



# DIGITAL TWINS

**AS A NEXT STEP  
IN OPERATIONAL EXCELLENCE**



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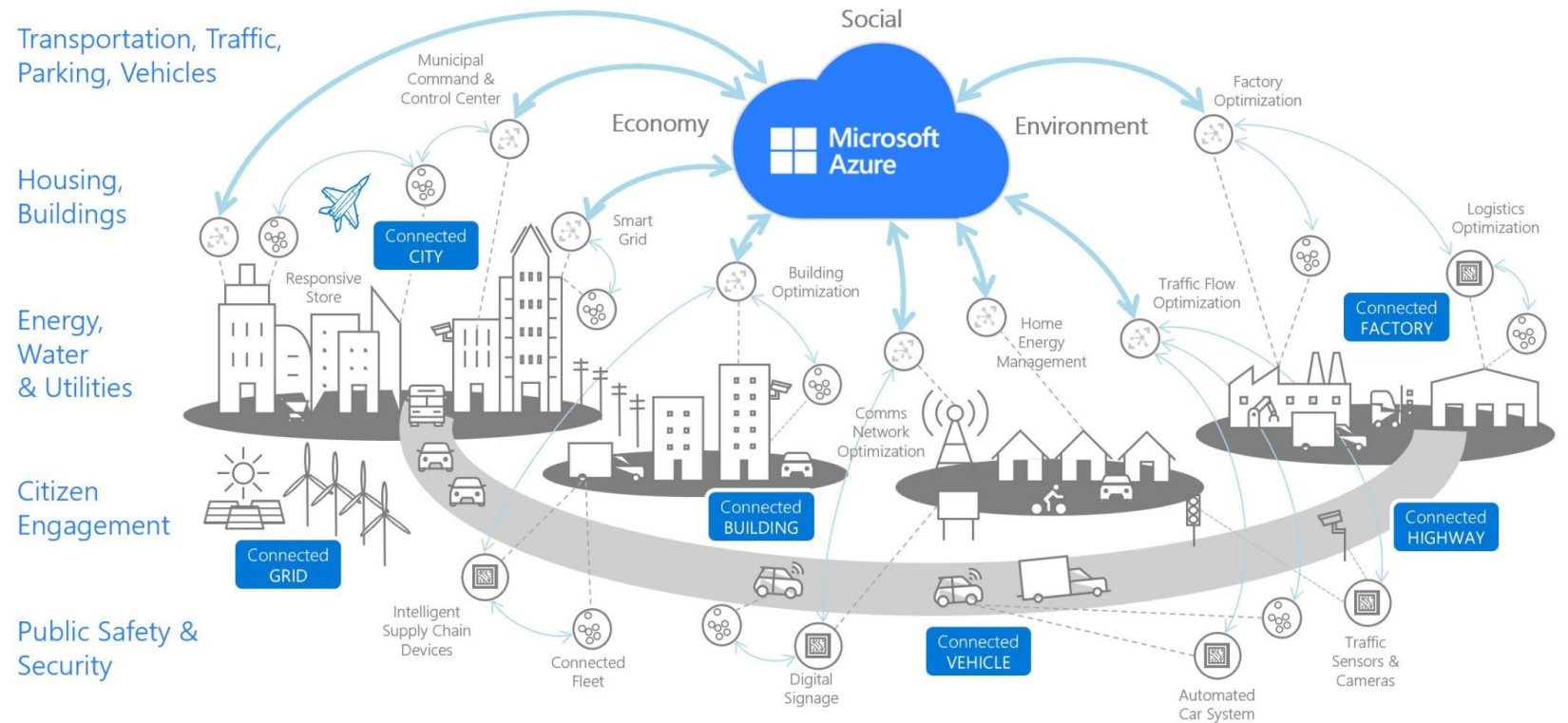
# DIGITAL TWIN

What a digital twin can be?

