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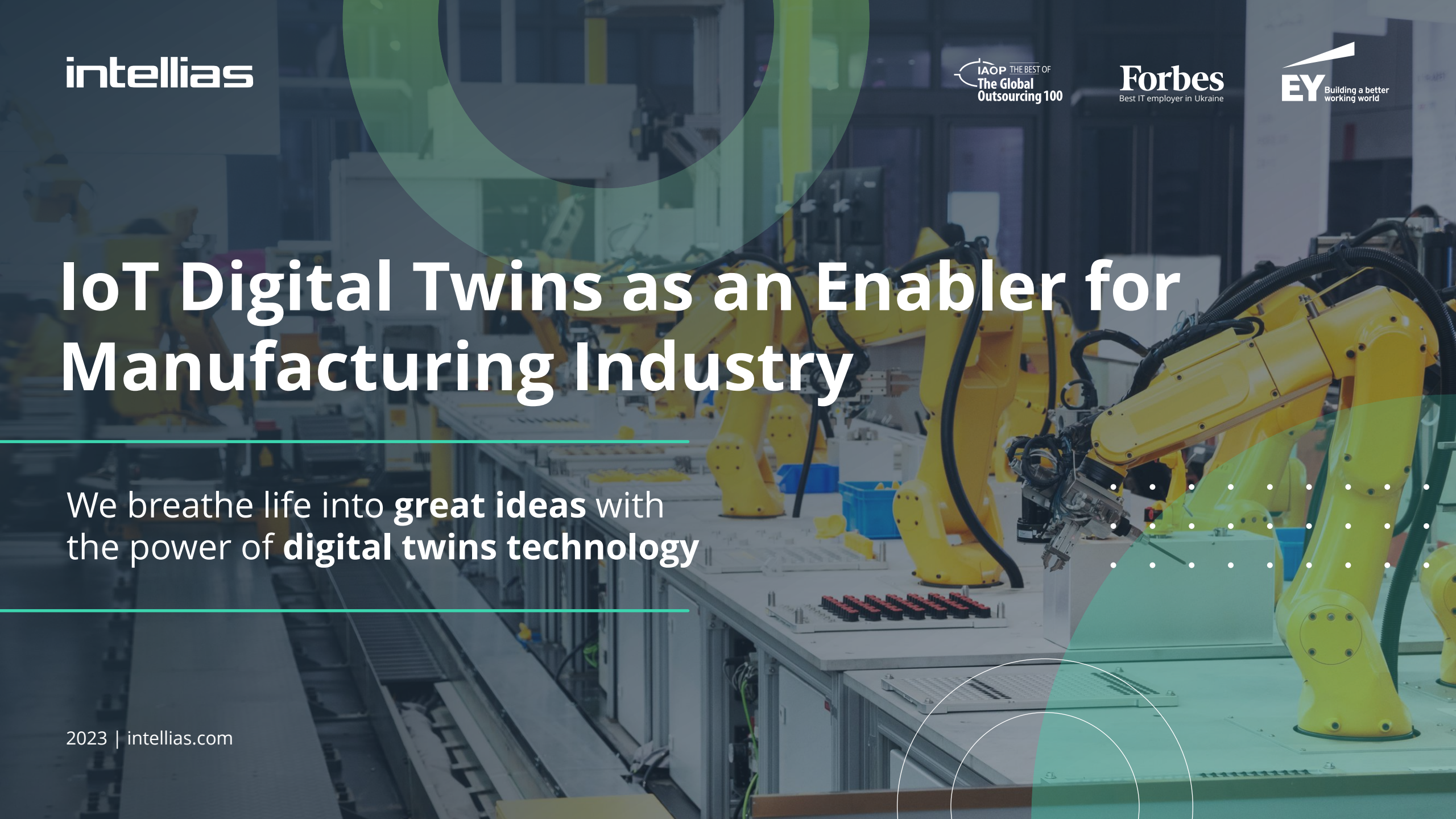
IoT Digital Twins as an Enabler for Manufacturing Industry

We breathe life into **great ideas** with the power of **digital twins technology**



