The Fourth Industrial Revolution

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Country Manager Puerto Rico

General Manager LATAM Agro & Bio
Industries

Agenda

- 4th Industrial Revolution
- Digital Transformation
- Innovation & Artificial Intelligence (AI)
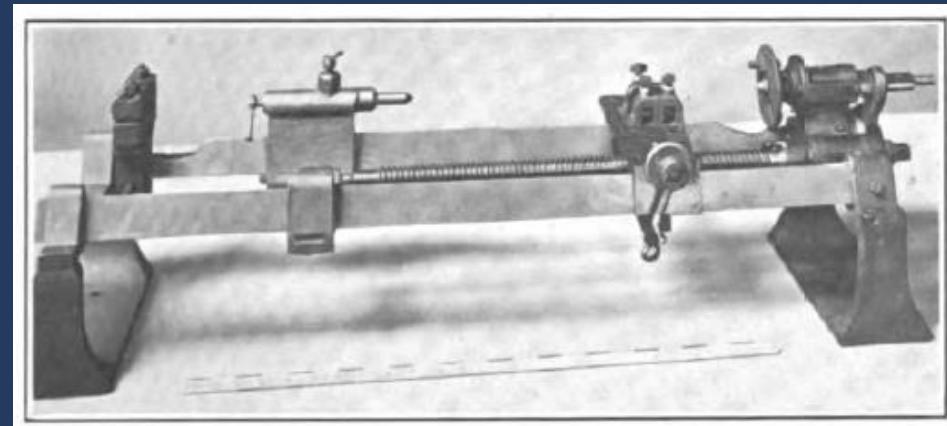- 10 things we've learned about Culture
- Questions & Answers

The industrial revolution

The first industrial revolution – between 1760 and 1840 – is marked by a **transition from hand production methods to machines**

Mechanization, chemical processes, steam and water powered tools to increase productivity

Screw Cutting Lathe

Mechanized Cotton Spinning

Steam Engine for Industrial Applications

Inventors with specialized expertise

Targeted solutions

Lack of standardization

Low reuse means slower innovation
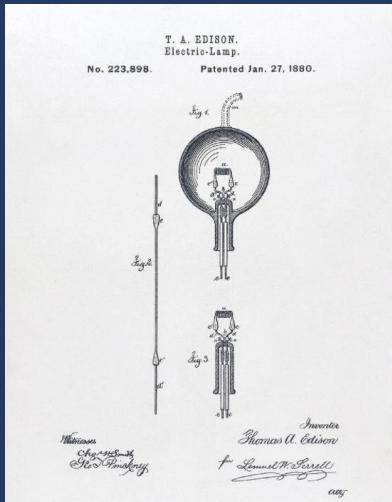
Analog (paper based)

The second industrial revolution
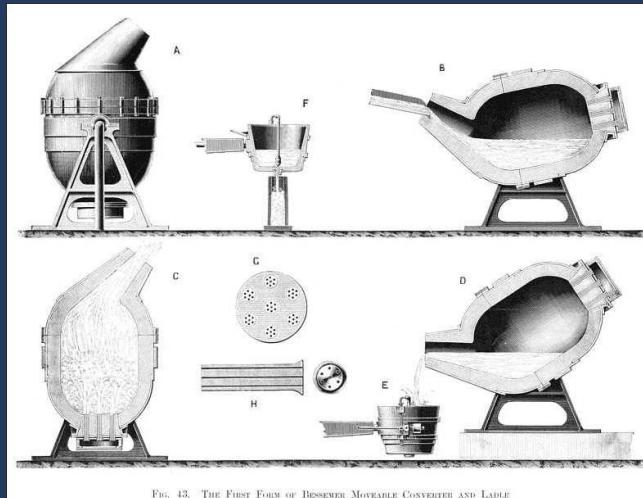
Also known as the technology revolution

The second industrial revolution – between 1870 and 1940 - is primarily marked by extensive **advancements in manufacturing and production** technology

Advancements led to **electrification, telegraph and railroad networks** which facilitated the flow of ideas and people – and new advancements
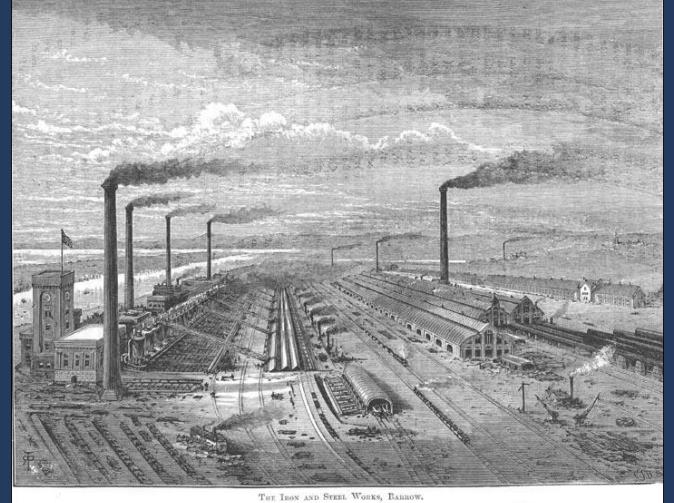
Electrification

The Bessemer Process

FIG. 43. THE FIRST FORM OF BESSEMER MOVEABLE CONVERTER AND LADLE.

