



**ECHOES: Extended Classrooms for Higher Opportunities Enhancing Skills**

## **R1-A3.2 FINAL REPORT**



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## 1. Objectives of the Final Report on the State of the Art and Research

The aim of the Final Report is to provide a summary of the work carried out during the R1 phase of the ECHOES project.

This document collects and organizes, in a concise format, the methodological-organizational process followed and the results obtained in the different phases and sub-phases of work, thus guiding the reading of the insights contained in the European Level Report (A.2.1) and in the National Reports (A.2.2) on the needs and competence gaps in the field of distance learning (extended classes and virtual classrooms).

## 2. Methodology

The methodology adopted during the whole implementation process of Phase R1 of the ECHOES project was developed on the basis of guidelines shared between the partners, in order to ensure the achievement of the expected results. In particular, the procedural development led to the generation of the following outputs:

1. **EU-LEVEL RESEARCH**
2. **NATIONAL RESEARCH**– One for each partner country, for a total of 4 (Italy, Spain, Slovenia, Austria)
3. **NATIONAL REPORT**– One for each country, for a total of 4 (Italy, Spain, Slovenia, Austria)
4. **STATE OF THE ART REPORT** (this document)

The methodology used to ensure the optimal execution of the individual tasks has been described in detail in the respective deliverables and can be summarised according to the following structure.

The deliverable "**NATIONAL RESEARCH**" (**A.2.1**) included a desk analysis conducted by each partner, following the specific guidelines provided by t2i, R1 leader, together with Ass.For.Seo, project leader. The aim of this phase was to examine the national landscape of distance learning and identify the most used platforms in each country. Each partner performed its own task, as indicated in the final results.

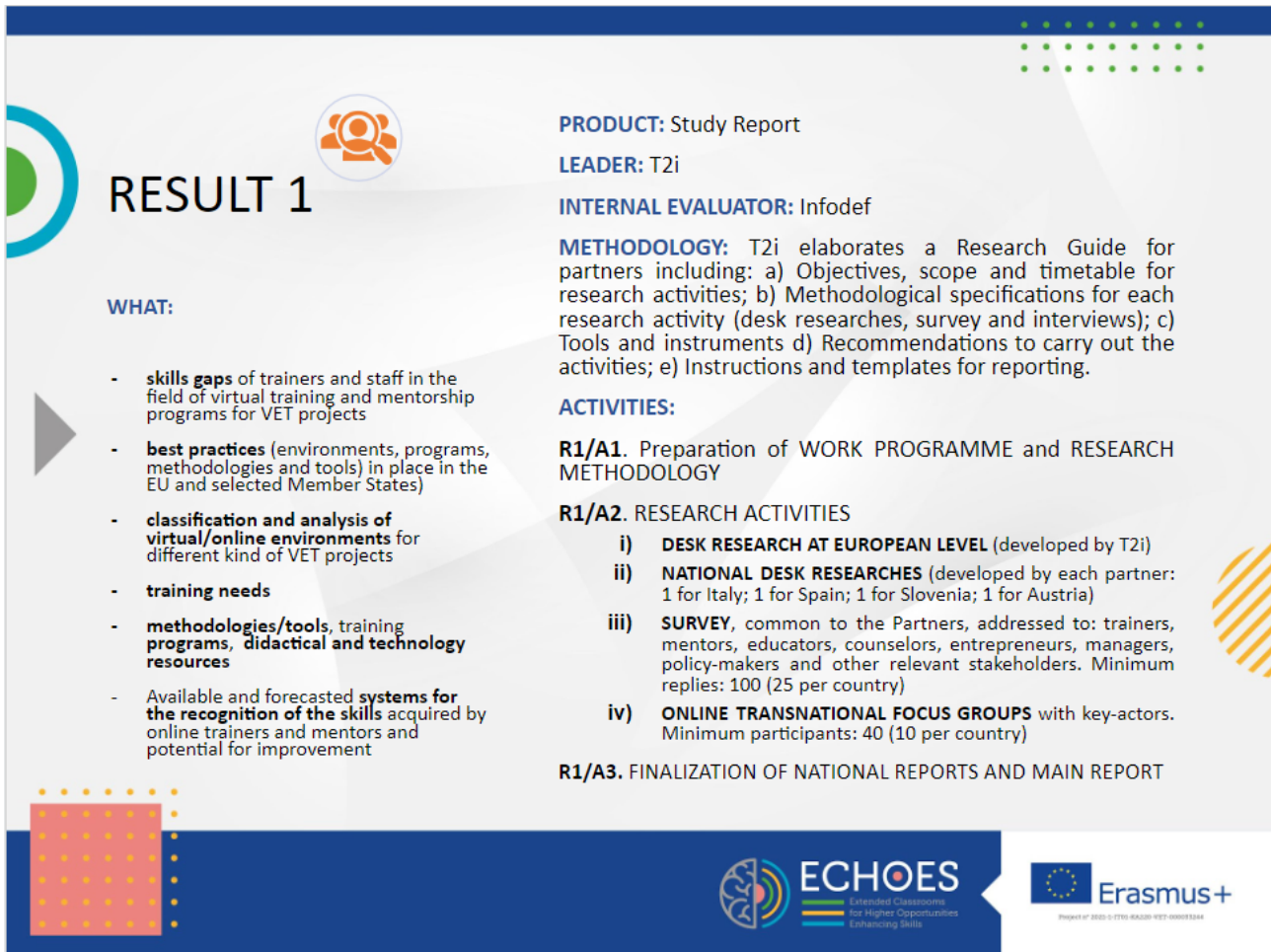
The deliverable "**NATIONAL REPORT**" (**A.2.2**) represents the second phase of the analysis of the state of the art at national level. It includes the analysis of the questionnaires, aimed at identifying the gaps and needs of professionals with respect to the aspects covered in the project, as well as the examination of the results of the national focus groups. The questionnaires and focus groups were designed and defined by t2i and Ass.For.Seo, and subsequently shared with the partners to ensure a coherent and uniform reporting structure.

