Digi-CVET

Developing transversal digital competences for digital

Continuous Vocational Education and Training in construction

2021-1-DE02-KA220-VET-000025109
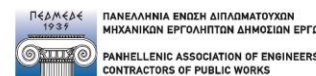
# Appreciation of initial training by digital means/ applications

# What will you learn in this module?

This learning unit explains by way of example

- which technical and personal requirements are necessary for digital teaching and learning,

- how learning processes can be largely self-directed with digital tools and

- what benefits can be expected for trainees, trainers and training in the construction trade as a whole.

We wish you much pleasure and success in working through this learning module.

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What digital tools can we use to make education and training in the construction trades more attractive?

**Content of this learning module**

  I. *Some preconditions for learning with digital tools (selection)*

  II. *Awakening enthusiasm with digital tools*

  III. *Technical applicability: BIM, Cloud, Teams, AR, VR*

  IV. *Didactical applicability: HOL-phases 1 - 6*

  V. *Examples: Masonry, Carpentry, Road Building*

  VI. *Benefits: Trainees, Trainers, Training in total*

  VII. *Next steps*
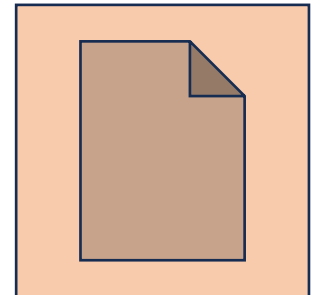
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# I. Some preconditions for learning with digital tools



**What do you think?**

- What are the technical and personal requirements for digital training in the construction trade?

Please click the icon on the right to formulate your assessments:

EN-I.assessments.docx

**Note**: the file *EN-I.assessments.docx* can be found in the download folder of your computer.

Continue clicking when your entry is finished

Source: https://3d.connect.trimble.com/?projectId=C2Y5pxVilLk&modelId=FvhYPUJMzx4&=&origin=app21.connect.trimble.com

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# I. Some preconditions for learning with digital tools

**Technical preconditions (selection)**

- Powerful, network-based devices, e.g. *tablets*
- A powerful, easy-to-use *BIM viewer*
- User account for each apprentice (e.g.MS Teams)

*Click here for details*

**Personal requirements (selection)**

- *Affinity* for network-based technology and media
- Familiar working with CAD, BIM, Teams, Ilias
- Ability to inspire apprentices to work with net-based learning material

*Click here for details*

Ausblenden  Isolieren  Beschneid...

Source: https://3d.connect.trimble.com/?projectId=C2Y5pxVilLk&modelId=FvhYPUJMzx4&=&origin=app21.connect.trimble.com

# I.    Some preconditions for learning with digital tools

**Click on the links please to learn more about technical preconditions**

- Powerful, network-based devices, e.g. *tablets*

- A powerful, easy-to-use *BIM viewer*

- A powerful, easy to use communication platform, e.g. *Ilias* (registration required)

- User account for each apprentice, e.g.MS Teams (registration required)

**Personal requirements (selection)**

- *Affinity* for network-based technology and media (*>> read more*)

- Familiar working with CAD, *BIM*, Teams, Ilias. Additional download: Module "*Digital Communication*"

- *Social competences* in (e-) training

- *Media competences*, ability to inspire apprentices to work with net-based learning material
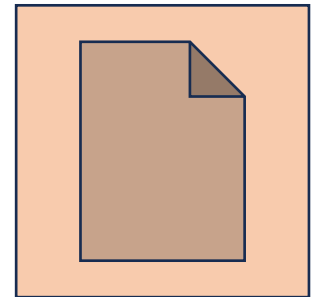
Source: own research