Barrow Hematite Steel Company

THE IRON AND STEEL WORKS, BARROW.

Collaborating innovators

End-to-end manufacturing process

Drive towards standardization

Reuse of ideas and techniques

Analog (paper based)

The third industrial revolution

Also known as the digital revolution

The third industrial revolution – which occurred in the late 20th century - is marked by a shift from **mechanical and analog technology to digital electronics** and the beginning of the information age

Production improvements with **automated production supported by programmable logic controllers** (specialized computers), communications

Internet

Computers (CAD/CAM)

PLCs

Multiple innovations based on transistor tech

Network of networks

Specialized equipment

Some reuse

Digital data

The fourth industrial revolution

The fourth industrial is primarily associated with **Intelligent Manufacturing**

Four key technologies enable intelligent manufacturing

IoT **Cloud** **BigData** **A.I.**
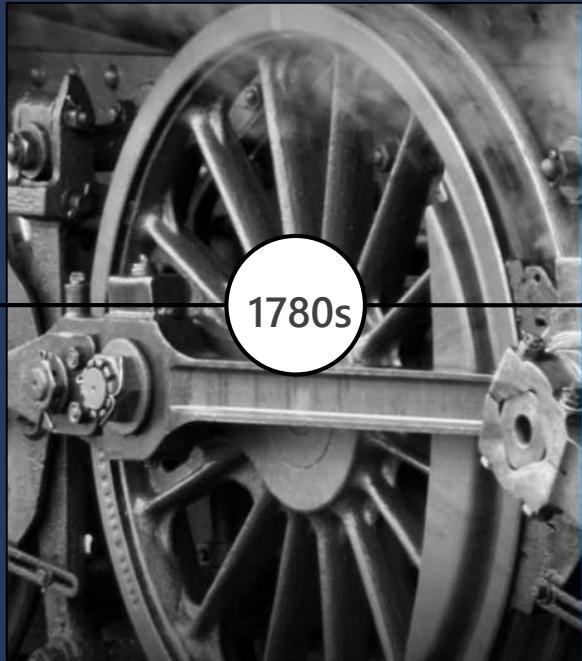

Democratization of Innovation
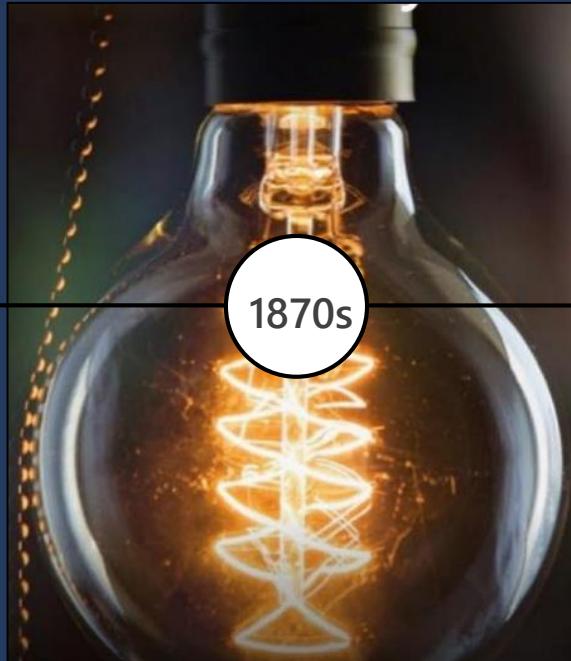
Customer-centricity

High scalability

High reuse

Translating data into information

Disruption is the 4th industrial revolution
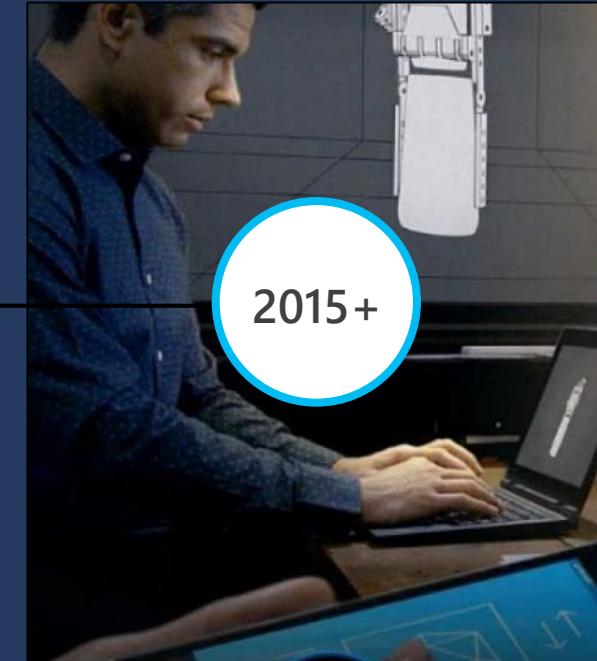
1780s

