People-centred
experiences

Artificial
Intelligence

Ubiquitous
computing

Intelligent Cloud

Intelligent Edge

Intelligent Edge

We are living in an automated world
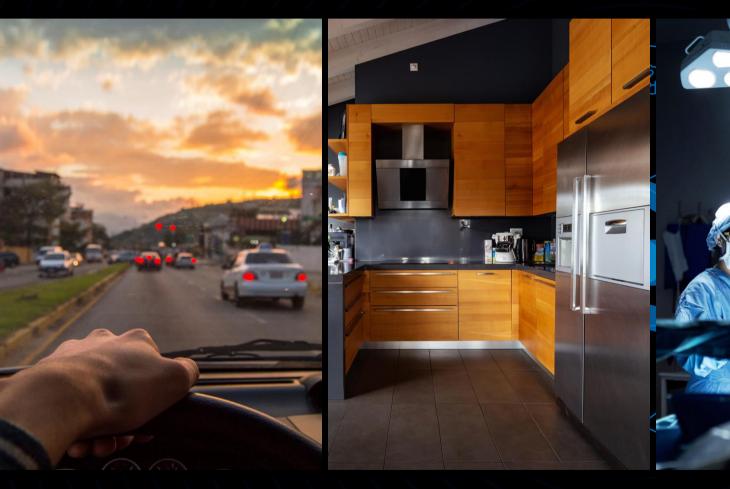
Evolution of industrial systems

Mechanized systems
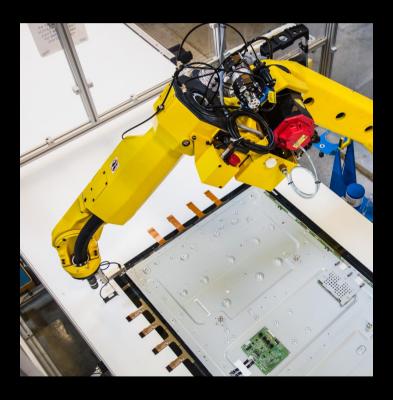

Powered by **steam or electricity**

Manually operated

Automated systems
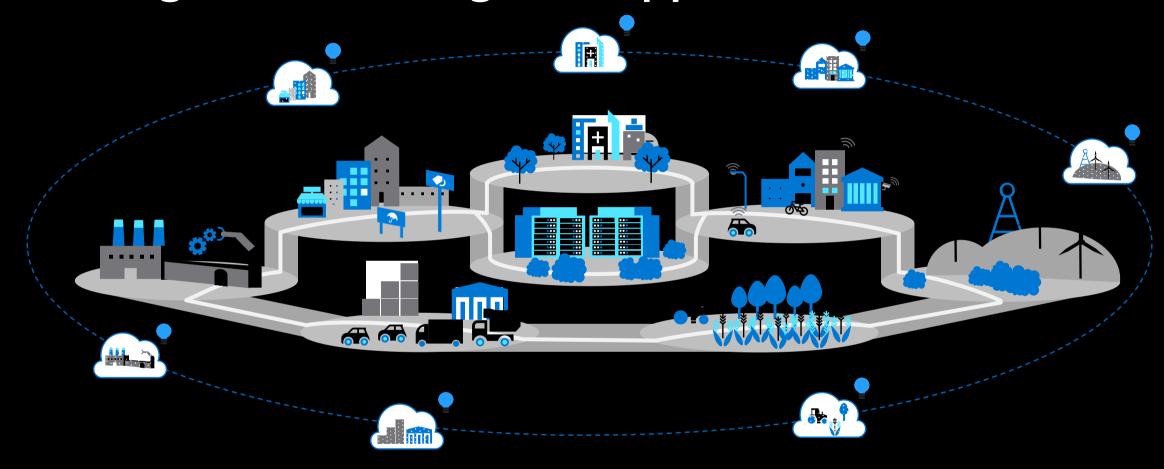
Powered by **software**

Fixed operation

Autonomous systems

Powered by **AI**

Intelligent operation (sense/plan/act)

Convergence is driving new opportunities

Cloud

Globally available, unlimited compute resources

IoT

Harnessing signals from sensors and devices, managed centrally by the cloud

Edge

Intelligence offloaded from the cloud to IoT devices

Digital Twins

Create living replicas of any physical environment, track the past and predict the future

AI

Breakthrough intelligence capabilities, in the cloud and on the edge

Microsoft's comprehensive IoT product portfolio

Azure IoT Priority Verticals

Manufacturing | Retail | Agriculture | Energy | Smart Cities | Healthcare | Transportation

Azure Security Center for IoT

Azure IoT Solutions

Azure IoT Central (SaaS)

Azure IoT Reference Architecture & Accelerators (PaaS)

Dynamics Connected Field Service (SaaS)

Azure Services for IoT

Azure IoT Hub
Azure IoT Hub Device Provisioning Service
Azure Digital Twins
Azure Time Series Insights
Azure Maps

Azure Stream Analytics
Azure Cosmos DB
Azure AI
Azure Cognitive Services
Azure ML
Azure Logic Apps

Azure Active Directory
Azure Monitor
Azure DevOps
Power BI
Azure Data Share
Azure Spatial Anchors

IoT & Edge Device Support

Azure Sphere
Azure IoT Device SDK
Azure IoT Edge
Data Box Edge

Windows IoT
Azure Certified for IoT—Device Catalog
Azure Stream Analytics
Azure Storage

Azure ML
Azure SQL
Azure Functions
Azure Cognitive Services

Global Access

Sustainable Production

Need for Economic Growth

1 in 9 people are undernourished (UN)

65% Reduce poverty for 65% of the world's poor who live in rural areas and work in farming

70% more food is needed by 2050

70% of global water resources are needed for Agriculture

24% of global greenhouse emission comes from Agriculture

251T liters of water to be saved in 2030 from implementing Smart Agriculture

30% of global workers are employed by Agriculture

10-30% Agriculture contributes 10% of global GDP and up to 30% in low income countries

