



twinverse

Industrial metaverse
put into practice with reality capture

Industrial metaverse implementation with Twinverse

Your real-world environments



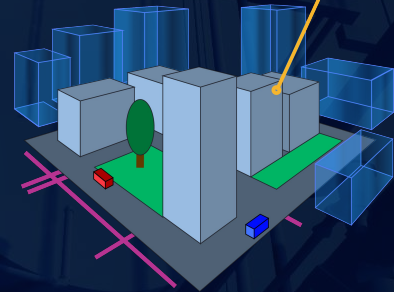
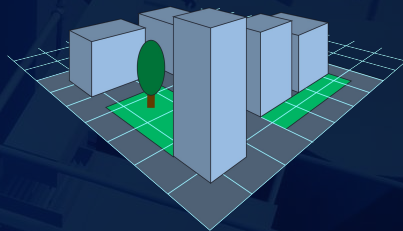
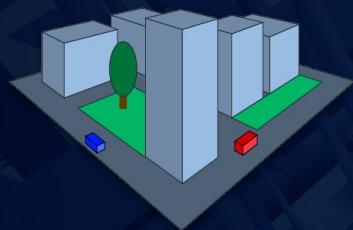
State-of-the-art reality capture



Photorealistic 3D model data



Twinverse web platform



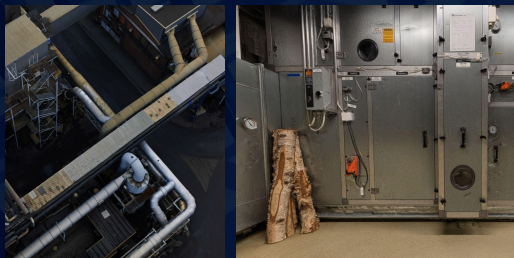
Your use cases



Re-design areas, plan for changes, monitor progress,
visualize plans, inspect and locate assets, train remotely,
detect deviations, collaborate virtually, access data...

Reality models

Metric photorealism from
textured 3D mesh models



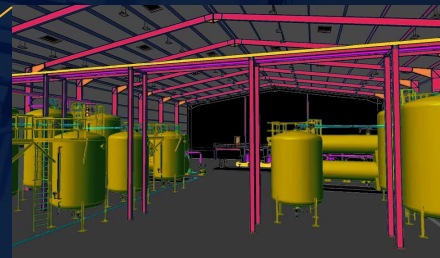
Feature extraction from
3D point clouds



+ Rapid situational awareness from
360° images

Supplementary data

CAD models, designs
and drawings



Maps, layouts, plans and other
spatial data



+ Other documents, pictures,
videos and data streams

**Twinverse
collaborative
web platform**

**Virtual Visits
Planning, Designing
and Implementing**

USE CASES

Photorealistic industrial metaverse

A virtual space where you can:

Collaboratively use highly detailed and realistic digital replicas (digital twins) of your facilities, equipment and products

Why and how?

Improve your operations, understand your environments, support sustainability goals, plan for changes and scenarios by leveraging 3D data and reality capture



What is reality capture?

Modelling real world in 3D with photographic fidelity and measured accuracy

Highly automated model creation

- 3D scanning with laser scanners and/or photographing tools
- Model created from scanned data with software tools
- No manual drawing!

Key characteristics and benefits

- High degree of immersion (impression of being physically there)
- High visual and dimensional accuracy
- Has contextual information that is missing from CAD models
- Can be modified and enriched with content
- Is a basis for other model types (point cloud, CAD, simplified models etc.)

Twinverse Application Areas



Operations planning
and management



Familiarization, induction,
training and work
instructions

Virtual Visits

Access and understand your site remotely



Presentation of sites to
customers and suppliers



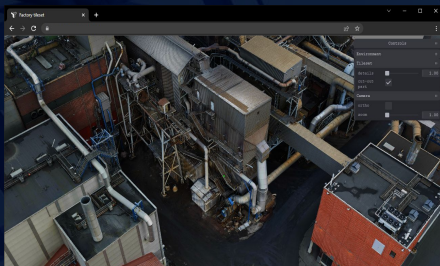
Process visualization
and simulation



Remote inspections and
safety audits



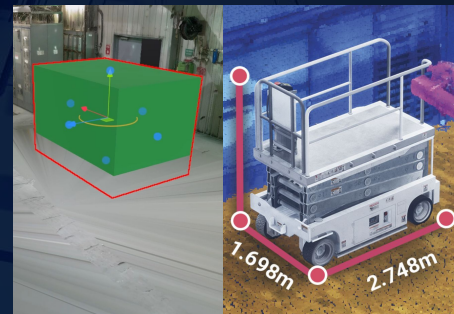
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Visit your sites via
photorealistic 3D
models or 360°
pictures in a viewer



Check and measure things,
update drawings and
diagrams



Fit new equipment

Ways of Use for Virtual Visits

Access location-based
documentation or
information via the
model



Visualize production line
operation and real-time data
(digital twin)

Add training content:
Information, incidents,
questions, tasks



Add notes about
safety risks

Twinverse Application Areas



Site, layout and
process design



Areal and logistics
planning

Planning, Designing and Implementing

Simplify and accelerate your processes



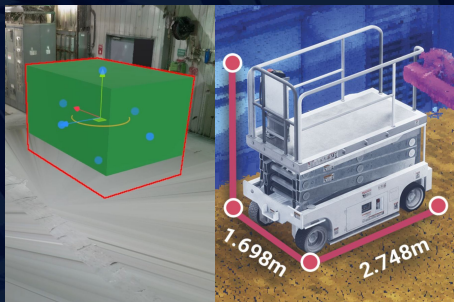
Management, supervision and
documentation of delivery projects



