

# Industrial Revolution 4.0

## Guidance for Indonesia



# Speaker's Profile : Yos Vincenzo



- 15 years in Microsoft, **Cloud Business Lead - Indonesia**
- Specialize in Cloud Computing, Data and Artificial Intelligence
  - Specific interest in Security and Operational Excellence (CISSP, ITIL, PMP)
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    - [yosv@Microsoft.com](mailto:yosv@Microsoft.com)
  - LinkedIn:
    - <https://www.linkedin.com/in/yosvincenzo/>





# Indonesia – in Summary

Per the [World Bank](#) (2017)<sup>[20]</sup>

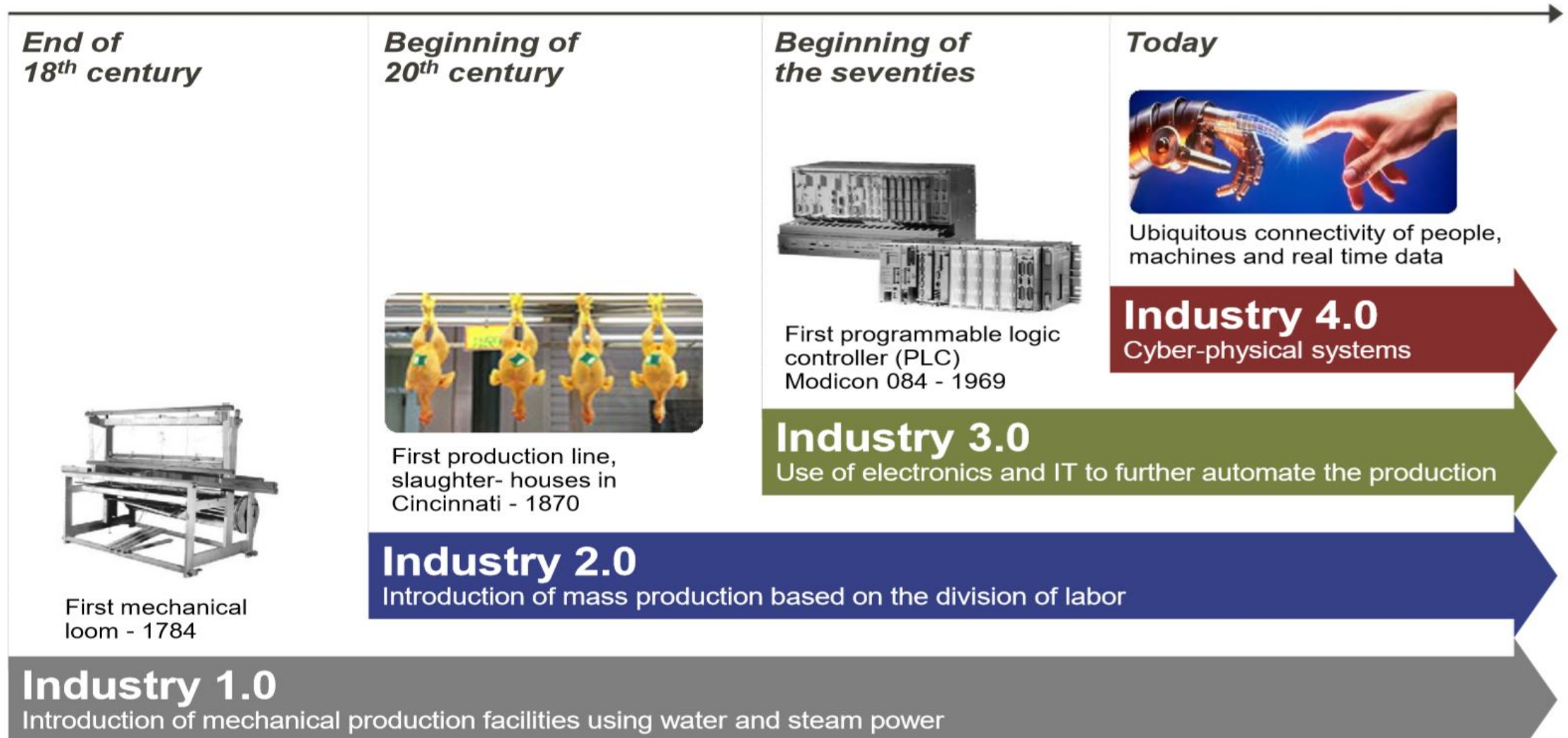
Rank ↕	Country ↕	GDP (US\$MM) ↕
	<i>World</i>	80,683,787
1	 United States	19,390,604
	 <i>European Union<sup>[23]</sup></i>	17,277,698
2	 China <sup>[n 4]</sup>	12,237,700
3	 Japan	4,872,137
4	 Germany	3,677,439
5	 United Kingdom	2,622,434
6	 India	2,597,491
7	 France	2,582,501
8	 Brazil	2,055,506
9	 Italy	1,934,798
10	 Canada	1,653,043
11	 Russia <sup>[n 2]</sup>	1,577,524
12	 South Korea	1,530,751
13	 Australia	1,323,421
14	 Spain	1,311,320
15	 Mexico	1,149,919
16	 Indonesia	1,015,539

- Indonesia spend less on tech than it's peers.
- Economy expected to shift towards services economy
- Needs to create more jobs, with the increase of working age population





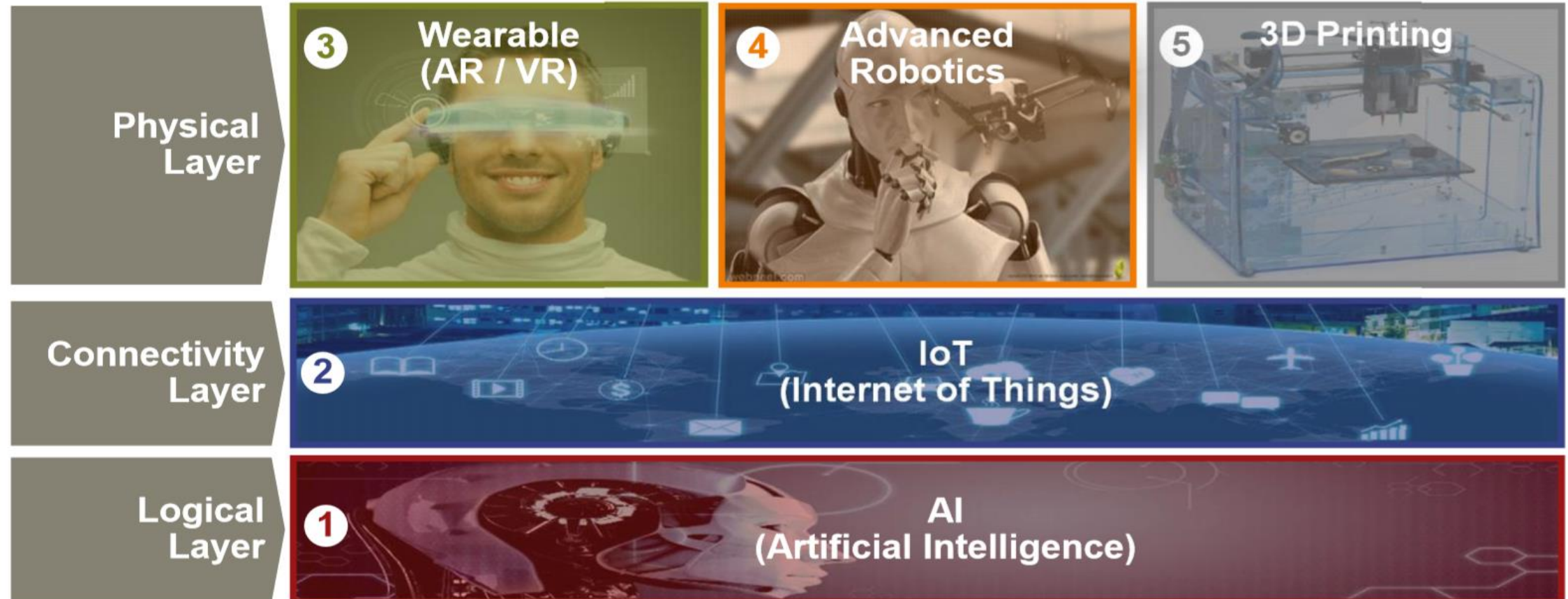
# Industry 4.0 initiative is the global trend in the manufacturing industry





# Five technologies will be the key technologies for Industry 4.0

## 5 Key Technologies of 4IR



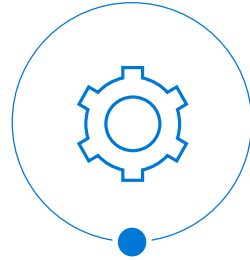


# What Business Needs?



## Enhance productivity

32% increase in technician productivity using augmented reality<sup>1</sup>



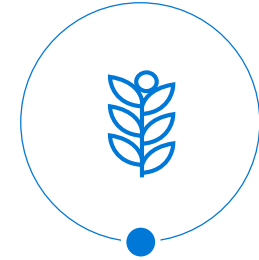
## Maximize effectiveness

Over 80% of companies that adopt IoT report efficiency improvements<sup>2</sup>



## Reduce costs

Analysts predict that IoT will lead to \$177 billion in reduced costs by 2020<sup>3</sup>



