



ECHOES: Extended Classrooms for Higher Opportunities Enhancing Skills

R1-A3.2 FINAL STATE OF THE ART REPORT



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Table of Content

1. Aims of Final State of Art and Research Report	4
2. Methodology	4
3. Main results achieved	5
4. Output	10
5. Conclusions and next steps	19

1. Aims of Final State of Art and Research Report

The purpose of the final state-of-the-art report is to provide a summary of the work conducted during the R1 phase of the Echoes project. This document will compile and organize, in a concise format, the significant outcomes attained in different stages of the project, as previously detailed in the national and European reports. Essentially, it serves as a document aimed at reviewing and structuring the wealth of materials already generated, including National Research, National Reports, European Research, Questionnaires, and Focus Groups.

2. Methodology

The methodology employed throughout the implementation process of Phase R1 in the Echoes project was formulated based on shared guidelines among the partners to achieve the anticipated results. Specifically, the procedural development encompassed the generation of the following work outputs.

1. RESEARCH AT EU LEVEL
2. NATIONAL RESEARCH – ONE FOR NATION, 4 IN TOTAL (Italia, Spagna, Slovenia, Austria)
3. NATIONAL REPORT - ONE FOR NATION, 4 IN TOTAL (Italia, Spagna, Slovenia, Austria)
4. FINAL STATE OF THE ART REPORT (this document)

The methodology adopted for the optimal execution of individual tasks has been extensively detailed in the corresponding deliverables and can be outlined through the following structure.

The 'NATIONAL RESEARCH' deliverable involved a desk analysis conducted by individual partners, following specific guidelines provided by t2i, serving as the leader of R1 along with Ass.For.Seo., the project's lead partner. The objective was to analyze the national framework for distance learning and research the most utilized platforms in each country. Each partner executed the assigned task, as outlined in the relevant deliverables.

The 'NATIONAL REPORT' deliverable constitutes the second phase of the national-level state-of-the-art analysis. It encompasses the examination of questionnaires aimed at probing gaps and needs among professionals regarding the project theme, as well as the analysis of results from national focus groups. The questionnaires and focus groups were developed and defined by t2i and Ass.For.Seo. and shared with partners to ensure a consistent reporting structure.

The subsequent step involved integrating the two documents into a cohesive report containing distinct sections, which are more comprehensible when analyzed in a coordinated and unambiguous manner. This approach allowed for the examination and comparison of questionnaire and focus group results with those from bibliographic searches. For a detailed breakdown of the results, please refer to the respective documents, while a concise summary of key findings will be presented in the following chapters.

