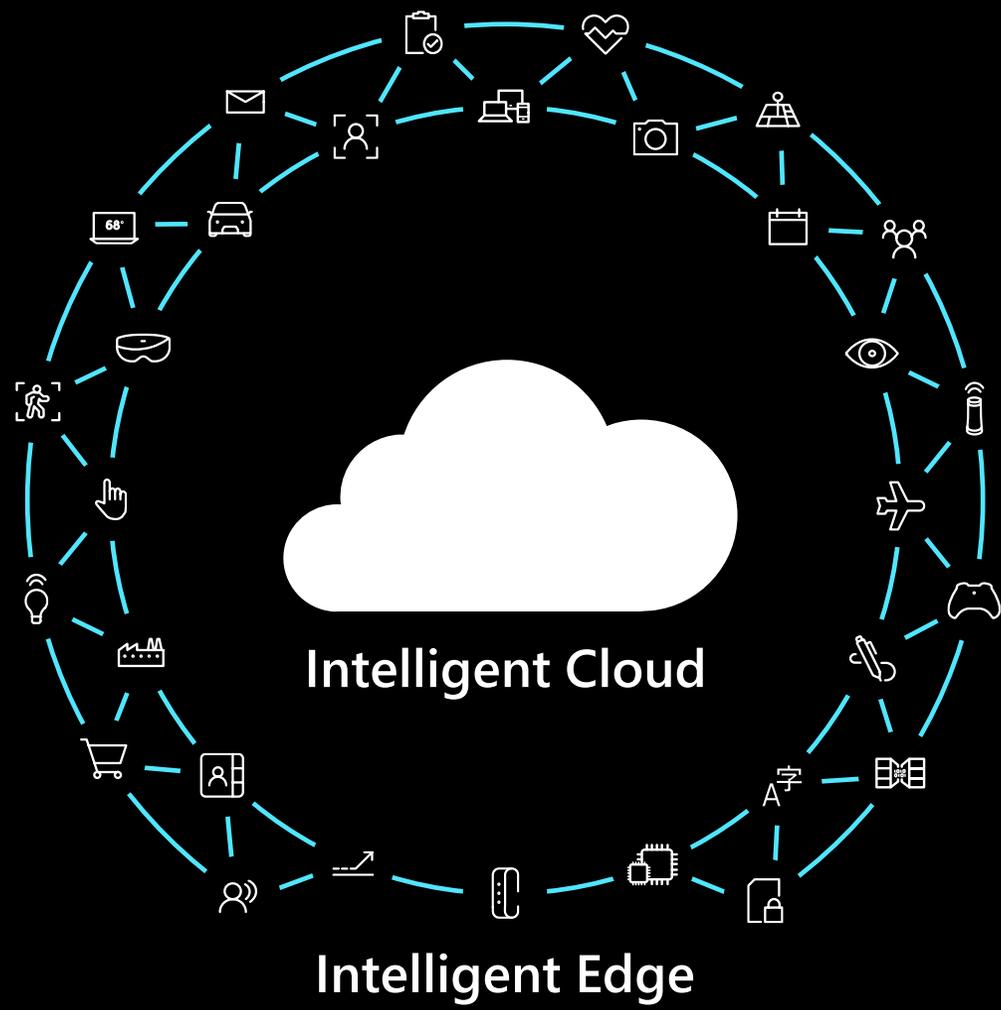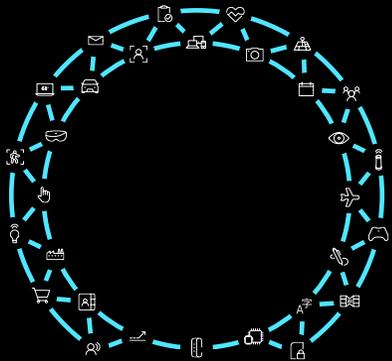# 2 x 3: Die Formel für den Mehrwert und den Erfolg von IoT