## Increase sustainability

20% energy savings from productivity improvements<sup>4</sup>



**PRODUCT-AS-A-SERVICE**



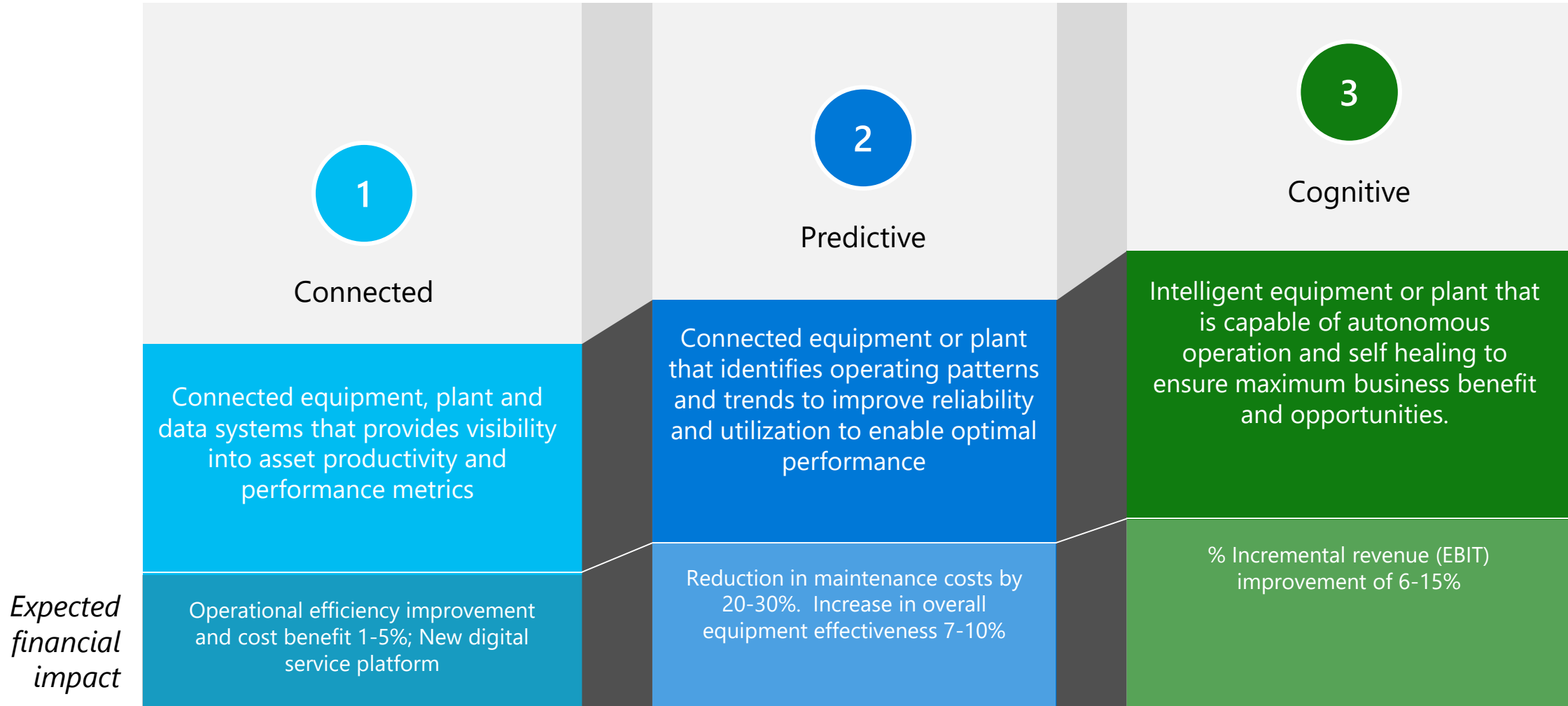
**FACTORY OF THE FUTURE**



**INTELLIGENT SUPPLY CHAIN**



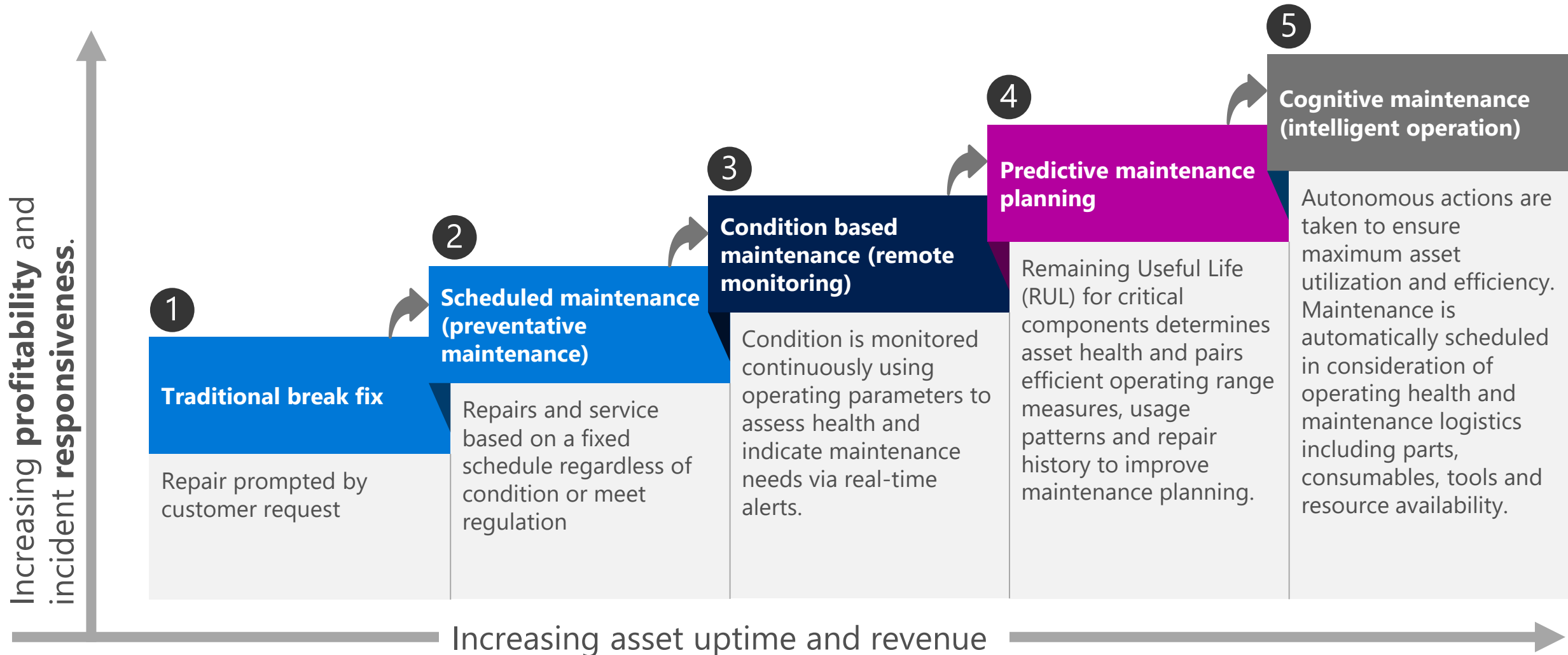
# The essential journey for Manufacturers