1870s

1970s

2015+

STEAM & WATER SOURCES to run the machinery systems

ELECTRICITY & AUTOMOBILE using assembly line for Mass production

ELECTRONICS & IT – Computers started empowering the organizations

DIGITAL – Cyber Physical systems, Internet of Things and Networking

Digital

Physical

Biological

Change the people

Meet planet needs

Human wellbeing

Efficiencies

Decoupling

Clean water, air, energy

Sustainability

Education

Empower People for equitable growth

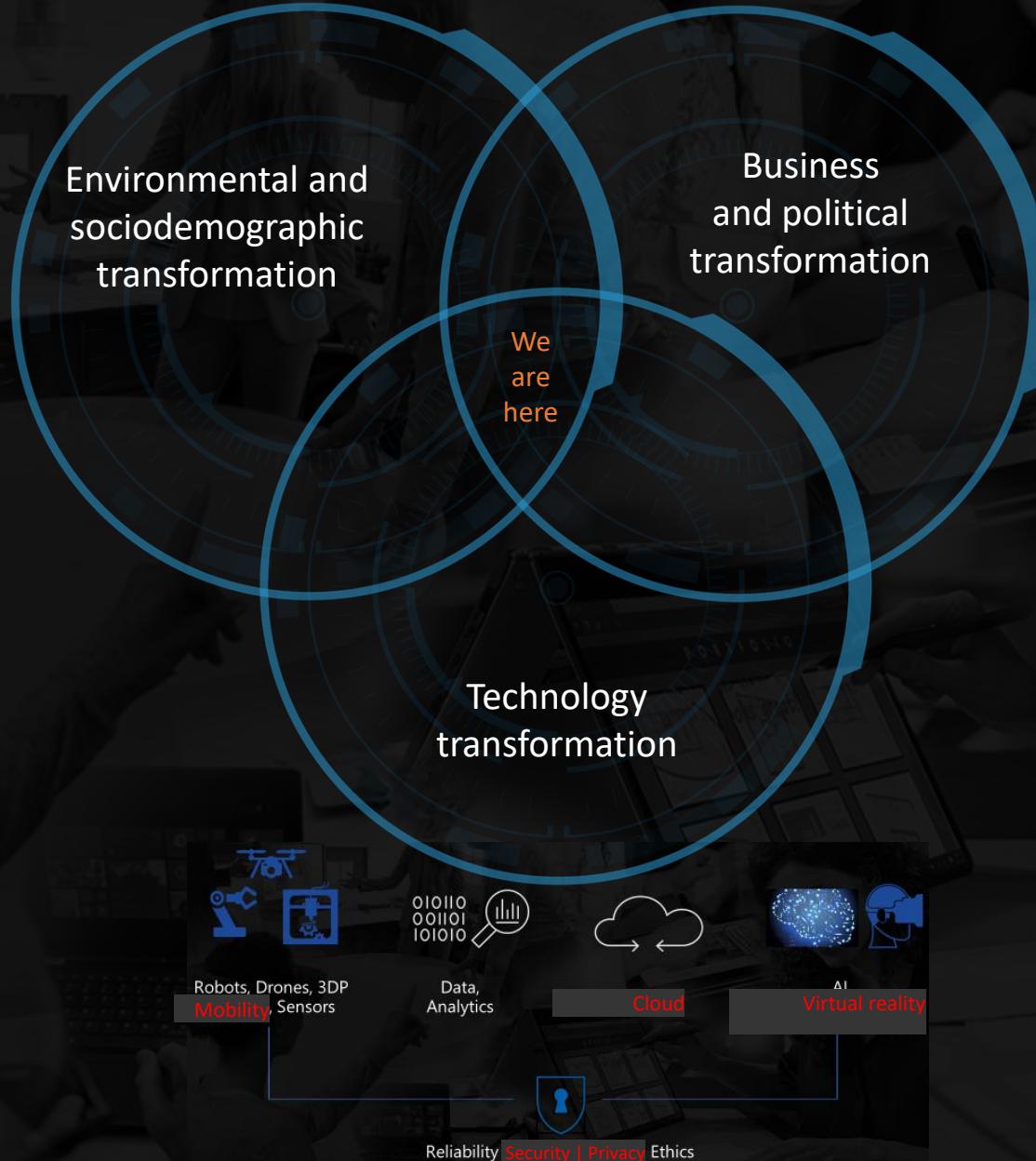Manage inequalities

The role of the governments

Digital Transformation

Unprecedent Times

- Millennial + Gen Z
- Health / Environmental events
- Conscious consumer
- Globalization of consumption
- Employment
  - Globalization
  - Shortage
  - Remote
  - Skilling
- Population Aging
- Inequality growth
- Climate change
- Urbanization
- Health and life expectancy
- Customization in scale
- Diversity & Inclusion

Environmental and sociodemographic transformation

Business and political transformation

We are here

Technology transformation

- Reputation vulnerability
- Transparency
- B corporation / B movement
- Customer power of choice
- Globalization of competition
- Globalization of customers
- Increase of populism
- Increase of nationalism
- China and India
- Regulation
- Value chain disruption
- Remote work