2023 | intellias.com

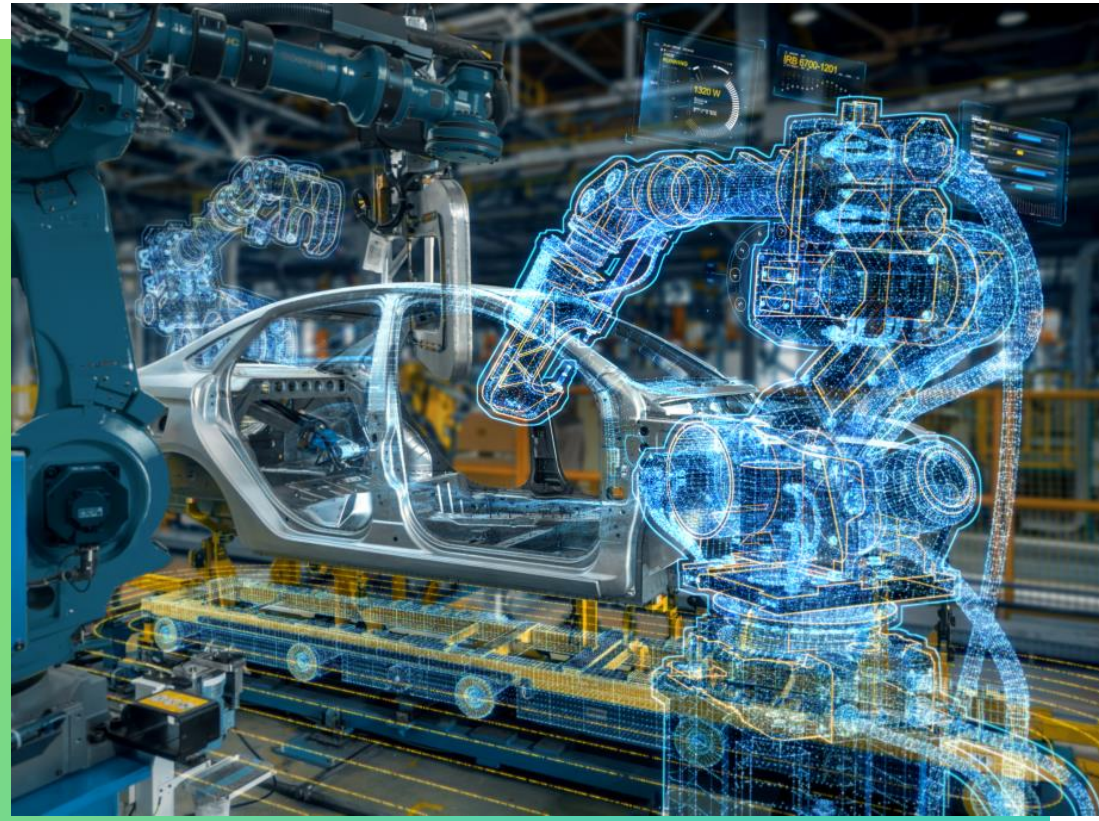
Why IoT Digital Twins Technology is a game changer for the Manufacturing Industry

43 billion+ IoT devices are connected generating enormous amounts of data

More than 31% of production processes have been digitized via smart IoT devices

Predictive maintenance is in the prime - according to Gartner, the average cost of machine downtime is $5,600/ minute.

AR and **VR-enabled** devices reduce cost of equipment basic repairs and troubleshooting.



- Digital Twins go on top of IIoT and other business system to enable new capabilities
- It enables factory simulation with new equipment or parameters
- It allows to consolidate supply chain and HR data in one space
- It enables precise predictive maintenance and cost reduction
- It allows to simulate factory throughput by changing parameters using a virtual copy of a physical environment and understand bottlenecks before making an equipment purchase