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# The data

## Azure Digital Twins

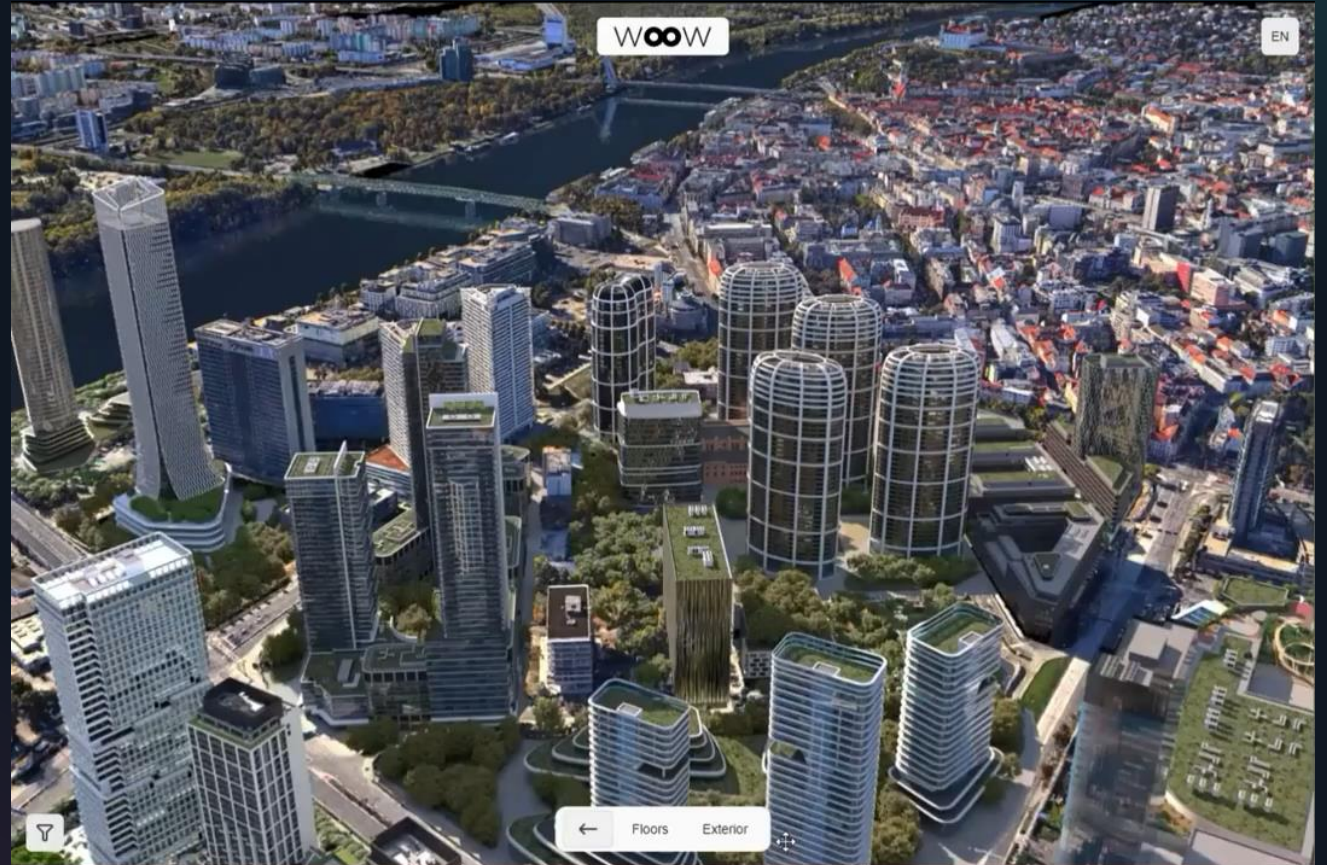


# BIM – Building Information Management





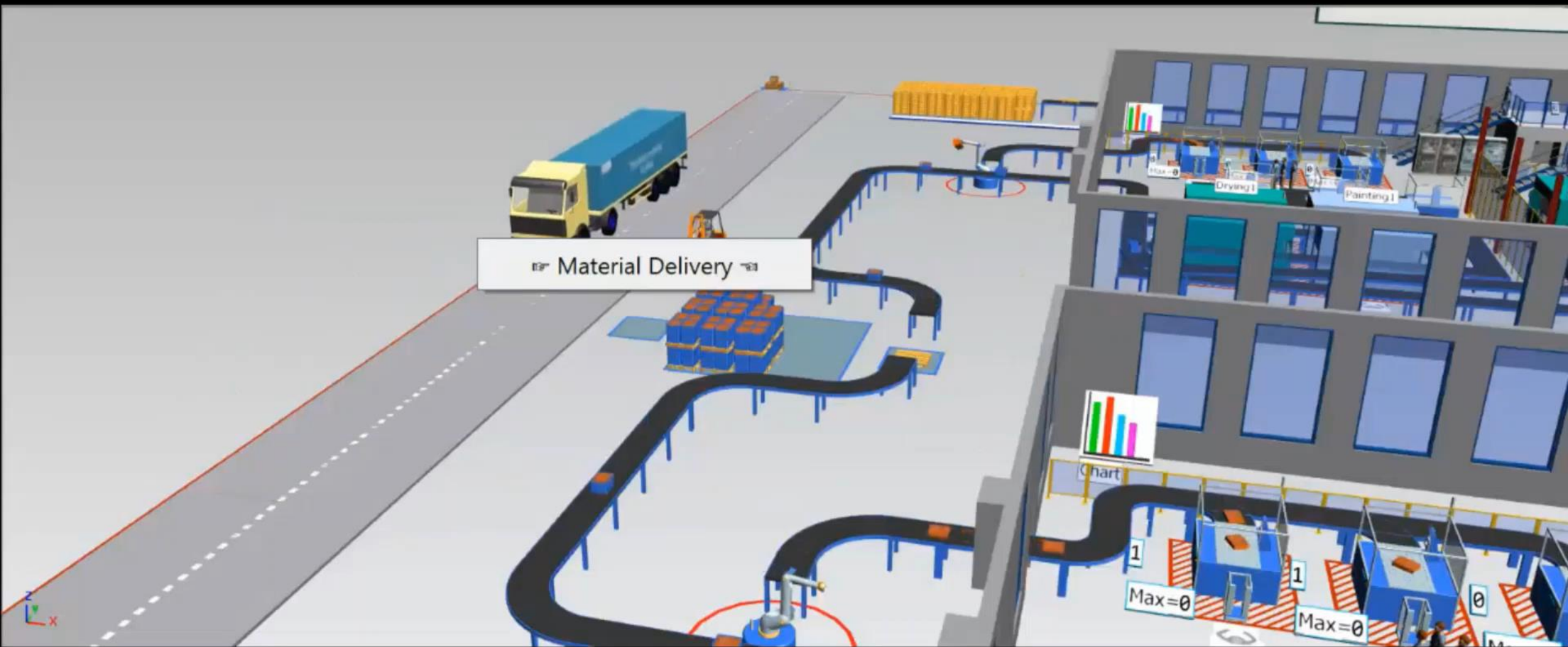
# You need to sell it...



# Gaussian Splatting















Yeah, pups. My pups.







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# TWINZO APPROACH

What if we combine all the stuff under one roof?