The next step involved integrating the two documents into a cohesive report, which gathers information from distinct sections, easily interpretable when analyzed in a coordinated way. This approach allowed us to compare the results obtained from the questionnaires and focus groups with those resulting from the bibliographical research. A summary of the main results will be presented in the following chapters, while an in-depth analysis is available in the respective documents.

Finally, the final phase involved the integration of the contents from the four national reports, in order to provide a solid basis for the analysis at European level. The national experiences provided a detailed picture, combining the results of four questionnaires (120 respondents) and four focus groups (40 participants). To this material was added a focused desk research, which analysed at European level the technical aspects of the most used platforms for distance learning, as well as the policies supporting such learning. This integration led to the creation of the **European Report**, which summarises the main findings and considerations, which will be further analysed in the following chapters.

### 3. Main results achieved

The entire analysis was prepared with the aim of directing the work of R2, R3 and R4 according to the following scheme.



The infographic for Result 1 is set against a light blue background with a dark blue header and footer. It features a central white area with a large grey arrow pointing right. On the left, there is a blue and green circular graphic. On the right, there is a yellow and orange striped circular graphic. The text is organized into sections: 'WHAT:' with a list of bullet points, 'PRODUCT:', 'LEADER:', 'INTERNAL EVALUATOR:', 'METHODOLOGY:', 'ACTIVITIES:', and a list of sub-activities (R1/A1, R1/A2, R1/A3). The ECHOES and Erasmus+ logos are at the bottom.