$4.8T Global Agriculture revenue

Source: Sustainability development goals, UNITED NATIONS 2017

An end-to-end system that enables seamless data collection and insights for agriculture
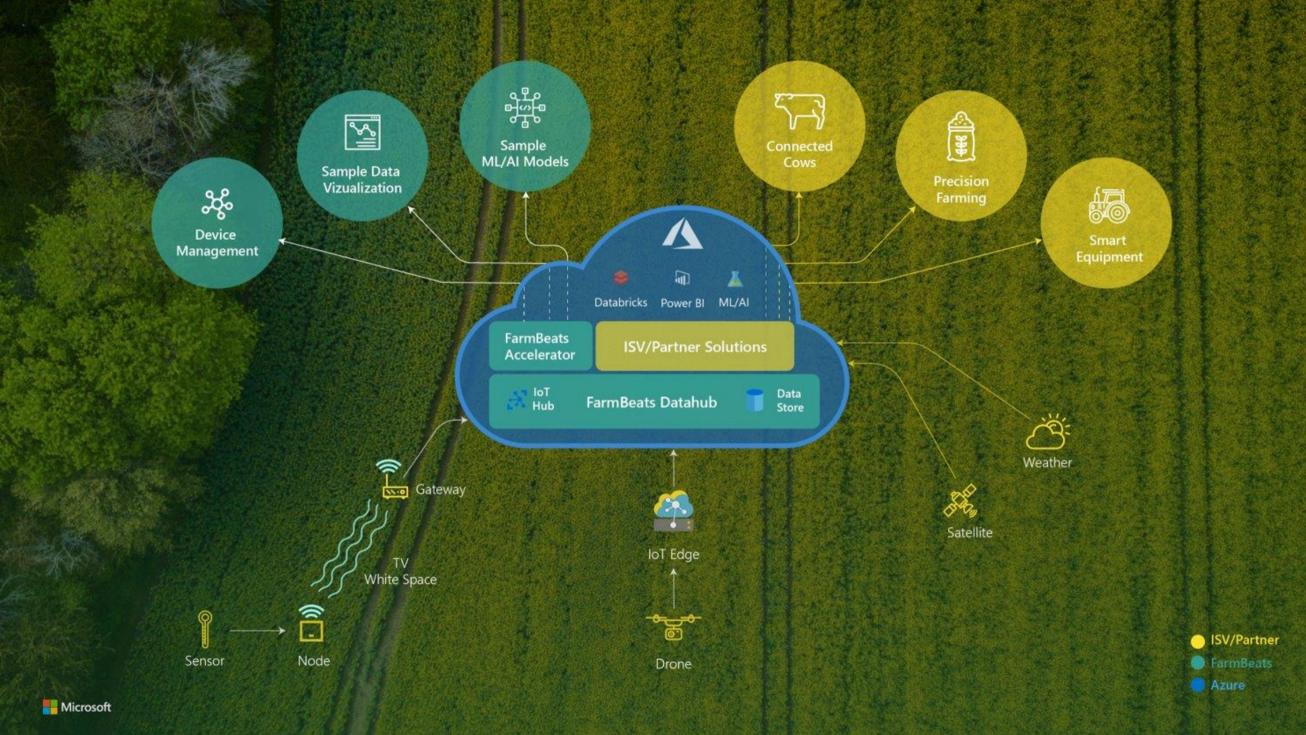
FarmBeats

Combine visual data from drones with the sensor data from the farm

Drones are ~1000
dollars and automatic
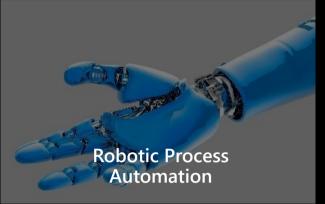
Can cover large
areas quickly

Can collect
visual data
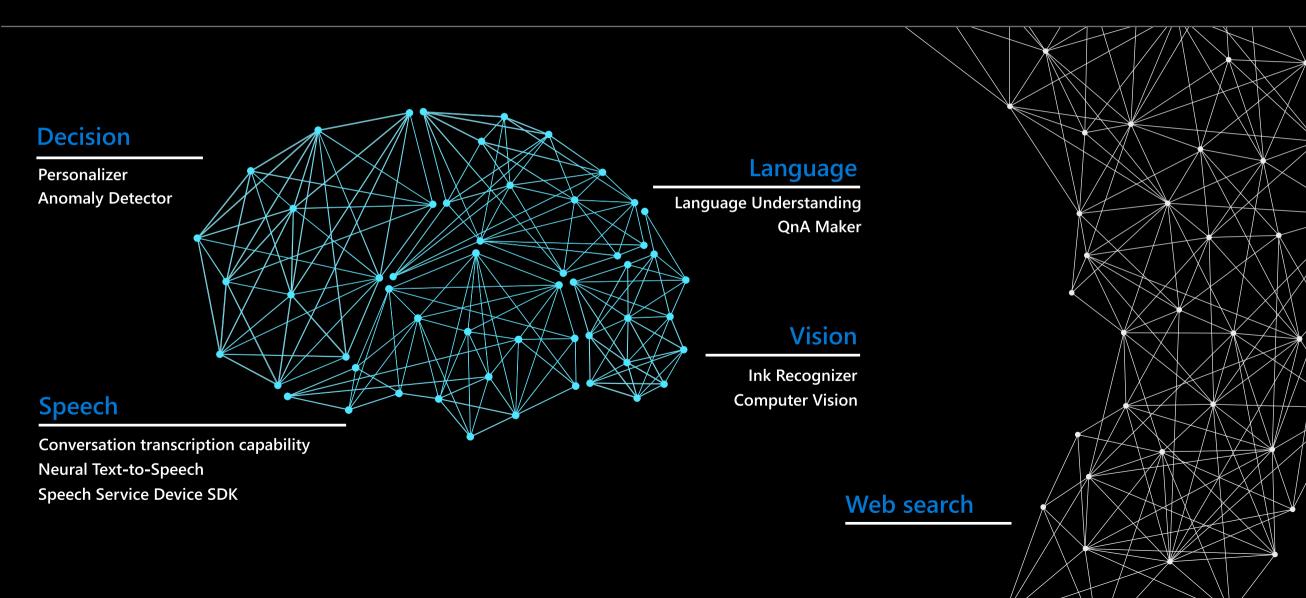
Oil & Gas

Government & Smart Cities

Robotic Process Automation

Healthcare

Consumer Packaged Goods

Retail

Financial Services

Manufacturing

Gaming

Autonomous Vehicles

Agriculture

Media & Entertainment

Azure AI

AI apps & agents

Knowledge mining

Machine learning

Azure Cognitive Services

Decision

Personalizer
Anomaly Detector

Language

Language Understanding
QnA Maker

Vision

Ink Recognizer
Computer Vision

Speech

Conversation transcription capability
Neural Text-to-Speech
Speech Service Device SDK