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3D

2D



- 8
- 7
- 6
- 5
- 4
- 3
- 2



SYMBIOSY  
by treavis

PEOPLE



Position



Occupancy

EXPLORE



Meetings



Phone booths



POIs



Health & Safety

ENVIRONMENT



Temperature

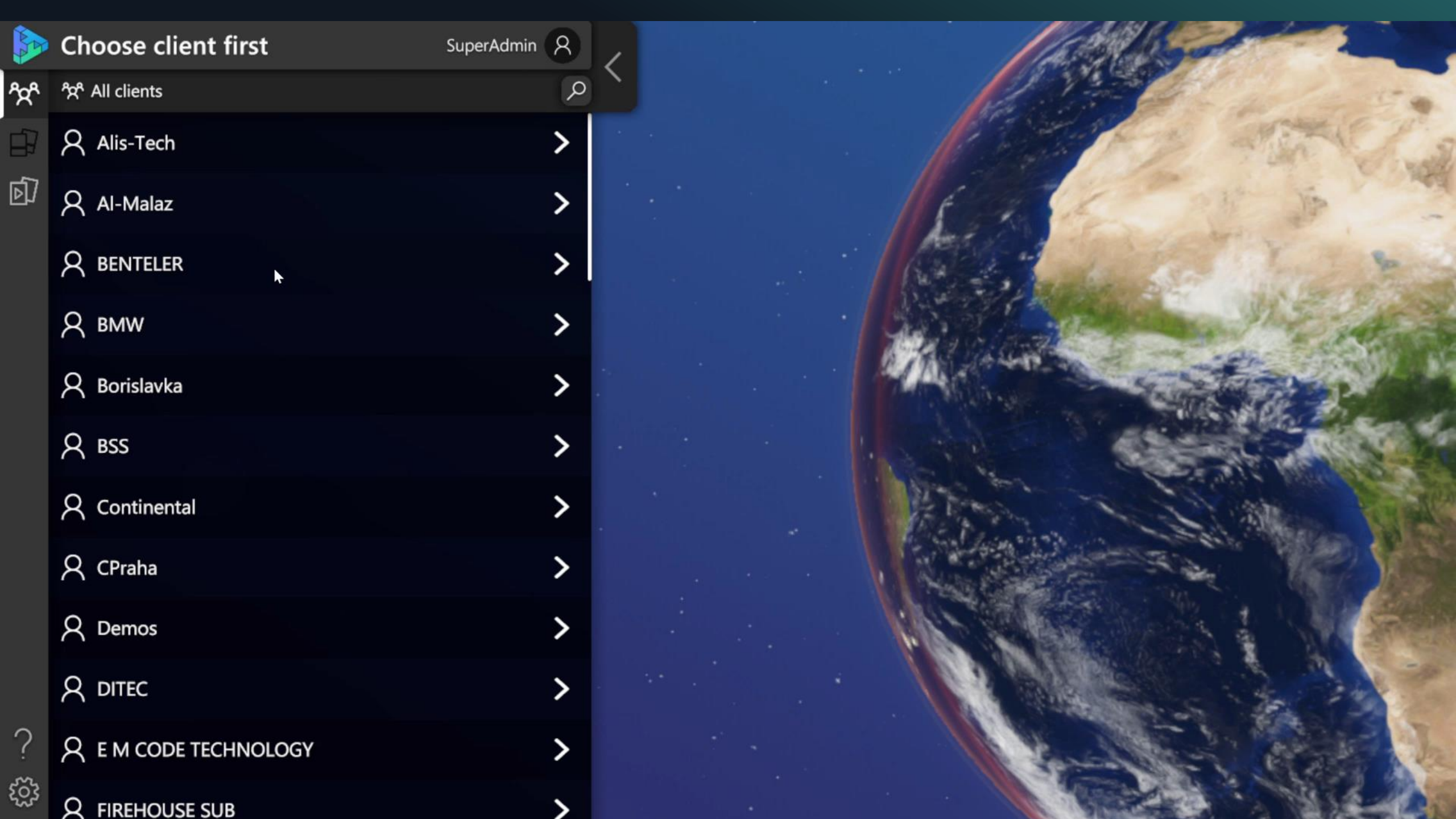


Humidity



CO2

10:28  
Tuesday, 11 April  
v1.4.1



Choose client first

SuperAdmin



All clients



Alis-Tech



Al-Malaz



BENTELER



BMW



Borislavka



BSS



Continental



CPraha



Demos



DITEC



E M CODE TECHNOLOGY



FIREHOUSE SUB





# Approach & Vision

1



## Connecting ALL Data

First, we connect all existing data sources.

e.g., MES, ERP, SAP, PLC, WMS, etc.

If a source isn't available but would be of value, we provide it.

(e.g., Plastic Omniums twinzo has 38 Internal Systems with 208 Critical KPIs connected to it.)