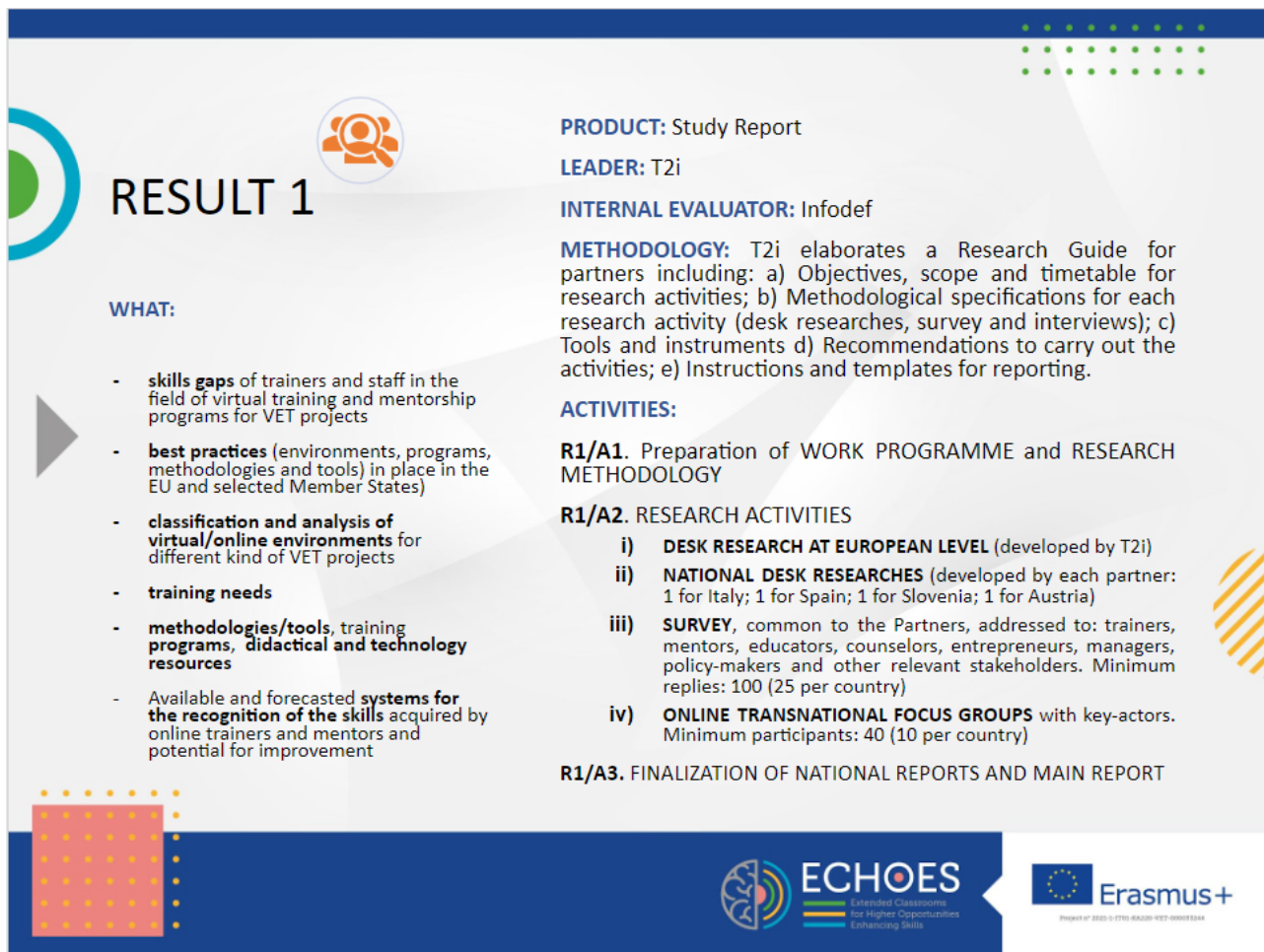
The final step involved integrating the contents of the four national reports to serve as the foundation for the European-level analysis. The national experiences provided a detailed overview, combining the contents of the four questionnaires, involving a total of 120 respondents, and the contents of the four focus groups, engaging a total of 40 participants. This was further enriched by a European-focused desk research on technical aspects of widely used platforms and extra-national management policies. This amalgamation led to the creation of the European report, which presents a series of considerations that we will attempt to summarize in the subsequent chapters through the presentation of final results.

3. Main results achieved

The first result is a "ranking" of the preferred platforms spread across Europe, the most used and well-known, with an evaluation compared to 4 items and some "comments" from users who emphasize the greatest weakness of each solution, even if these solutions are considered however all of excellent quality.

Platform	Positives	Negatives
Moodle	Ease of use - 4.1 Customer care - 4.0 Characteristics - 4.2 Value for money - 4.4	Difficult to navigate
Docebo	Ease of use - 4.2 Customer care - 3.9 Characteristics - 4.1 Value for money- 3.9	Price model is not so flexible and does not fit with small and medium businesses. No price tiers under 300 user / months, could be expensive at early stages.
Open edx	Ease of use - 4.6 Customer Service -4.7 Features - 4.7 Value for money - 4.7	The user interface is not easy for all to navigate
Coursera	Ease of use - 4.5 Customer care - 4.2 Characteristics - 4.5 Value for money - 4.4	The price
Udacity	Ease of use - 4.5 Customer care - 4.4 Characteristics - 4.4 Value for money - 4.4	A lot of material
Chamilo	Ease of use - 4.5 Customer care - 4.2 Characteristics 4.5 Value for money 4.8	Template hard to customize
Canvas	Ease of use - 4.4 Customer care 4.3 Characteristics 4.4 Value for money 4.5	The user interface is not easy to navigate Lot of problems with the app

It should also be specified that the entire analysis was prepared with the aim of directing the work of R2, R3 and R4 according to the following scheme.