# 5 x Maintenance Models

Value returned to the Enterprise





# Intelligent Factory



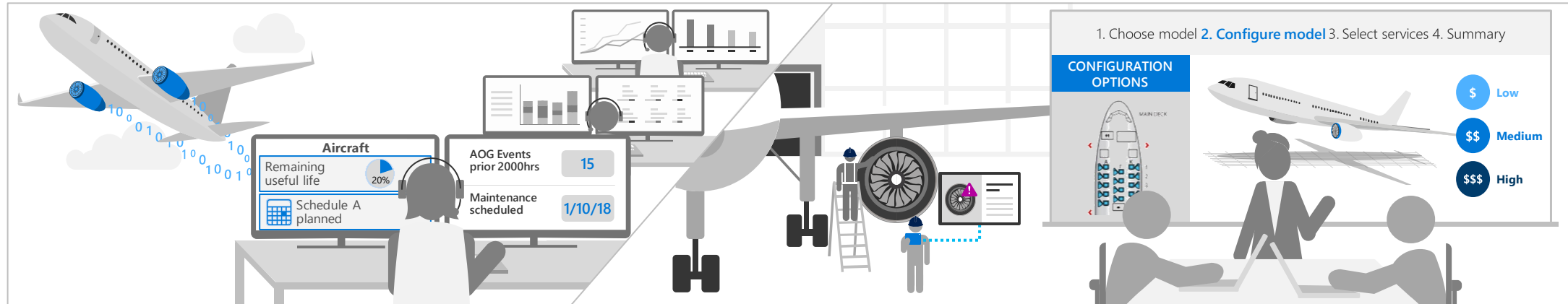
Azure





# The modern Manufacturer

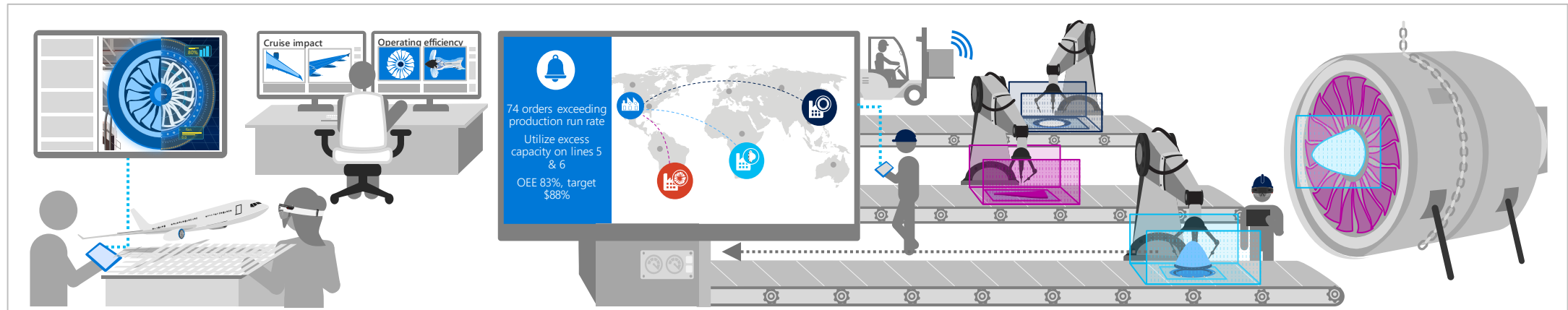
Making  
Indonesia  
4.0



1 Product-as-a-Service for new revenue streams

2 Connected field service to increase profitability

3 Customer centric sales and ordering



Digital Twin to drive innovation and competitiveness

6 Optimized supply chain for cost and control

5 Agile production with Factory of the Future

4



# Intelligent Factory – common improvement projects



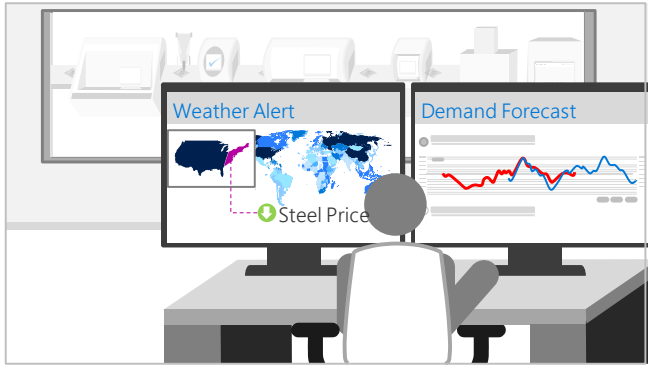
Equipment Management & Automation	Building Services Management	Safety & Security	Space Utilization	Physical Workplace Services	Digital Productivity (Workplace 2.0)
Fault Detection & Diagnosis	Energy Management	Video Surveillance	Office Sharing	Smart Lobby/Kiosk	Quick Meeting Scheduler
Predictive Maintenance	Predictive Energy	Access Control	Space Utilization Analysis	Physical Document Services	Conferencing & Telepresence
Monitoring & Control	Water Management	Physical Intrusion Detection	Vehicle Area Assignment	Shipping & Receiving	Presence services
Building Automation	Waste Management	Fire Detection & Alarm		Transportation	Place & People Finder
Equipment Lifecycle Management	Voice & Data Connectivity	Digital Security		Catering & Vending	Direction & Navigation
'Lights Out' Manufacturing		Accessibility			Virtual Concierge
					Ambient Intelligence
					Organizational Analytics



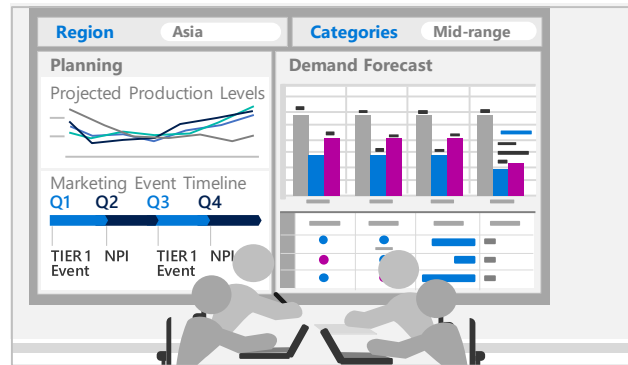
# Intelligent Factory

## Intelligent manufacturing operations: supply chain, production, logistics

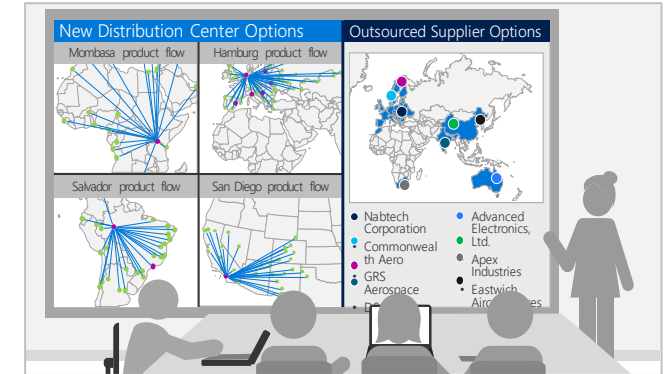
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Real-time demand prediction and planning



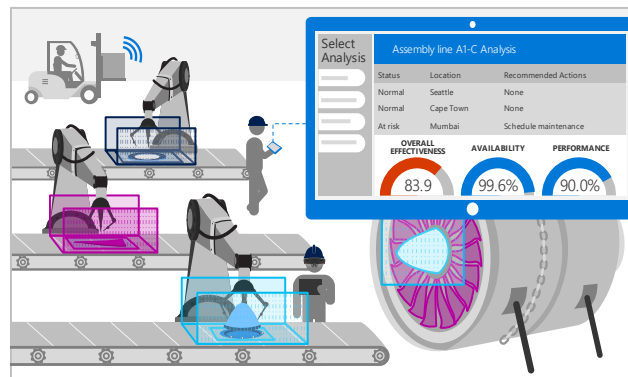
Integrated business planning



Optimize logistics to meet demand



Manage inventory stored and time in warehousing



Increase global effectiveness and productivity

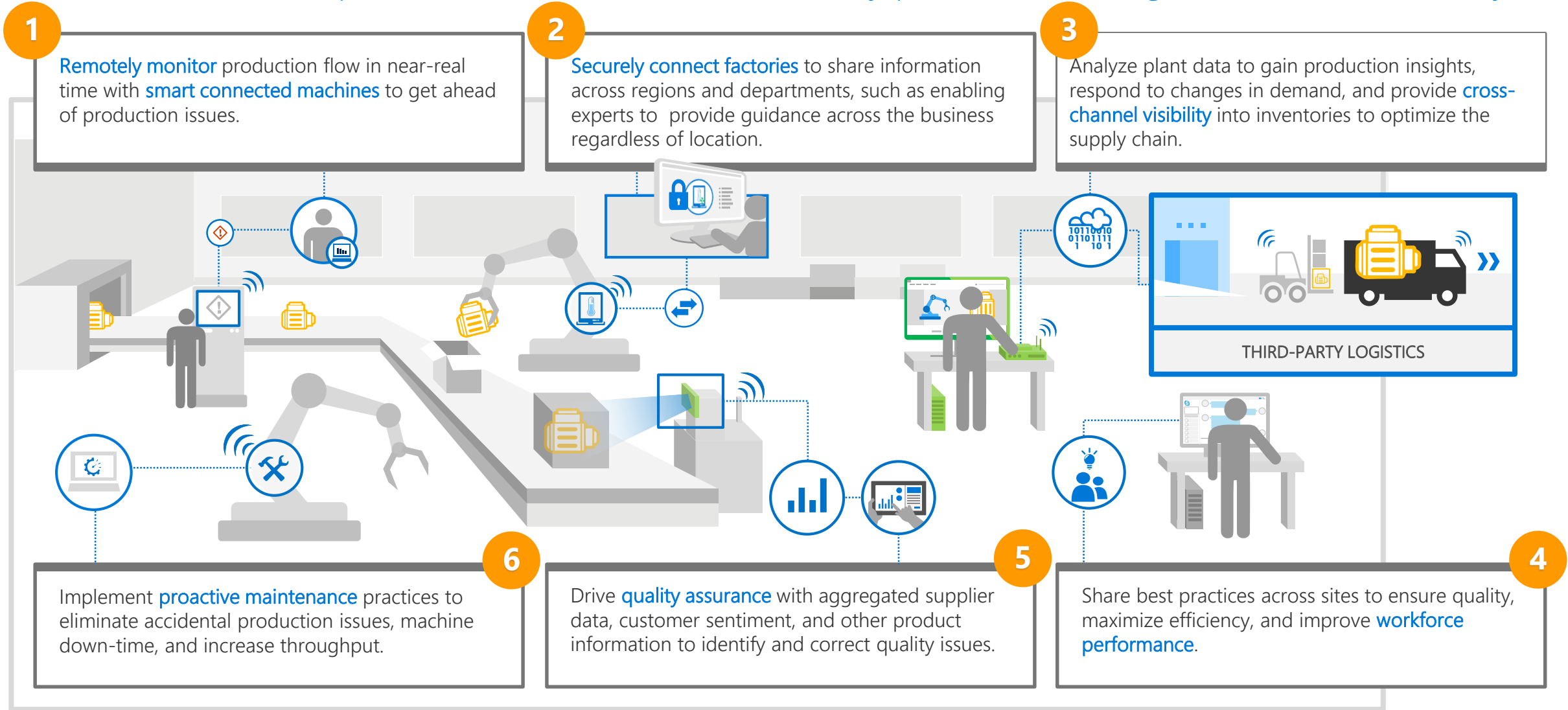


Supply chain orchestration and collaboration



# Intelligent Factory

Drive continuous improvement with automated factory processes, intelligent devices, and analytics

