



IoT in Action

#IoTinActionMS

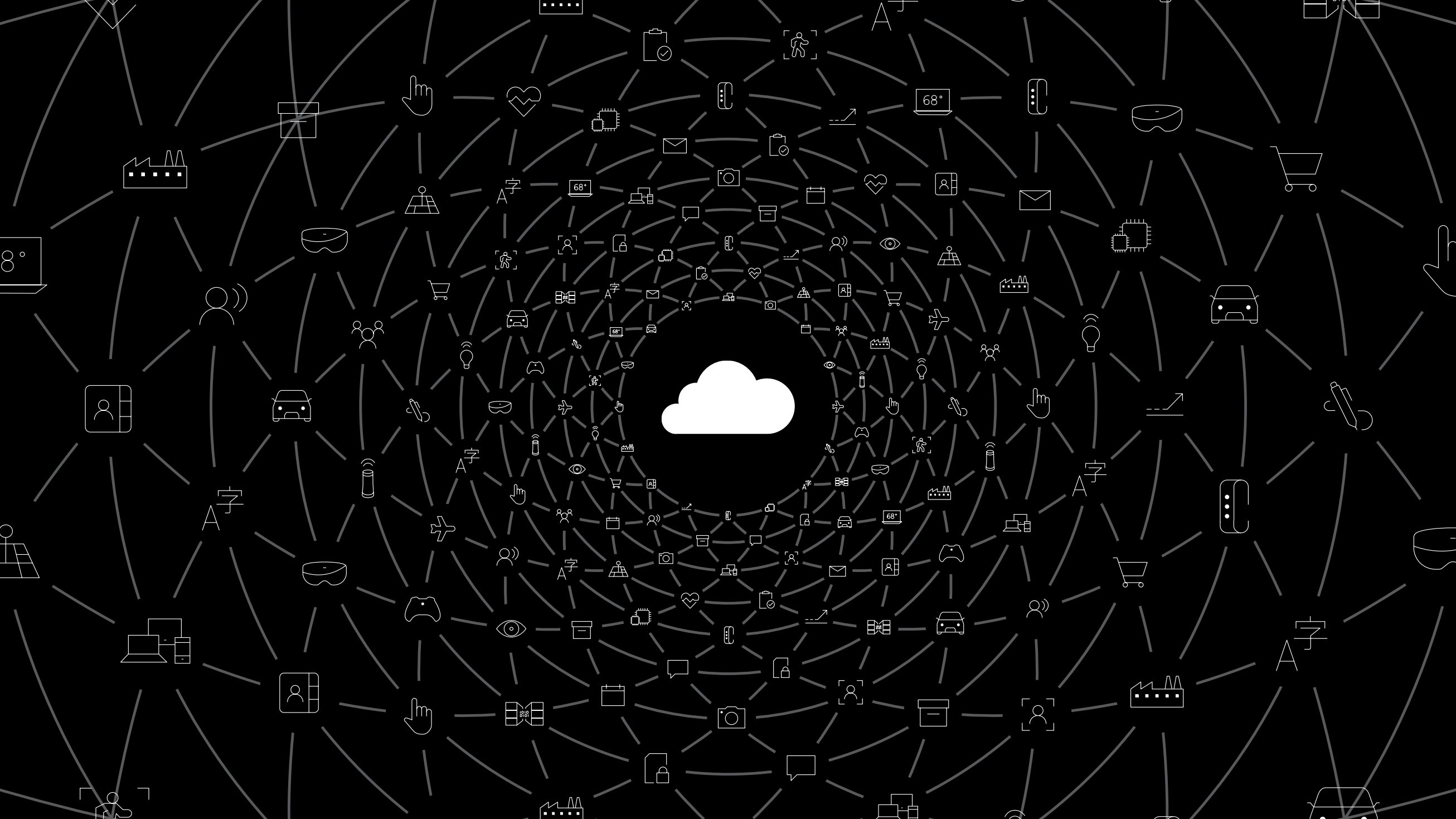


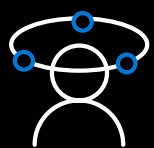
Evolving IoT with AI, Mixed Reality and Automation

Adeline Hsieh

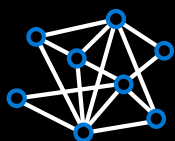
Principal Solution Specialist, IoT
Microsoft