Web search
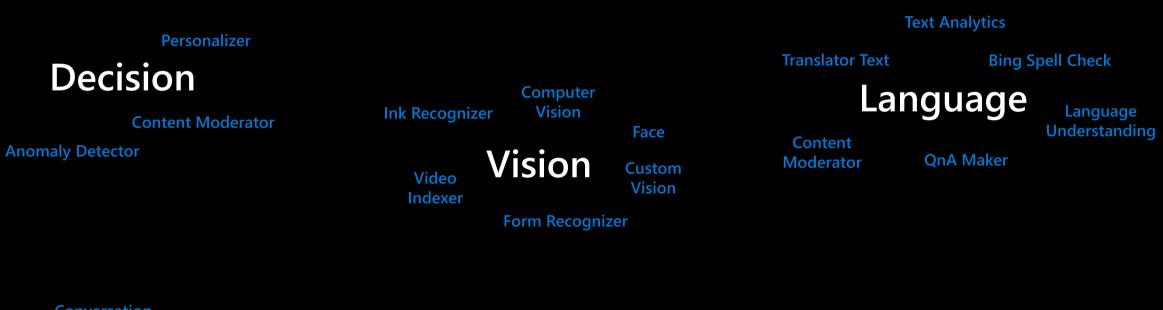
Azure Cognitive Services

The most comprehensive pre-trained AI

Decision

Personalizer

Content Moderator

Anomaly Detector

Vision

Ink Recognizer

Computer Vision

Face

Custom Vision

Video Indexer

Form Recognizer

Language

Text Analytics

Translator Text

Bing Spell Check

Language Understanding

Content Moderator

QnA Maker

Speech

Conversation transcription capability

Custom Speech

Speech transcription

Text-to-Speech

Neural Text-to-Speech

Web search

Bing Custom Search
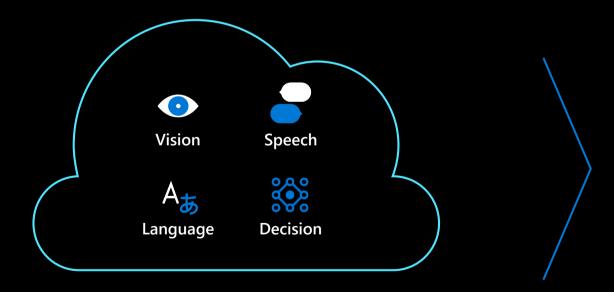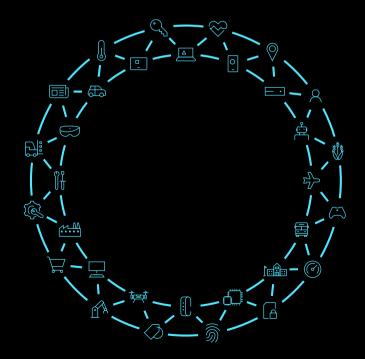
Bing Video Search

Bing Entity Search

Bing News Search

Bing Web Search

Bing Local Business Search

Bing Image Search

Bing Autosuggest

Bing Visual Search

Azure Cognitive Services
Deploy anywhere using containers

Azure Cognitive Services

Vision

Speech

Language

Decision
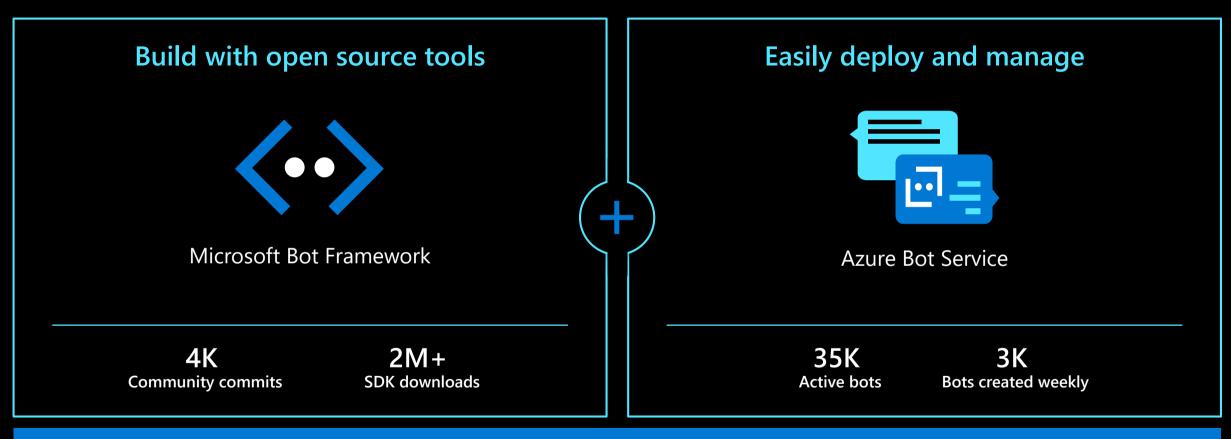
Wherever your data resides

Accelerate bot development

Build with open source tools

Microsoft Bot Framework

4K
Community commits

2M+
SDK downloads

+

Easily deploy and manage

Azure Bot Service

35K
Active bots

3K
Bots created weekly

Bot Framework SDK 4.5—Adaptive dialogs

Virtual assistant solution accelerator—Skills templates

Machine Learning on Azure

Domain specific pretrained models
To simplify solution development

Vision　Speech　Language　Web search　Decision

Familiar data science tools
To simplify model development

Visual Studio Code　Azure Notebooks　Jupyter　Command line

Popular frameworks
To build advanced deep learning solutions

PyTorch　TensorFlow　Scikit-Learn　ONNX

Productive services
To empower data science and development teams

Azure Machine Learning　Azure Databricks　Machine Learning VMs

Powerful infrastructure
To accelerate deep learning

CPU　GPU　FPGA

From the Intelligent Cloud to the Intelligent Edge

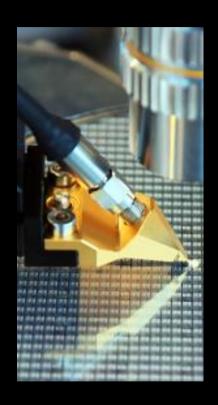# Microsoft platform for autonomous systems

Scale human expertise

Trustworthy autonomy
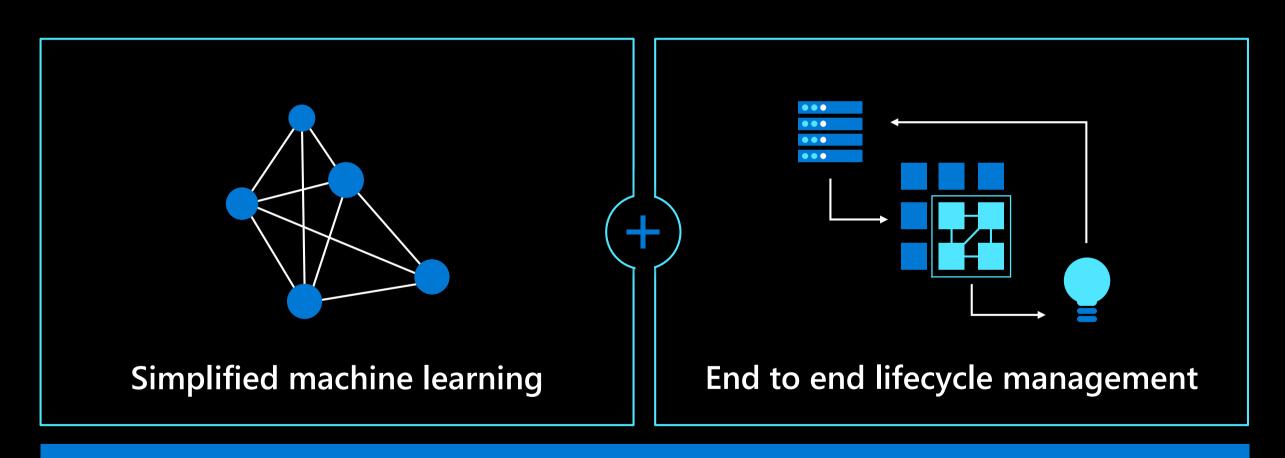
Real world scenarios