Robots, Drones, 3DP Sensors
Mobility

Data, Analytics

Cloud

AI
Virtual reality

Reliability Security | Privacy Ethics

1905

1925

2005

2013

Unprecedented Speed
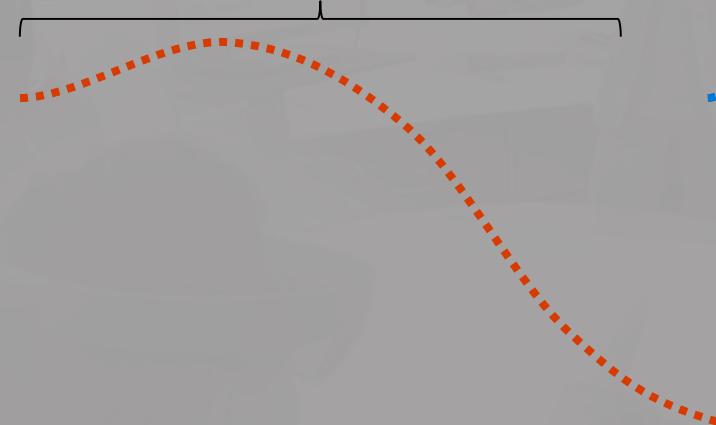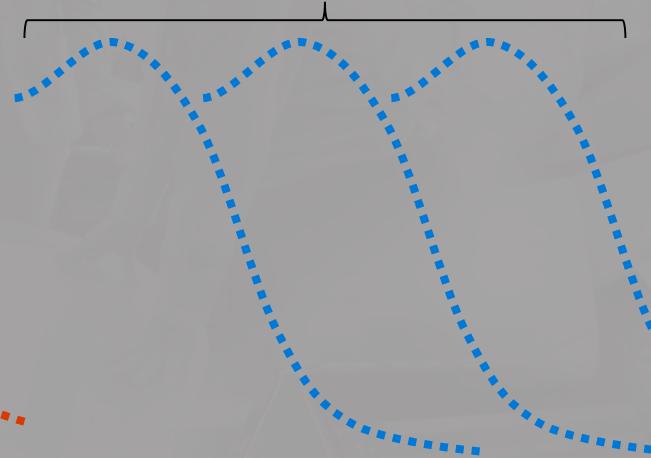
ECONOMY EVOLUTION
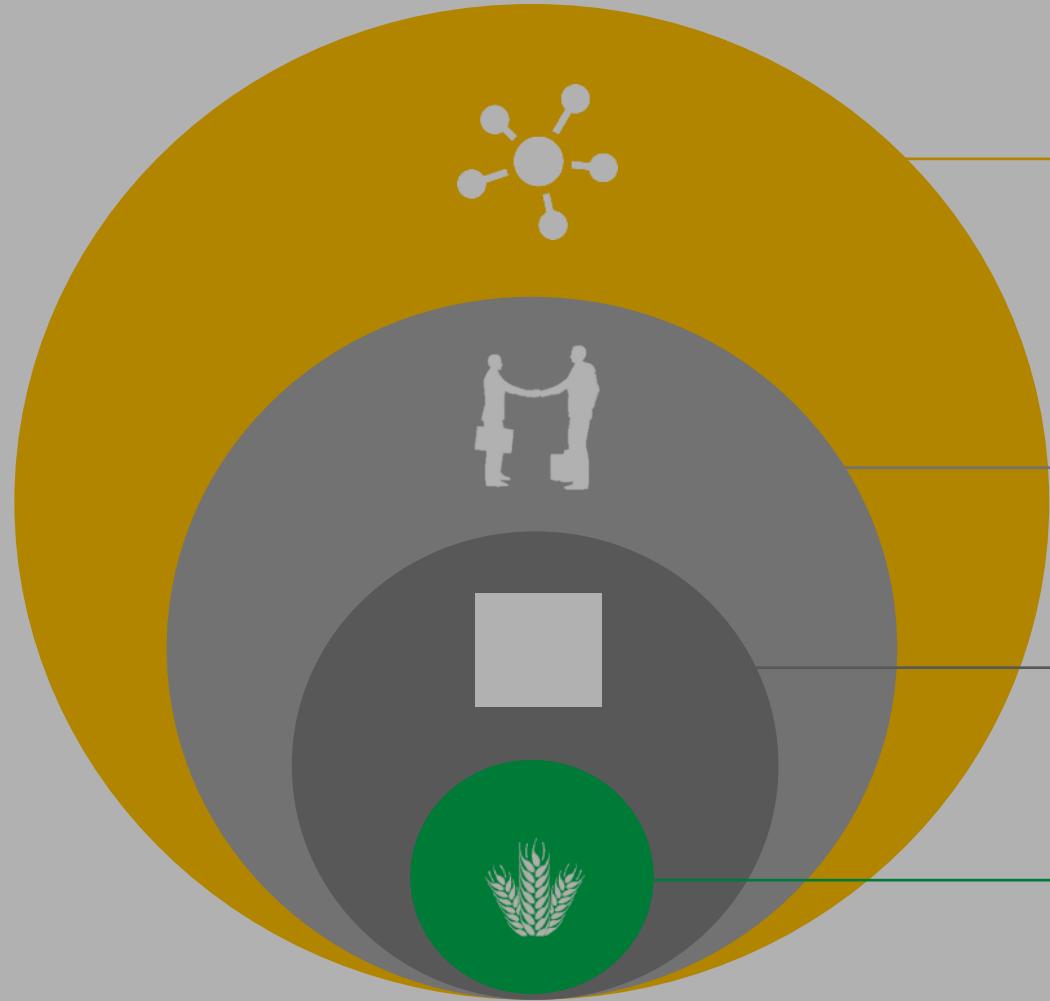
Experiences