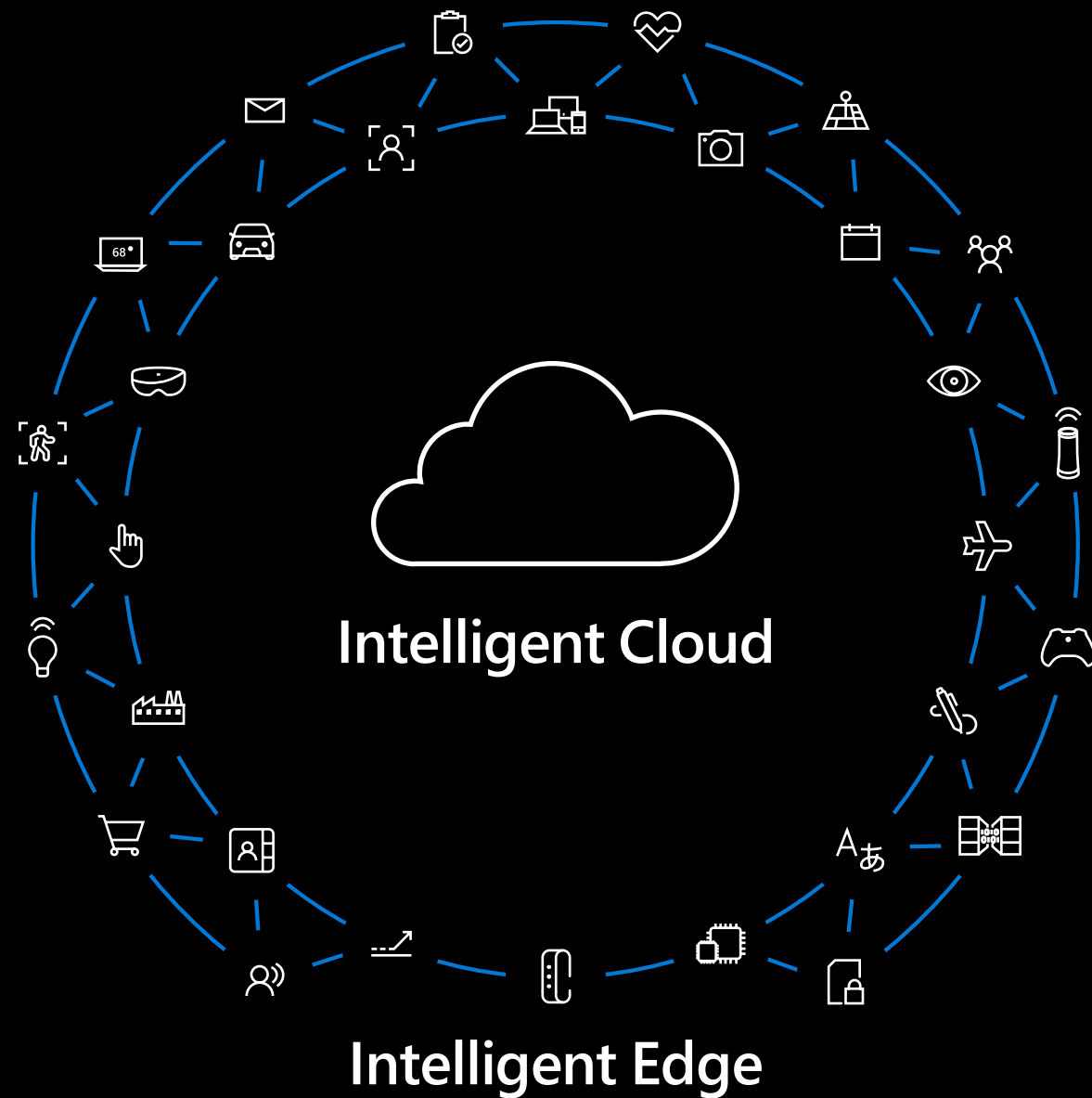
People-centred
experiences



Artificial
Intelligence

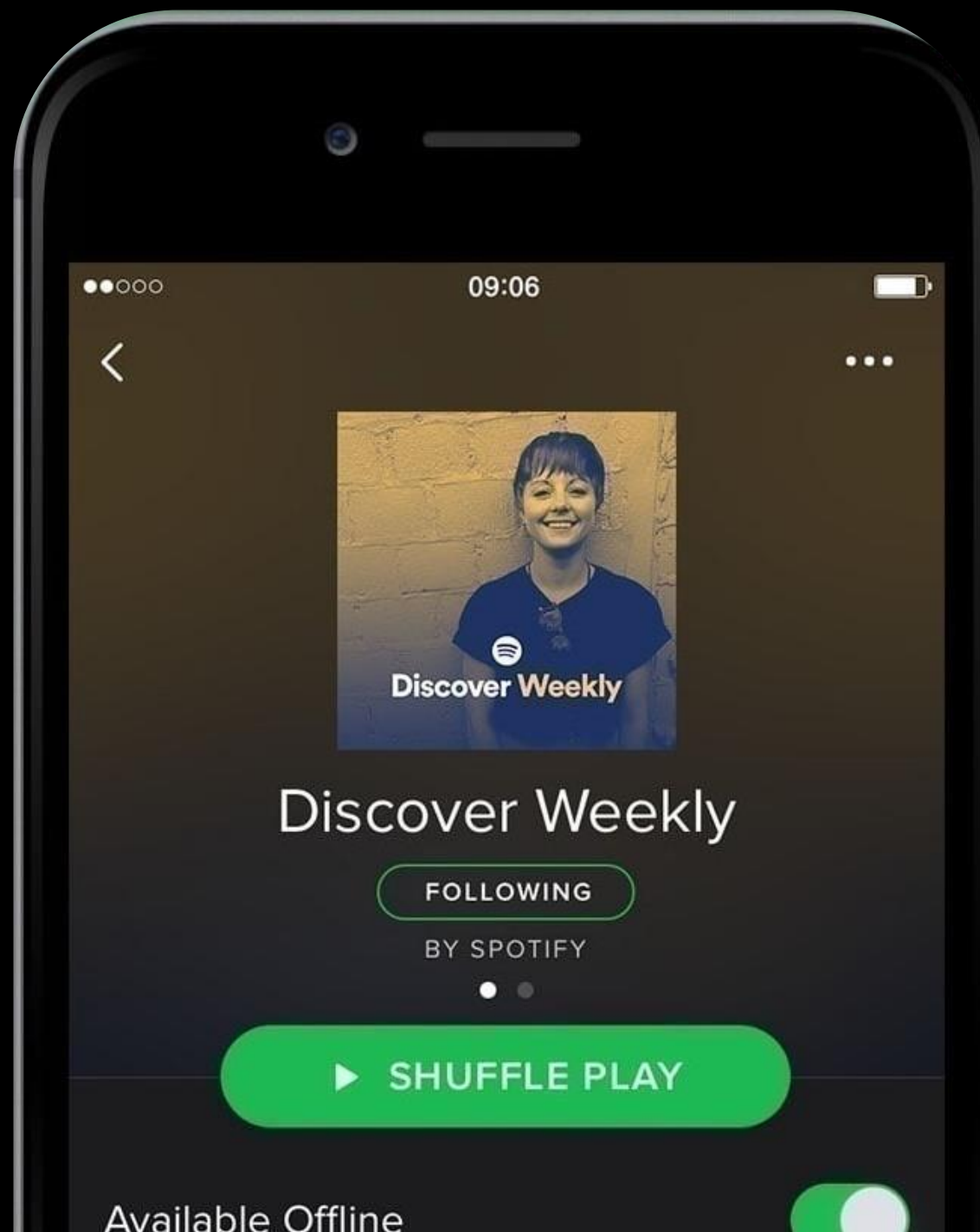


Ubiquitous
computing









Intelligent Edge



We are living in an
automated world



Evolution of industrial systems

Mechanized systems



Powered by **steam or electricity**

Manually operated

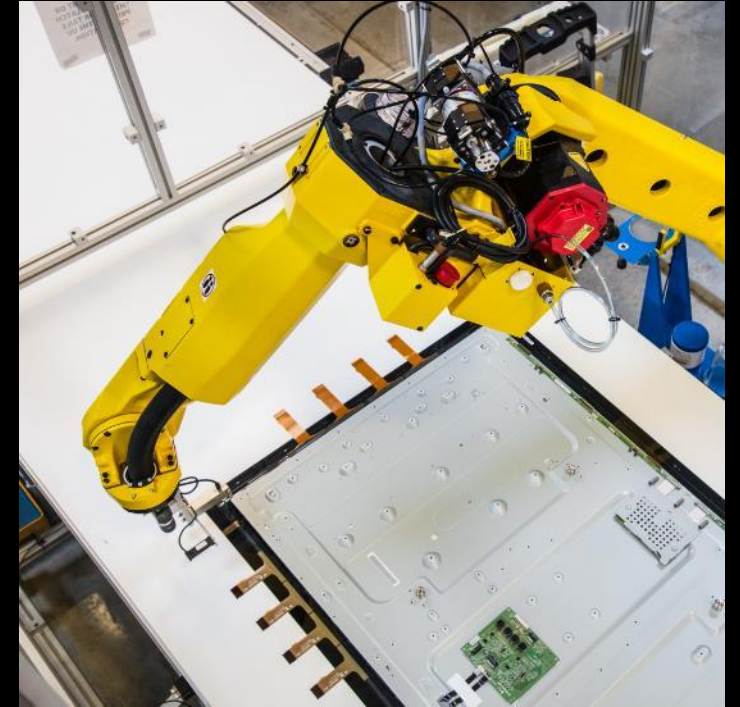
Automated systems



Powered by **software**

Fixed operation

Autonomous systems



Powered by **AI**

Intelligent operation

Sense – Act – Learn - Adjust

Microsoft's comprehensive IoT product portfolio



Azure Security
Center for IoT

