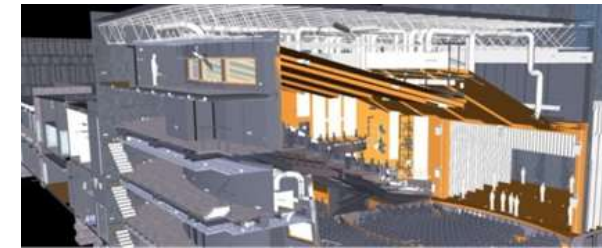


Use case 4: Integrating digital context (e.g. BIM) to the digital twin with AR/VR of the robotized production

Problem/goal	Utilization of digital context and digital twins for the robotized production with AR/VR
Potential users	Intergrators of industrial robotic applications, manufacturing companies and SMEs providing or utilizing augmented reality interaction
NACE	28.29 Manufacture of other general-purpose machinery
Description	Demonstrate how companies carrying out prefabrication can utilize robotized manufacturing to get their production more agile by integrating BIM, digital twin and VR/AR technology. They can utilize these agile concepts for more flexible monitoring, operational support, training, safety and maintenance purposes of the production cell.
Hardware	ABB/KUKA/UR robots, MS HoloLens, HTC Vive, 3D Kinect, LIDARs, NDI Optotrack, Leica long range scanner, SICK encoders
Software	Commercial (Dassault 3DExperience, Visual Components/ ABB Robot Studio/ RoboDK) and open source software (Unity, Vuforia, Blender, ROS, Linux)
Standards	Considered: ISO/TS 15066:2016
Possible benefits	Studies with digital twins, BIM and AR/VR technology for collaborative robotics in industrial environments for better human-robot interaction, and dynamic 3D safety
Partners	Centria, Tampere University (Finland), FhG (Germany), UiT (Norway)
More info	



BIM, digital twins and AR/VR (e.g. MS HoloLens) can be utilized in agile production