## 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

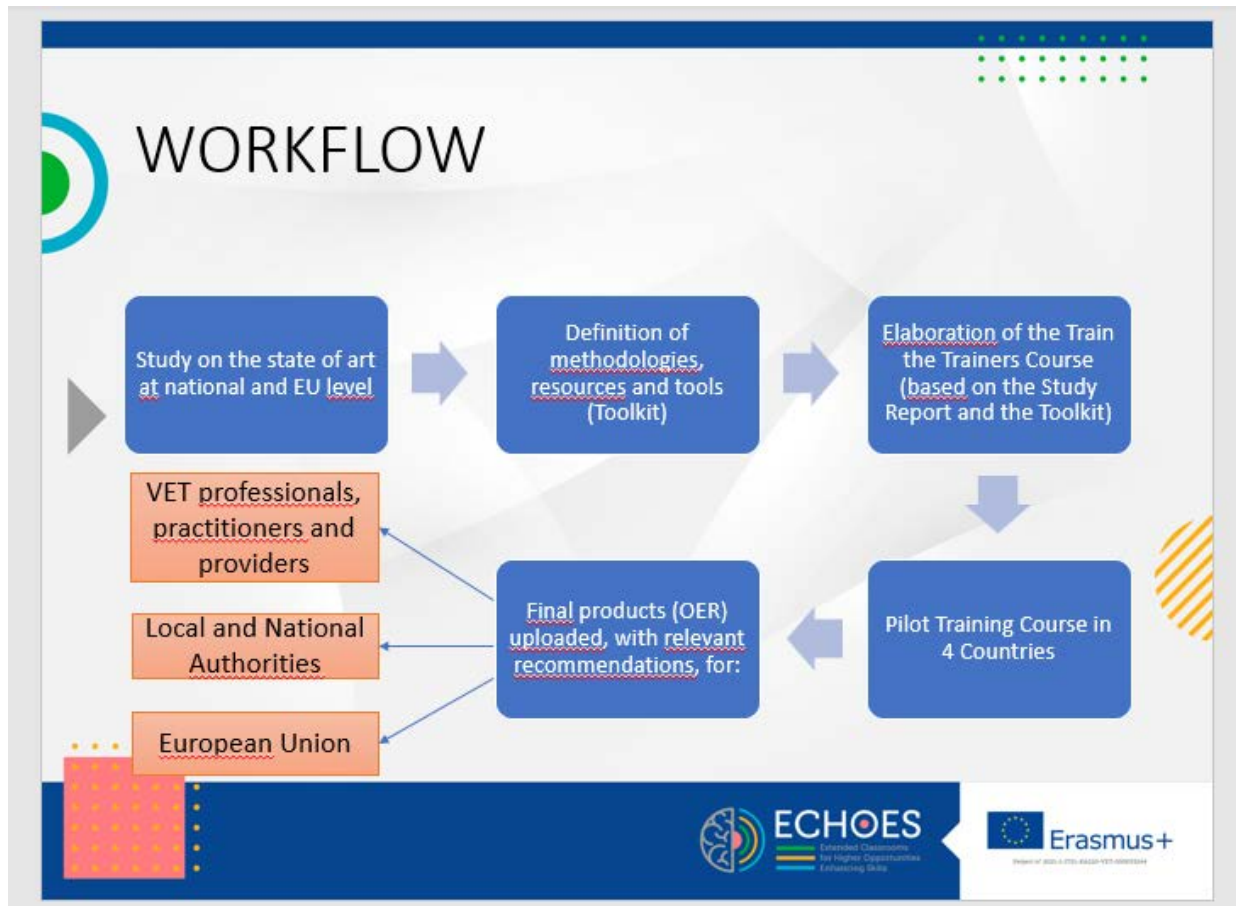
**R1/A2.** RESEARCH ACTIVITIES

- 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**  
Extended Classrooms  
for Higher Opportunities  
Enhancing Skills

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The methodological reference for the analyses, in terms of digital skills, was DigCompEdu, the European reference framework for digital skills of teachers and trainers.

The DigCompEdu framework is the result of efforts at European and international level to comprehensively acquire and define the specific digital competences required of teachers and trainers. The Framework therefore serves as a guideline for stakeholders in the field of vocational education and training responsible for developing digital competence models: policy makers at Member State level, regional/local authorities, educational organisations and institutions, public or private, providing training and professional development services.

In particular, the DigCompEdu framework addresses teachers and trainers at all levels of education, including university and adult education, vocational training, non-formal settings and special education pathways, including inclusive education.