Services

Factories

Agriculture

INTELLIGENCE

MAN POWER
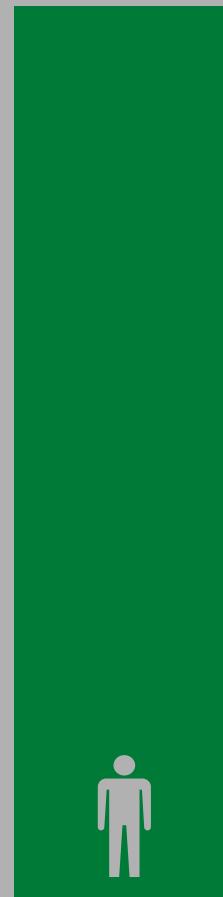
AUTOMATION

What is Digital transformation?

- The adoption of digital technology by an organization

- Goals

  - Improve efficiency

  - Value

  - Innovation

Digital transformation

How

- Technology
  - Mobile
  - Cloud
  - Social Networks
  - Analytics

Disruption
(challenge current business models)

Why

Born-Digital Generation
- Previous Generations
- Millenials (2000)
- Generation Z (2010)

What

The Experience Economy
- This era's 'Competitive Advantage'
- Differentiation beyond Service
- Personalization
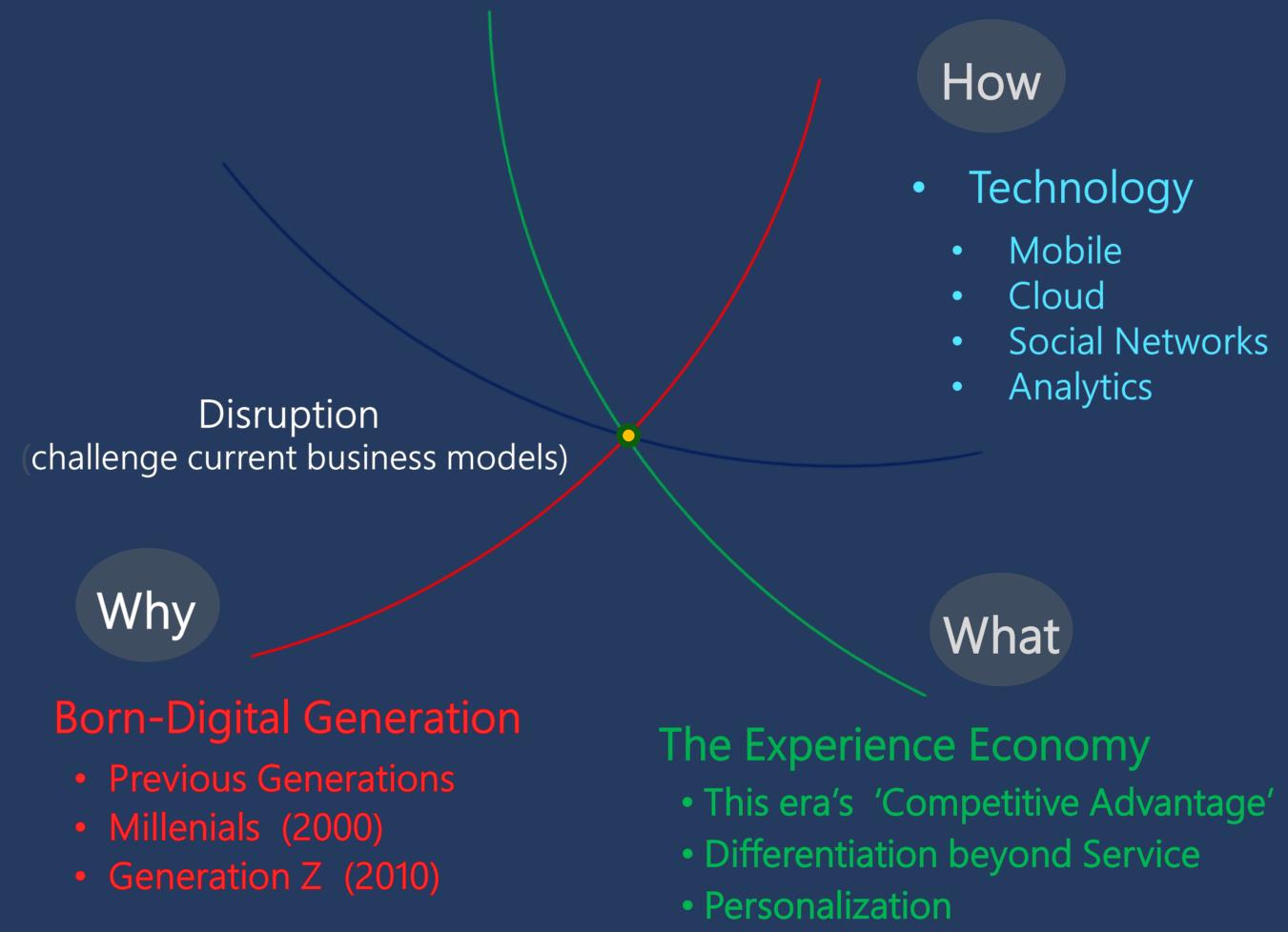
Digital transformation