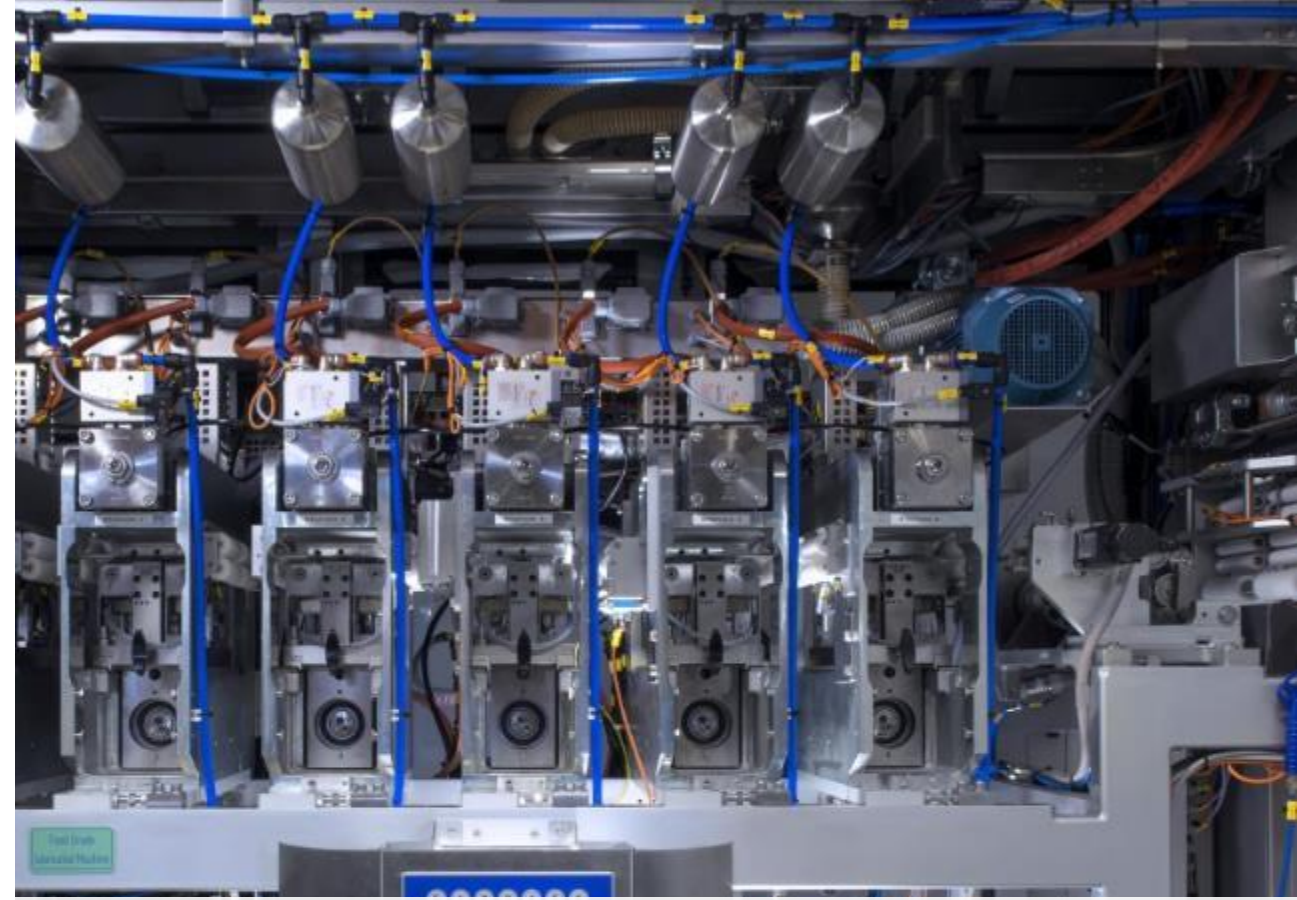




# Tetra Pak

## Transforming maintenance with predictive analytics and mixed reality

- Challenge** Tetra Pak wanted to avert costly breakdowns, while being able to make repairs quickly at remote factories
- Solution** Tetra Pak transformed production lines with cloud-connected predictive analytics and powerful mixed reality (MR) headsets to prevent breakdowns and fix equipment with remote experts
- Benefits** Analysis of data patterns saved Tetra Pak more than \$30,000 by predicting and preventing future breakdowns. Remote guidance via MR headsets reduced repair times



“

This is how we take the global expertise that we have available somewhere in Tetra Pak and bring it to the fingertips of the engineer in the countryside in Chile or Pakistan.

”

— Johan Nilsson  
Vice President, Tetra Pak Services



# Volvo

## Car manufacturer explores the future of car buying with hologram technology

- Challenge** Volvo wanted to reimagine the car buying experience for better customer interactions
- Solution** Partnered with Microsoft to develop new experiences using HoloLens holographic technology
- Benefits** Volvo provided immersive views of cars, from inspecting internal systems to configuring options for colors and features, demonstrating safety features in action, and building trust in their cars



▶ [Watch](#)



“ HoloLens helps us to push the envelope of innovation for our customers.

”

— Björn Annvall  
SVP Marketing of Sales and Services, Volvo Cars



# Digital Twin

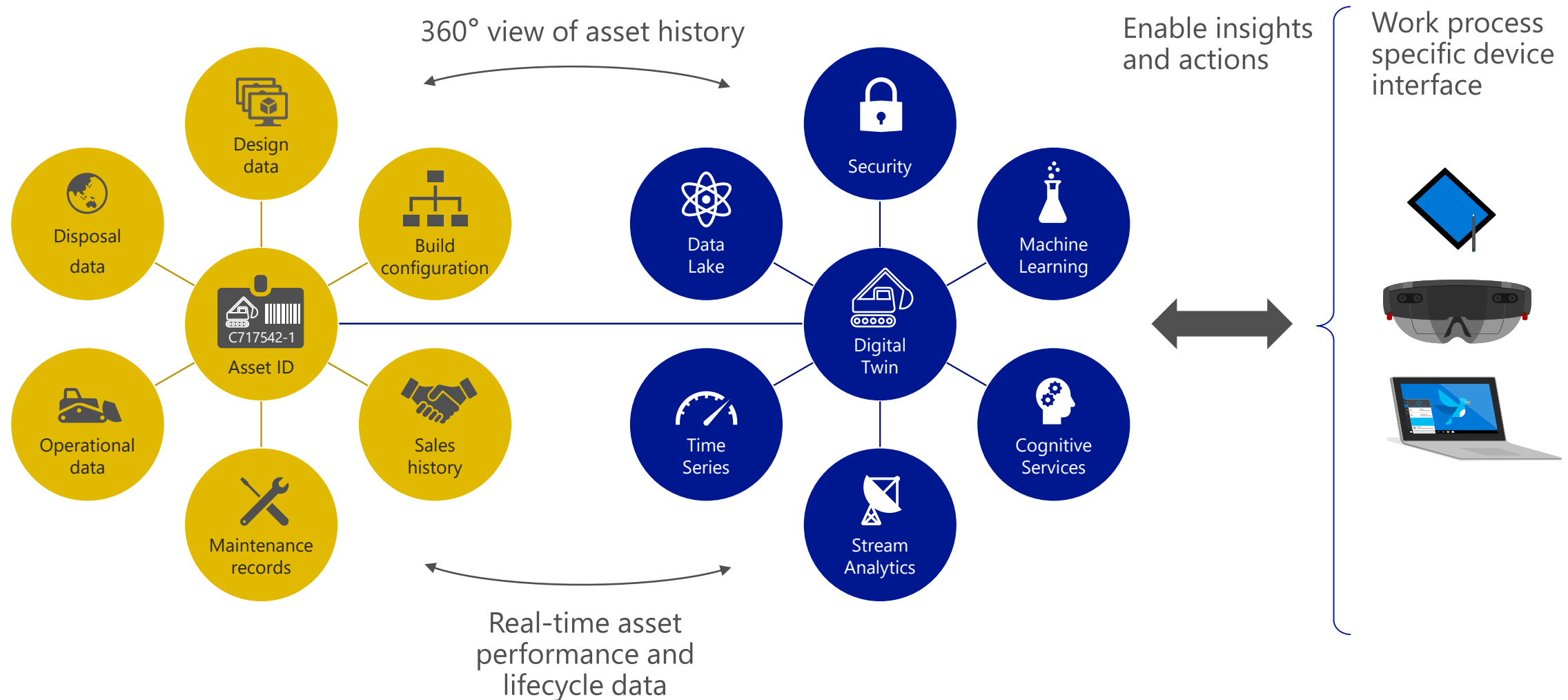


Azure



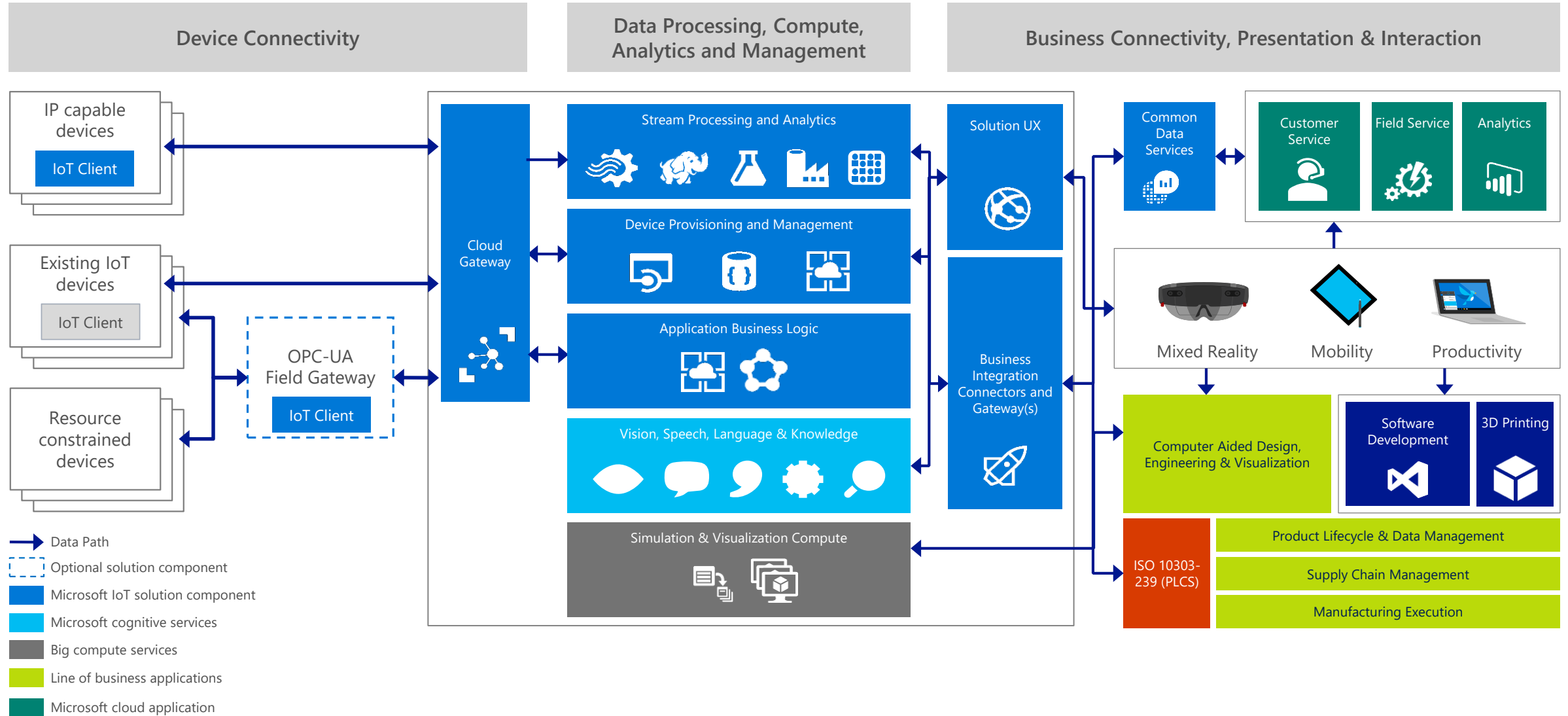


# Asset Data Model for Digital Twin





# Digital Twin System Architecture





# Johnson Controls

connects buildings to the  
cloud for a greener planet

“

Chillers account for about 50% of the energy consumption in a building. It's higher than transportation or any other industry, so being able to run chillers efficiently makes a big difference.

