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Best practice

example for additive manufacturing

Transferring Educational and Vocational Training to 4.0
(sharing best practice)

Subject: **Building up an Additive Manufacturing Center**

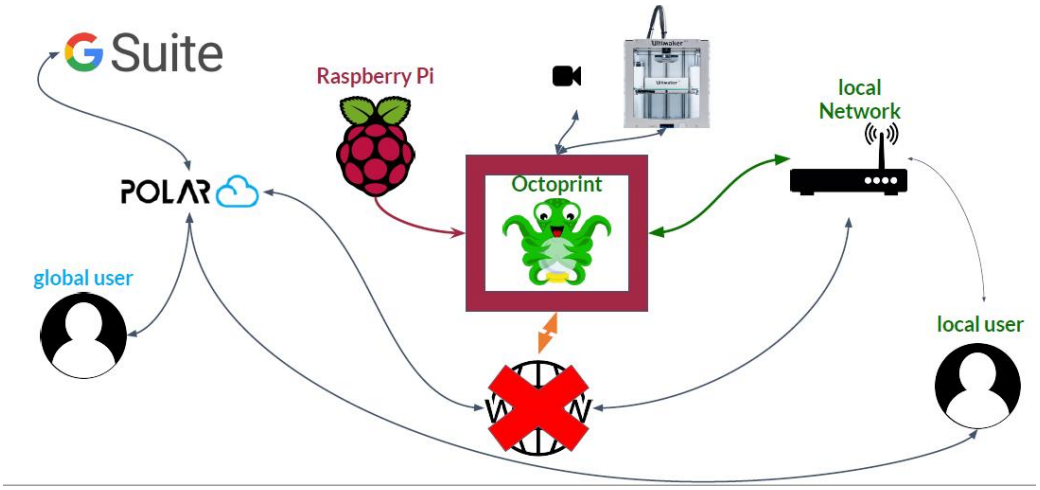
Related Industry 4.0 themes

☐Autonomous Robots	☐Augmented Reality
☐Industrial Internet	☒Software Integration
☒Additive Manufacturing	☒Cloud
☒Simulation	☐Big Data and Analytics
☐Cyber Security	

Presented by: **Students of technical academy for mechanical engineering, EQF 6 (BK Werther Brücke, GER)**

Description

- 3D-Printing is one of the new technologies referring to industry 4.0.
- Cloud solutions allow online-process-monitoring and -operation.
- The students set up a 3D-printer-system by themselves.



- The system is supervised by a group of students in order to reduce the required charges of teachers.
- The students got a detailed understanding of the 3D printing process by "try and error".
- New business-processes have been developed and are available on the internet.
- 3D-Prining will have a large effect on spare parts strategies, as these parts can be produced on demand.
- A 3D Printing Center will be built up in order to convey the competences shown beneath.

Further information:
https://polar3d.com
https://octoprint.org
info@bkwb.de

Key Competence

EQF	Description of competence	media competence	appliance competence	IT-knowledge
1-2	Students design very simple 3D parts by using software programs		x	
	Students print very simple 3D parts chosen from an existing database		x	
3-4	Students discern 3D printers according to - Areas of application - construction - printing process - printer supplies			x
	Students print simple 3D parts chosen from an existing database		x	
	Students design / parameterize simple 3D parts by using software programs		x	
	Students know and evaluate new online business processes in the filed of configuration, production and delivery of 3D parts.	x		
5	Students independently perform maintenance and repairs on 3D printers.		x	x
	Students design / parameterize 3D parts by using software programs		x	
6	The students create work instructions for printing and maintenance processes		x	
	Students design / parameterize complex 3D parts by using software programs		x	
	Students create concepts for monitoring and analyzing printing processes online		x	
	Students implement concepts for monitoring and analyzing printing processes online		x	x

EQF: European Qualification Frame