Autonomous systems scenarios
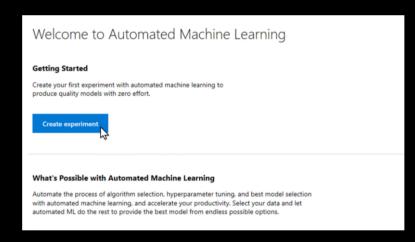
Motion control   **Smart buildings**   **Machine calibration**   **Process control**   **Industrial robotics**

Azure Machine Learning service

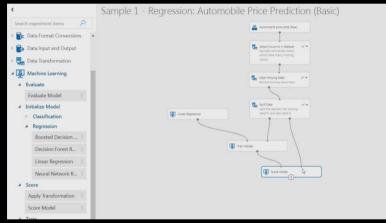**Simplified machine learning**

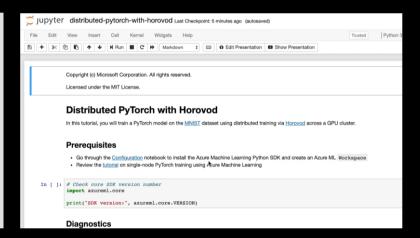**End to end lifecycle management**

Open platform

Simplify machine learning for any skill level
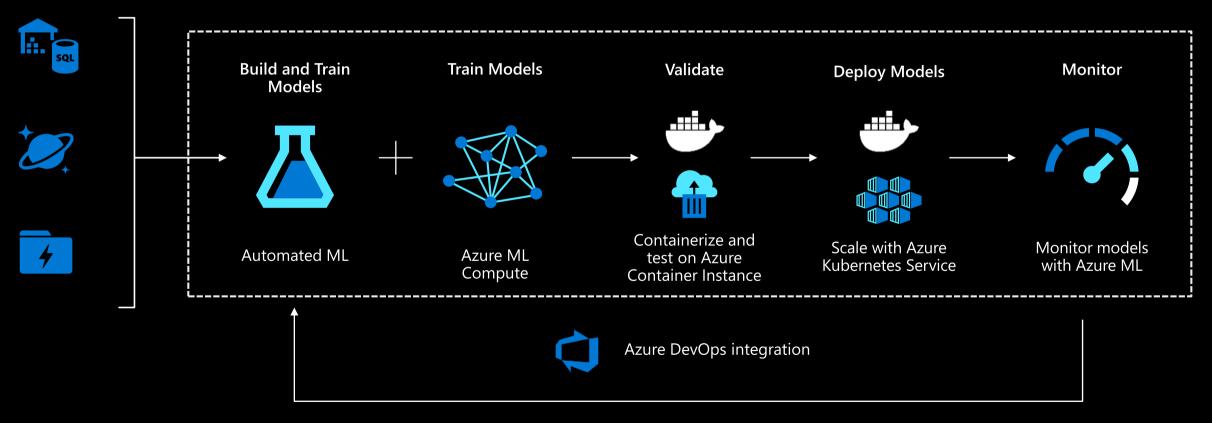
Automated machine learning UI

Visual interface

Machine learning notebooks

Deploy machine learning models at scale

Azure Machine Learning service

Build and Train Models

Automated ML

Train Models

Azure ML Compute

Validate

Containerize and test on Azure Container Instance

Deploy Models

Scale with Azure Kubernetes Service

Monitor

Monitor models with Azure ML

Azure DevOps integration

CI/CD and model retraining
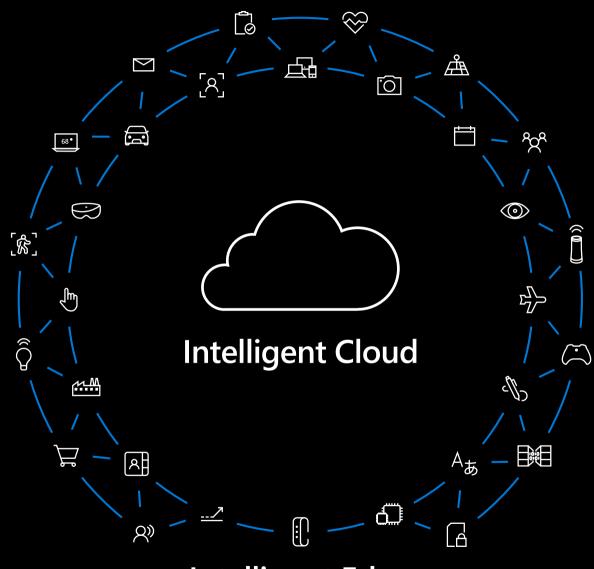
People-centred experiences
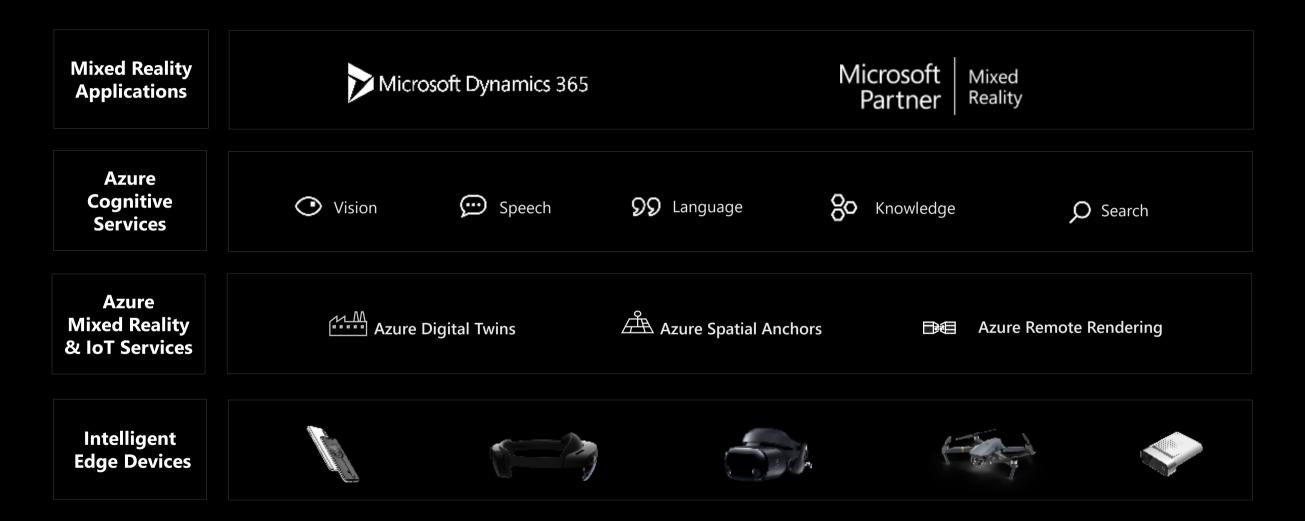
Artificial Intelligence