2



## Global Digital Twin

We sort, unify and visualize all systems under one roof and your Global Digital Twin is ready.

All of this happens without you noticing or having to adjust or shut down anything.

Cross-departmental analytics is one of the first benefits.

3



## Vision - M.A.C.E.P.

**Manage Analyze Compare Evaluate Predict**  
Everything under one roof (Data Lake), gives you the perfect overview and enables to deliver the information in context.

Smart notifications on your phone are only one of the ways.

## Purpose

- No more inventory counts.
- Real-time inventory management.
- Work In Progress goods management.
- Fast response in quality emergencies.

## Solution

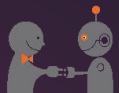
- The combination of RTLS, eKanban, RFID and Ai recreates reality with the exact inventory information.
- Real-time verification against WMS records to detect any deviation.



## Benefits

- Perfect real-time control over the current stock.
- Elimination of inventory counts.
- Elimination of searching for goods.
- Optimization of WIP stock quantities.

## Partners:



**botsandus**



**pozyx**



**RF CONTROLS**  
IDENTIFY • LOCATE • TRACK™



**SIEMENS**



**Quuppa**

# How it's made?

## Purpose

- To simplify the learning process
- Make it easy to implement
- One day, the DIY platform

## Solution

- Scan the boxes
- Create 3D models
- Create the dataset
- Teach the AI
- Enjoy



## Benefits

- Universal solution
- Supports multiple cameras with multiple lines
- 3<sup>rd</sup> party integrations possible





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# USE-CASES

Already implemented and running at various sites worldwide

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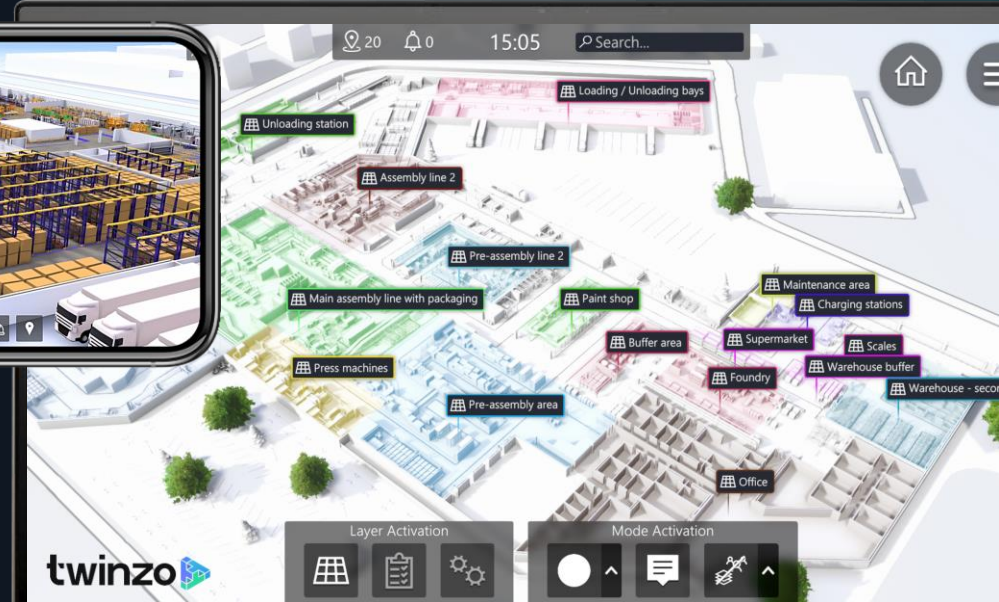
2