91% of business leaders see Digital Transformation as a way of sparking innovation and **finding efficiencies**

68% say Digital Transformation is **increasing profits**

85% say they must offer digital services or **become irrelevant**

64% say they have less than 4 years to complete a Digital Transformation or they may **go out of business**

65% of today's primary school students will be doing jobs that don't even exist yet

Virtual Habit Designer

Ethical Technology Advocate

Digital Cultural Commentator

Freelance BioHacker

IOT Data Creative

Space Tour Guide

Personal Content Creator

Rewilding Strategist

Sustainable Power Innovator

Human Body Designer

Top 10 Jobs of the Future - For 2030 And Beyond

1. **Work from Home Facilitator**

2. **Fitness Commitment Counsellor**

3. **Smart Home Design Manager**

4. **XR Immersion Counsellor**

5. **Workplace Environment Architect**

6. **Algorithm Bias Auditor**

7. **Data Detective**

8. **Cyber Calamity Forecaster**

9. **Tidewater Architect**

10. **Human-Machine Teaming Manager**

89%

OF THE FORTUNE 500 IN 1955... **ARE GONE**

TOWER RECORDS
www.towerrecords.com

Polaroid

COMPAQ

HUMMER

PAN AM

F·A·O
SCHWARZ · EST. 1862

COMPUSA

BLOCKBUSTER

Kodak

MOTOROLA

BORDERS

NOKIA

SAAB

PONTIAC

Netscape

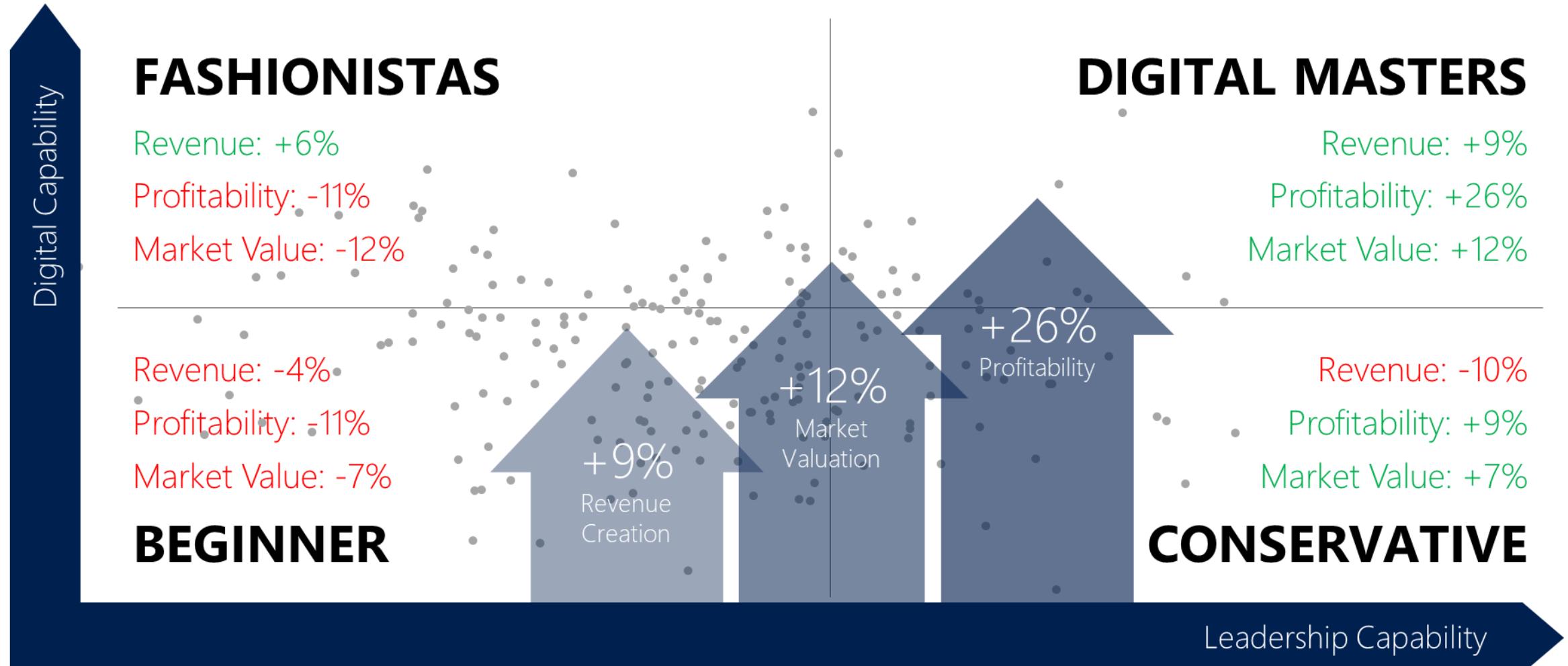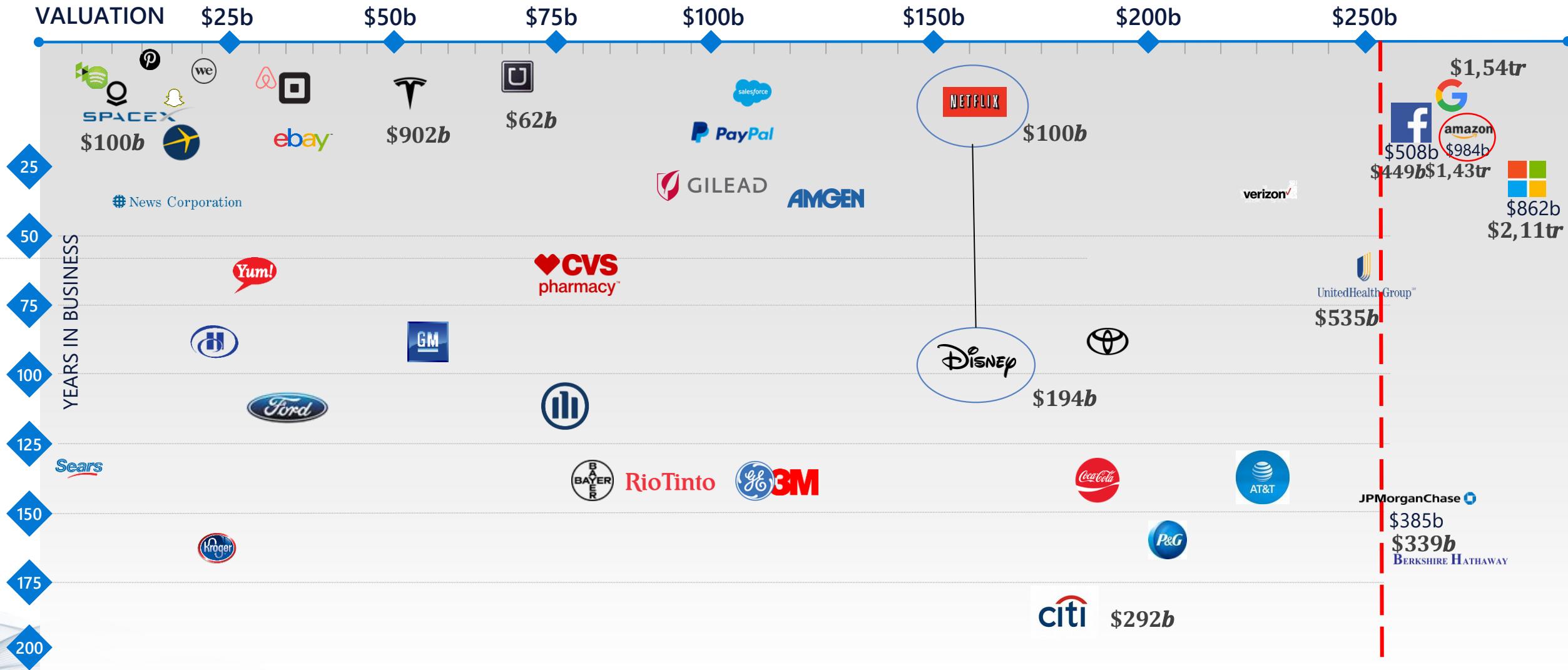# DISRUPTIVE DIGITAL TRANSFORMATION