RESULT 1

WHAT:

- **skills gaps** of trainers and staff in the field of virtual training and mentorship programs for VET projects
- **best practices** (environments, programs, methodologies and tools) in place in the EU and selected Member States)
- **classification and analysis of virtual/online environments** for different kind of VET projects
- **training needs**
- **methodologies/tools**, training programs, didactical and technology resources
- Available and forecasted **systems for the recognition of the skills** acquired by online trainers and mentors and potential for improvement

PRODUCT: Study Report

LEADER: T2i

INTERNAL EVALUATOR: Infodef

METHODOLOGY: T2i elaborates a Research Guide for partners including: a) Objectives, scope and timetable for research activities; b) Methodological specifications for each research activity (desk researches, survey and interviews); c) Tools and instruments d) Recommendations to carry out the activities; e) Instructions and templates for reporting.

ACTIVITIES:

R1/A1. Preparation of WORK PROGRAMME and RESEARCH METHODOLOGY

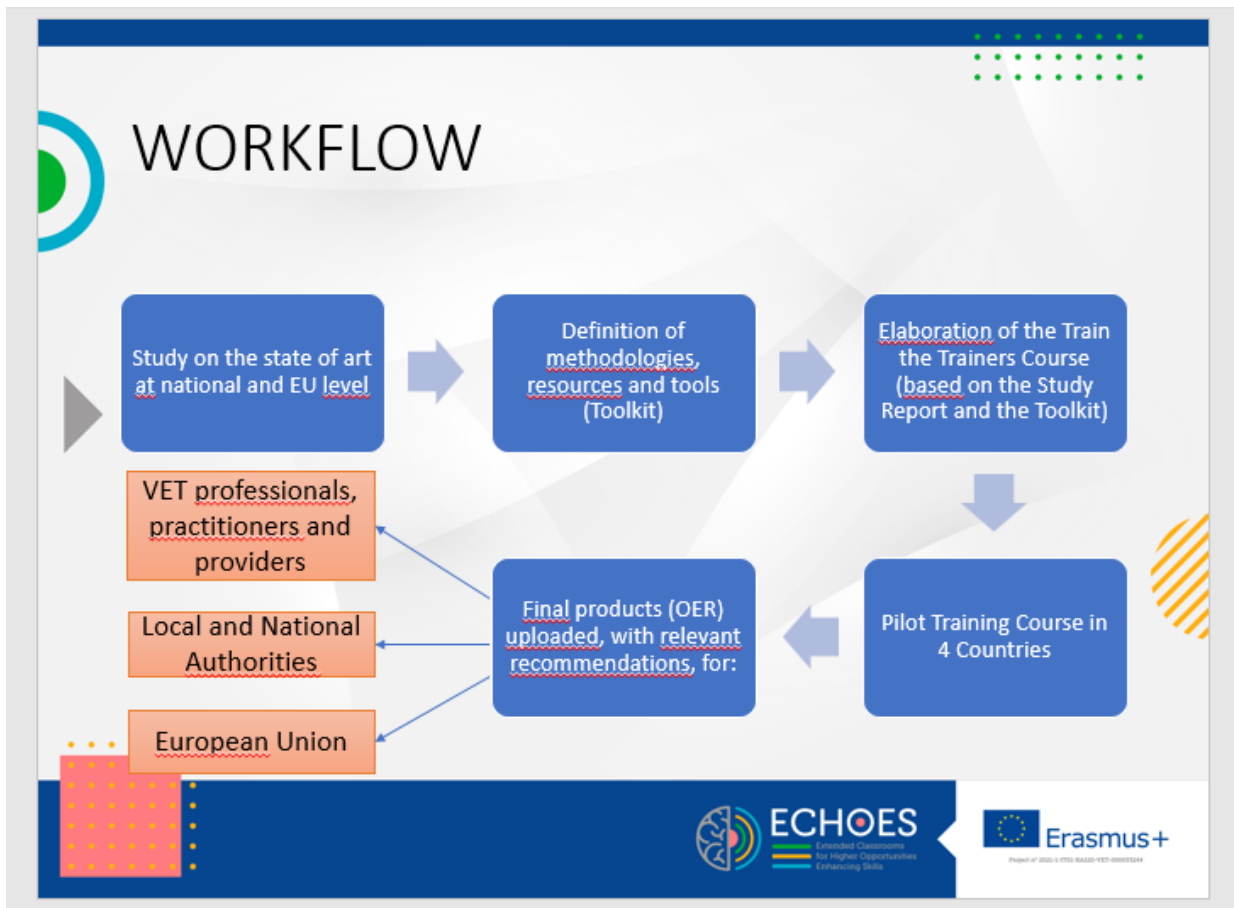
R1/A2. RESEARCH ACTIVITIES

- DESK RESEARCH AT EUROPEAN LEVEL** (developed by T2i)
- NATIONAL DESK RESEARCHES** (developed by each partner: 1 for Italy; 1 for Spain; 1 for Slovenia; 1 for Austria)
- SURVEY**, common to the Partners, addressed to: trainers, mentors, educators, counselors, entrepreneurs, managers, policy-makers and other relevant stakeholders. Minimum replies: 100 (25 per country)
- ONLINE TRANSNATIONAL FOCUS GROUPS** with key-actors. Minimum participants: 40 (10 per country)

R1/A3. FINALIZATION OF NATIONAL REPORTS AND MAIN REPORT

ECHOES
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 for Higher Opportunities
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The entire analysis was then examined in alignment with the guidelines outlined in DigCompEdu, the European reference framework for the digital skills of teachers and trainers.