# Global Digital Twin *In real-time and 3D*

## MODULES

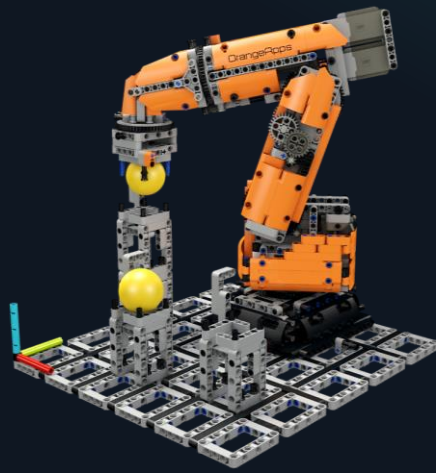
- **LOGISTICS** for optimization and automatic delivery management
- **WMS** for real-time update and overview
- **PRODUCTION** for every assembly line and every system for quick decision making
- **HEALTH & SAFETY** for threat recognition and emergency response
- **QUALITY** for reduction of error rate at minimal costs
- **MAINTENANCE** for facility management, effective & timely response and employee's wellbeing
- **REPORTING**
- **IOT** for connectivity and all Internet of Things connected devices
- **RTLS** for positioning (people, material, equipment) and navigation for external suppliers
- **3<sup>rd</sup> PARTY INTEGRATION** e.g., MES / WMS / SAP / ERP / PLC / HSE



twinzor



3



## M.A.C.E.P. *Future Vision*

TWINZO IS DATA SOURCE AGNOSTIC, WHICH GIVES YOU  
ENDLESS POSSIBILITIES

**Manage** your facility directly from your phone

**Analyze** data in real-time and 3D

**Compare** simulations with hard data and vice versa

**Evaluate** predictions and simulations

**Predict** in contextual meaning

Hard data  
e.g., SAP  
Business One



Simulation  
e.g., SIEMENS  
Simatic

Prediction  
e.g., IBM  
Watson



# Real-Time Locating Services

## Purpose

- The movement of machinery, people & material - who, what, where, when, how long, why?
- How long does it take to get from place A to B, to C, ...?
- Tuggers and timetable control.
- Navigation at line feeding.
- Cargo navigation in wide areas.
- Location of mobile equipment.
- Audit possibilities.

## Solution

- Seamless deployment of Low Energy Bluetooth Beacons without any interruption to the production.
- 10,000 m<sup>2</sup> in 1 day.
- Logistics equipped with tablets, phones or beacons for tracking.
- Only solution that can track everything from AGV's up to people and material.



## Benefits

- Perfect real-time overview whether logistics, material or people.
- Workload analysis drop for one device from 16 hours to 2,5 hours.
- - 85% less time required for audit.
- On average 25% internal fleet reduction.