"IF THE RATE OF CHANGE ON THE <u>OUTSIDE</u> EXCEEDS THE RATE OF CHANGE ON THE <u>INSIDE</u>, THE END IS NEAR. "
JACK WELCH

Digital Maturity Matters

Digital master outperform their peers with higher revenue, profitability and market value

Digital Capability (vertical axis)

FASHIONISTAS

Revenue: +6%
Profitability: -11%
Market Value: -12%

DIGITAL MASTERS

Revenue: +9%
Profitability: +26%
Market Value: +12%

Revenue: -4%
Profitability: -11%
Market Value: -7%

BEGINNER

Revenue: -10%
Profitability: +9%
Market Value: +7%

CONSERVATIVE

+9%
Revenue Creation

+12%
Market Valuation

+26%
Profitability

Leadership Capability (horizontal axis)

Digital companies grow fast and disrupt further

Valuation / Years in Business scatter plot:

VALUATION axis: $25b, $50b, $75b, $100b, $150b, $200b, $250b

YEARS IN BUSINESS axis: 25, 50, 75, 100, 125, 150, 175, 200

Company valuations shown:
- SpaceX $100b
- Tesla $902b
- Uber $62b
- Netflix $100b
- Disney $194b
- Google $1,54tr
- Facebook $508b
- Amazon $984b
- $449b $1,43tr
- Microsoft $862b $2,11tr
- UnitedHealth Group $535b
- Citi $292b
- JPMorganChase $385b
- Berkshire Hathaway $339b