# II. Awakening enthusiasm with digital tools
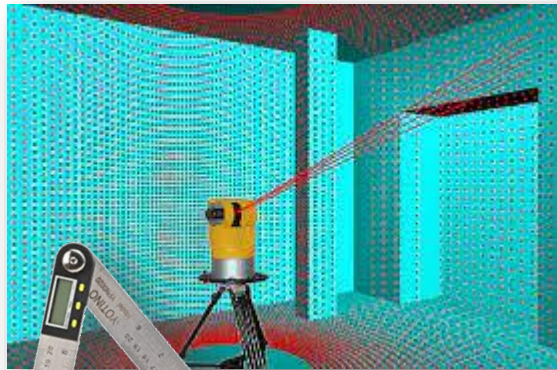


**What do you think?**

- How can you use digital tools to enthuse your trainees?
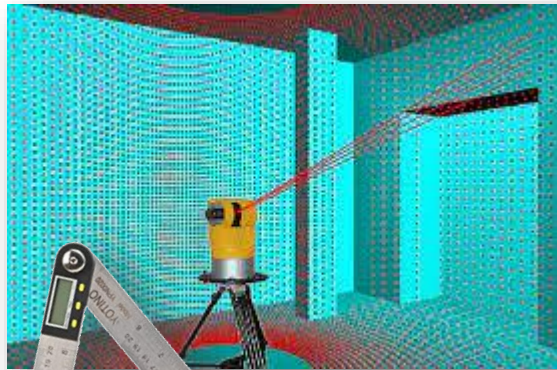Please click the icon on the right to formulate your assessments:

EN-II.assessments.docx



**Note**: the file *EN-II.assessments.docx* can be found in the download folder of your computer.

Continue clicking when your entry is finished

Source: freepiks.com

## II. Awakening enthusiasm with digital tools

**Principles**

- Use *current media behaviour* of the participants
- As much *information as necessary*, as little *information as possible*
- Participants should work out the learning content as *independently as possible*

*Click here for details*

**Presentation on site and trying it out:**

- *Digital measuring tools*
- Hardware (Tablet, AR/VR glasses)
- *Software* for PC, tablet & smartphone, AR/VR
- *Virtual construction site*

*Click here for details*

Source: freepiks.com

## II.   Awakening enthusiasm with digital tools

**Principles**

- Use *current media behaviour* of the participants

- As much *information as necessary*, as little *information as possible*

- Participants should work out the learning content as *independently as possible*

**Presentation on site and trying it out:**

- *Digital measuring tools*

- Hardware (Tablet, AR/VR glasses)

- Software for PC, tablet, smartphone, AR/VR

- *Digital Collaboration* (Please note: the file can be found in the download folder of your computer)

- *Virtual construction site*

Source: own research

# III. Technical applicability: BIM, Cloud, Teams, AR, VR

EN-III.assessments.docx
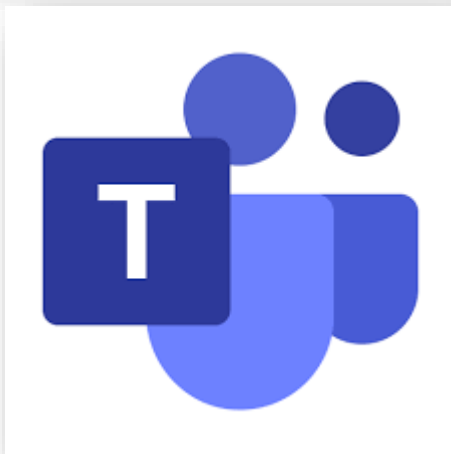
**What do you think?**

- Please try to explain the abbreviations BIM, AR and VR. Please click the icon on the right to formulate your assessments:
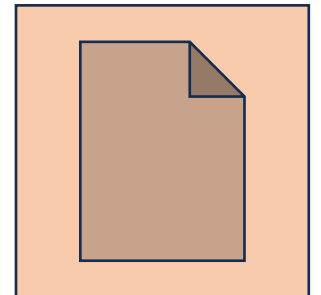
**Note**: the file *EN-III.assessments.docx* can be found in the download folder of your computer.

TRIMBLE XR10 WITH HOLOLENS 2

Continue clicking when your entry is finished

Source: freepiks.com

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## III. Technical applicability: BIM, Cloud, Teams, AR, VR



**Required competences**

- **Basic competence** for a BIM viewer,

  for example: DigiCVET-module BIM

- **Basic competences** for MS Teams

  Optional:

- Basic competences for **cloud using**

- Basic competences for **HoloLens**, **Oculus** or. similar

- Basic competences for **laserscanners**

  **Click here for details**

Source: freepiks.com

# III. Technical applicability: BIM, Cloud, Teams, AR, VR

**Required competences**
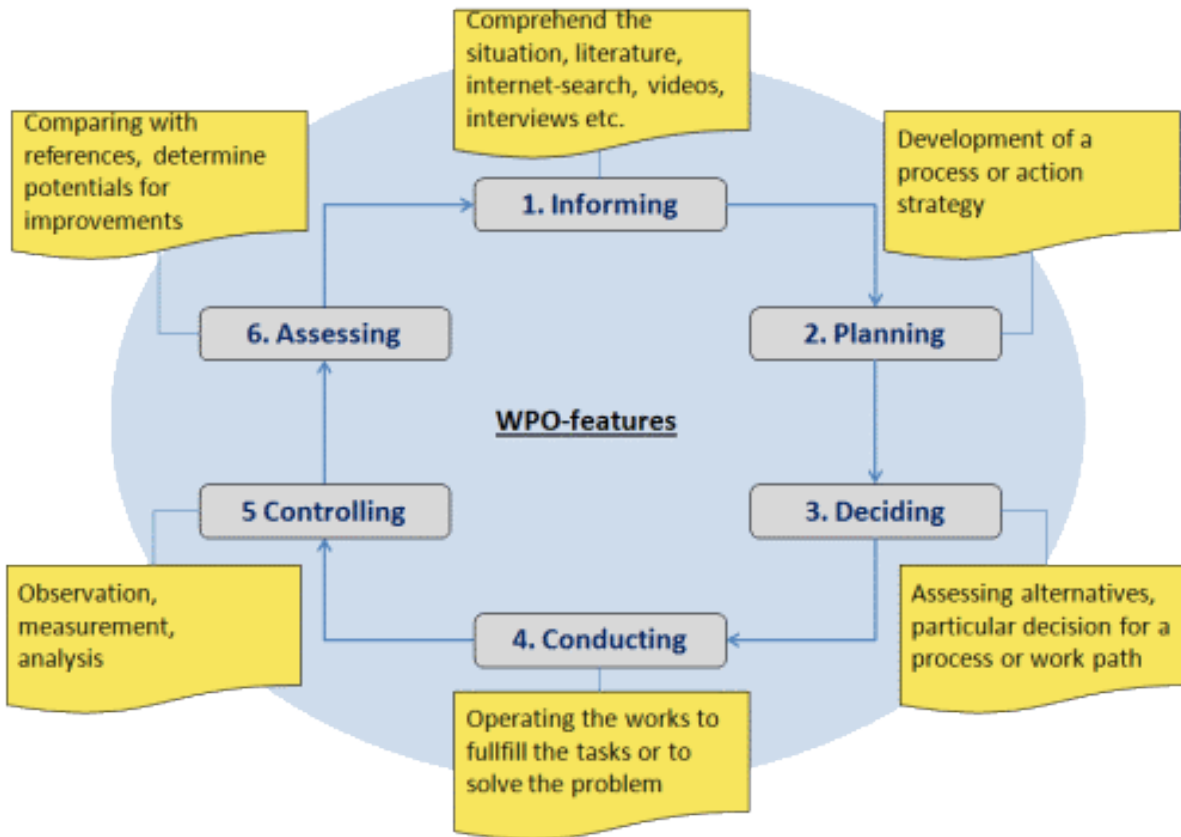
- *Basic competence* for a BIM viewer,

  for example: *DigiCVET-module Digital Communication with BIM* (see download folder of your computer)

- *Basic competences* for MS Teams

  Optional:

- Basic competences for *cloud using*

- Basic competences for *HoloLens* or similar

- Basic competences for *Oculus* or *similar*

- Basic competences for *laserscanners*

Source: own research

# *IV. Didactical applicability: WPO-phases 1 – 3, 5 - 6*



Comprehend the situation, literature, internet-search, videos, interviews etc.

Development of a process or action strategy

Comparing with references, determine potentials for improvements

**1. Informing**

**6. Assessing**

**2. Planning**

**WPO-features**

**5 Controlling**

**3. Deciding**

Observation, measurement, analysis

Assessing alternatives, particular decision for a process or work path

**4. Conducting**

Operating the works to fullfill the tasks or to solve the problem

Source: bzb.de

**Precondition**
- Familarity to all competences mentioned before
- Knowledge of work-process-oriented learning or willingness to engage in it

Take a look (again) at this teaching and learning method, please.