The DigCompEdu framework represents global endeavors to comprehensively capture and define the specific digital competences required by teachers and trainers. It serves as a guideline for stakeholders in education and higher education responsible for developing models of digital competence. These stakeholders include policymakers at the Member State level, regional/local authorities, educational organizations, and institutions—whether public or private—providing training and professional growth services. Notably, the DigCompEdu framework targets teachers and trainers across all education levels, encompassing university and adult education, professional training, non-formal contexts, and special education pathways, including inclusive education.

Developed by the European Commission's Joint Research Center (JRC) under a mandate from the Directorate-General for Education, Youth, Sport, and Culture (DGEAC), the DigCompEdu framework builds upon previous

work in defining citizens' digital competences (DigComp) and the digital capacity of educational organizations (DigCompOrg).

The primary goal of the DigCompEdu framework is to offer a cohesive model that allows teachers and trainers to assess their level of 'digital pedagogical competence' and enhance it further. Importantly, this model is not designed to replace tools defined at the national level but rather to complement and expand upon them.

Its added value lies in providing:

- a guide for the development of educational policies at various levels;
- a conceptual model that allows the various players in the education and training system to create concrete tools, suitable for responding to their needs;
- a common and coherent language to promote discussion and exchange of good practices;
- a point of reference for Member States to validate the approach and completeness of their tools and frameworks in this area

The major results achieved have allowed us to outline with extreme precision, bringing them back to the classes envisaged by DigComp, the gaps and needs of the typical users involved in the analysis for the purposes of Echoes, i.e. professors, teachers, coaches and mentors, in particular – but not only – employed in distance learning activities for VET and WBL project.

Below we will present the main emergencies that have emerged.