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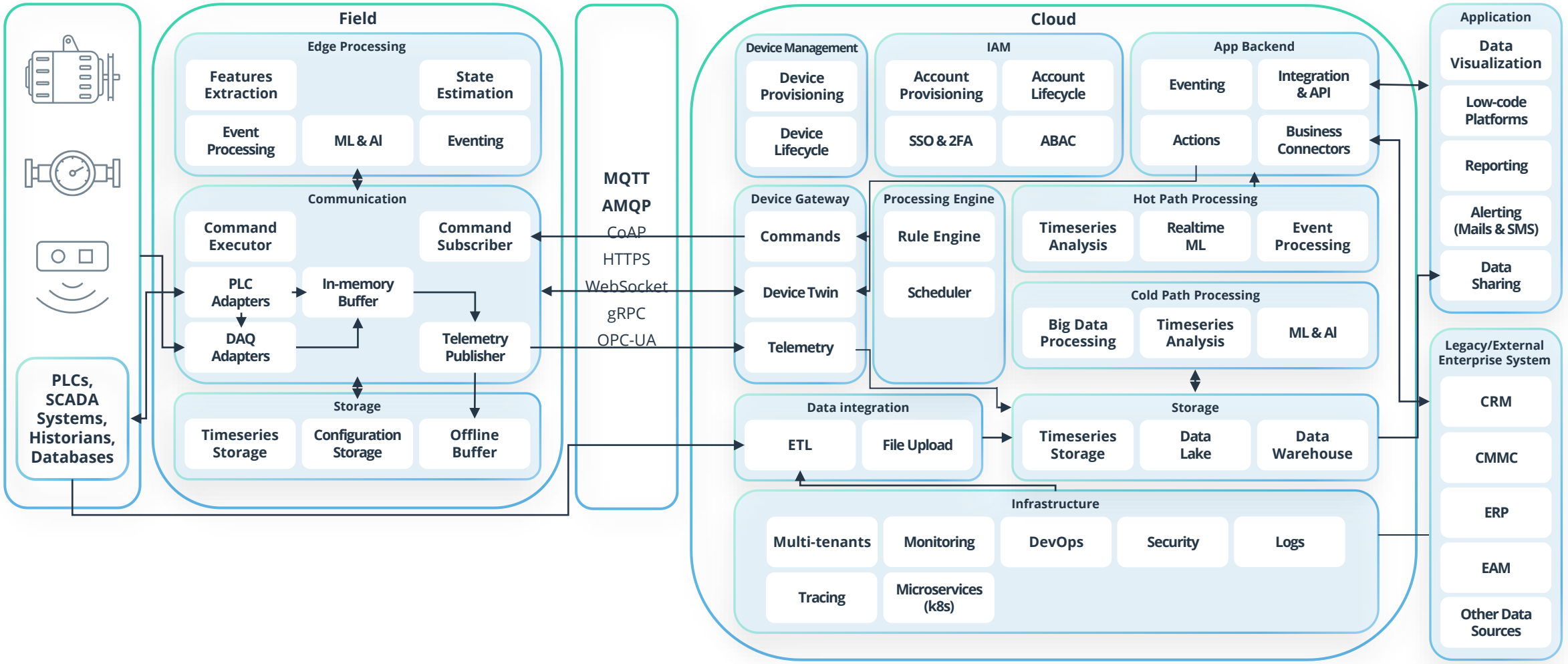
Solution detailing to show underline complexity for enterprise grade IoT Digital Twin solution