”

— Sudhi Sinha

Vice President, Product Development, Johnson Controls





# 3D and Engineering

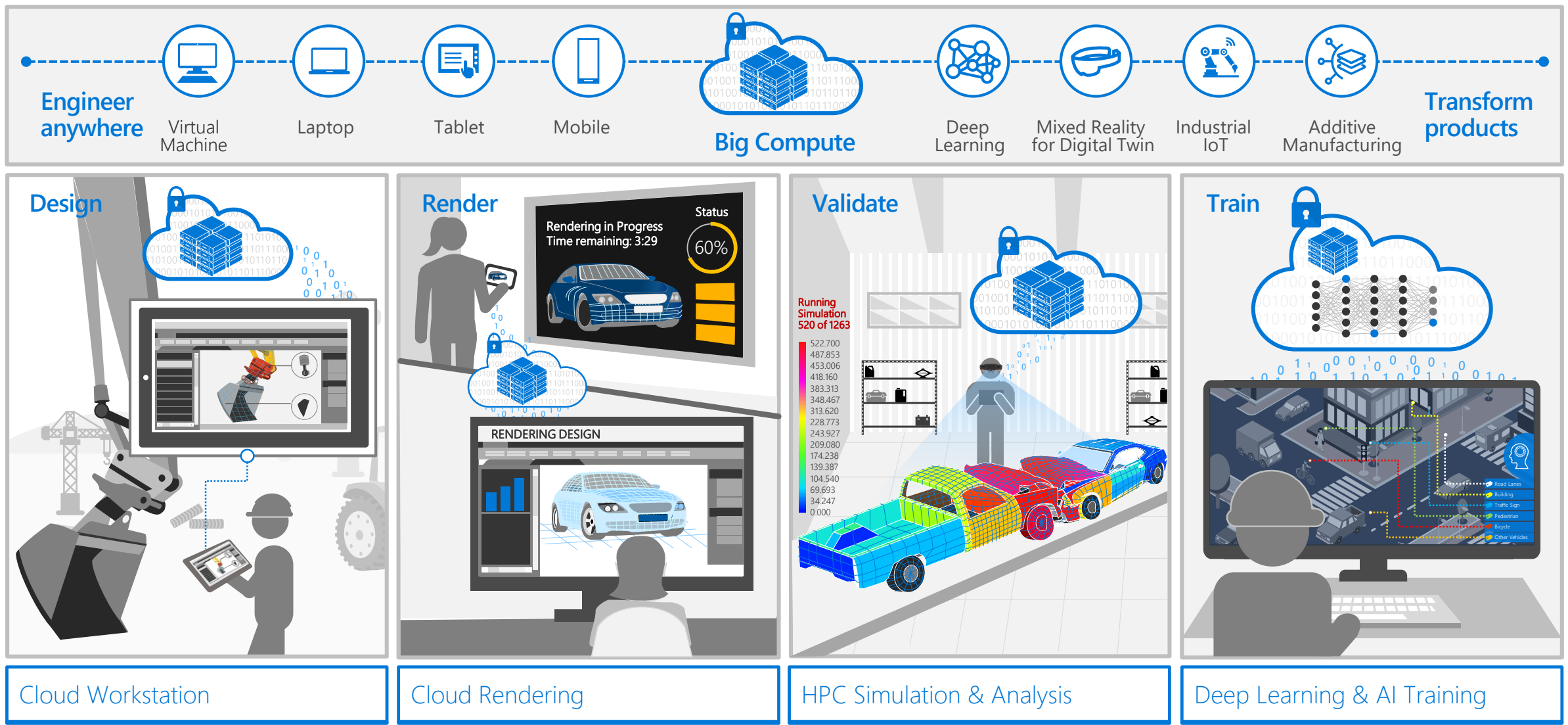


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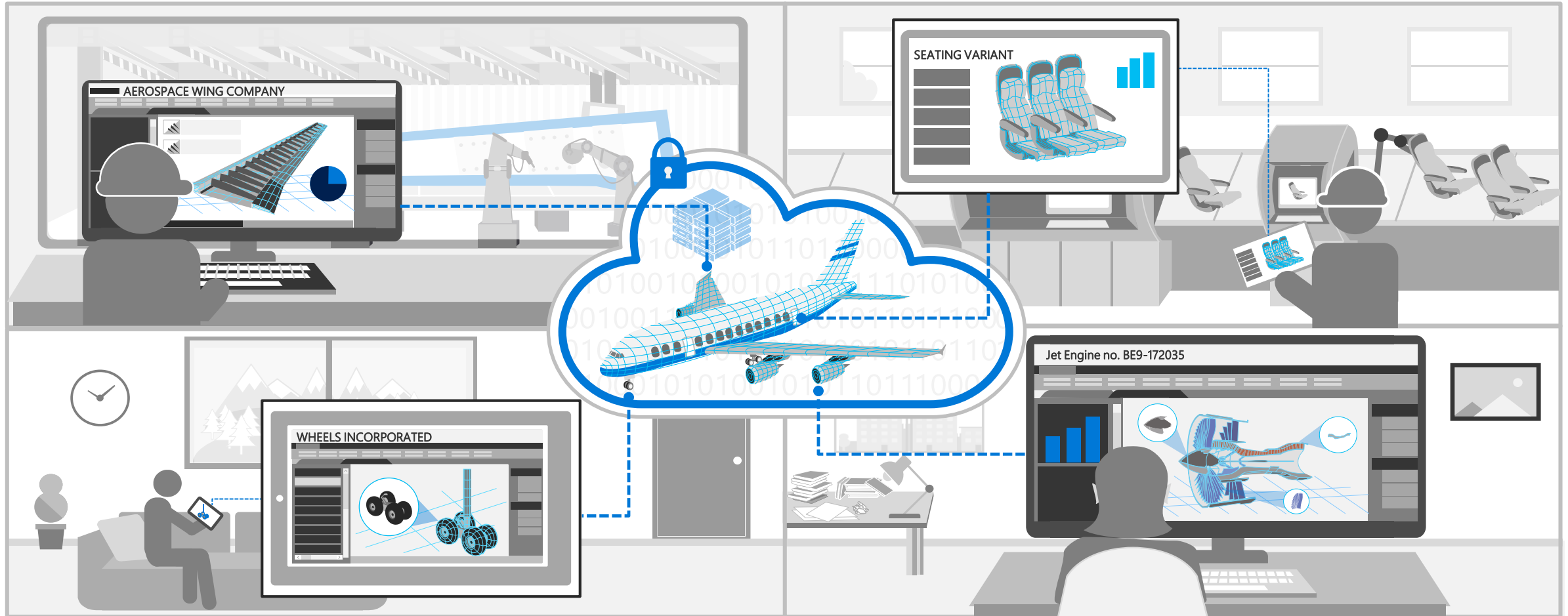
# Accelerate innovation with Big Compute from Microsoft





# Cloud Workstations: Engineer from anywhere securely

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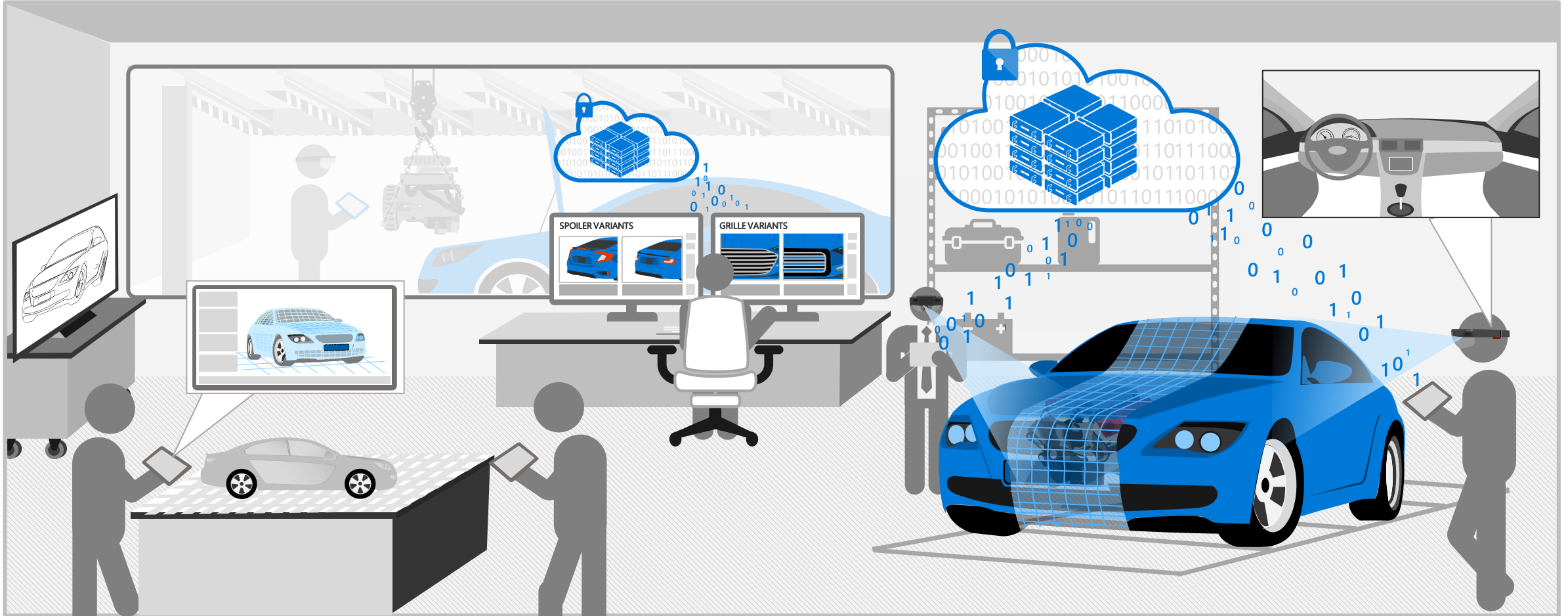
**Engineer from anywhere** with any device by engaging high-performance computing resources on demand to get the results you need