Thomas Frahler
Business Lead IoT, Microsoft

Dr. Matthias Massing, Manager Business Development IoT, All for One Group

Intelligent Cloud

Intelligent Edge

Solutions that span cloud and edge

IoT

Edge Computing & 5G

AI

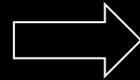Digital Twins
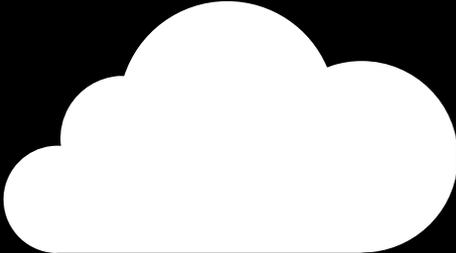
Intelligent Edge

Intelligent Cloud

Solutions

The Evolution of Connected Solutions
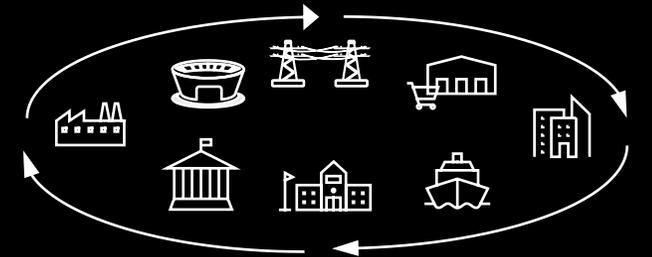
Today
Connected Assets

Emerging
Connected Environments

Future
Connected Ecosystems

Emerging
Connected Environments

Connected Environments

Manufacturing

Plants
Factories
Industrial Sites
Utilities

Retail

Stores
Warehouses
Distribution Centers
Malls
Micro-fulfillment

Real Estate

Building
Office
Entertainment
Restaurants
Hotels
Enterprise Campus

Cities & Government

Public Spaces
Arenas & Stadiums
Transportation Hubs
Subway & Train Stations
Ports
Utilities
Water Treatment Facilities

Healthcare

Hospitals
Labs
Pharmacies
Clinics
Retirement Facilities

Agriculture

Farms
Water Supply
Power
Storage
Processing

Education

Schools
Campuses
Virtual Environments

Finance

Banks

Energy

Generating Power Stations
Substations

Microsoft Redmond Campus Refresh

Transform Microsoft work environment

Most sustainable connected campus

Full Azure Digital Twin of the entire campus

Showcase of Microsoft & partner technologies

One Microsoft team

17 buildings 230k qm² mixed use

Multi-billion dollar budget

Multi-year effort Opens CY 2022

Connected Environments

Benefits

- Optimize operations
- Reduce costs
- Provide breakthrough experiences
- Control over environments: contactless interactions, social distancing, insights and alerts

Challenges

- Modeling and creating a digital representation of these environments can be difficult for even the most sophisticated business