Azure IoT
Priority Verticals



Manufacturing



Retail



Agriculture



Energy



Smart Cities



Healthcare



Transportation

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

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



Sustainable Production

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



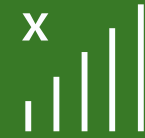
Need for Economic Growth

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

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



FarmBeats



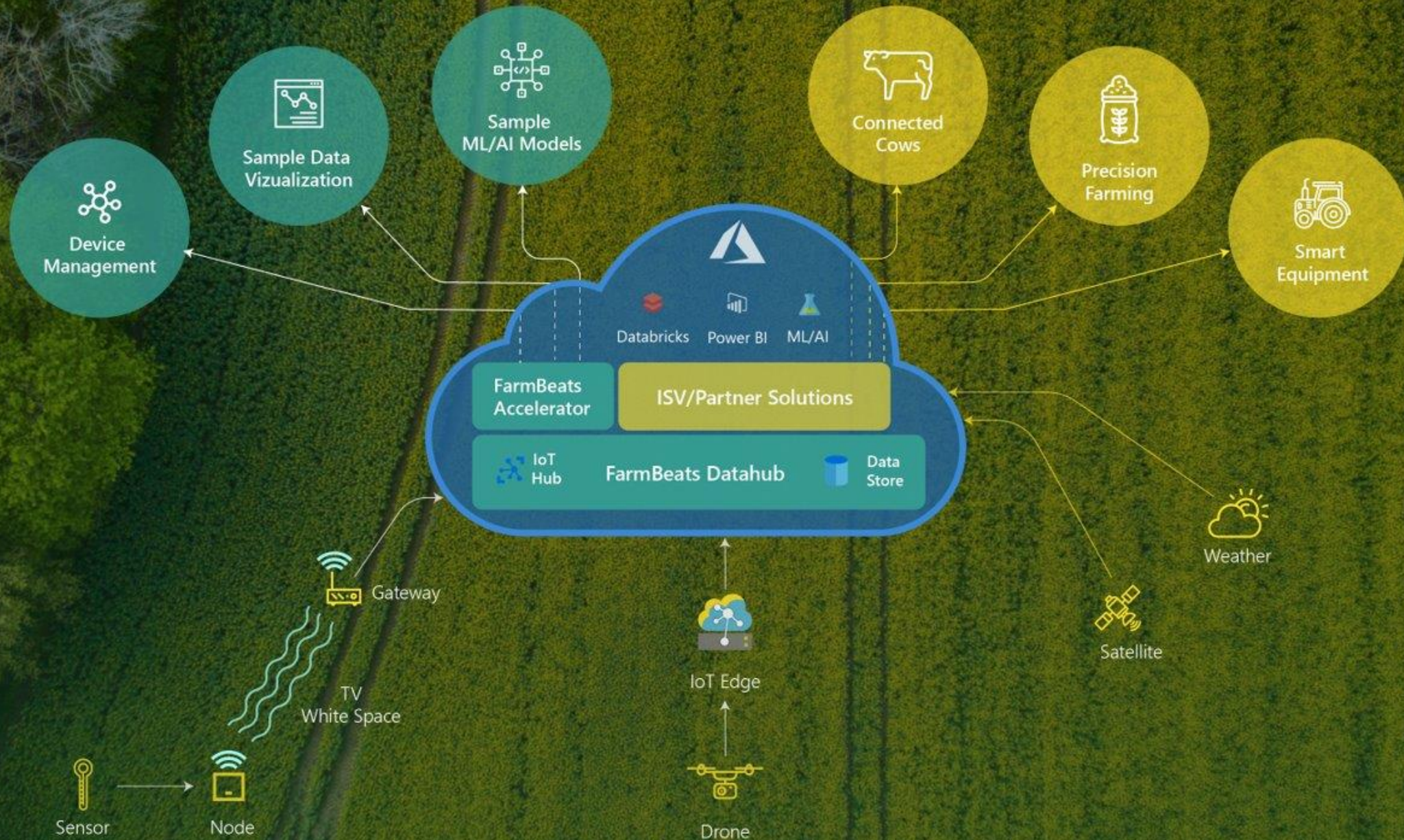
Combine visual data from drones with the sensor data from the farm



