentative syllabus: (as detailed as possible)
- Estimated Teaching Hours:

Strand	Estimated Hours
Strand 1: Introduction …	? hours
Strand 2: Hardware and Software …	? hours
Strand 3: …	? hours
Strand 4: XR Content Creation …	? hours
Strand 5: Evaluating …	? hours
Total Hours for Educator Curriculum	?? hours

- ✓ Lecture-based learning: ??% (theory, ethics, case studies).
- ✓ Practical hands-on exercises: ??% (development, simulations, troubleshooting).
- ✓ Assessment and projects: ??% (capstone project, user testing, presentations)

- What is the start and end time of the course? According to the institution's semester? Or by the month following the project GANTT and milestones?

3.2 For training workshop

- Activity name and type: (training workshop, a session in a workshop, webinar, etc.; is it online/offline/hybrid)
- Duration (days): 1 or 2 or a series
- Target trainee: Students, Educators, Researchers, Developers, Administrators
- Target total attendees: 30 or 80?
- Event programming: (as detailed as possible)
- Planned time: before Jun 2025, before Dec 2025, before Jun 2026?

3.3 For other activity

- Activity name and type: (summer school program, hackathons and competitions, vocational excellence event, etc.; is it online/offline/hybrid)
- Duration (days): …
- Target trainee: Students, Educators, Researchers, Developers, Administrators etc.
- Tentative programming: (as detailed as possible)
- Planned time: before Jun 2025, before Dec 2025, before Jun 2026?

4 PERFORMANCE, SUCCESS AND QUALITY INDICATORS AND ASSESSMENT CRITERIA

4.1 Engagement Metrics

- Number of students and educators actively using XR strands: ...
- Time spent in immersive learning environments: ...
- Participation in interactive discussions and hands-on projects: ...

4.2 Learning Outcomes

- Improvement in technical proficiency with XR development tools: ...
- Successful completion of capstone projects demonstrating real-world application: ...
- Assessments on ethical considerations and leading practices in XR: ...

4.3 Platform Usability & Adoption

- User feedback on ease of use and accessibility: ...
- Number of educators trained and their integration of XR into teaching: ...
- Effectiveness of support materials and tutorials for non-technical users: ...

4.4 Industry Relevance

- Alignment of student projects with real-world industry challenges: ...
- Industry partner involvement in curriculum validation and project mentoring: ...
- Adoption of the curriculum in vocational and higher education programs: ...

5 FEEDBACK AND EVALUATION

- Procedures: For example, for a training workshop, should evaluations be sent during and after the training session and collected until the end of the event?
- Templates for interacting with target groups: (e.g., collecting feedback from students, trainees, and event audiences).
- Please suggest more survey approaches and online tools: (rather than Google Docs) to attract users' evaluation feedback more effectively.

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