Innovations enabling new opportunities
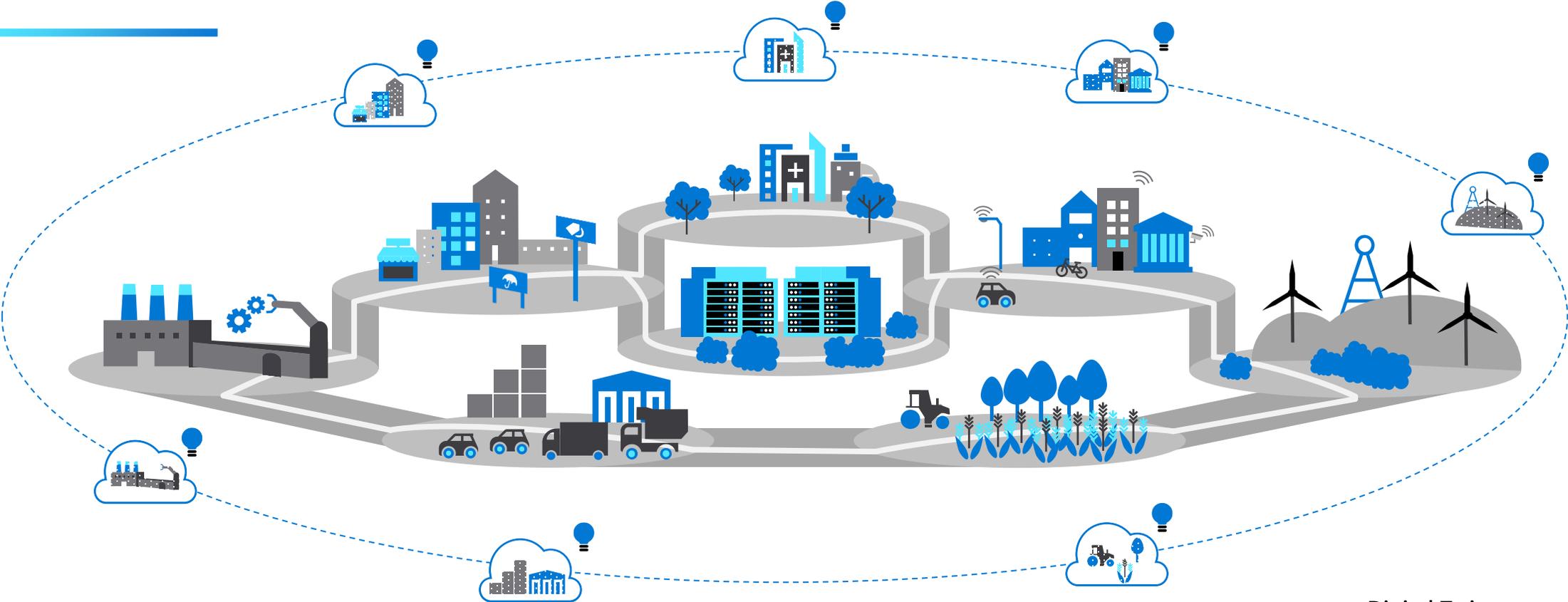
Cloud
Globally available, unlimited compute resources

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

Edge
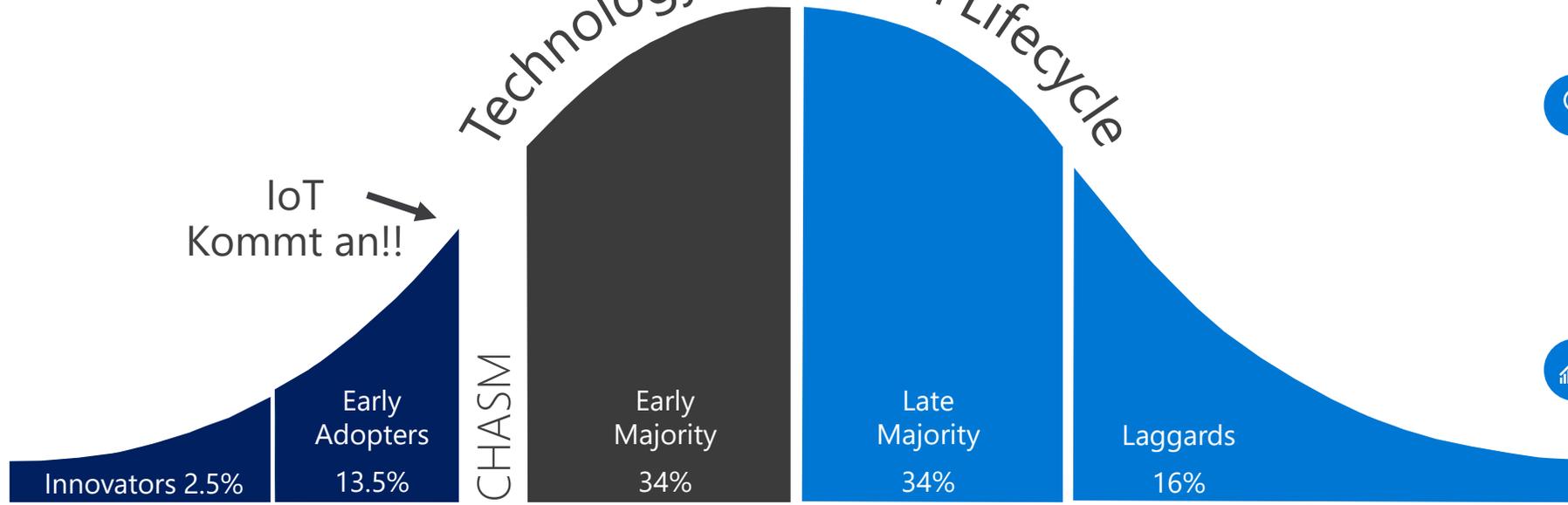Intelligence offloaded from the cloud to IoT devices

AI
Breakthrough intelligence capabilities, in the cloud and on the edge

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

Technology Adoption Lifecycle

IoT Kommt an!!