## Technology



**Wi-Fi**



**Bluetooth**



**twinzo**

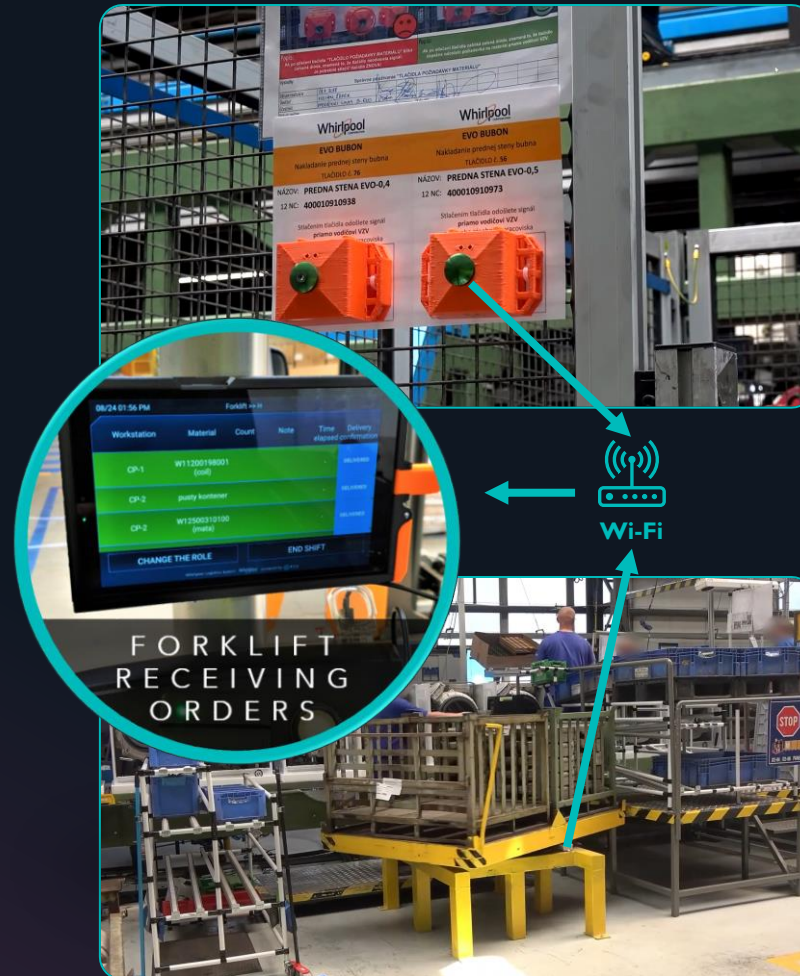
# Automated Ordering System

## Purpose

- UBER style management for the internal logistics.
- Calling system for material to production.
- Simple yet effective way to fully organize, manage and control the flow of internal logistics.

## Solution

- Full utilization of the internal Wi-Fi network minimizes the required resources.
- Using IoT buttons, sensors, tablets, eKanban & Andon system, up to artificial intelligence.
- Logistics equipped with tablets for order receiving and interaction.



## Benefits

- Perfect real-time control over the internal logistics.
- Elimination of the micro stoppages of the production lines.
- Patrolling reduction -95%.
- Increased VA of log devices +11%.
- Internal logistics speed reduction to safe 6 km/h.

## Technology



## Purpose

- Real-time requisition monitoring.
- Automated replenishment of supplies.
- Overview of complete internal material flow.
- Shortening of supply times and elimination of excess capacity.
- Prevention of over- or understocking.

## Solution

- Full utilization of the internal Wi-Fi network minimizes the required resources.
- Using your preferred choice of necessary hardware.
- Personnel equipped with portable scanners for order creation.



## Benefits

- Automatic material supplies.
- Excess inventory reductions in the supply chain of 20-75%.
- Shorter delivery times for replenishments.
- Uninterrupted data flow and process transparency in real time.
- Reduced administrative costs on average by 50%.
- Considerably less room for "human" error.

## Technology



Wi-Fi



twinzo

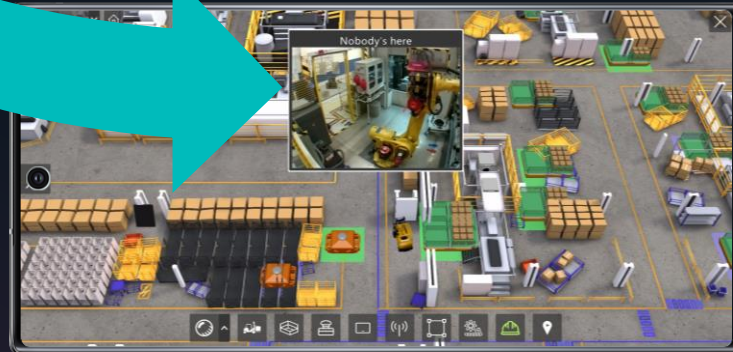


## Purpose

- AI scanning for helmets through CCTV cameras.
- Recognition in real-time directly on a live feed.
- Real-time warning for workers violating the obligation to wear a helmet.
- Accessible directly through the digital twin on a smartphone.

## Solution

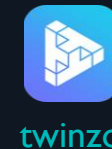
- Full utilization of the internal Wi-Fi network minimizes the required resources.
- Applicable on any existing camera.
- Using your preferred choice of necessary hardware.



## Benefits

- Elimination of fatal accidents caused due to a missing helmet.
- Simple yet efficient way how to remind the personnel to look out for their own health and safety.
- No unnecessary reporting of a security breach.
- Very popular amongst workers and responsible personnel.

## Technology



# Buffer Analysis (POC)

## Purpose

- Artificial Intelligence scanning for material in buffer warehouses.
- Recognition in real-time directly on a live feed.
- Data source for the Warehouse Management System.
- Usable also as data input for the Call-Off Management system.