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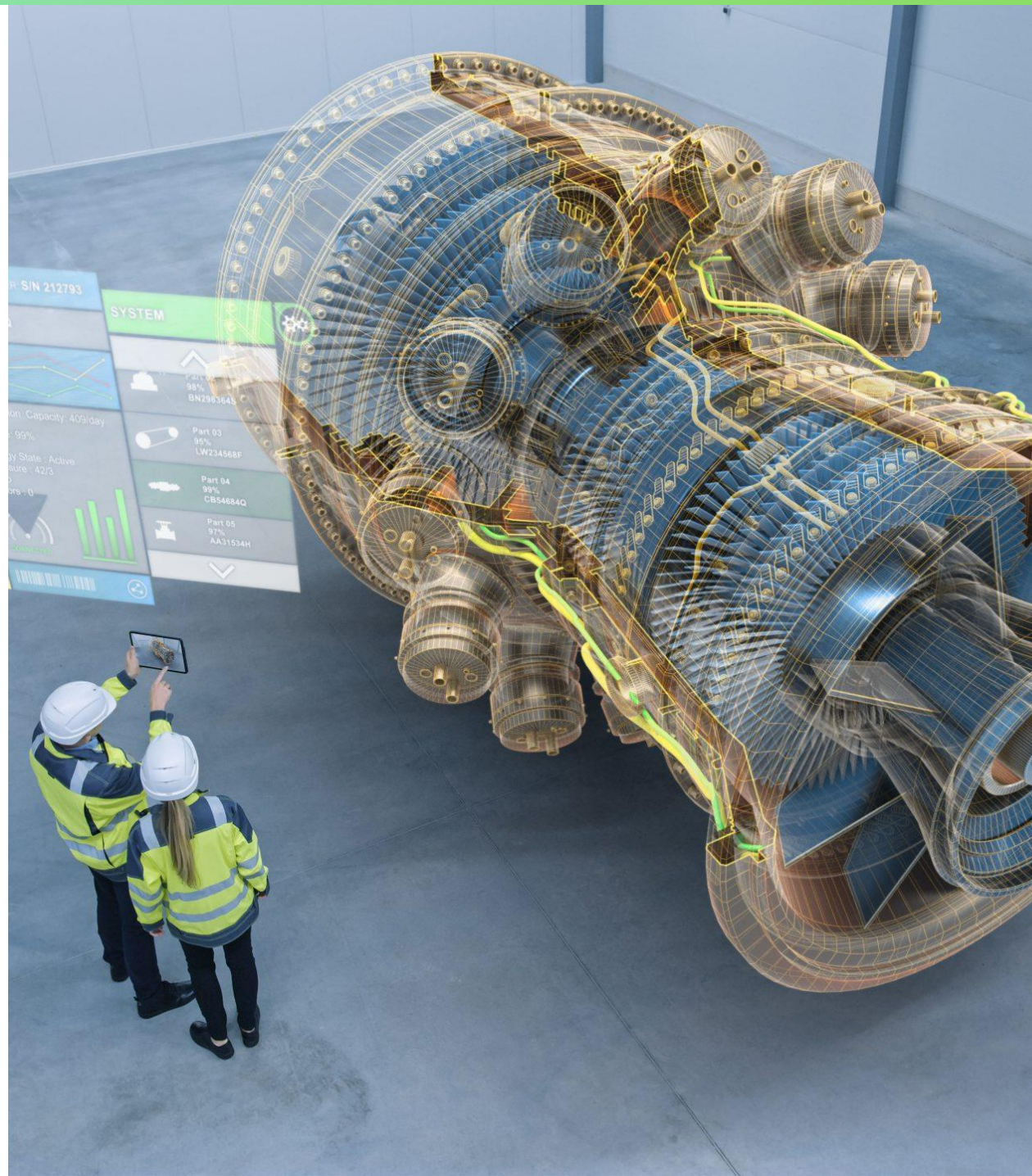
IoT Digital Twin Challenges

- Exponential assets data capacity growth:
  - Average factory produces ~150GB per day
- BIM is a key enabler of digital twins with quality being imperative
- Regulatory and safety requirements
- Lack of standardization



IoT Digital Twin Where and Why?

IoT Digital Twin = BIM + IoT + AI

Every object in this world will soon have a digital twin either built or natural, living or non-living:

- Every industry has its use cases for digital twins
- Digital twin can be helpful throughout the lifecycle of asset

Planning and Designing	**Implementing and Construction**	**Monitoring and Predicting**	**Operations and Maintenance**	**Demolition and Re-building**

- Digital twin technology enables visualization, monitoring, insights-gathering, ensuring asset health and safety, as well as paves the way for data-powered decision-making for informed planning and predictions

Azure IoT Digital Twin Features

Visualization

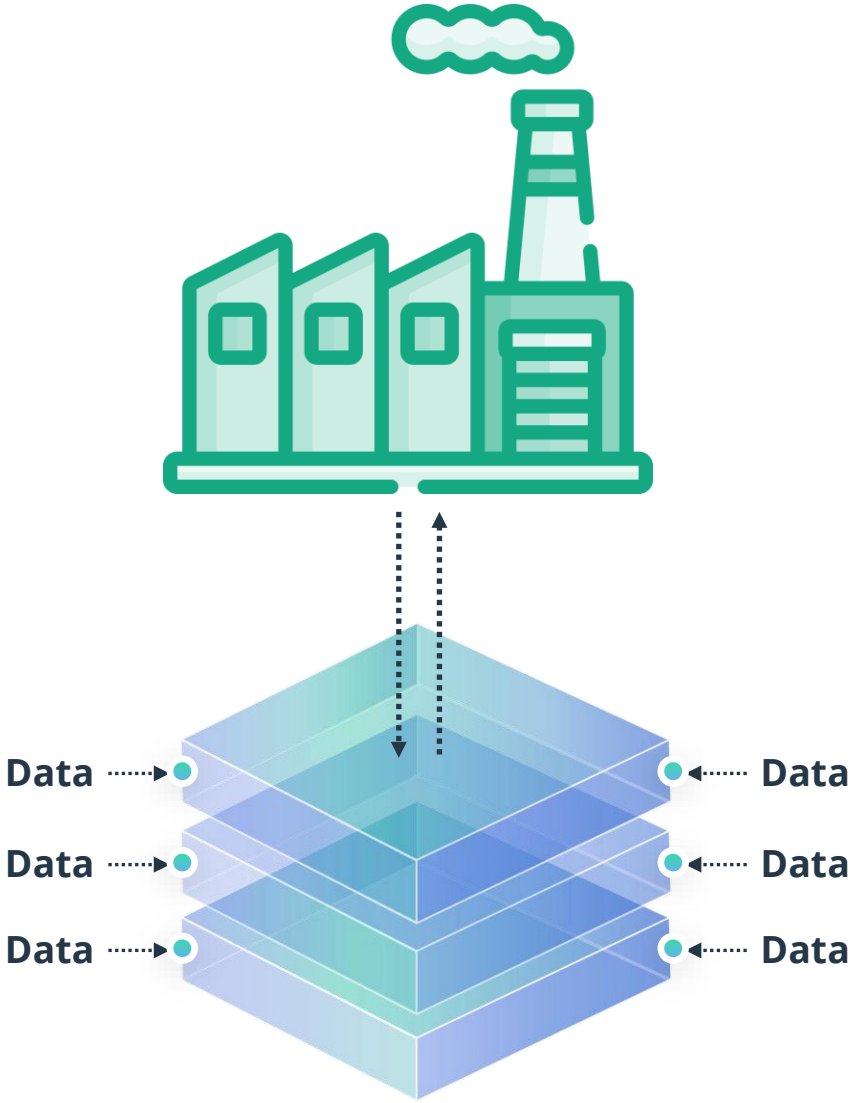
- Real-life and live pictures/videos and 3D models of a physical asset
- Foundation for immersive visualizations