Innovators 2.5%
Early Adopters 13.5%
CHASM
Early Majority 34%
Late Majority 34%
Laggards 16%

← Minimum Feature Set
Whole Product Solution →

Menschen, die neueste Technologie wollen
Menschen, die fertige Lösungen wollen

Early Market
Mainstream Market

80 Mrd
Vernetzte Geräte bis 2025, die 180ZB Daten generieren
Source: IDC 2018

$130 Mrd
Neues Umsatzpotenzial durch IoT basierte Services
Source: Gartner 2015

88%
Der Deutschen Unternehmen haben bereits Erfahrungen gesammelt
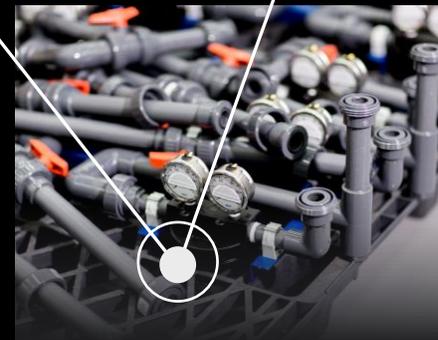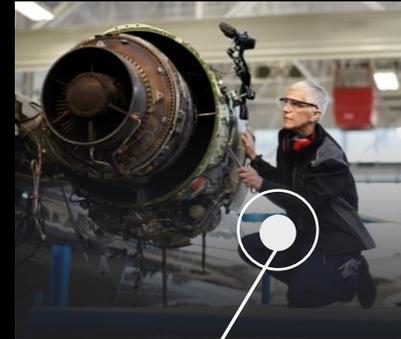*Source: Microsoft IoT Signals Report 2019*

47%
Der Unternehmen nenen Mangel an Fachkräften als Top Herausforderung
Source: Microsoft IoT Signals Report 2019

Microsoft's Approach to IoT & IIoT

Microsoft will invest $5 billion in IoT. Here's why

Posted on April 4, 2018

[Julia White,](#) Corporate Vice President, Microsoft Azure

Today, we are announcing that we will invest $5 billion in the Internet of Things over the next four years. The reason we are doing this is simple: Our goal is give every customer the ability to transform their businesses, and the world at large, with connected solutions.

It's well understood that IoT solutions can create operational efficiencies, but we know the true impact extends well beyond that into our daily lives. Our customers are delivering electricity to schools in Africa, creating better patient outcomes with predictive care, improving worker safety on job sites and driver safety on Alaskan roadways.

We've been invested in IoT before the term was coined, when enterprises had these endpoints in their factories, buildings and other devices that were totally "dark." Today, we're planning to dedicate even more resources to research and innovation in IoT and what is ultimately evolving to be the new intelligent edge. With our IoT platform spanning cloud, OS and devices, we are uniquely positioned to simplify the IoT journey so any customer—regardless of size, technical expertise, budget, industry or other factors—can create trusted, connected solutions that improve business and customer experiences, as well as the daily lives of people all over the world. The investment we're announcing today will ensure we continue to meet all our customers' needs both now and in the future.

Advancing the Opportunity in IoT and Intelligent Edge

We're now seeing the kind of increased adoption and exponential growth that analysts have been forecasting for years, and we're just getting started. A.T. Kearney predicts IoT will lead to a $1.9 trillion productivity increase and $177 billion in reduced costs by 2020. This effect will be pervasive, from connected homes and cars to manufacturers to smart cities and utilities—and everything in between.

