

## OUR AIM

ARtwin aims at improving productivity and product quality, by deploying an ARCloud platform that will offer a wide variety of cutting-edge AR-based services, well-tailored to the requirements of European Industry and Construction 4.0.

## PROJECT GOALS

- Develop a sovereign ARCloud platform for Industry and Construction 4.0, offering a set of cutting-edge services for AR devices localization, digital twin/BIM update, as well as AR remote rendering to address low-resource devices.
- Validate the benefits of the ARCloud platform in major factories and construction sites, by deploying 3 demonstrators that will prove the quality and productivity gains.
- Contribute to standardization activities, by providing specifications of unified APIs and data representations, fostering this way a growing and sustainable AR ecosystem in Europe.



### IDENTITY

- Project title:** An AR cloud and digital twins solution for industry and construction 4.0.
- Grant Agreement No:** 856994
- Type of action:** Research and Innovation Action
- Start:** 01/10/2019
- Duration:** 36 months
- EU contribution:** 3.825.148,75 €
- Main users:**
- Industrial & construction companies and their personnel
  - Companies operating in the AR/ VR market

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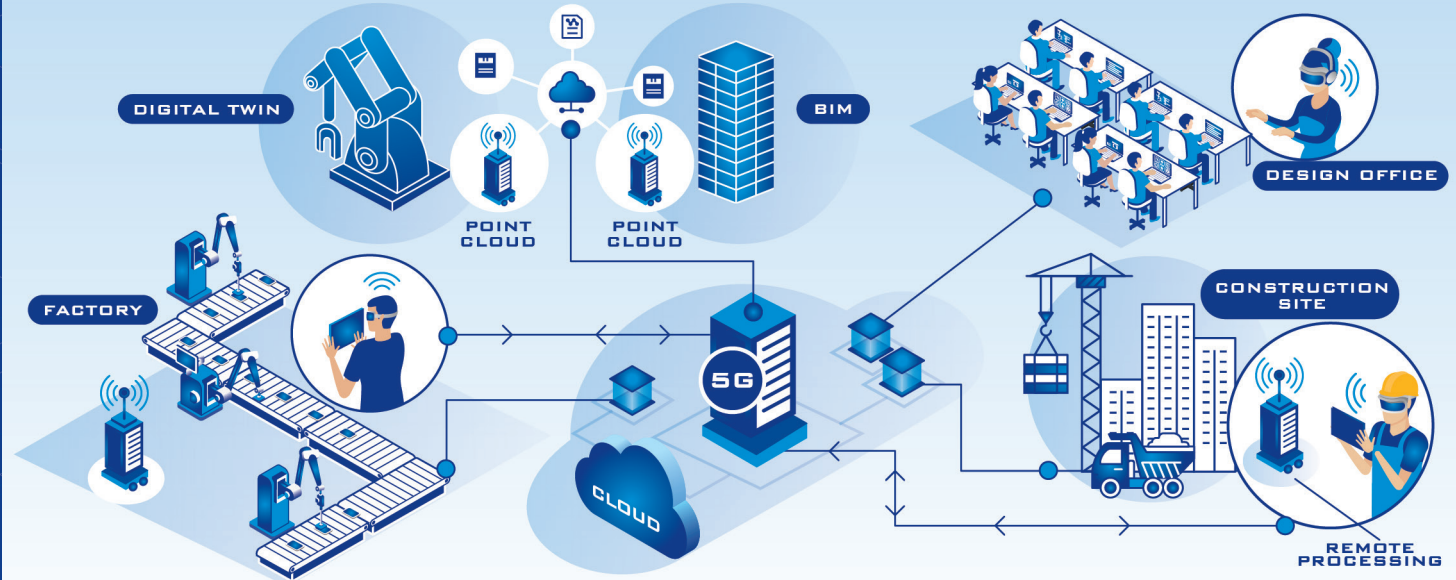


**ARTWIN**  
INDUSTRY & CONSTRUCTION  
4.0 SOLUTIONS

[www.artwin-project.eu](http://www.artwin-project.eu)

# TAKE YOUR FACTORY OR CONSTRUCTION TO THE NEXT LEVEL

ARtwin introduces an easily deployable ARCloud platform that enables the design and maintenance of highly accurate digital representations (digital twins) of large-scale operational environments, that are updated in real time and allow for the deployment of high quality interactive services, well-tailored to the requirements of Industry and Construction 4.0.



## SERVICES

### Development and updating of a unified global map of the factory or construction site

A unified map representing the geometry of large-scale real environments will be specified and updated in real-time by various input data and serve as the bedrock for the provision of cutting-edge services.

### Localization service to track AR devices

A robust and accurate localization system will be developed, allowing for large-scale real time localization based on the unified map and capable to account for the large variability of the environment.

### Development and real-time updating of a 3D digital twin of a factory or BIM of a construction site

A Digital Twin/ BIM real-time updating system will be built, to ease factory planning adaptation and allow the effective monitoring of construction progress and defect detection.

### AR Remote Rendering service for displaying complex 3D models on low-resource AR devices

An AR remote rendering service will be delivered, in order to overcome the limitations of the computational power of existing and future devices, offering the ability to render complex 3D models with ultra-low latency.

## USE CASES / PILOTS

By means of a 5G network, the ARtwin solution will be deployed in major real-life pilots in Siemens factories and large construction sites, so as to:

- Provide contextually and spatially correct augmentations to factory workers about the machines they are operating (or monitoring) through AR devices.
- Enable flexibility and automation in the re/planning of dynamic production lines, through the use of the real-time digital twin of the factory along with interactive AR/VR editing capabilities.
- Offer scale 1:1 multi-user AR tools that will assist construction managers in detecting defects and help the workers retrieve relevant information for each task, minimizing the risks and producing better constructions.



The ARtwin cutting-edge solution for increased productivity and product quality in Industry and Construction 4.0.

## BENEFITS

### Optimize your operations and increase your productivity & flexibility

The ARtwin solution enables proactive problem detection and assisted problem solving, inducing maximum efficiency in the performance of tasks. It helps increase the productivity and flexibility by contributing to effective production or construction design, planning and re-adaptation, leading to improved product quality and reduced costs.

### Capitalize on knowledge flows

The disruptive improvements offered by the ARtwin solution can enhance communication and information flows, as well as facilitate the integration, sharing and use of new knowledge, reducing training needs and stimulating innovation on individual, intra- and inter-organizational level.

### Save time and minimize risks

With the ARtwin solution, factory workers can document changes and suggest improvements in seconds rather than hours, operators can reach critical decisions in seconds rather than minutes, factory planners can change layouts in minutes rather than days and construction site workers can execute their tasks with minimum defects.