Ubiquitous computing

Intelligent Cloud

Intelligent Edge

The Microsoft mixed reality stack

Mixed Reality Applications	Microsoft Dynamics 365	Microsoft Partner | Mixed Reality
Azure Cognitive Services	Vision Speech Language Knowledge Search	
Azure Mixed Reality & IoT Services	Azure Digital Twins Azure Spatial Anchors Azure Remote Rendering	
Intelligent Edge Devices		

Digital twins: fusing physical and digital

Physical World

Devices　　　　　　Spaces　　　　　　People

Data　Control　　　Data　Control　　　Data　Control

Systems　　　　　**Context**　　　　　**Processes**

Measure　Insight,　　Measure　Insight,　　Measure　Assistance,
optimization　　　optimization　　　task completion

Operations　　　　Insights　　　　Experiences

Remote monitoring　　Occupancy and utilization　　Tenant apps
Fault detection　　　Workplace advisor　　Employee productivity, comfort, satisfaction
Predictive maintenance　　Workplace analytics　　Indoor mapping, location, wayfinding
　　　　　　　　　　Mixed reality and cognition

Digital World

The 3rd wave of computing

Design & Prototyping

Sales Assistance

Training & Development

MIXED REALITY

Field Service

Geospatial Planning

Productivity & Collaboration

Scope AR, the pioneers of Industrial AR

Founded in 2011, deploying AR solutions for major industrial clients

Productized a knowledge platform, enabling clients to create and deploy

Building an **industry ecosystem** for global **connected workforces**

Scope AR: the early days with Atlas Copco

Atlas Copco

BOEING

TOYOTA

San Francisco
Edmonton
Tel Aviv

SCOPE AR

Solving the worker shortage and widening skills gap

WORKLINK®

The proven, enterprise-ready AR knowledge platform

- ✔ 3D AR digital work instructions
- ✔ Real-time remote assistance
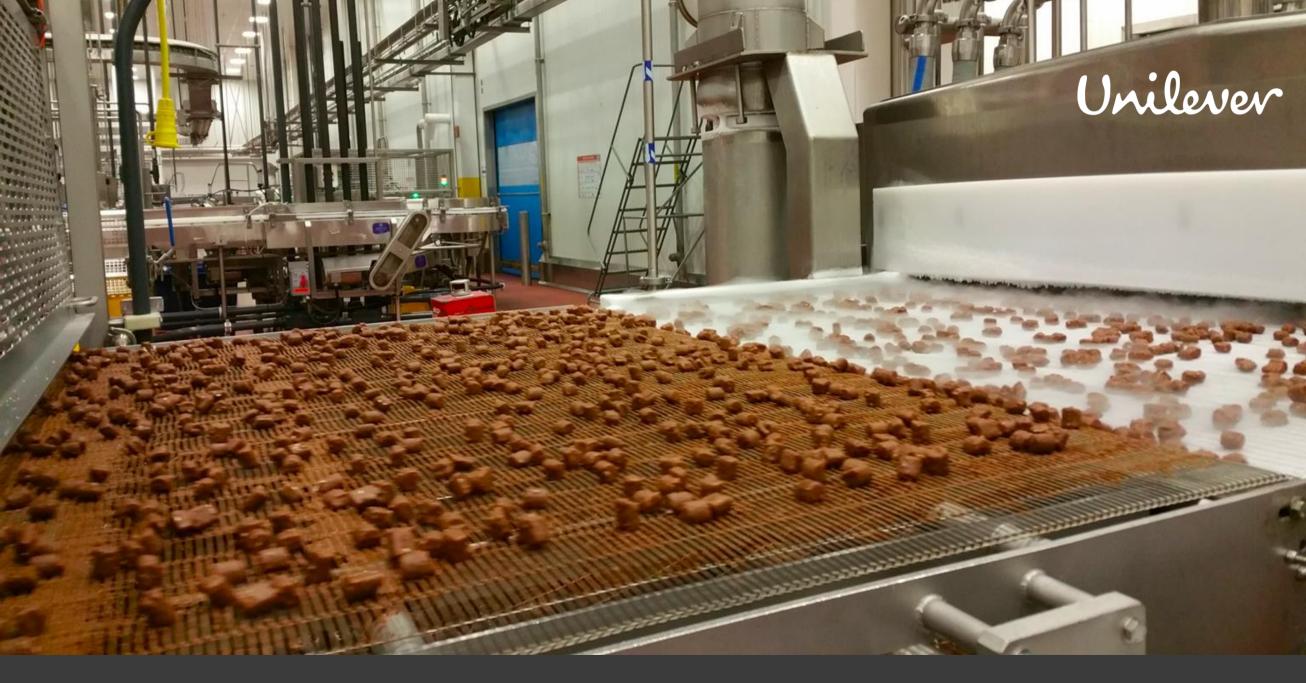- ✔ Session recording, analytics

Visual Knowledgebase

+

Communications

+

Multi-device support

SCOPE AR

SCOPE AR

Results: Unilever

50%

reduction in downtime

"With WorkLink, you are able to see first hand what the issue is and provide instruction to operators, technicians and engineers in the field to resolve the issue without travelling to the site."