It should first be added that these emergencies have merged into the typical representation of a possible "fictitious user", represented with the PERSONAS model, which will allow us to structure the activities of R2, R3 and R4 by designing them around the real needs of a real public, represented from a concrete and tangible model of reality.

The major results achieved are therefore materialized in the two project outputs which we present in the following paragraph and which in more detail are already included in the national and European reports.

These are the GAPS-NEEDS TABLE and the PERSONAS.

4. Output

Area	tasks	Needs	Desired state	Description of the gaps	Italy	Spain	Austria	Slovenia
Area 1: Professional Engagement								
	Organizational communication	Course documentation management	Complete and simple management of training documentation	Since videoconferencing tools, not customized for training, are the most used in distance courses, the document flow is managed offline	x	x	x	x
		Digital technologies as a tool for communication with students	Better distance communication process and more interesting physical educational process	A communication platform that contains different options and applications - all in one to make the lectures more interesting and practical: a platform that contains different options and applications, allows for a lot of interaction, practice, and group work.			x	x
	Professional Collaboration	Exchanging experiences with other mentors	Keep in step with the times and teach in a way that's relevant to modern society and its needs	Only a few innovative practices are used within education process, additional training of mentors, lecturers is needed			x	x
		Sharing exams, assignments, quizzes across the organization	Every trainer has access to all exams, assignments and quizzes of the others	Training on learning platforms should overcome this			x	
	Reflective Practice							
	Digital Continuous Professional Development	Keeping young people motivated	The use of different digital tools in order to motivate the students	The digital tools such as VR, AR should be used in the educational process resulting in the enrichment of the lectures. Psychological approaches to maintain motivation are needed.			x	x

Area 2: Digital Resources								
	Selecting digital resources	Access and use of platforms	Ease of use and intuitiveness	Only a few professionals have good or acceptable knowledge of learning platforms	x		x	x
		Access and use of platforms and applications	Ease of use	The platforms are dispersed, applications are difficult to find (on Web) or mentor needs a lot of time to search			x	x
		Use of educational objects	Availability of effective Learning Objects to facilitate, evaluate and verify the study process or create a course in a digital/virtual environment	Lack of knowledge about available Learning Objects	x	x	x	x
	Creating and modifying digital content	Create more complex practical contents	Availability of create not only Theoretical content for trainings in the digital environment but also practical, hand-on activities and contents.	Lack of knowledge about tools and methodologies to produce this type of content		x	x	
		Modifying content to your own purposes	Easy and intuitive tool of editing content.	Lack of knowledge on tools.			x	

	Managing, protecting and sharing digital resources	Effective streaming sessions (Live Distance Learning)	Possibility to receive information with multimedia contents, such as: audio, video, images, text, etc.	It is not possible or rather difficult to receive multimedia content during streaming sessions	x			x
		Improve content sharing	Ability to share information and multimedia content during and outside of live lessons or webinars	Since most of the courses are carried out through videoconferencing systems, it is quite difficult to share information or multimedia content	x			x
Area 3: Teaching and Learning								
	Teaching							
	Guidance	Interaction with users	Interactive lesson	The interaction is limited to simple tools typical of videoconferencing platforms, such as: raising of hands, chat, etc.	x		x	x
		Management of live lessons	Easy management of live training sessions	Since video conferencing tools, not customized for training, are most used in remote training courses, managing training sessions is quite difficult	x			x

		Management of live lessons	Easy management of live training sessions	The need for a lot of digital and technical equipment not only on the part of the provider (educational institution), but also on the part of the audience.			x	x
	Collaborative learning	Difficulty to engage students to collaborate between them	Availability of encourage students to collaborate and work together in the digital environment	Lack of knowledge about how to promote, encourage and facilitate tools for promoting students to collaborate (on their own among them) in the digital environment. It can be also linked to the lack of knowledge suggesting initiatives or activities for learners to collaborate. The design and implementation of this type of activities required domain of digital tools and digital communication competencies.		x	x	
	Self-regulated learning							
Area 4: Assessments								
	Assessment strategies							


