NAME	METAVERSE
Short description (What)	***Describe the solution and it's functioning*** *The Metaverse (also written as two words, Meta Verse) is a virtual representation of reality. It's an environment where people use their virtual selves to socialise, play games, visit concerts and even travel. Your 3D avatar can look just like you or be customised to whatever look you prefer to have in the Metaverse.* *What is a Metaverse company? Broadly speaking, it is any company interested in the idea of the Metaverse. Some believe it must have a digital economy that's open, decentralised and democratic.* *The Metaverse will largely be shaped by the following technologies:* *Virtual reality (VR) - To create a digital sense of presence through headsets* *Augmented reality (AR) - To support the synthesis of the physical and digital worlds* *Brain-computer interfaces (BCI) - To replace screens and physical hardware entirely.* *The current state of these technologies limits the Metaverse's development and wide-scale adoption. Virtual reality headsets range in price from 285EUR to 3300 EUR as of 2022. As kinesthetic technology and communication become more commercially available, the hardware limitations should be lifted.* *Metaverse and education are two concepts that seem to be far away from one another. Nevertheless, present-day technologies speed things up significantly, paving the way for e-learners to reap the benefits of innovative virtual environments. Therefore, the world is expecting the metaverse to turn the education discourse upside down in the years to come.* *Furthermore, what the metaverse brings in for the educational evolution encompasses the new experience, entertaining virtual environments, hands-on practice, and far more studying prospects. In the future, schools, colleges, and universities will offer both online and offline studying forms simultaneously. After all, one doesn't exclude another, right?* *By employing the power of the metaverse for education, we open up new opportunities for students and teachers, endowing both with new engagement options. Let's just take, say, Roblox, a famous gaming platform. It allows the players not only to entertain themselves but also to educate others through gameplay, with e-learning classrooms on private servers.*
Purpose/aim (why)	☒ Immediate evaluation of learning results ☐ Co-create contents (Conceptual maps) ☒ Acquisition of new pieces of knowledge ☒ Showing job processes and techniques

	☐ Systematization of contents ☒ Experiencing of practical activities ☒ Digitalization
Contents/learning objects suitable *(on what)*	*Specific contents/objects trained with this specific solution:* ● *If it's more suitable for a practical activity or theory* ● *If it has more texts, videos, images, etc.* *Some examples of application:* - *Road safety education* - *Job procedures* - *Stress management*
Type and level of interaction	*Explain the level of interaction:* - *immersive interaction in real time (in a group or single)* - *interaction with objects (in real time or not/in a group or single/in common or on different objects or part of it/inside an environment or not* - *interaction in real time with trainers and trainees (more simple solutions)* - *low interaction*
Type of learning stimulated by the solution	*Verify if it's possible to close the responses and check the responses* ☒ Learning from experience ☒ Learning through creative thinking ☒ Learning from peer interaction ☐ Learning from a reflexive process ☐ Learning from imitation/observation
Digital solutions' brand names	*The most common and different brands which propose that digital solution:* *Epic Games - Fortnite (Computer Game)* *Microsoft - Minecraft (Computer Game)* *World of Warcraft (Computer Game)* *Roblox (Computer Game)* *Meta (Facebook)* *Amazon* *Apple* *Unity (3D and game development software)* *Magic Leap (Smart Glasses)* *Valve (Game development studio)*
Technical equipment *(the technical equipment needed to support its use in training/teaching)*	*Hard to depict as it uses a lot of different hardware solutions from AR, VR, MR, Smart glasses, computers, phones etc.*
Equipment conditions	*Regarding HW: purchased, borrowed, shared* *Regarding SW: Licence/free (and explain how the licence is wide and binding); the presence of an Educational version*
Costs	Not possible to depict.