Geraint Hughes, SU Assistant IT Manager, Ice Cream

EFFICIENCY

95%
REDUCTION IN THE TIME TO INTERPRET WORK INSTRUCTIONS
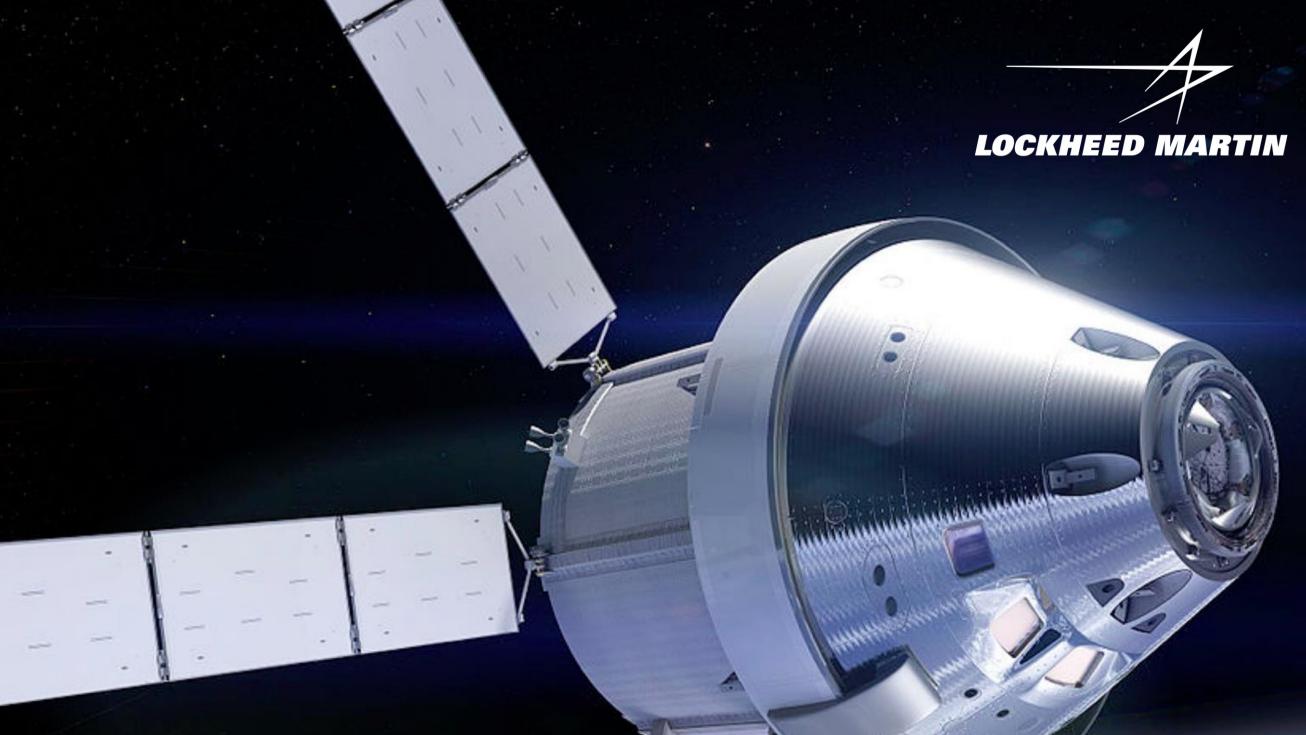
COSTS

50%
FEWER SERVICE TRIPS REQUIRED

ACCURACY

100%
ERRORS CAN BE REDUCED TO ZERO
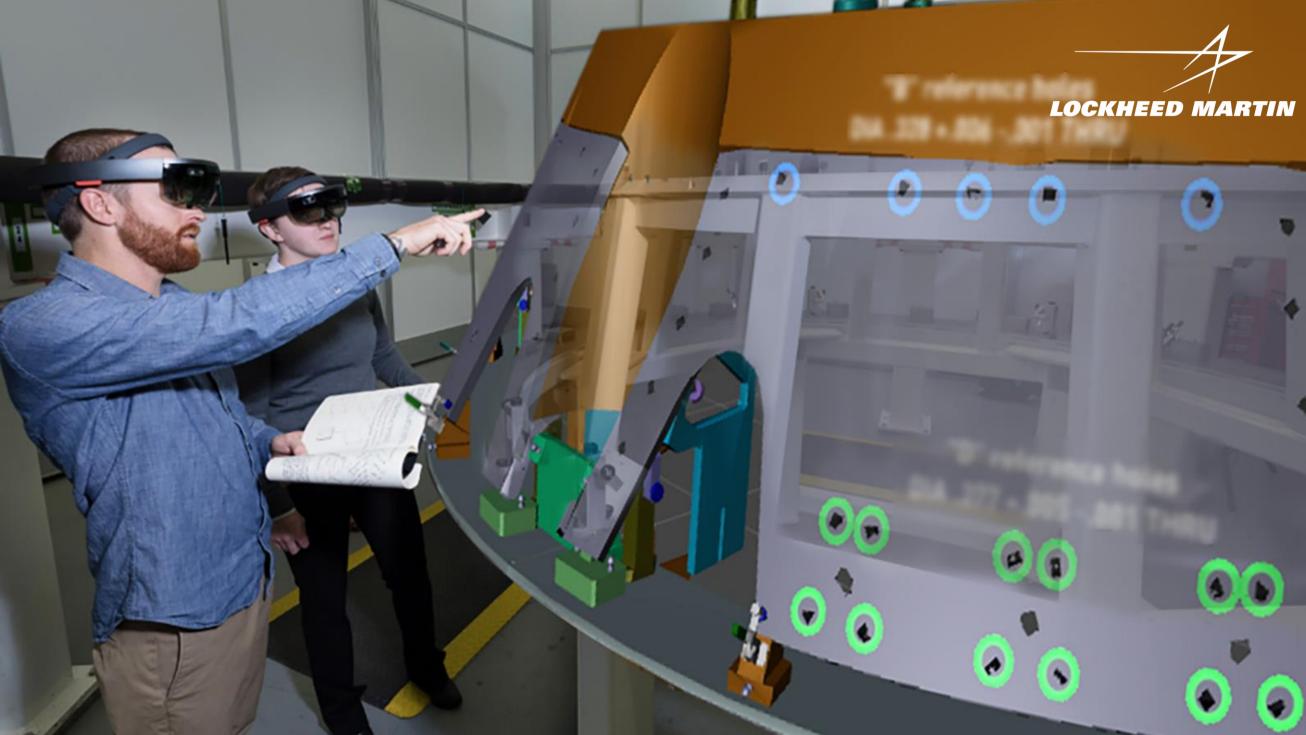
DOWNTIME
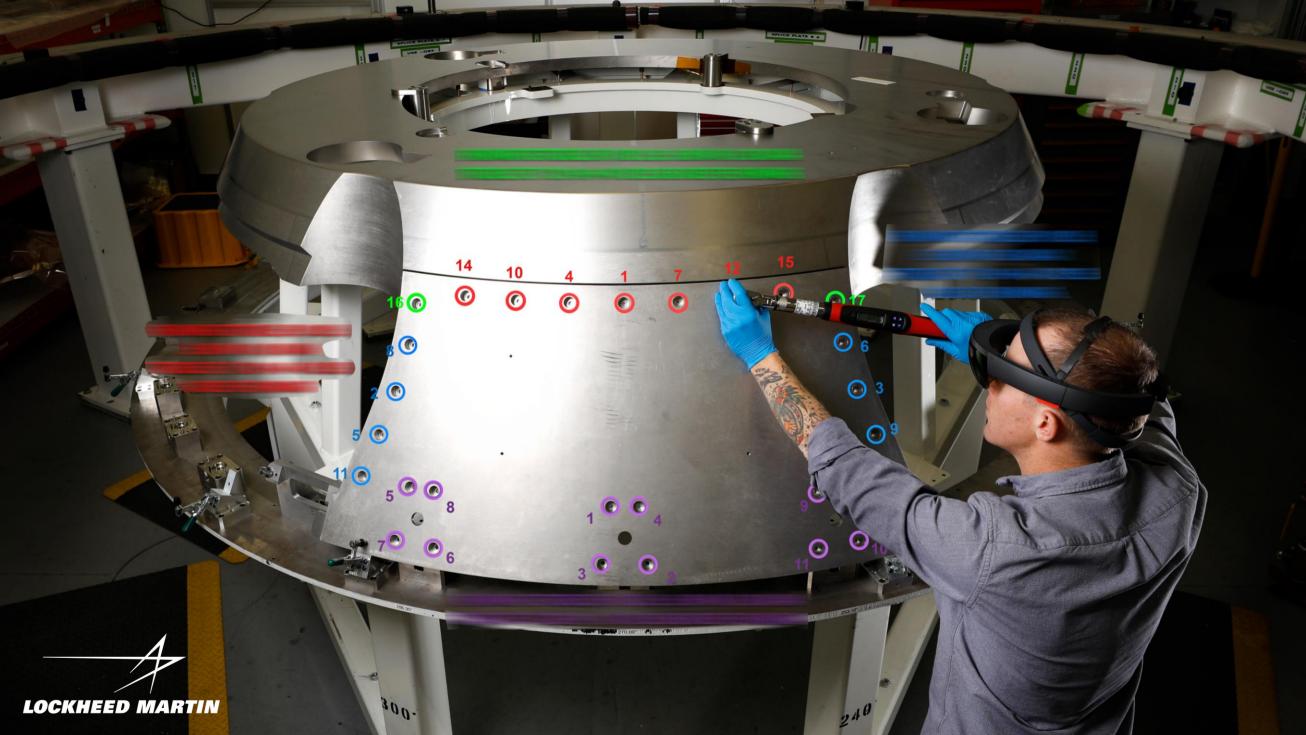
50%
REDUCTION IN UNPLANNED DOWNTIME