	Analyzing evidence	Training monitoring	Complete and simple training monitoring (process and learnings)	Since video conferencing tools, not customized for training, are most used in distance courses, training monitoring is quite difficult and very often managed offline	x	x	x	x
	Feedback and Planning	Design, planning and implementation of the use of digital resources in the different phases of the learning process	Effectively orchestrate the use of digital resources at different stages and settings of the learning process	Lack of knowledge of educational resources (provided or not by platforms) specific to distance learning	x	x	x	x
		Effective feedback during the assessment process	Being able to engage learners according to the feedback in their activities and progress.	Lack of knowledge regarding tools, frequency, type of feedback and channel for it.		x	x	
Area 5: Empowering Learners								
	Accessibility and inclusion							
	Differentiation and personalisation							

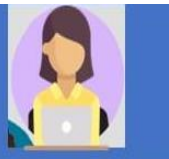
	Actively engaging learners	Interaction with students and their active involvement in a subject	Use of digital resources to enhance interaction with students, individually and collectively, inside and outside the learning session	Lack of knowledge of teaching resources (provided or not by the platforms) specific to distance learning	x	x	x	x
		Keeping young people motivated	The use of different digital tools in order to motivate the students	The digital tools such as VR, AR should be used in the educational process resulting in the enrichment of the lectures. Psychological approaches to maintain motivation are needed.			x	x
Area 6: Facilitating Learners' Digital Competence								
	Information and media literacy							
	Digital communication and collaboration							
	Digital content creation	Practical activities, laboratories and Work Based Learning (WBL)	Effective use of simulators, virtual reality and augmented reality in Virtual Learning Environments (VLE)	Only a few professionals have good or acceptable knowledge of digital learning games or apps and virtual reality	x	x	x	x

	Responsible use							
	Digital problem solving							


The table highlights the emergencies that emerged during the analysis in a clear summary and consistent with the DigComp. These emergencies arise from explicit needs of the actors involved and materialize in explicit possible users, who, as already mentioned, are represented by the PERSONAS.


Here are some significant examples.

Name: Alice Age: 32 Profession: Coach / Mentor		
ACTIVITY	<p>Alice is 32-year-old. She has been teaching in education for about 4 years and has good knowledge of technology and online tools (computers, office package, social media, video conferencing and e-learning platforms). She is often close in age to the students she teaches, so she finds it easy to integrate with students. In fact, she has a good ability to encourage them to collaborate with each other, trying to inspire and support them in creating innovative approaches to solve problems, promoting their work, and motivating them. She has often used video conferencing platforms and e-learning platforms (Moodle and Docebo LMS). Alice is very often involved in 100% distance learning courses, but she prefers the hybrid teaching mode, especially when practical learning is concerned. She makes recourse to videos, images, and slide presentations for his trainings, but she would like to use digital simulation tools.</p>	
GOALS AND AMBITIONS	<p>Alice would like to provide teaching for online training regardless of the course type and the users involved.</p>	
NEEDS	<p>Alice would like to know better effective Virtual Learning Environments (VLE), especially those characterized by ease of use and intuitiveness. When Live Distance Learning is concerned, she would use a platform where interaction is allowed and sharing of information and multimedia contents (presentations enriched with Flash animations and transitions, 3D objects and video streaming, etc.) is enabled during and outside the training sessions.</p>	
DIFFICULTIES AND FRUSTRATIONS	<p>Alice finds very difficult to deliver the practical courses effectively when distance learning is concerned. She is frustrated from the fact that the platforms she uses are not user-friendly and don't allow any interactions or collaboration among teacher and students and among students.</p>	