**Innovate more efficiently** by sharing and exploring designs with distributed teams in multiple sites across the globe

**Improve product quality** by enabling efficient collaboration with complex supply chains in a secure environment



# Transform the prototype process with Cloud Rendering



**Control project costs** by scaling up or down at the pace of changing business requirements and paying for only what you use

**Compare design concepts faster** by running on high-powered VMs that manage, schedule and scale jobs when and where you need them

**Improve speed-to-market** by running jobs in parallel and generating high-quality prototypes with minimal wait time

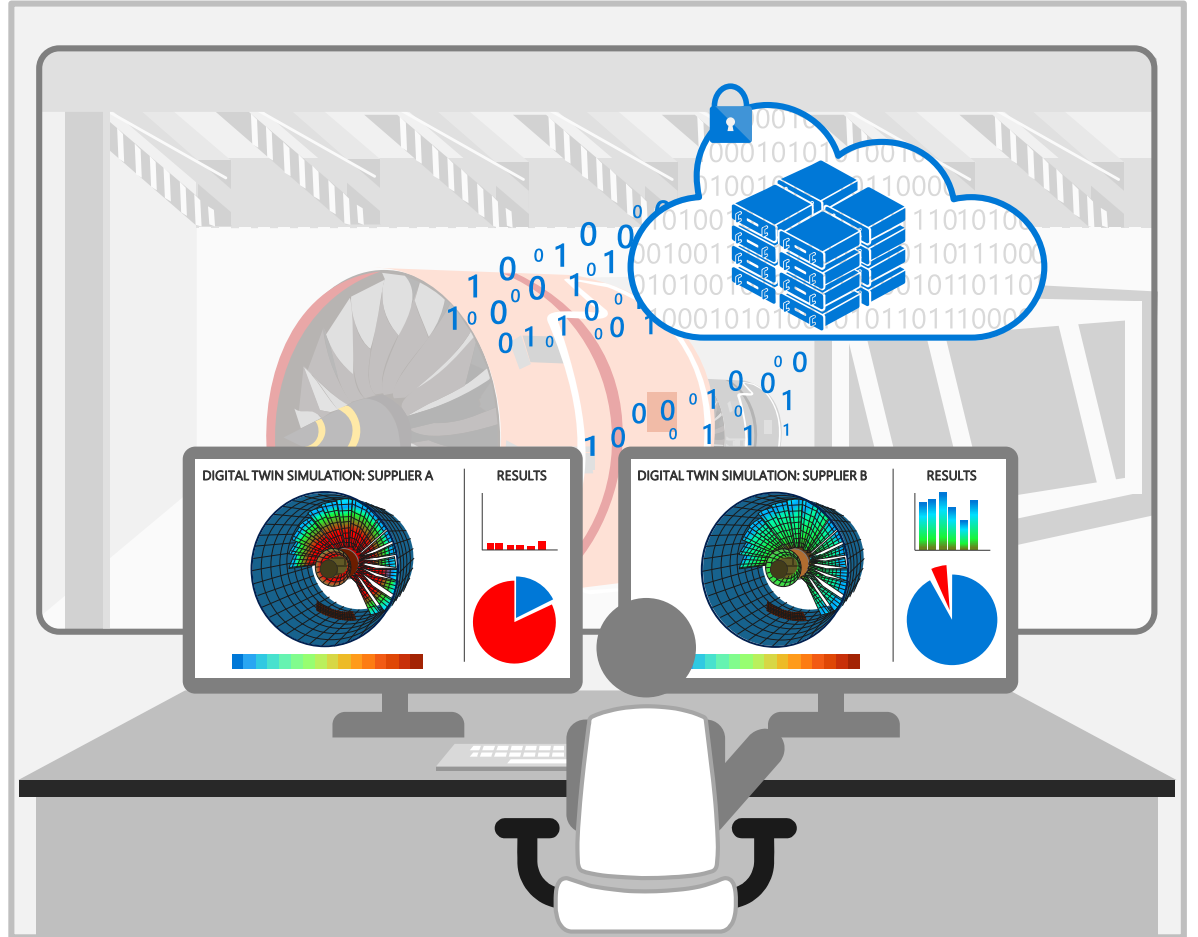


# Optimize product validation with Simulation and Analysis



**Remove on-premises constraints** by bursting to the cloud on demand to run large jobs in order to meet business goals

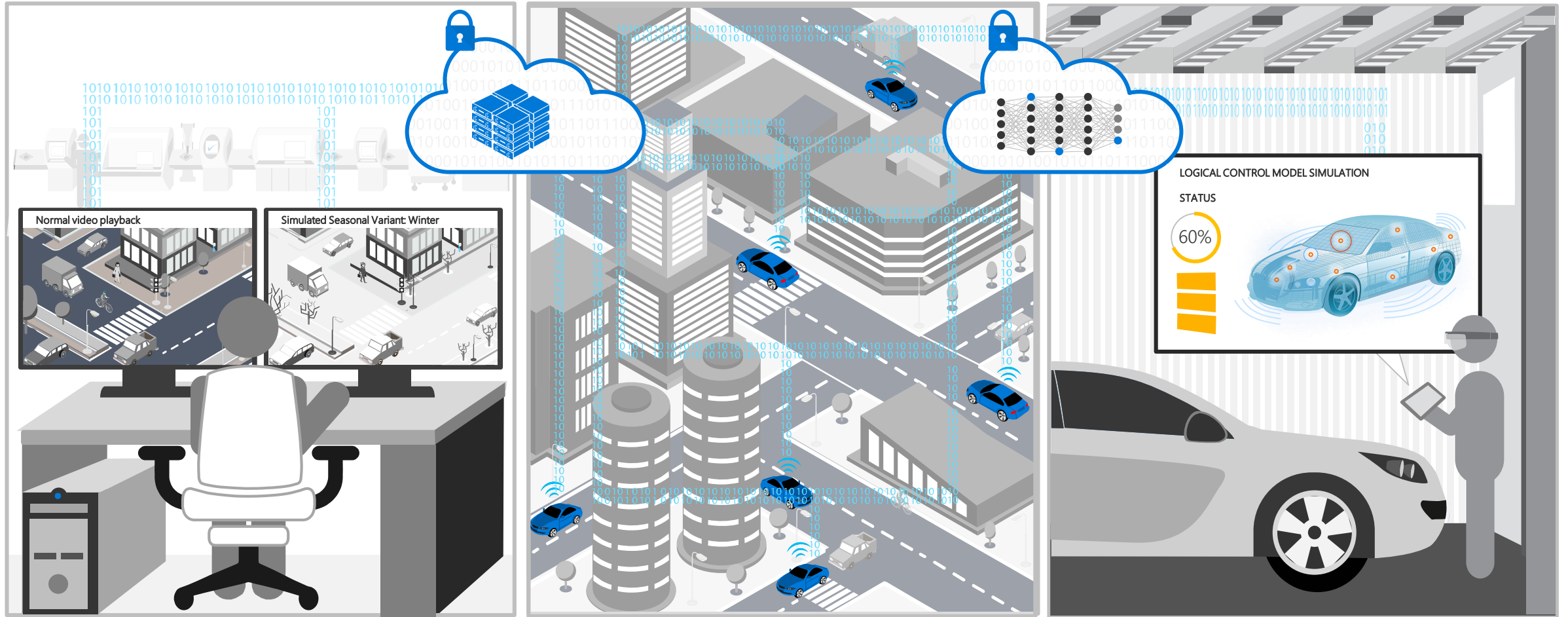
**Run more compute-intensive simulations** by managing, scheduling and scaling jobs to secure a better performance yield



**Iterate and optimize product design** by running rapid simulations in parallel to validate all product variants and versions with greater speed



# Train on billions of miles with Deep Learning & AI



**Enable asset training on demand** by empowering engineers to tag, process and simulate jobs for training from anywhere and paying only for what you use

**Improve operational efficiency** by accelerating training at scale using your existing open source framework, or running it as a managed service

**Recreate the physical world** by running large-scale integrated logical control model simulations to ensure performance and safety