Drones are ~1000
dollars and automatic

Can cover large
areas quickly

Can collect
visual data

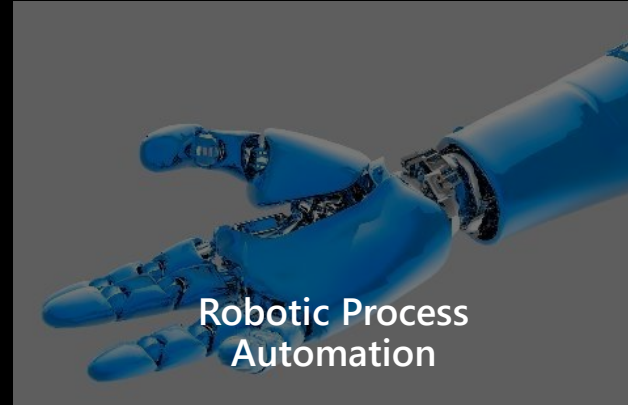




Oil & Gas



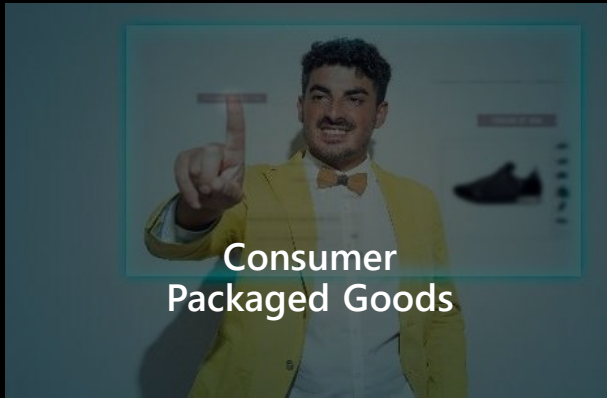
Government &
Smart Cities



Robotic Process
Automation



Healthcare



Consumer
Packaged Goods



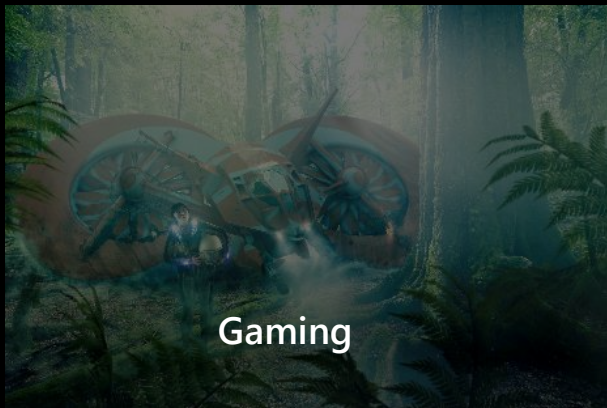
Retail



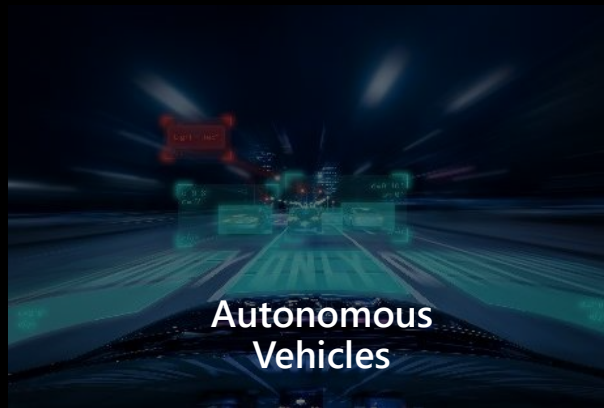
Financial Services



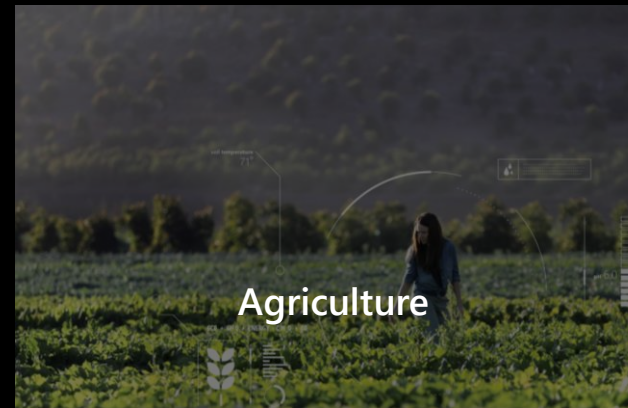
Manufacturing



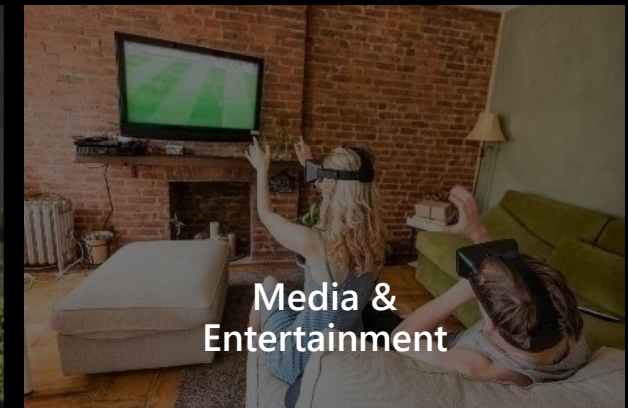
Gaming



Autonomous
Vehicles