Live

- Collecting and displaying live data from a physical asset
- Used for asset monitoring

Analytics

- Storing data
- Running continuous analytics based on historical data
- Providing useful insights



Simulation

- Used to run different data-driven simulations

Behavior

- Functionality
- Dynamics
- If and buts

Automation

- Bi-directional system which can control the behaviour of a physical assets or assets

Predictions

- Making accurate predictions on future asset behaviour by combining historical data with various scenarios

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Evolutionize your manufacturing process with digital twin technology

Identify potential issues and equipment failures before they occur

Simulate factory operations with new equipment or parameters using their virtual replica

Control production processes and boost efficiency and product quality

Intellias IoT Software Development Services

IoT Consulting

Engage our experts to assess your current infrastructure and development process, define the business objectives you want to achieve with IoT, and shape the implementation strategy accordingly.

Full-cycle IoT development

Streamline your path from the initial idea to the ready solution with our end-to-end software development services covering all the stages of your digital transformation journey.

IoT Digital Twins

Explore the data your devices provide and manage them on the go with the native representation that subject matter experts used to work with.

IoT Analytics

Unlock the full potential of real-time data by utilizing our extensive AI skillset to generate actionable insights and credible predictions.

IoT Software Enhancement

Leverage our engineering expertise to tune your current IoT platform or build custom software solutions on top of it to meet your new business objectives.

IoT Integrations

Maximize the value of your IoT initiative by ensuring the compatibility of your software platform with the existing infrastructure and legacy equipment.

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Intellias Capabilities

Engineering Services

- Software design & development
- Software testing
- Business analysis
- API & system integration
- Operations maintenance & support
- Infrastructure/IT services optimization & automation

Cybersecurity

- Security assessment
- Compliance audit
- Configuration/system audit
- SDL development
- Security training / awareness program
- Business continuity planning
- Long-term risk mitigation

Cloud & DevOps

- Cloud consulting and optimization
- Cloud migration
- Application re-architecting
- Cloud-native development
- IT advisory and DevOps

Big Data / Analytics

- Big data consulting
- Data infrastructure & engineering
- BI & data analytics
- Data visualization
- Data security
- Data monetization

Internet of Things

- IoT consulting
- Full-cycle IoT development
- User app development
- IoT analytics
- IoT software enhancement
- IoT integrations

Artificial Intelligence

- AI solution design
- AI rapid prototyping
- AI solution implementation

Intelligent Automation

- Low-code automation opportunities
- Intelligent automation solution design
- Platfom-based development
- Low-code platforms assessment
- Process mining and analytics

UI/UX Design

- Mobile app design
- Web design
- Graphic design
- HMI design

Location-based Services

- Map compilation
- GIS consulting and training
- Custom geospatial and GIS development
- Geoprocessing and geocoding
- 3D GIS services and modeling

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Let us engineer the digital twins of your business!

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