# Industrial Safety



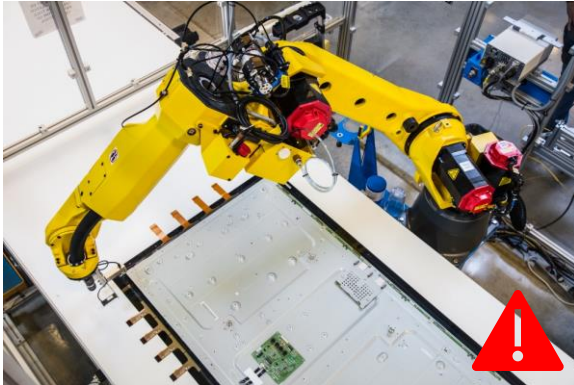
Azure

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# Safety Capabilities

## Image matching and object detection



Machine unsafe



Zone violation



Emotional response



Video evidence



Safety gear absent



Unauthorized access



# Safety Capabilities

## Machine & sensor intelligence

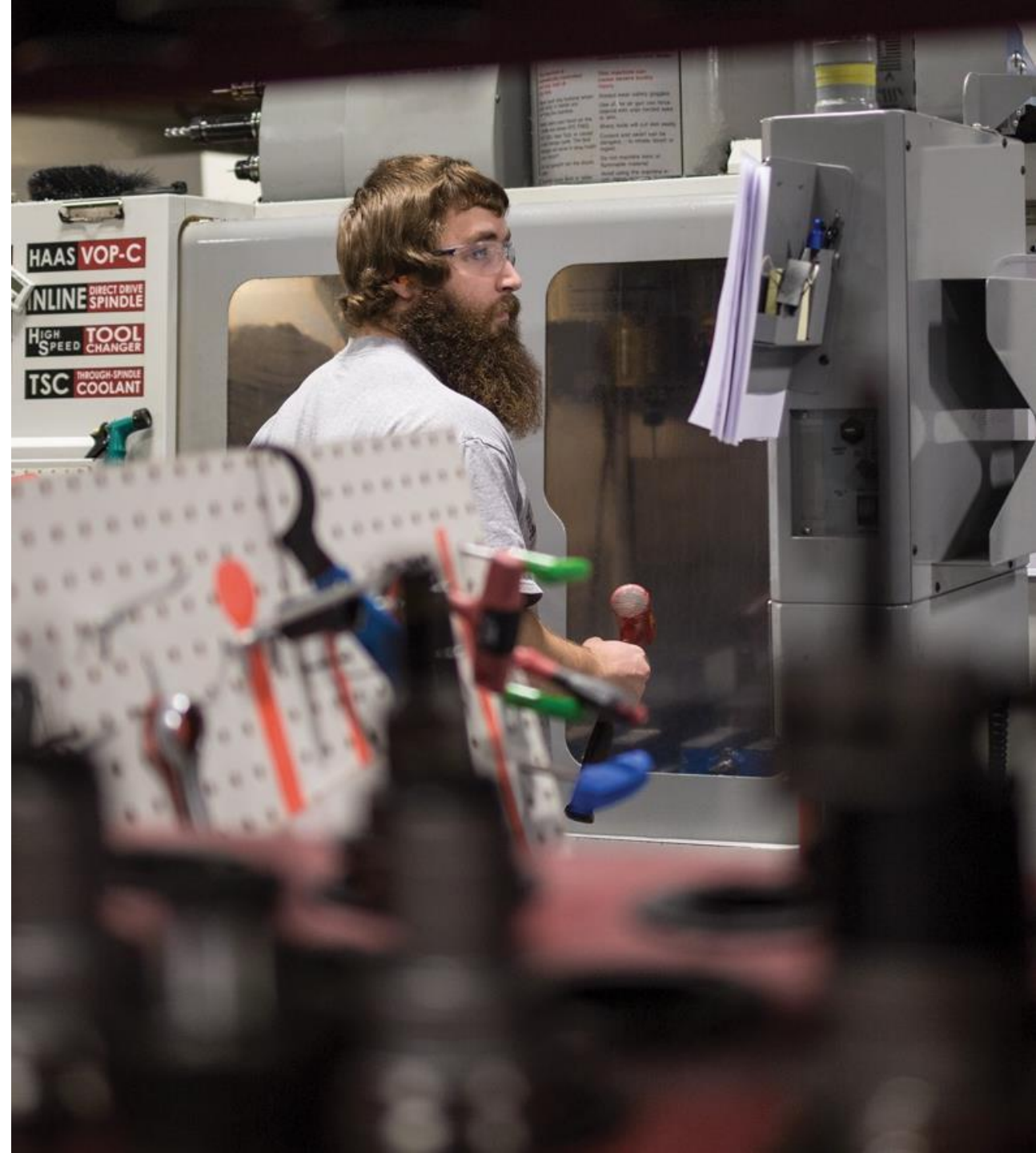
Safety gate open, partial actuation, or fault

Machine distress or malfunction probable

Fire, excess heat

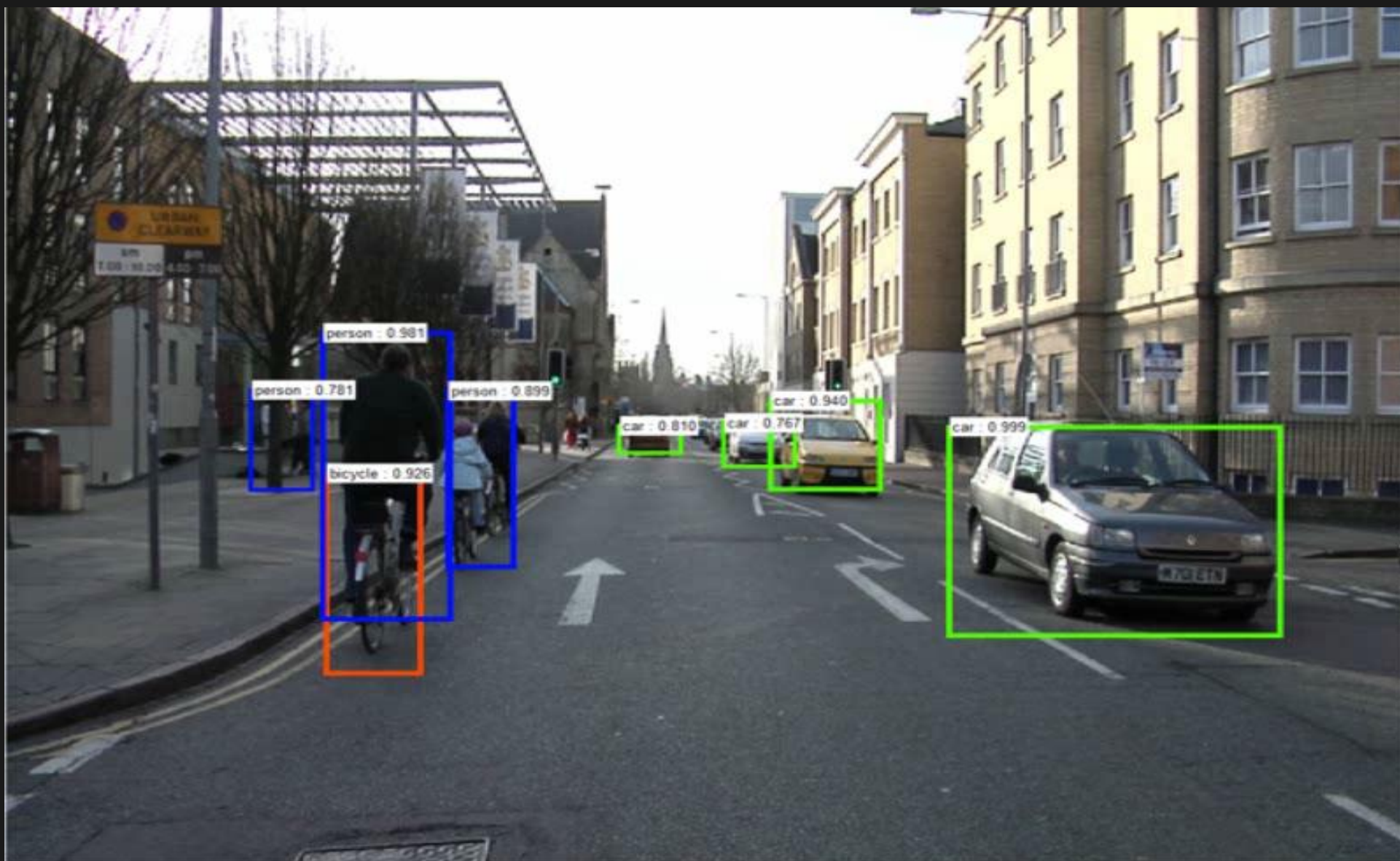
Explosion, flash

Machine telemetry evidence and root cause





# Real time recognition and post event analysis





# IT architecture



Mixed Reality, wearables, gestures, interactive speech, Cortana



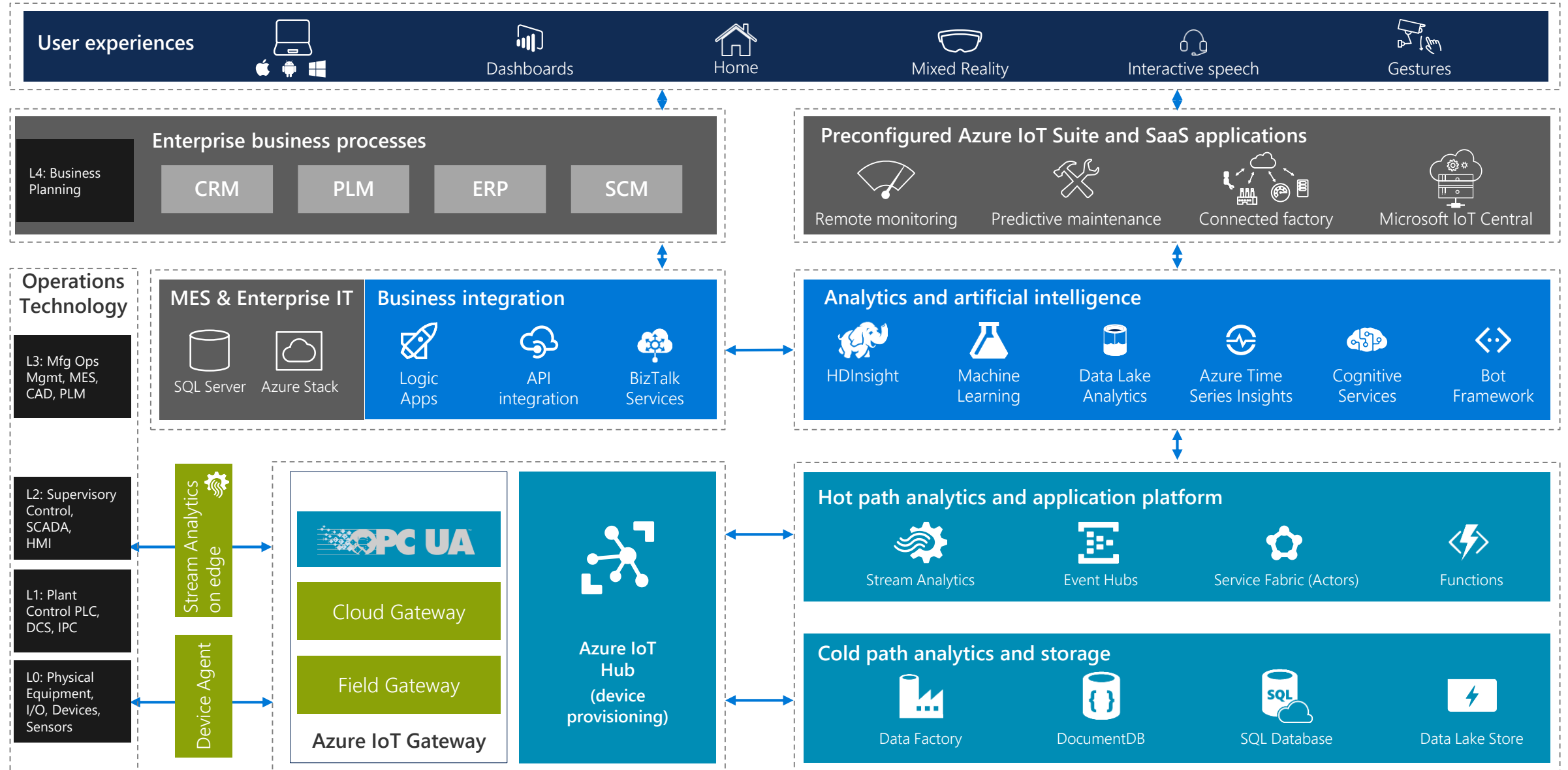
Business applications, Microsoft 365, Dynamics 365



Advanced analytics, data, Artificial intelligence, Cognitive Services



Platform, infrastructure






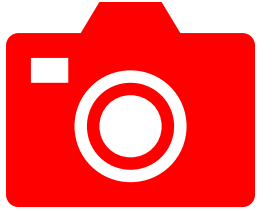
# AI and IoT

Learning Materials



# AI School

<https://aischool.microsoft.com/en-us/home>




## AI School

Whether you're completely new to AI or a seasoned professional looking to advance your skills, AI School is quite simply the best place to learn about learning materials and intelligent AI.