Agriculture



Media &
Entertainment

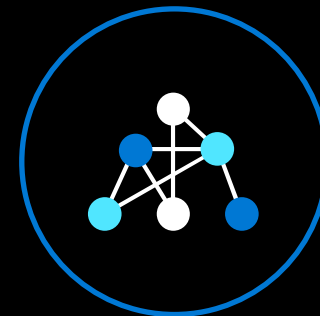
Azure AI



AI apps & agents



Knowledge mining



Machine learning

Deliver breakthrough experiences



AI apps & agents

- Cognitive Services
- Bot Service

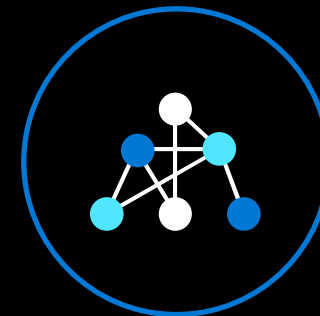
Azure AI



AI apps & agents



Knowledge mining



Machine learning

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



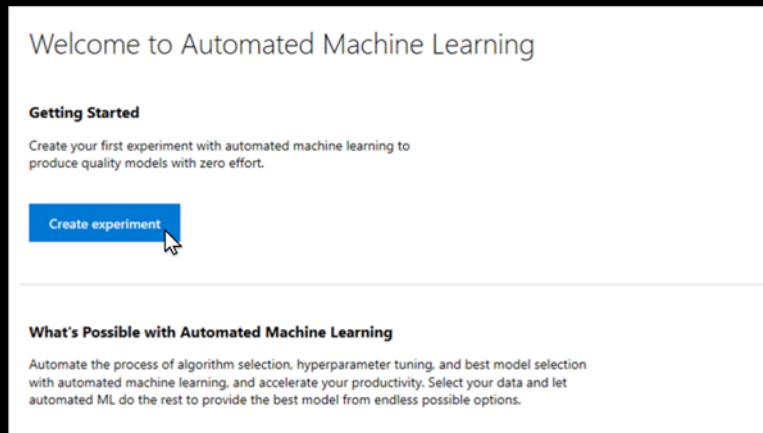
FPGA



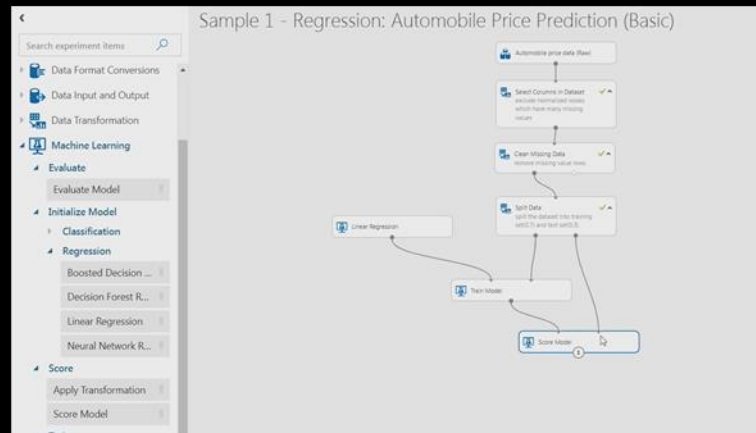
From the Intelligent Cloud to the Intelligent Edge