Product Strategy

What sets Azure apart is our unique product strategy

- Open Standards and Open Source
- Brownfield Connectivity
- End-to-end Security
- Industry Specific Compliance Certification and Validation
- Common Data Models
- AI consistent across cloud and edge
- Seamless Integration with Industrial Analytics
- The Open Manufacturing Platform

Open Source and
Open Standards
(i.e. OPC UA, NOA)

No vendor lock-in

Data interoperability

Pace of innovation

Build upon your business

Future-proof

Open Source and Open Standards

Brownfield Connectivity

End-to-end Security

Industry Specific Compliance

Common Data Models

AI consistent across cloud and edge

Integration with Industrial Analytics

The Open Manufacturing Platform

The Open Manufacturing Platform

CORE PLATFORM

OPEN MANUFACTURING PLATFORM

- Open Source components
- Community for industrialization of IoT solutions
- Shared risk and expenses for development

Microsoft

BMW GROUP

PARTNER

INDUSTRIAL INTERNET OF THINGS

OPEN COLLABORATION

Digitalization of Shopfloor

Autonomous Transportation

Predictive Maintenance

Supply Chain Management

DATA CONTROL

COMMUNITY

BENEFIT

BEST PRACTICES

INFLUENCE

Open Source and Open Standards	Brownfield Connectivity
End-to-end Security	Industry Specific Compliance
Common Data Models	AI consistent across cloud and edge
Integration with Industrial Analytics	The Open Manufacturing Platform

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)

3rd Party SaaS & PaaS Solutions

Azure Services for IoT

Azure IoT Hub	Azure Stream Analytics	Azure Active Directory
Azure IoT Hub Device Provisioning Service	Azure Cosmos DB	Azure Monitor
Azure Digital Twins	Azure AI	Azure DevOps
Azure Time Series Insights	Azure Cognitive Services	Power BI
Azure Maps	Azure ML	Azure Data Share
	Azure Logic Apps	Azure Spatial Anchors

IoT & Edge Device Support

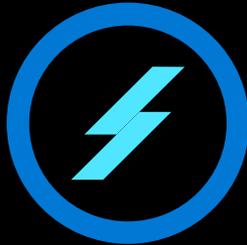|		
Azure RTOS	Windows IoT	Azure ML
Azure Sphere	Azure Certified for IoT—Device Catalog	Azure SQL
Azure IoT Device SDK		Azure Functions
Azure IoT Edge	Azure Stream Analytics	Azure Cognitive Services
Azure Stack Edge	Azure Storage	**Plug & Play**