- CONVERSATIONAL AI
- AI SERVICES
- MACHINE LEARNING
- INTELLIGENT EDGE AI

## Path Builder



Not sure where to start? I can help you tailor a learning pathway

Get started

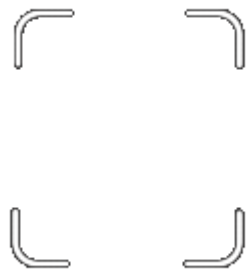


## Conversational AI

Intelligent bots have become an intuitive way to enable interactions between people and apps. The learning paths in this house will guide you through how to build these intelligent bots, and incorporate features like natural language processing and intent recognition, as well as other features to create delightful bot interactions in your apps and other channels.

Learning Paths





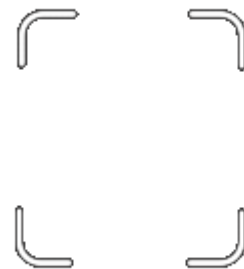
## Face and Emotion Recognition

Microsoft Cognitive Services Face API can quickly analyze and compare to determine if two photos contain the same person or not. Test it out with your own photos or with a friend.



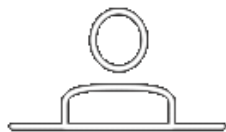
## Speech Authentication

Microsoft Cognitive Services Speech API decipher voices and determine if it's the same person speaking or not. Try it today by using different voices or use pre-recorded voices.



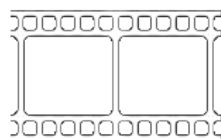
## Text Analytics

Microsoft Cognitive Services Text Analytics API determines the sentiment of your message, typed or spoken. Try it out and see if the message is positive, negative, or neutral.



## Language Understanding

Microsoft Cognitive Services Language Understanding interprets human language and understands the intent. Type in a custom intent or try one of the predefined ones to affect the house.



## Video Indexer

Video Indexer creates intelligent insights automatically after indexing a video, including people, keywords, sentiment, and more. Upload your own video today and gain new insights.



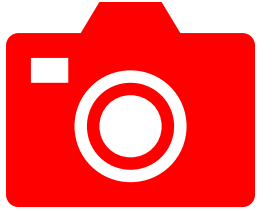
## AI Route Planner

Bing Maps Distance Matrix API calculates travel time and distances for multi-stop routes and optimizes based on traffic patterns and other inputs. Try it to plan a sight-seeing trip.




# IoT School


<https://iotschool.microsoft.com/learning-paths>




Internet of Things

Industries ▾ Solutions Products ▾ Customer stories Intelligent edge Developer ▾ More ▾

 PATHS

 SAVED

 PROFILE


FILTER Clear all

▾ LEVEL


▾ SERVICES


▾ TOOLS


▾ LANGUAGE




Azure IoT Hub


 3 Modules


 3hr 4min







Device management with Azure IoT Hub


 3 Modules


 2hr 23min







Azure IoT Central an IoT SaaS solution


 3 Modules


 1hr 6min







Azure Maps


 4 Modules


 56min







Azure IoT SDKs and developer tools


 3 Modules


 2hr 7min







Azure Time Series Insights

 1 Modules

 39min

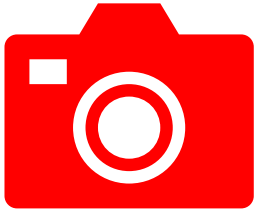




Microsoft

Azure IoT on Serverless Hackathon





NEW

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Certification



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NEW EXAMS

Certification Exams



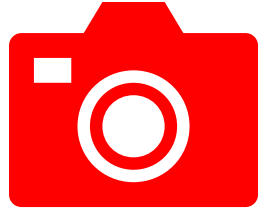
NEW

Introducing Microsoft Learn



# Microsoft for Startups

<https://startups.microsoft.com/en-us/>



## More ways Microsoft supports startups



### Microsoft Reactor

Microsoft Reactors are spaces designed to foster learning, networking, and resource sharing within your local startup and developer communities.

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### Microsoft ScaleUp

Built to accelerate the success of enterprise-ready companies, you'll be granted access to top Microsoft partners and customers, make valuable business connections, and access a strong network of technical knowledge.

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### M12

As the corporate venture arm for the company, M12 (formerly Microsoft Ventures) typically invests in enterprise software companies in the Series A through C funding stage. As part of its value-add to portfolio companies, M12 offers unique access to strategic go-to-market resources and relationships globally.

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## Ready to scale your business?

Microsoft works with select accelerators and incubators to offer these exclusive benefits. Contact your **local program director** to learn if you qualify.

Explore benefits



## Just getting started with Azure?

Get up and running in the cloud. Bring your favorite open source software tools and technologies to Azure and explore the possibilities using the tools and platforms you know.

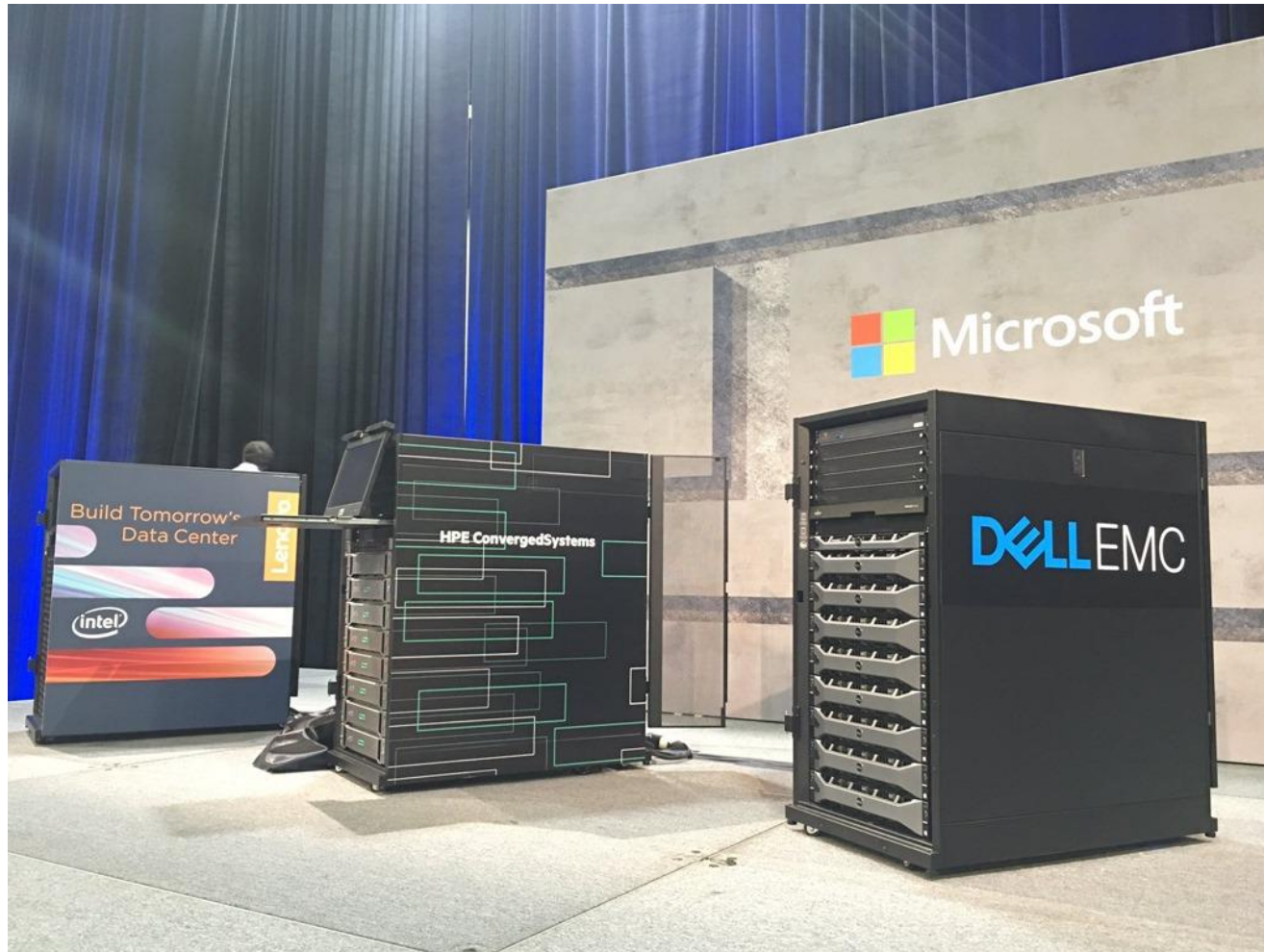
Get \$200 in Azure credits





What about regulated Data?

# Microsoft Azure Stack



## Indonesia ready partners:

- TelkomTelstra
- VIBICloud
- CBN
- Visionet
- Datacomm
- dll



# How To Start?

- Contact : [Yosv@Microsoft.com](mailto:Yosv@Microsoft.com) for:
  - more guidance, reference, partner introduction and PoC or Pilot.
- Explore IOT: <https://iotschool.microsoft.com/learning-paths>
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