Name: María Sex: F Age: 35 Profession: VET Online Trainer		
Activity:	<p>María is 35 years old. She is an online trainer in vocational training courses for employment (Online VET). She has 5 years of experience in training, most of which have been dedicated to online training directly. She always works with non-proprietary platforms especially dedicated to e-learning, although she considers that she can still discover new tools that she needs to improve. He has a good knowledge of office automation, social networks and digital content creation. He attaches great importance to the relational and motivational aspect of her work with learners, as she likes to establish not only a strong and secure connection with them, but also group awareness among the participants of the online training sessions (even if they are not synchronous).</p>	
Goals and Ambitions:	<p>María would like to be able to use digital reality tools. She would like to be able to create digital content that is more focused on practicality, she wants to try new tools that allow a better focus on practical activities in the online environment so that her students experience the training as something real and not far from what awaits them later in the real/working world. He would like to be able to manage the whole training process (design, delivery and evaluation of learning) remotely.</p>	
Needs:	<p>María would like to know how to apply more practical content in online training, she is also interested in digital reality tools because she thinks they can be a good option. She needs a platform where this type of content can be hosted for online training in a simple and intuitive way, so that both trainers and students dare to use it.</p>	
Difficulties and Frustrations:	<p>María has difficulties in finding practical digital content and tools to produce it. She tries to research and look for tools to apply digital reality but she does not know how to do it. In addition, the management and control of the whole educational process also makes her look for alternatives to improve her evaluation and control of the students' process in order to know how to help them, guide them in a better way and increase their engagement and empowerment.</p>	

Name: Matej Sex: M Age: 38 Profession: CEO of a company / startup mentor	
Activity	Matej (male) is 38 years old. He's the CEO of a high-growth company (scale-up). He's an active startup mentor in the entrepreneurial community of Primorski tehnoloski Park and gives various lectures at startup academies and similar trainings. His company works in the field of IT technologies, so online tools are very familiar to him. If he doesn't know certain online tools, he's able to learn them quickly. Matej has been working as a startup mentor and lecturer since 2014. He's a young father and very busy as he manages a company with ten employees. He started online teaching/mentoring during the Covid period. For various practical reasons, such as lack of time, physical distance, etc., he still uses the online method of teaching entrepreneurship from time to time. Most commonly, he uses tools such as: Zoom, Skype, Microsoft Teams, Moodle and Miro (online whiteboard platform). He also often teaches hybrid. He may not need so many virtual tools to teach entrepreneurship as the practical nature of entrepreneurship is different from practical nature of chemistry or physics, but he still uses videos, photos, graphics, etc. Recently, Matej was on a study visit to Norway where he attended a conference on virtuality. The conference was about the inclusion of virtuality in all areas of society, including teaching. He found it very interesting how a modern way of teaching history was presented at the conference: students were transported to the time of a certain part of history (e.g., ancient Greece) with the help of VR. In this way, we can solve the problem of motivation to sit in an online lecture.
Goals and Ambitions	Provide high quality knowledge on entrepreneurship, regardless of format (live/online). He's happy to continue to keep in step with the times and teach in a way that's relevant to modern society and its needs.
Needs + Difficulties and frustrations	Matej is a busy entrepreneur who's to take care of 10 employees. He's also a young father who's building a new house in his spare time. At the same time, he wants to be an active member of the local entrepreneurial community, to which he'd like to contribute with his knowledge and experience. Due to the lack of time, he wishes that he doesn't have to search for suitable platforms and that he doesn't have to search for different applications to combine in a lecture (to make the lecture more interesting and practical), but he wishes that there's a platform that's easy to access, simple, and most importantly, a platform that contains different options and applications - all in one. This would save him a lot of time. After all, he doesn't have the time to sit down at the computer and search "all day" for suitable platforms and applications.