Developed by the European Commission's Joint Research Centre (JRC) under a mandate from the Directorate-General for Education, Youth, Sport and Culture (DGEAC), the DigCompEdu framework builds on previous work to define the digital competences of citizens (DigComp) and the digital capabilities of educational organisations (DigCompOrg).

The main objective of the DigCompEdu framework is to provide a cohesive model that allows teachers and trainers to assess their level of "digital pedagogical competence", in order to further improve it. It is important to underline that this model is not designed to replace the tools defined at national level, but rather to complement and extend them. Its added value lies in providing:

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

The important results achieved have allowed us to outline with extreme precision, relating them to the classes foreseen by DigComp, the GAPS and NEEDS of the typical users (Personas) of the ECHOES project, that is: teachers, coaches and mentors, in particular – but not only – employed in distance learning activities for VET and WBL projects.

**Extending the DigCompEdu framework to the specific field of online training is the major added value brought by the ECHOES project.**

## 4.1 “Gaps” and “Needs” Matrix

Area	assignments	Needs	Desired state	Description of the gaps	Italy	Spain	Austria	Slovenia
Area 1: Professional commitment								
	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 learning courses, the document flow is managed offline	X	X	X	X
		Digital technologies as a tool for communicating with students	Better remote communication process and more interesting physical education process	A communication platform that contains different options and applications, all in one to make the lessons more interesting and practical: a platform that contains different options and applications, allows a lot of interaction, practice and group work.			X	X
	Professional collaboration	Exchange experiences with other mentors	Keep up with the times and teach in a way that is relevant to modern society and its needs.	Only a few innovative practices are used in the educational process, additional training of mentors and teachers is needed			X	X
		Sharing exams, assignments and quizzes within the organization	Each trainer has access to all other trainers' exams, assignments and quizzes.	Training on learning platforms should overcome this problem			X	
	Reflective practice							
	Digital Continuous Professional Development	Keeping young people motivated	Using different digital tools to motivate students	Digital tools such as VR and AR should be used in the educational process resulting in enrichment of lessons. Psychological approaches are needed to maintain motivation.			X	X

Area 2: Digital Resources								
	Selection of digital resources	Access and use of the 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 scattered, the applications are hard to find (on the web) or the mentor needs a lot of time to search			X	X
		Use of teaching 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 of available learning objects	X	X	X	X
	Creating and editing digital content	Create more complex practical content	Willingness to create not only theoretical content for training in the digital environment, but also practical and hands-on activities and content.	Lack of knowledge of the tools and methodologies to produce this type of content		X	X	
		Modify content for your purposes	Easy and intuitive tool for editing content.	Lack of knowledge of the tools.			X	

	Manage, protect and share digital assets	Effective Streaming Sessions (Live Distance Learning)	Possibility of receiving information with multimedia content, such as: audio, video, images, texts, etc.	It is not possible, indeed 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 classes or webinars	Since most courses are conducted through videoconferencing systems, it is quite difficult to share information or multimedia content.	X			X
Area 3: Teaching and learning								
	Teaching							
	Guide	Interaction with users	Interactive lesson	Interaction is limited to simple tools typical of videoconferencing platforms, such as: raising hands, chat, etc.	X		X	X
		Live class management	Easy management of live training sessions	Since video conferencing tools, not customized for training, are mostly used in distance learning courses, managing training sessions is quite difficult.	X			X

	Collaborative learning	Live class management	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 public.			X	X
		Difficulty engaging students to collaborate with each other	Willingness to encourage students to collaborate and work together in the digital environment	Lack of knowledge on how to promote, encourage and facilitate tools to promote students to collaborate (alone with each other) in the digital environment. It can also be linked to the lack of knowledge that suggests initiatives or activities with which students can collaborate. The design and implementation of this type of activity required mastery of digital tools and digital communication skills.		X	X	
	Self-regulated learning							
Area 4: Evaluations								
	Evaluation strategies							

	Analyze the evidence	Training monitoring	Complete and easy training monitoring (process and learnings)	Since video conferencing tools, not customized for training, are mostly used in distance learning 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 in different phases and contexts 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 evaluation process	Be able to engage students based on feedback on their activities and progress.	Lack of knowledge about the tools, frequency, type of feedback and channel for it.		X	X	
Area 5: Empowering Students								
	Accessibility and inclusion							
	Differentiation and customization							

	Actively engage students	Interaction with students and their active involvement in a subject	Using 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	Using different digital tools to motivate students	Digital tools such as VR and AR should be used in the educational process resulting in enrichment of lessons. Psychological approaches are needed to maintain motivation.			X	X
Area 6: Facilitating students' 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 (VLEs)	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 Troubleshooting							




## 4.2 R1: The “User's Analysis” for R2 and R3


The table highlights some examples of Personas identified through the analysis.