Partner Strategy

>100

Microsoft IoT
platform innovations

>1,200

Partner provided
co-sell ready solutions
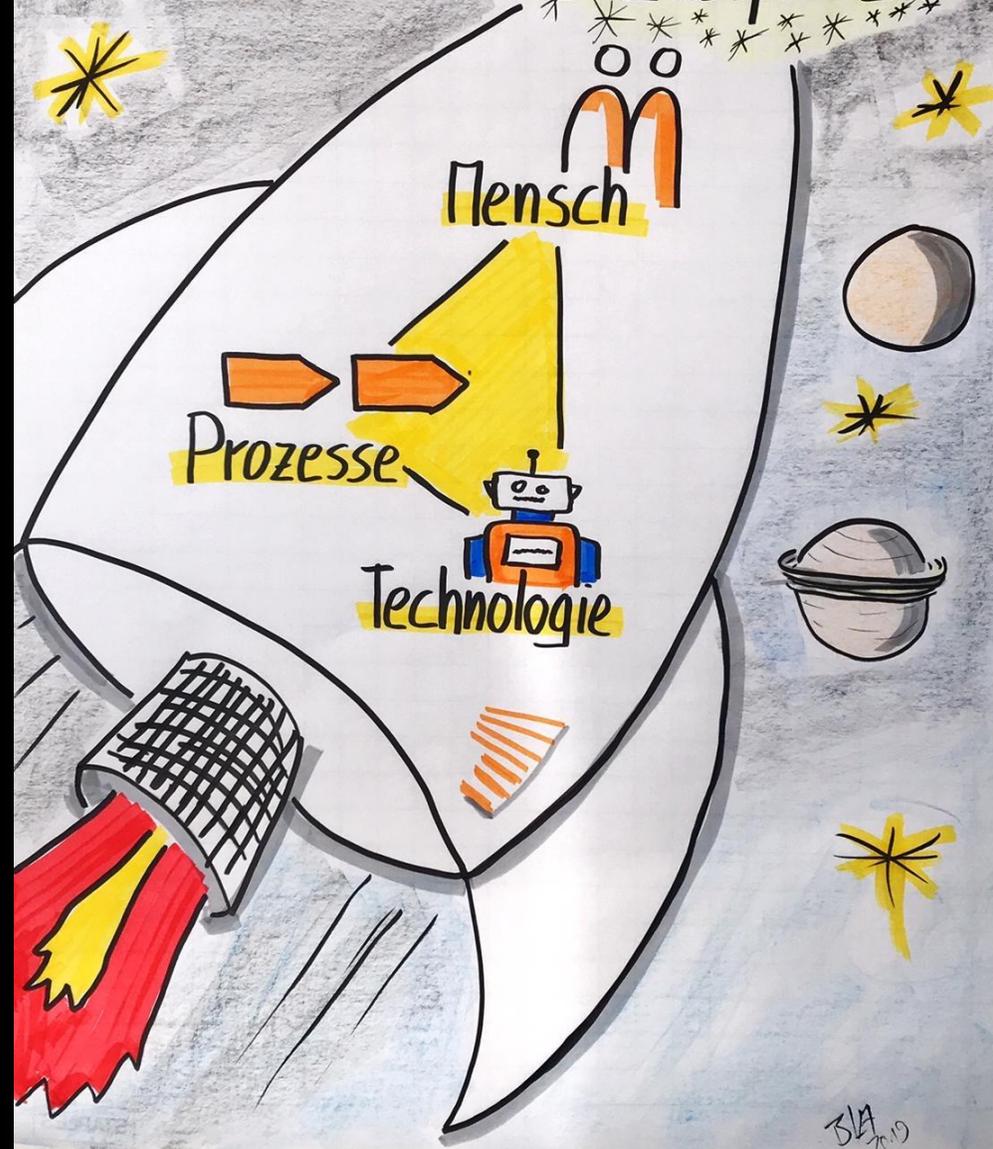
>10,000

Ecosystem acceleration

Ecosystem momentum

IHV → Device → Connectivity provider → ISV → Service provider → SI → Professional services → Consulting → Solutions → Customer

Developer community
- Visual Studio
- GitHub
- hadoop
- docker
- php
- nodeJS
- Powershell
- eclipse
- python
- ARM mbed
- MySQL
- Ruby
- Java
- mongoDB
- Chef + Puppet

Partner ecosystem

System integrators & advisors	accenture, CGI, HCL, TATA CONSULTANCY SERVICES, HARMAN, Infosys, MOQ digital., KPMG, Tech Mahindra, McKinsey&Company, EY Building a better working world, Capgemini, avanade, pwc, all for one Group, REPLY, DXC.technology, Atos, wipro
Solution providers	Schneider Electric, ABB, Bentley, GE, willow know your world, iCONICS, Rockwell Automation, Johnson Controls, SURGERE, SIEMENS, robotron, Hitachi Solutions, Schlumberger, conplement The digital enablers, ShookIOT, Honeywell, ptc, SAP, all for one Group, Atos Worldline, OSE, Ansys, relayr.
Connectivity partners	AT&T, SIERRA WIRELESS, Telstra, vodafone, UROS, NOKIA, T-Systems
Solution aggregators	ARROW, AVNET, INGRAM MICRO, Tech Data, SYNNEX CORPORATION, Insight,
Device partners	ST life.augmented, MICROCHIP, NXP, kontron, Toradex Swiss. Embedded. Computing., CISCO, Panasonic, libelium, Itron, RENESAS, Qualcomm, cradlepoint, BECKHOFF, HITACHI Inspire the Next, embedded systems, TOSHIBA Leading Innovation, intel, MOXA, NEXCOM Building The Digital Infrastructure, Hewlett Packard Enterprise, DELL, ADVANTECH, Raspberry Pi, FUJITSU, ARBOR

Working together

Thank you