SCOPE AR
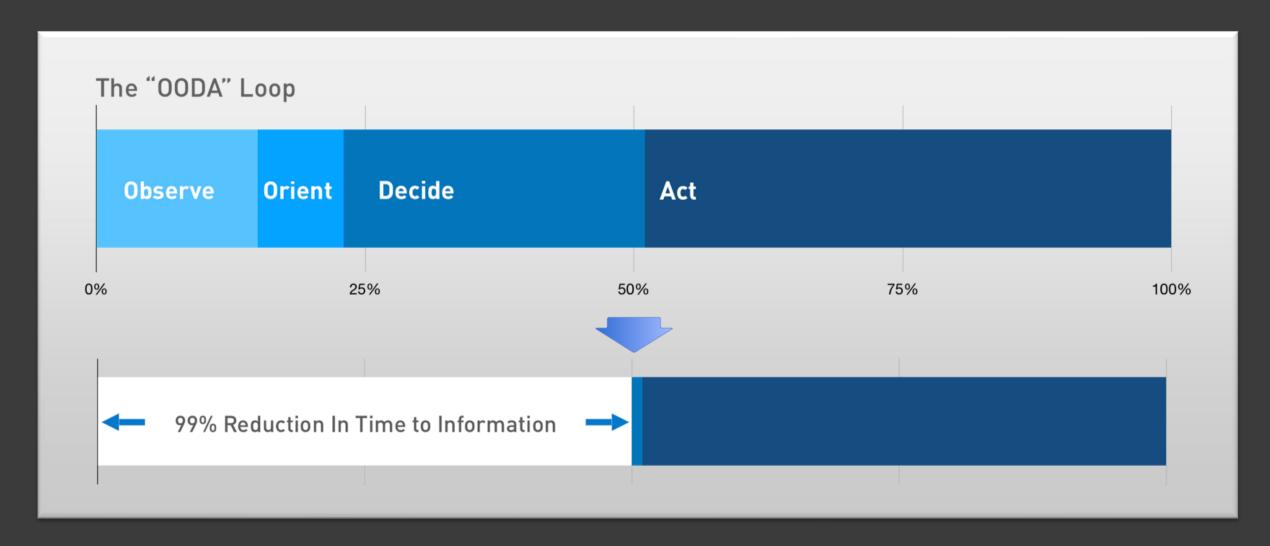
Results: Lockheed Martin

LOCKHEED MARTIN

99%

Reduction in pre-work prep

"We have been shocked and thrilled with the outcomes."