*WPO phases* **(work-process-oriented learning)**

Development of work-process-oriented learning modules:
- **Masonry**
- Carpentry (link to module, not yet available 😔)
- **Road construction**

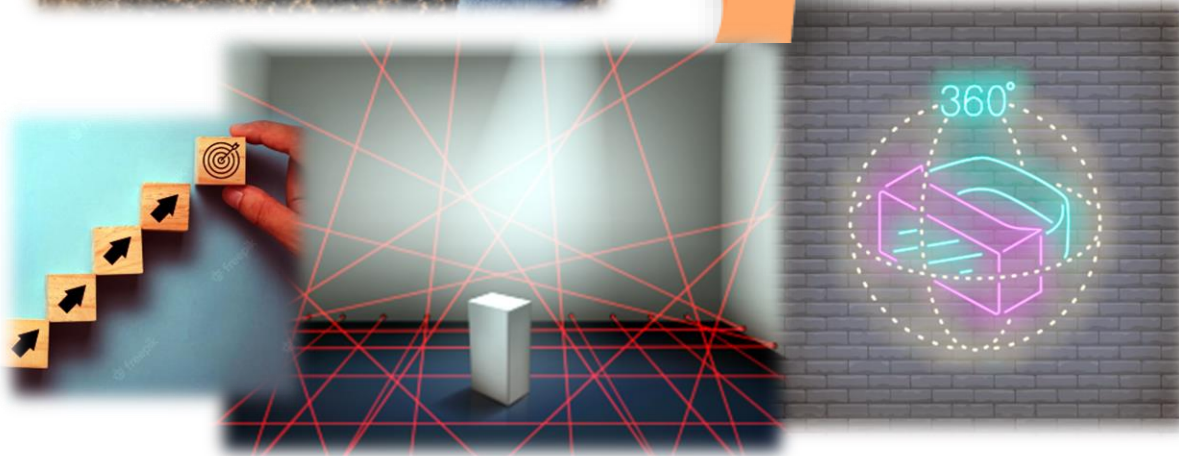# V. Examples: Masonry, Carpentry, Road Building
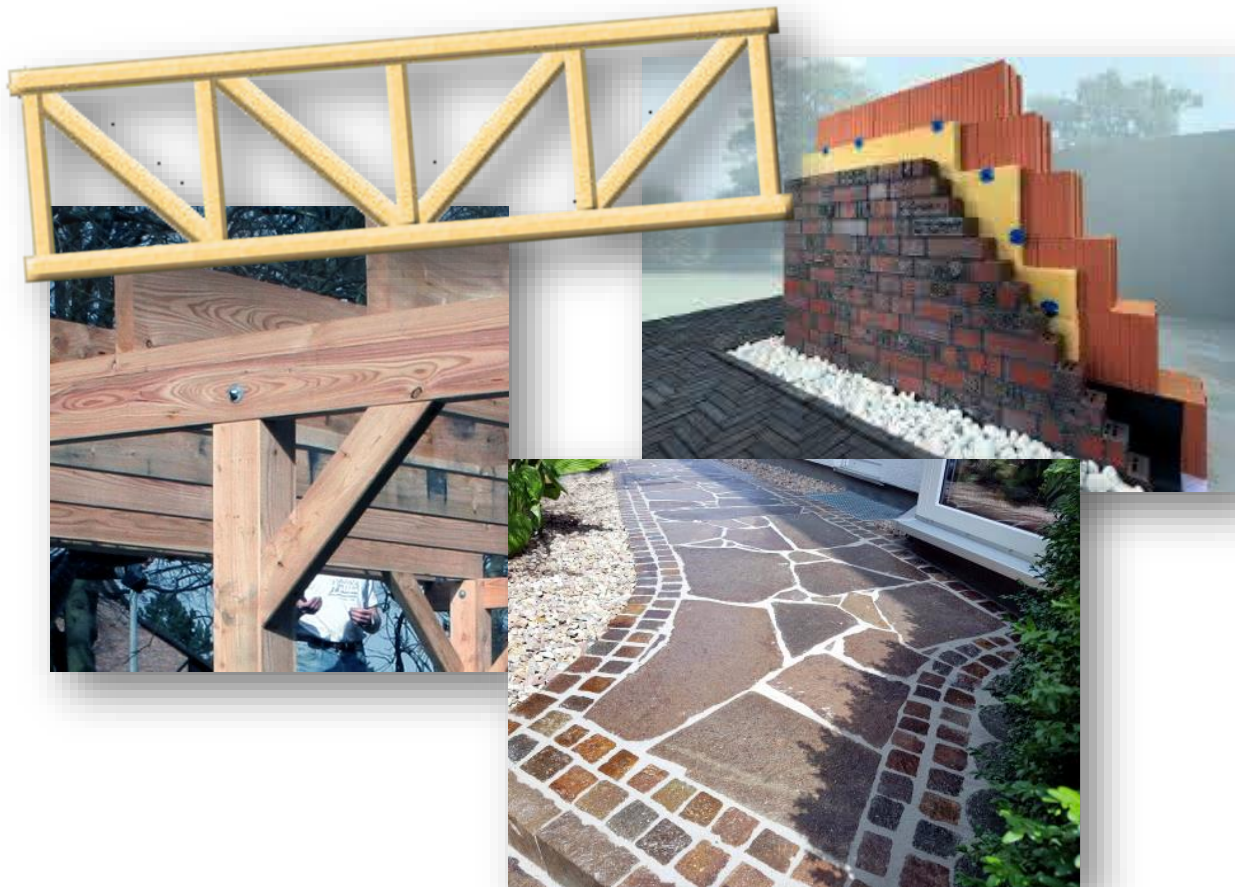


