



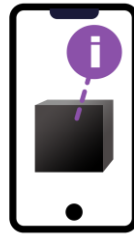
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Mixed Technologies – Virtual-/Augmented Reality for SMEs

Virtual Reality and Augmented Reality (VR/AR) - like other forms of digital teaching - are becoming increasingly important in the training of skilled workers. They allow an intense visual impression of artefacts and processes that are too complex, too costly or too risky to directly interact with within a learning context. By now, companies are shifting their focus more and more to use these forms of further training.

Currently considerable difficulties in the implementation and further use of VR/AR are frequently reported and the practical experience is not always positive. There are difficulties with regard to content, technical and didactical aspects as well as a complex technical implementation process and high costs. The new technology is perceived interesting as such, but not leading to a really deeper learning. A functioning technology does not yet ensure that it is used sensibly and that it is appropriately combined with other (digital) learning methods.

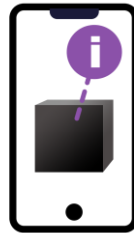
The task of the project is to clarify which technologies are to be preferred in a specific use-case, i.e. where and when which hardware (tablet vs. headset vs. laptop, etc.) and which medial presentation (VR vs. AR vs. computer-mediated vs. physical) might be most useful and cost-efficient. Further, the project aims to clarify how these technologies and didactical elements should best be mixed in a specific learning unit, in specific frameworks and for different use-cases.

The project will

- organise an exchange of experience among practitioners
- work out how to design targeted, cost-effective and flexible VR/AR solutions
- develop concepts and guidelines based on this, showing how to achieve a focussed and effective use of VR/AR



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The project will start with a Didactical Analysis and a Technical Analysis on current VR/AR-based trainings. Once the analysis is done, work will start on a Didactical Meta Model. Then a piloting process will start in all three participating countries, aiming at implementing the meta model into learning units. The results of the piloting process and its evaluation will be summarized and transformed for publication. Guidelines for SMEs will be organised and a Usage Strategy will be developed and disseminated.

Envisaged Results

- A compilation of experiences with Extended Reality (XR) in continuing vocational training in enterprises: Are the learning objectives achieved? What is the satisfaction of those involved? When is it worth the effort, when not?
- An overarching didactical concept, how Virtual and Augmented Reality
 - can be used in a targeted manner in continuing education in the workplace
 - is appropriately combined with other (digital) forms of continuing education
 - can be designed in such a way as to justify the technical and thus the financial effort required for the specific application
- An evaluation of pilot applications of the concept in companies
- Guidelines for different stakeholders to put this concept into practice.

The participating SMEs, directly or through their associations, will be front runners in high level technical further education. As a long term benefit, SMEs will have a wider option for – digitally supported – further education of their workforce, including VR/AR. There will be a deeper understanding at hand for SMEs and their supporting organisations of potentials and limits of VR/AR approaches in further education. Their employees will have additional options to receive an efficient and appropriate training programme for future employment. Training providers will be enabled to offer a wider range of work based trainings – also at least partly as distant learning. In particular they will have a strategy at hand to decide, to which extent



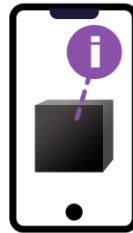
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and to which purposes VR/AR should and could be integrated into explicitly useful and cost efficient continuous vocational education and training.

Project Partners

- **Sustainum – Institute for a Sustainable Economy Berlin (Coordinator, DE)**
- Fundación Laboral de la Construcción (ES)
- Institut für Flachdachbau und Bauwerksabdichtung (AT)
- Codefluegel – Programming AR-Applications (AT)
- Confederación de Empresarios de la Construcción de Aragón (ES)
- Ehrler Prüftechnik Engineering GmbH (DE)
- Metro7 Edificación Singular y Construcción Sostenible S.L. (ES)

Associated partners

- Casalé Gestión de Residuos S.L. (ES)
- Berna Obras y Proyectos S.L. (ES)
- **Bildungszentren des Baugewerbes e.V. (DE)**
- Conference on Project Development (international)
- OTS Oberflächentechnik GmbH & Co. KG (DE)
- Ecoplus – Business Agency of Lower Austria (AT)



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