The descriptions are based on the explicit needs declared directly by the actors involved in the research

<p><b>Name: Alice</b> <b>Age: 32</b> <b>Profession: Coach / Mentor</b></p> 	
<b>ACTIVITY</b>	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.
<b>GOALS AND AMBITIONS</b>	Alice would like to provide teaching for online training regardless of the course type and the users involved.
<b>NEEDS</b>	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.
<b>DIFFICULTIES AND FRUSTRATIONS</b>	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.

<b>Name: María</b> <b>Sex: F</b> <b>Age: 35</b> <b>Profession: VET Online Trainer</b>		
<b>Activity:</b>	<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>	
<b>Goals and Ambitions:</b>	<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>	
<b>Needs:</b>	<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>	
<b>Difficulties and Frustrations:</b>	<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>	

<b>Name: Matej</b> <b>Sex: M</b> <b>Age: 38</b> <b>Profession: CEO of a company / startup mentor</b>	
<b>Activity</b>	<p>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.</p>
<b>Goals and Ambitions</b>	<p>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.</p>
<b>Needs + Difficulties and frustrations</b>	<p>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.</p>

<b>Name: Oliver</b> <b>Age: 43</b> <b>Profession: HT</b> <b>Teacher in technical theory lessons</b>		
<b>ACTIVITY</b>	<p>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.</p>	
<b>GOALS AND AMBITIONS</b>	<p>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.</p>	
<b>NEEDS</b>	<p>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.</p>	
<b>DIFFICULTIES AND FRUSTRATIONS</b>	<p>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.</p>	

<b>Name: Davide</b> <b>Age: 58</b> <b>Profession: Professor</b>		
<b>ACTIVITY</b>	<p><b>Davide</b> 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.</p>	
<b>GOALS AND AMBITIONS</b>	<p>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.</p>	
<b>NEEDS</b>	<p>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.</p>	
<b>DIFFICULTIES AND FRUSTRATIONS</b>	<p>Davide experienced difficulties delivering 20–34-year-olds, 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.</p>	

## Conclusions

The Needs and Skills Gap Matrix, together with the Personas, represent the main results of the comparative analysis conducted at European level, focusing on distance and online training, which is the central object of the ECHOES project. Result 1 is a milestone in the progress of the project, in particular to guide the activities necessary for the development of Result 2 (R2), i.e. the ECHOES Toolkit.

The Toolkit aims to be a practical, easily accessible and usable resource for the adoption of innovative methods and tools in VET projects delivered through virtual classrooms. It will provide tools and methodologies, easily available online, specifically designed to respond to the needs of trainers, mentors and tutors involved in distance VET. The structure of the Toolkit will be consistent with the DigComp framework, integrating its levels of competence, and will be optimized to respond to the specific needs of each partner country. The practical contents, methodologies, activities, dynamics and resources within the Toolkit will be applicable and tested during the piloting phases (of the Toolkit and the Pilot Course) in the different countries of the partnership.

Starting from the outputs of Result 1, methods, practical contents and resources will be selected, based on a balance of existing tools, highlighting advantages and limitations. The first methodological decision for the design and development of the ECHOES Toolkit (PR2) is the adoption of the DigCompEdu Framework, divided by areas of expertise. This approach will ensure a smooth transition from the knowledge emerged in the analysis of Result 1 to the development of the tool foreseen for Result 2. Furthermore, this analysis will provide the functional basis for the promotion of the training course foreseen in Result 3 and for the creation of OER in Result 4.