**Preconditions**

- Measures for occupational safety and health protection

**Examples for WPO-modules**

- *Structure of a WPO course*
- *Building a wall corner* (part of a building with door detail), currently only in German
- Manufacture of carpenter-style wooden joints (parts of roofs), not yet available 😊
- *Laying natural stone paving , Structure of a paved surface*(animations, part of walkways)….

Source: http://www.q-zwh.de/nbb/WinApp/Export_20180724_trainer/180724_bzb_masonry_trainer_eng/index.html

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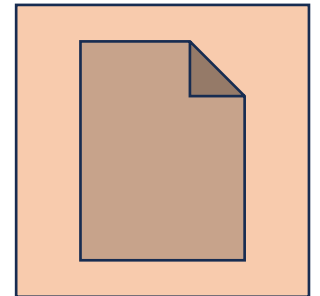# VI. Benefits: Trainees, Trainers, Training in total

**What do you think?**

- What are the benefits for trainees, trainers and training in total for the construction trade?

Please click the icon on the right to formulate your assessments:

EN-IV.assessments.docx

**Note**: the file *EN-IV.assessments.docx* can be found in the download folder of your computer.

Continue clicking when your entry is finished ▶

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# *VI. Benefits: Trainees, Trainers, Training in total*

**Benefits (examples) for**

- **trainees:** Increasing motivation through the use of digital media and tools (young people are very familiar with them and love them),
  thus higher learning success,
  realistic assessment of their own competences (target-performance comparison),
  ………….. (please add some more)

- **trainers:** on the one hand have more work for the preparation of the courses, afterwards they will be pleased about the high and sustainable learning success of their trainees
  ………… (please add some more)

Source: freepiks.com

# *VI. Benefits: Trainees, Trainers, Training in total*



**Benefits (examples) for**

- **Training in total:** The construction trade is currently severely weakened by a shortage of well-trained skilled workers. The use of digital media, digital communication and tools is expected to increase people's overall acceptance of the construction trade. In this way, the number of apprentices will increase again and the quality of construction will improve. ……. (please add some mor benefits and discuss it with your colleagues)

Source: freepiks.com

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# VII. Next steps

**Next steps**

**Developement of learning modules according to the**

**WPO process:**

- **Masonry**

- **Carpentry**

- **Road construction**

**Main focus:**

**Use of digital tools in planning, implementation and**

**evaluation of work assignments**

**Again for understanding:**
The intended WPO learning modules are not about technology itself (BIM, AR/VR, teams, etc.). However, they are practically applied in the context of WPO learning and are therefore preconditions. The learning modules can only be applied when the trainer is well acquainted with the technical and didactical requirements described above. He must therefore at least be able to handle and explain the basic BIM technology and be familiar with the necessary hardware and software. The upstream learning modules of this project will be very helpful in this respect.

# Legal Notices

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