Main technical problems that can be occurred / maintenance needs	Not possible to depict.
Methodological indications for trainers/teachers	Please indicate: - how the solution can be used (or is designed to use) during a lesson - Needed preparatory activities - De-briefing solutions to be adopted
Describe the use onsite of that solution	Depending on what digital tool is used, see the VR, AR and gamification templates.
Describe the use in the distance setting of that solution	Depending on what digital tool is used, see the VR, AR and gamification templates.
Main pedagogical problems that can be occurred	Technology/Digital tool/Metaverse as a broad term is not fully developed! Therefore, it is impossible to estimate. It would be possible to try and see which technology is being used or look at the general suggestions for the VR, AR and gamification templates.
Troubleshooting suggestions	Not possible to depict.
Role of the teacher/trainer	All of these might be a possibility Creator of materials. Overseeing the students.
Strengths *(regarding contents, techniques and processes)*	**Immersive experience.** Education is all about memorable experiences that enable students to keep essential knowledge in mind and use it in practice. As a next-gen education platform, the metaverse, for example, can offer unexpected virtual journeys to various historical periods. Just imagine teaching the history of Ancient Greece while virtually standing in front of the recently erected Acropolis of Athens or Ancient Corinth. Isn't it an astonishing experience for both educators and learners? **Hands-on practice.** Conventional means of education rarely offer students to practice some freshly acquired skills without any risks, especially during global crises. Imagine a healthcare professional showing students how to do complex surgery and asking them to repeat their movements. Can anyone do the same without risking someone's life or health? **Gamification prospects.** E-learning can be brought to the next level with the improvements that metaverses open for education. Gaining new skills as well as improving the expertise may be enhanced with gamification because by combining entertainment and learning, educators increase engagement. **Improved learning speed.** According to the PwC research, employees train up to 4 times faster in the VR environment compared to traditional learning means. With a more engaging experience, gamification, and hands-on practice, everyone involved in training

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<tr><td></td><td>within the virtual world considerably increases the odds of becoming a better specialist or merely learning faster.

Life-like learning conditions & communication.
Whereas traditional education rarely promotes active communication and engagement between students, metaverse learning provides life-like environments that stimulate discussions. Hence, people tend to feel more immersed, which results in better performance and motivation to speak about what they've recently learned.</td></tr>
<tr><td>Weaknesses
(regarding contents, techniques and processes)</td><td>Poor accessibility.
Given that VR headsets and hardware supporting their functionality are quite expensive, some students may find it difficult to join such online classrooms. Depending on the quality and performance of the metaverse used by universities, colleges, or other organizations, learners will have to gain access to the technologies at different costs. However, chances are that institutions will be able to provide all the required hardware and software for these purposes.

Exposure to an anti-social environment.
The more frequently people study in the metaverse, the more they get used to social distancing, especially if the students are underaged. There's no denying that socializing and interpersonal communication account for better relationships within teams, be it in working or studying settings.

Virtual bullying.
Although the same goes for the relationships between students inside physical classrooms, bullying taking place inside the digital realm is becoming a widespread phenomenon. However, it's worth pointing out that this disadvantage primarily relates to the means of using this specific technology as well as who is involved in its application. In turn, the solution itself can't be either good or bad by default from an ethical perspective.</td></tr>
<tr><td>Linked practices
(if available – see the other scheme)</td><td>Virtual Reality
Augmented Reality
Gamification</td></tr>
<tr><td>Main characteristics
(Evaluate each characteristic)</td><td>Not possible to depict as different tools and solutions will have a different impact.
<table>
<tr><th></th><th>Low</th><th>Medium</th><th>High</th></tr>
<tr><td>Level of interaction among trainees during the experience</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>Level of interaction with the trainer during the experience</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>Autonomy in the use of the solution by the trainee</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>Easy to use (friendly?) by the trainee</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>Easy to use (friendly?) by the trainers</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>Level of peer-to-peer collaboration</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>Inclusiveness (in relation to disadvantaged groups)</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>Level of engagement</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>……</td><td></td><td></td><td></td></tr>
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Other relevant information	*Metaverse as an educational tool is in its "diapers" as of now. So a lot can change!* ***Does the Metaverse exist?*** *The first demonstrations of the Metaverse exist in online game universes: Fortnite, Minecraft and Roblox. However, going by the Metaverse definition, it came into existence with Web 2.0, at least as an early version. Now, with an AR/VR overlay, the space is becoming more immersive, three-dimensional, and interoperable.*
Comments	*As this is probably the most "high-tech" and digital solution can get, Metaverse is the same as the internet back in the late 80' s. The metaverse, as it is with our current knowledge, will be the next biggest digital step in our lives going hand in hand with quantum computing.* *In the training/teaching activities: practically speaking, there is no limit and anything will be possible in the Metaverse, but as it is right now there are a lot of restrictions which apply as stated in the weaknesses.* *Suggestions for training the trainers:* *Start with a traditional info pack about what the Metaverse is (and what it is not), and what are the current potentials and limitations. It might be beneficial to create some sort of learning guide on how to create your own Metaverse material and class.* *Pay attention: General lack of solidified data and practical experiments providing the information on how to include Metaverse in education in a practical manner. There is a plethora of materials on potentials but a very small amount of information about practical integration.*
A contribution by	*Virsabi*

Disclaimer! Metaverse is not developed per se, therefore it is hard to find materials applicable for VET education.
What is a Metaverse company? Broadly speaking, it is any company interested in the idea of the Metaverse. Some believe it must have a digital economy that's open, decentralised and democratic.

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