Piping planning

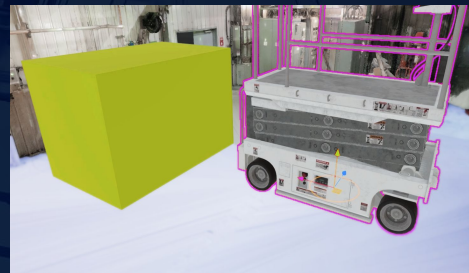


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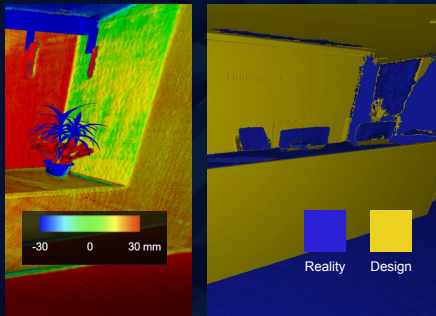
Assess and concept needs
for changes, space
requirements and
maintainability

Visualize designs by
removing and adding objects



Ways of Use for

Planning, Designing and Implementing

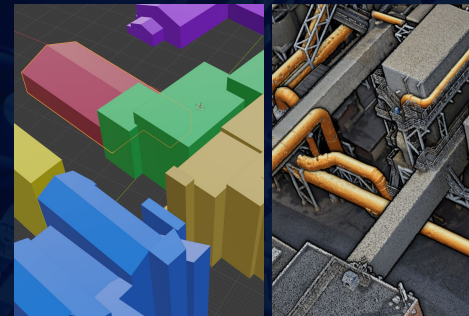


Compare as-built reality
to as-designed plans

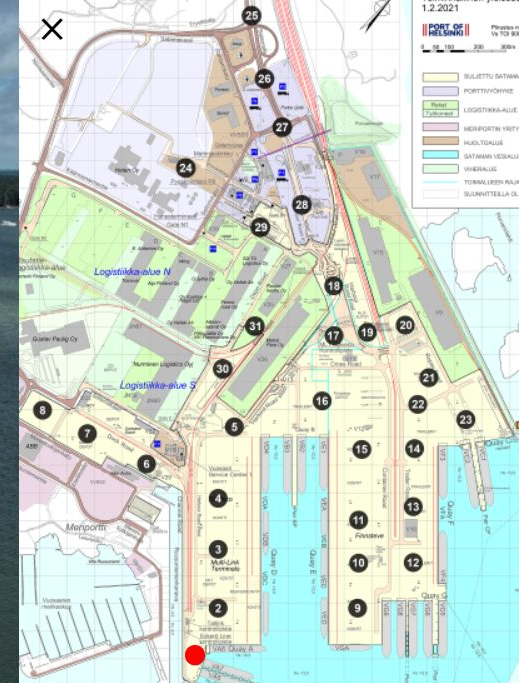
Monitor and document progress
and degree of readiness

Document finished deliveries and
states at set milestones

Use reality as a basis
and starting point for
design work in CAD



Case: Port of Helsinki



- 360-degree presentation of the site
- Remote planning with suppliers
- Site layout planning

Case: Industrial park in western Finland

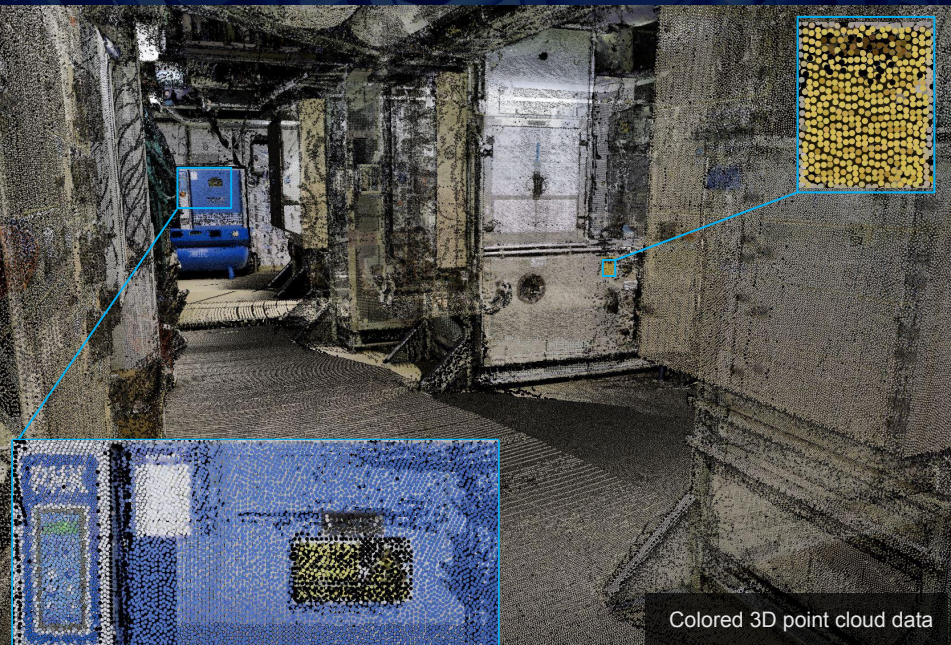
3D reality models to drive the

- Site layout planning
- Logistics simulation
- Planning of maintenance activities

Combine reality capture techniques for better situational awareness

Traditional approach:

Typical laser scanning result



Colored 3D point cloud data

- + Dimensionally accurate
- + Easier to produce

Enhanced approach:

State-of-the-art photogrammetry + laser scanning result



Textured 3D mesh model

- + Dimensionally accurate
- + Visually accurate
- + Easier to handle in applications
- + More complete / less occlusions



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Improving your operations with 3D and data