## Solution

- Full utilization of the internal Wi-Fi network minimizes the required resources.
- Applicable on any existing camera.
- Using your preferred choice of necessary hardware.
- POC



## Benefits

- Automatization of the buffer warehouses.
- Automated orders for replenishments.
- Like eKanban, but fully automatic without the need of human interaction.
- Labor Cost reduction and elimination of the "human" error factor.

## Technology





# 3<sup>rd</sup> Party Systems – e.g., SAP Integration

## Purpose

- Production data of all different kind under one roof, accessible from a mobile device.
- Data connected directly into the 3D Live Digital Twin.
- Visualized according to the real-life factory.
- The possibility of perceiving several factors and conditions in certain context.

## Solution

- Full utilization of the internal Wi-Fi network minimizes the required resources.
- Seamless integration with the SAP system over API.
- Updates in real-time.

## Benefits

- Unprecedented access to vital production data.
- Fully customizable notifications based on your preferences.
- Faster reaction time to critical situations.
- Higher machine utilization, thanks to an OEE detailed monitoring and preventive maintenance actions (future for predictive)

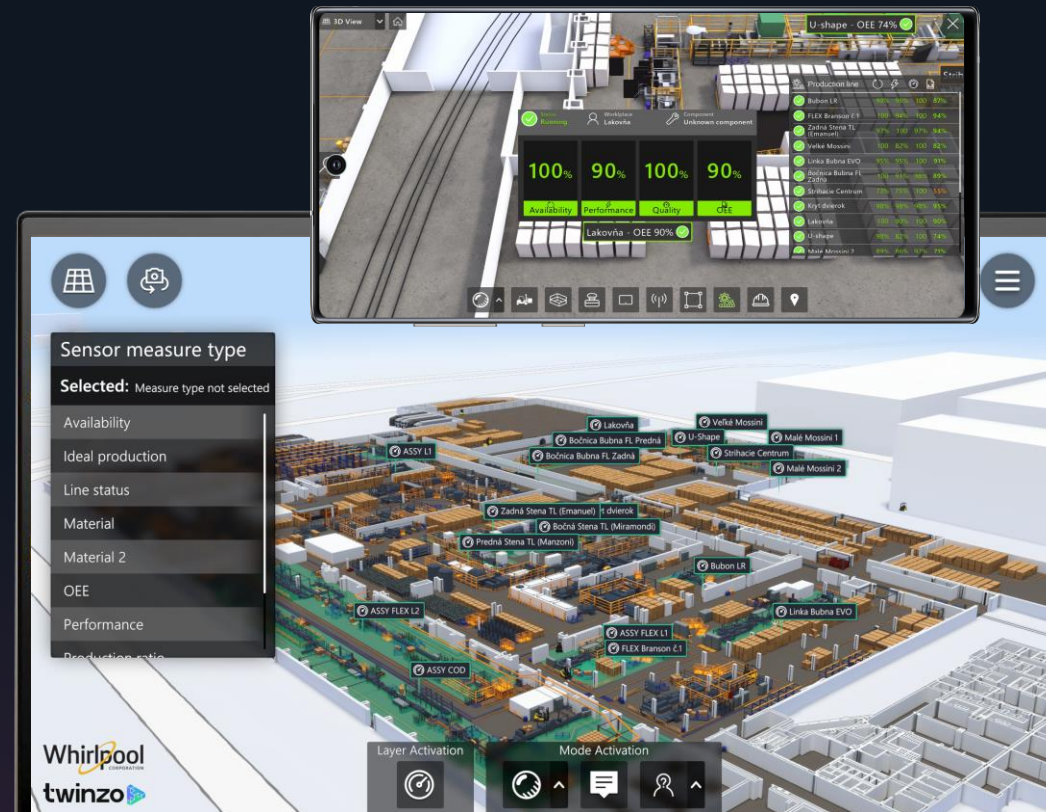
## Technology



Wi-Fi



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# Thank you

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