Shelley Peterson, Emerging Technologies Lead

SPEED		85%	REDUCTION IN TRAINING TIME
COSTS		95%	LOWER TECHNICIAN OVERHEAD
EFFICIENCY		72%	FASTER RESOLUTION TIME

SCOPE AR

Use Case Areas:
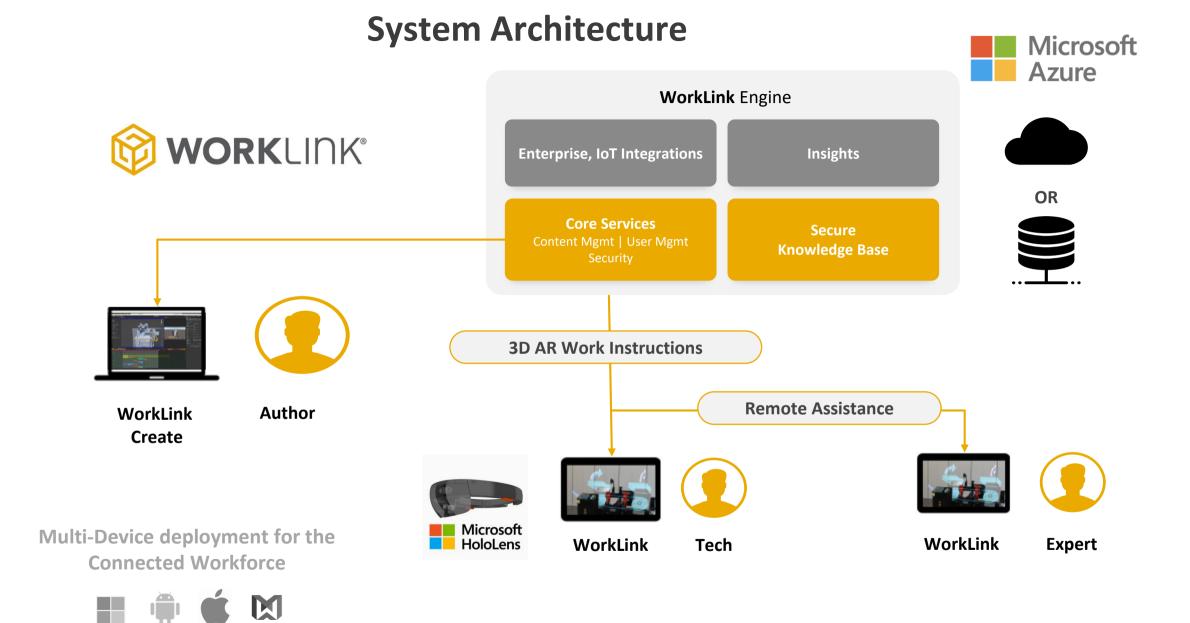
Manufacturing & Quality
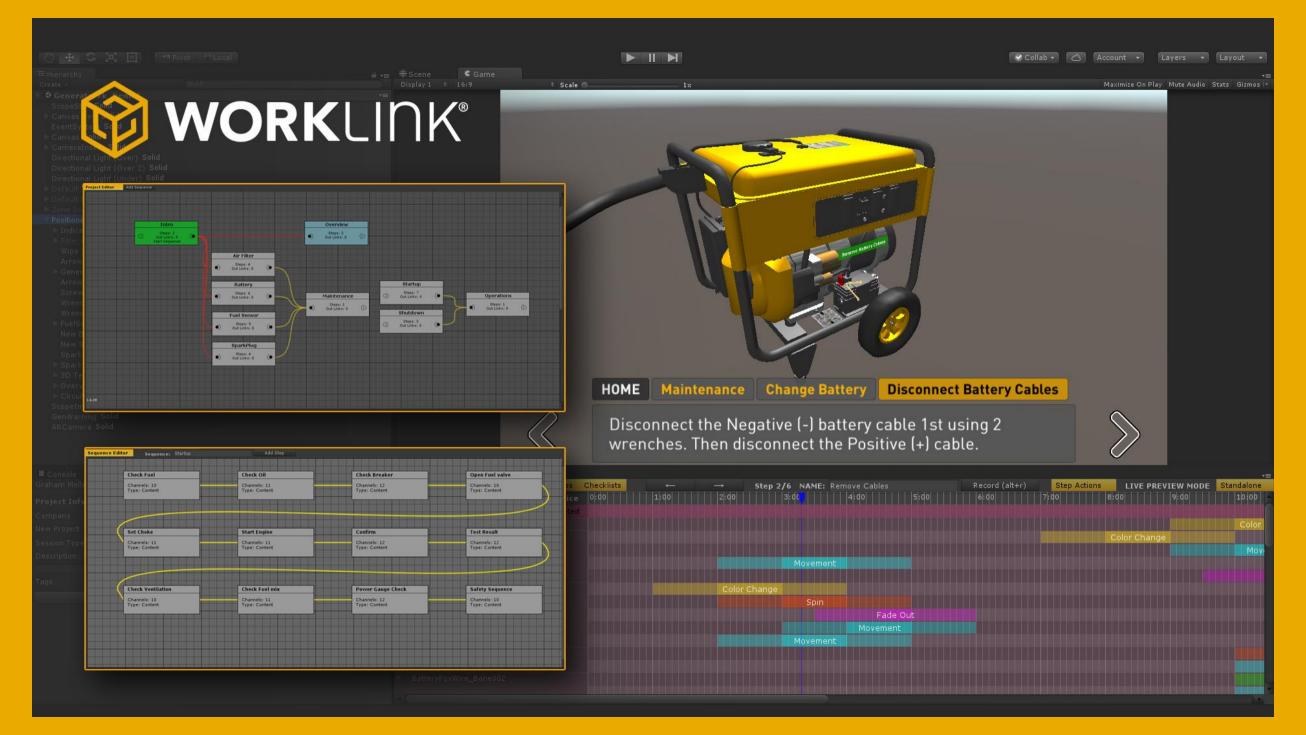
Training & Safety

Maintenance & Field Service

System Architecture

WorkLink Engine

Enterprise, IoT Integrations

Insights

Core Services
Content Mgmt | User Mgmt
Security

Secure
Knowledge Base

Microsoft Azure

OR

WorkLink
Create

Author

Multi-Device deployment for the
Connected Workforce

3D AR Work Instructions

Remote Assistance

Microsoft HoloLens

WorkLink

Tech

WorkLink

Expert

SCOPE AR

WorkLink: Knowledgebase Lifecycle

CREATE

Publishing

SECURE CONTENT SERVER

Insights

KNOWLEDGEBASE

Process Data

WORKLINK®

Smart Instructions

ASSIST

SCOPE AR

Stop by our booth to see AR in action!

Dave Gosch
Head of Sales & Solutions
Scope AR

✉ david.gosch@scopear.com

🐦 @scopear

🌐 www.scopear.com

56

SCOPE AR

"The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it."
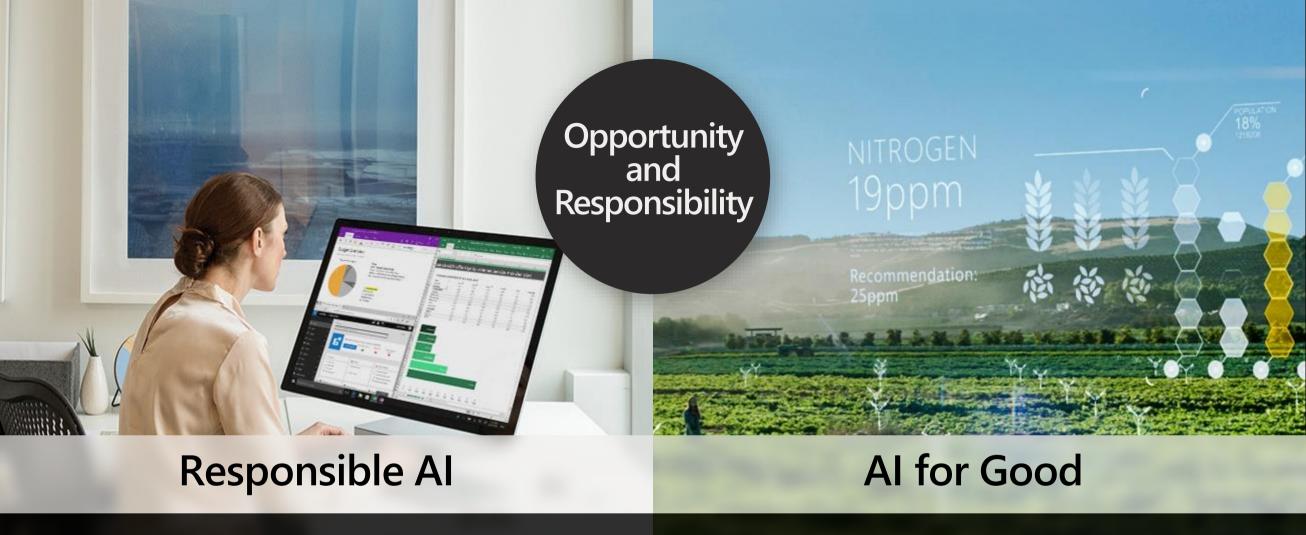
Mark Weiser | former CTO Xerox Park

ABB
+20%
Increase in customer satisfaction

kodisoft
+32%
Increase in sales

Rockwell Automation
$300K
Cost savings per day

f² FINANCIAL FABRIC
90%
Reduced time from documents to insights

TAL
40x
More insurance cases reviewed

UPS
200K
Customers interacting with chatbots

Opportunity and Responsibility

Responsible AI

AI for Good

Fairness   Reliability

Inclusivity   Privacy

Transparency   Accountability

AI for Earth

AI for Accessibility

AI for Humanitarian Action