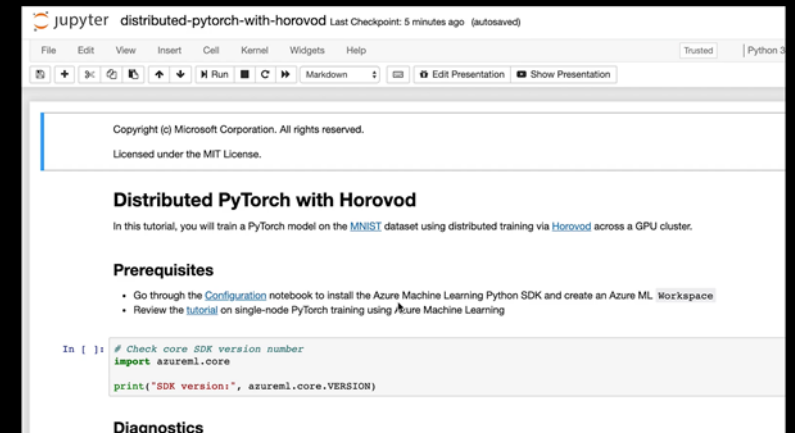
Simplify machine learning for any skill level



Automated
machine learning UI



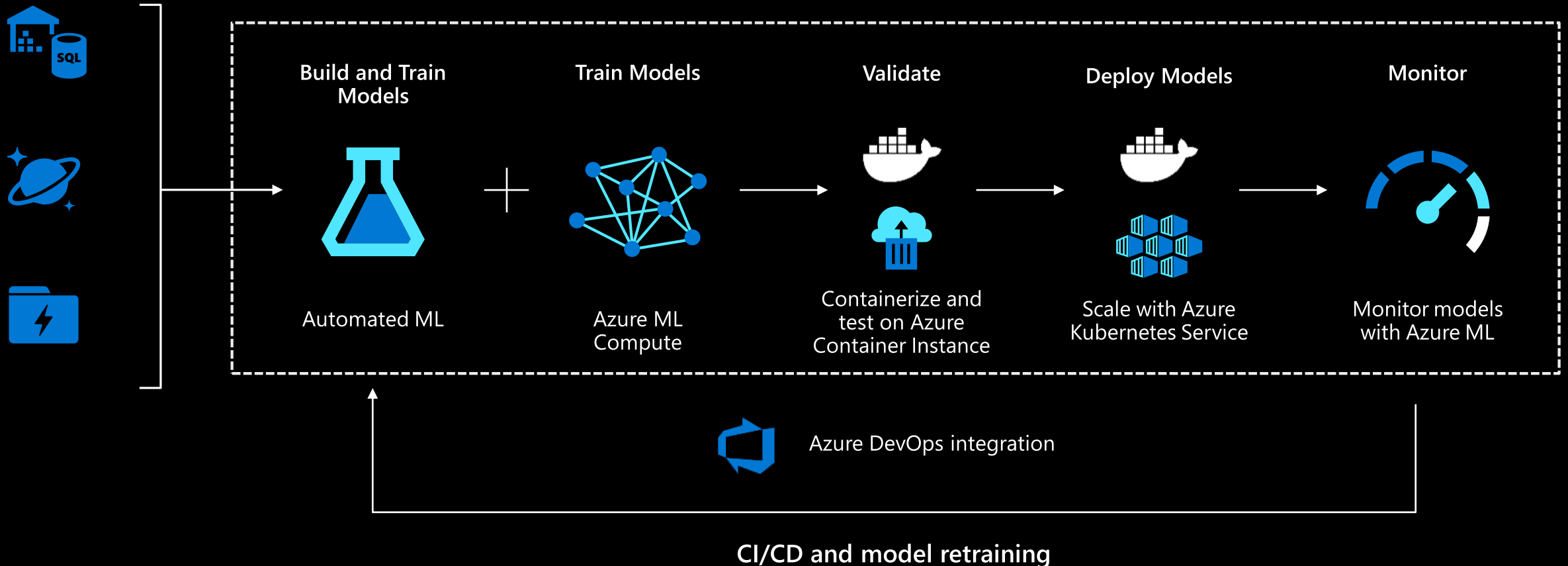
Visual interface

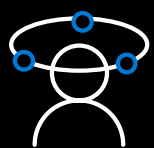


Machine learning notebooks

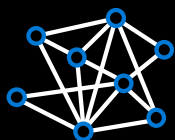
Deploy machine learning models at scale

Azure Machine Learning service





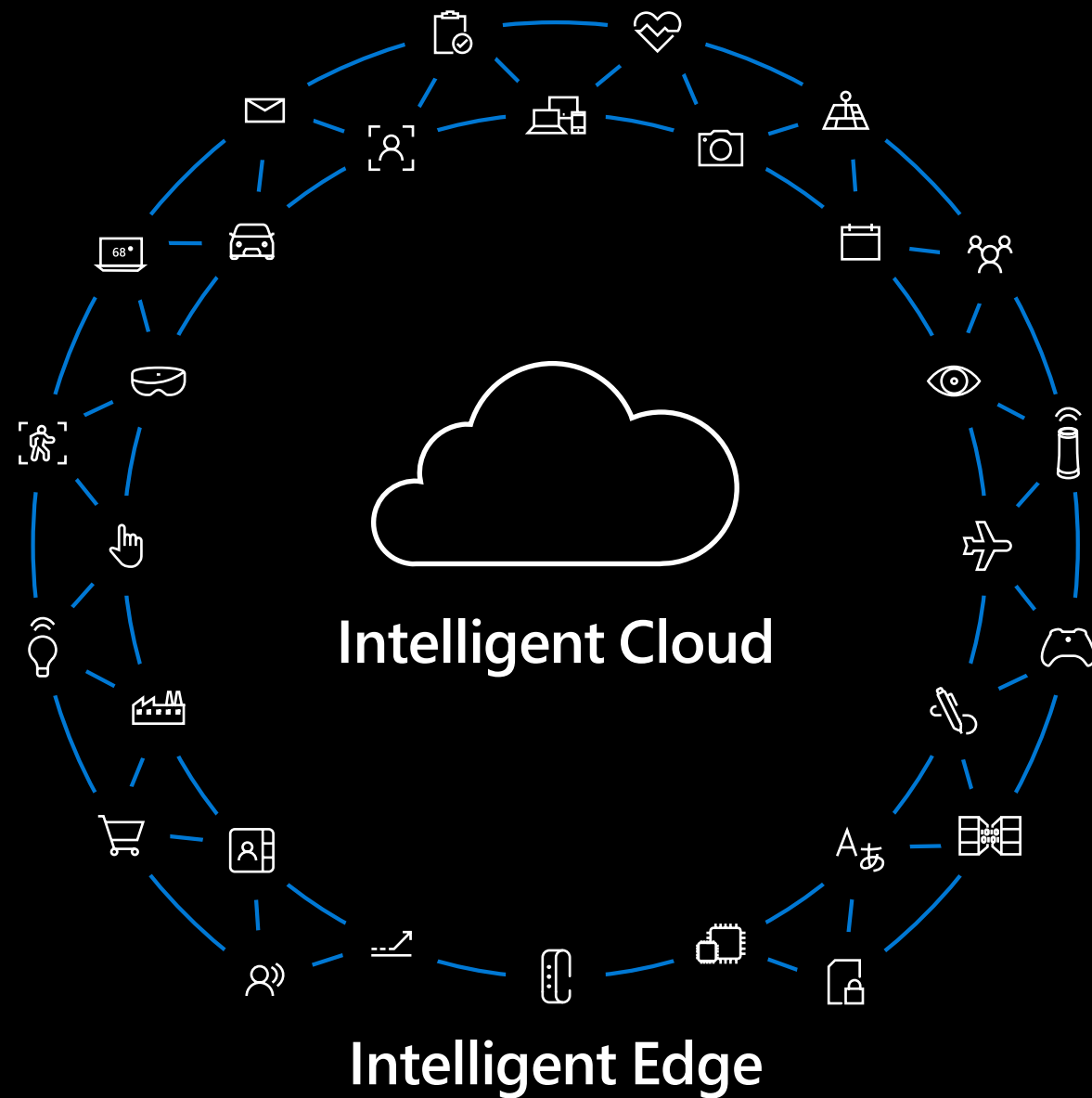
People-centred
experiences



Artificial
Intelligence



Ubiquitous
computing



Mixed reality

A blending of the physical and digital worlds in which users may interact with digital and real-world objects while maintaining presence in the physical world

Physical world

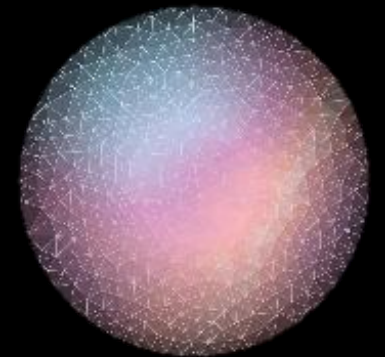


Augmented reality



Virtual reality

Digital world



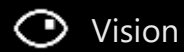
Mixed reality spectrum

■ The Microsoft mixed reality stack

Mixed Reality Applications



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



■ The 3rd wave of computing



IoT in Action



Microsoft

**DELIVERING VALUE
TO ENTERPRISES WITH
COMPLEMENTARY TECHNOLOGIES**



Paul Wang
IOT Business Development Director

讓智慧被看見

by Vuforia (AR) technology

Vuforia - 最廣為使用的擴增實境(AR)技術



22K

Commercial Apps

175K

Registered Developers

76%

Market Share

AR apps in Google Play & App Store

200M

App Installs

Award-winning Platform

AR提供的三大關鍵能力



視覺化

把實際或虛擬的數位資訊與實際世界重疊從而強化用戶的視覺感受:

- IoT數據
- 數字模型
- 協力廠商數據
- 業務系統信息



說明/指導

培訓或指導用戶如何通過所疊加的數字說明或通過實時專家指導來執行任務

- 即時遷移知識和專業技能
- 用數位步驟說明指導使用者



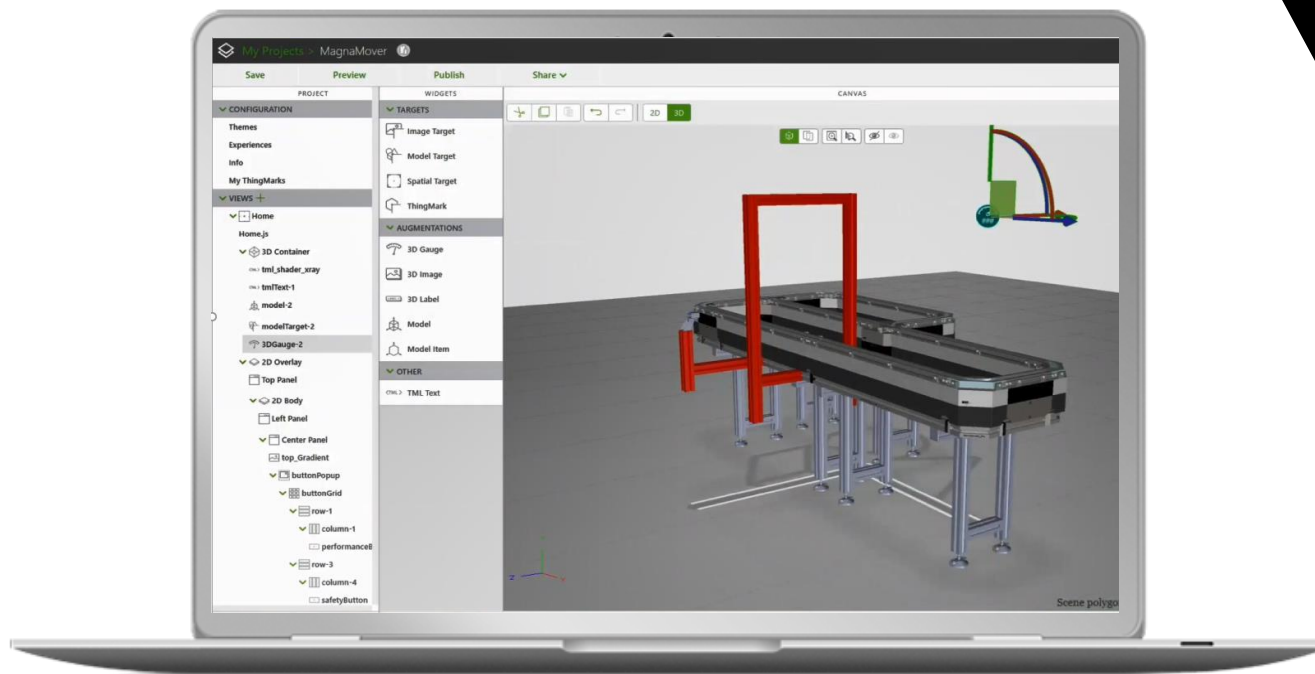
交互運作

操作數位圖形或通過AR介面拓展產品能力

- 產品功能控制得到擴展和定制
- 修改數位設計
- 用數位體驗強化實體產品

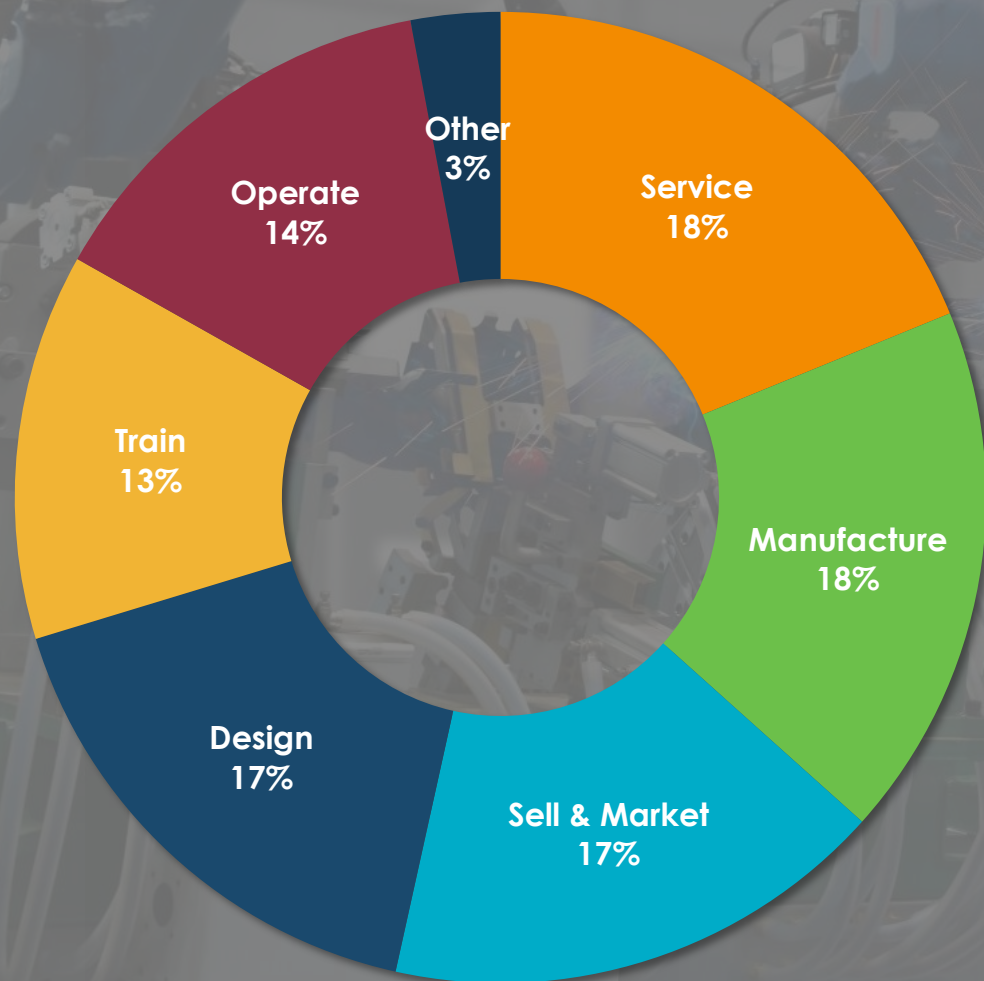
vuforia® studio™

Author & Publish



Access & View
AR Experiences

AR 在企業價值鏈上的應用現況



Top 5 High-Value Use Cases

Service

Augmented Procedural Guidance
Remote Expert Guidance

Manufacture

Machine Set-Up & Change-Over
Assembly & Process Work Instructions

Sell & Market

Product Visualization & Demonstration

Sample of 107 companies.
Average of 2.3 functional areas chosen per respondent.





“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



200K

Customers interacting
with chatbots



So... what's stopping
you from making
things happen?