Name: Oliver Age: 43 Profession: HT Teacher in technical theory lessons		
ACTIVITY	Oliver is 43 years old and has been working as a HTL teacher in the field of mechanical engineering/mechatronics/economics for a good 4 years. Prior to that, he was employed for 20 years in various companies in the medical technology, automotive and consumer lifestyle sectors, as a design engineer, project manager and supplier supervisor in the private sector. He has been involved with learning platforms for 4 years. The last 3 years he has been using learning platforms (MS Teams) as a teacher at the HTL. In the course of his education at the pedagogical university he got to know various digital learning tools (Moodle, Kahoot!, Microsoft Forms, MS Teams...) as a learner. He has knowledge to prepare digital content for his teaching.	
GOALS AND AMBITIONS	Oliver would like to prepare his learning materials in such a way that they can also be used as interactively as possible by the students via learning platforms at any time. In doing so, he wants to use courses that teach the basics in the area of mechanical engineering/manufacturing technology. An automated knowledge check is essential.	
NEEDS	Oliver would like a learning platform in which courses in the field of mechanical engineering/manufacturing technology can be compiled as easily as possible and made available to learners. It should be possible to test what has been learned with the help of learning objective checks. In addition, the learning platform should include an automated evaluation of the learning target checks.	
DIFFICULTIES AND FRUSTRATIONS	Oliver is currently not aware of any learning platform that meets all his requirements. There are very few reasonable digital documents available in his teaching area. Preparing reasonable digital documents is very time-consuming. Oliver does not have the knowledge to adapt the hardly available digital media for his area to his needs. Assessing learners is very tedious and time-consuming with the tools currently in use.	

Name: Davide Age: 58 Profession: Professor		
ACTIVITY	Davide is a 58-year-old professor who has been working VET for more than 10 years. He has a more than acceptable technological and internet tool expertise. He often uses video conferencing and e-learning platforms and has the skills to inspire and interact with his pupils, urge them to complete assignments, and encourage them to collaborate. Anyway, he prefers in-presence training than distance training.	
GOALS AND AMBITIONS	Davide would like to find easy-to-use sharing and collaborative tools in platforms used for distance learning, such as: blogs and discussion forums, podcasts and videos. He would also like to learn how to use simulation tools.	
NEEDS	Davide needs ease of use and intuitiveness platform equipped with tools stimulating collaboration and interaction among teachers and students and among students, especially when practical learning is concerned.	
DIFFICULTIES AND FRUSTRATIONS	Davide experienced difficulties delivering 20–34-year-oldsng, mainly because he uses video-conferencing platforms not equipped for distance learning. So, he is frustrated by the lack of tools for management, protection and sharing of the digital didactical resources. Delivering of contents is difficult for him when the practical learning is concerned. In fact, he doesn't use simulations, gamifications, augmented or virtual reality, but only videos and images, slides and storytelling.	

5. Conclusions and next steps

The table presented above, along with the personas, succinctly summarizes the major challenges identified through the European-level comparative analysis, incorporating data from various questionnaires and focus groups. These findings were further detailed in the definition of personas and then summarized in a schematic form in the table, adhering to the guidelines and classification provided by DigCompEdu, the European reference framework for the digital competences of teachers and trainers.

This work will play a crucial role in advancing the project, particularly in guiding the activities outlined in R2, which involves the development of the Toolkit.

The ECHOES Toolkit aims to be a valuable resource of practical information for the direct implementation of innovative methods in VET projects delivered through virtual and extended classrooms for the unemployed. It will consist of practical tools and methods tailored to the specific needs of trainers, mentors, and staff involved in virtual online training and mentoring processes. The structure of the Toolkit will align with DigComp, the European Digital Competence Framework, and its proficiency levels, fine-tuned based on specificities in each country.

The practical contents, methodologies, activities, dynamics, and resources within the Toolbox will be a central instrument applied and tested during pilot trials organized in each country of the partnership. The

ECHOES Toolkit's structure will reflect the DigComp framework, its proficiency levels, and will be adjusted according to existing specificities in each country.

Therefore, building upon the results of the first Project Result, methodologies, practical contents, and resources will be identified based on the stocktaking of existing instruments and their pros and cons. The first methodological decision for the design and development of the ECHOES PR2 Toolkit is the DigCompEdu Framework, divided into the areas and competences that teachers and trainers should possess. This approach ensures a seamless transition from the insights gained during the R1 analysis to the development of the R2 tool. Additionally, this analysis will serve as a functional basis for the promotion of the training course envisaged in R3 and the creation of the OER in R4.