US PLUG-IN VEHICLE SALES
SINCE JANUARY 2012
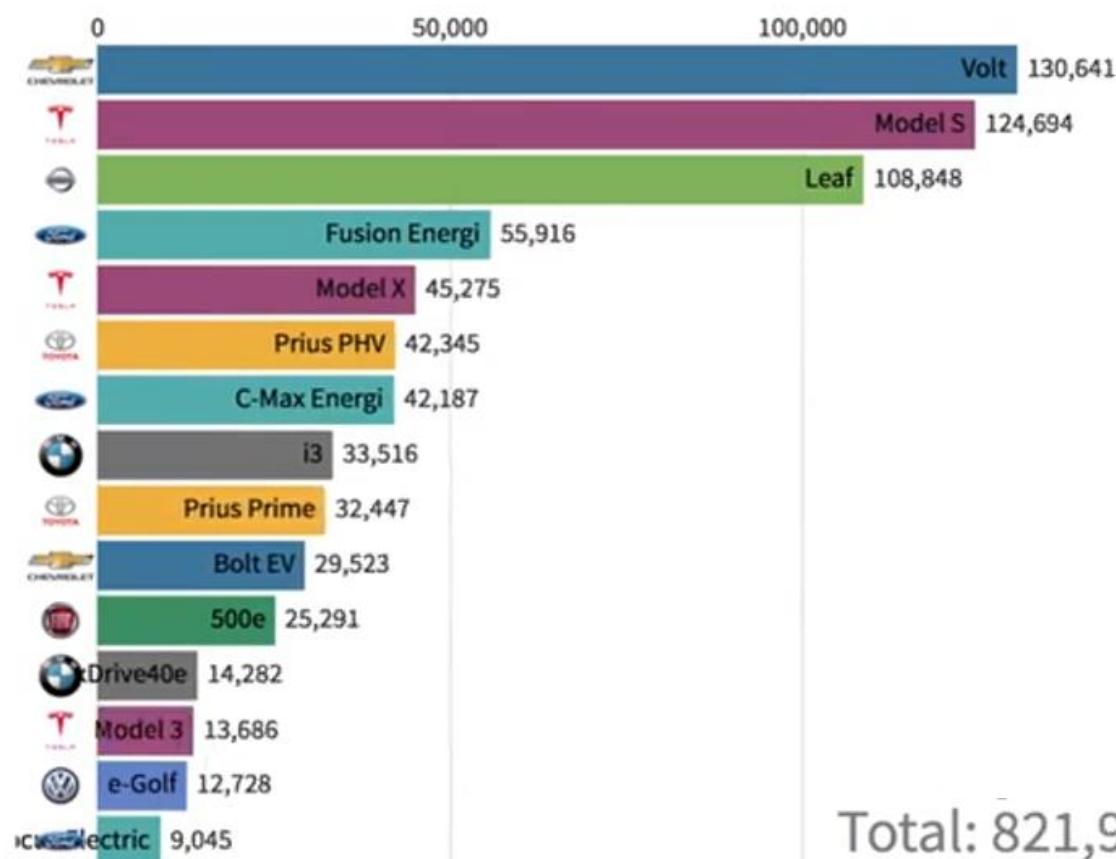
MARKET VALUE EVOLUTION
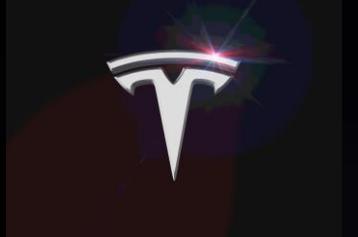SINCE 2010

April 2018

Self-Driving Development

We have expertise in developing technologies, systems and software to enable self-driving vehicles using primarily vision-based sensors. Our FSD Computer runs our neural networks in our vehicles, and we are developing additional computer hardware to better enable the massive amounts of field data captured by our vehicles to continually train and improve these neural networks for real-world performance.

Currently, we offer in our vehicles certain advanced driver assist systems under our Autopilot and FSD options. Although at present the driver is ultimately responsible for controlling the vehicle, our systems provide safety and convenience functionality that relieves drivers of the most tedious and potentially dangerous aspects of road travel much like the system that airplane pilots use, when conditions permit. As with other such systems, we improve these functions in our vehicles over time through over-the-air updates.

We intend to establish in the future an autonomous Tesla ride-hailing network, which we expect would also allow us to access a new customer base even as modes of transportation evolve.

JUNE 9, 2021

Tesla (TSLA) could dominate $1.2 trillion market with autonomous, Uber-like vehicle fleet

Fred Lambert - Jun. 9th 2021 1:32 pm PT   @FredericLambert

Source: Tesla 10K 2021 - Tesla (TSLA) could dominate $1.2 trillion market with autonomous, Uber-like vehicle fleet - Electrek

sodastream

PepsiCo to scale up SodaStream business globally in sustainability drive

By Rachel Arthur ⎋
16-Sep-2021 - Last updated on 16-Sep-2021 at 12:44 GMT

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sodastream®   SHOP ⌄   IMPACT ⌄   🧴 Gas Refill   Store locator   Support   Track order   Register your machine   👤   🛒

Together we can make a difference

The benefits of drinking sparkling water

Drink your mood with SodaStream mixology

Make it yours

Astonishing Pace of Change

The cost of key technologies has fallen rapidly

Drones
2007 $100,000
2019 $39

3D Printing
2007 $40,000
2018 $159

Industrial Robots
2007 $550,000
2018 $20,000

DNA
2000 $2.7bn
2007 $10m
2018 $500

Solar
1984 $30
2014 $0.16

Sensor (3D)
2009 $30,000
2016 $80

Typical Fortune 500 — 20
Google — 8
Facebook — 6
Cloudera — 6
Tesla — 5
Average Unicorns — 4
Uber — 4
CloudFlare — 3
Airbnb — 3
Snapchat — 2
Xiaomi — 2

0 2 4 6 8 10 12 14 16 18 20 22

Years

Time to reach $1B valuation or more
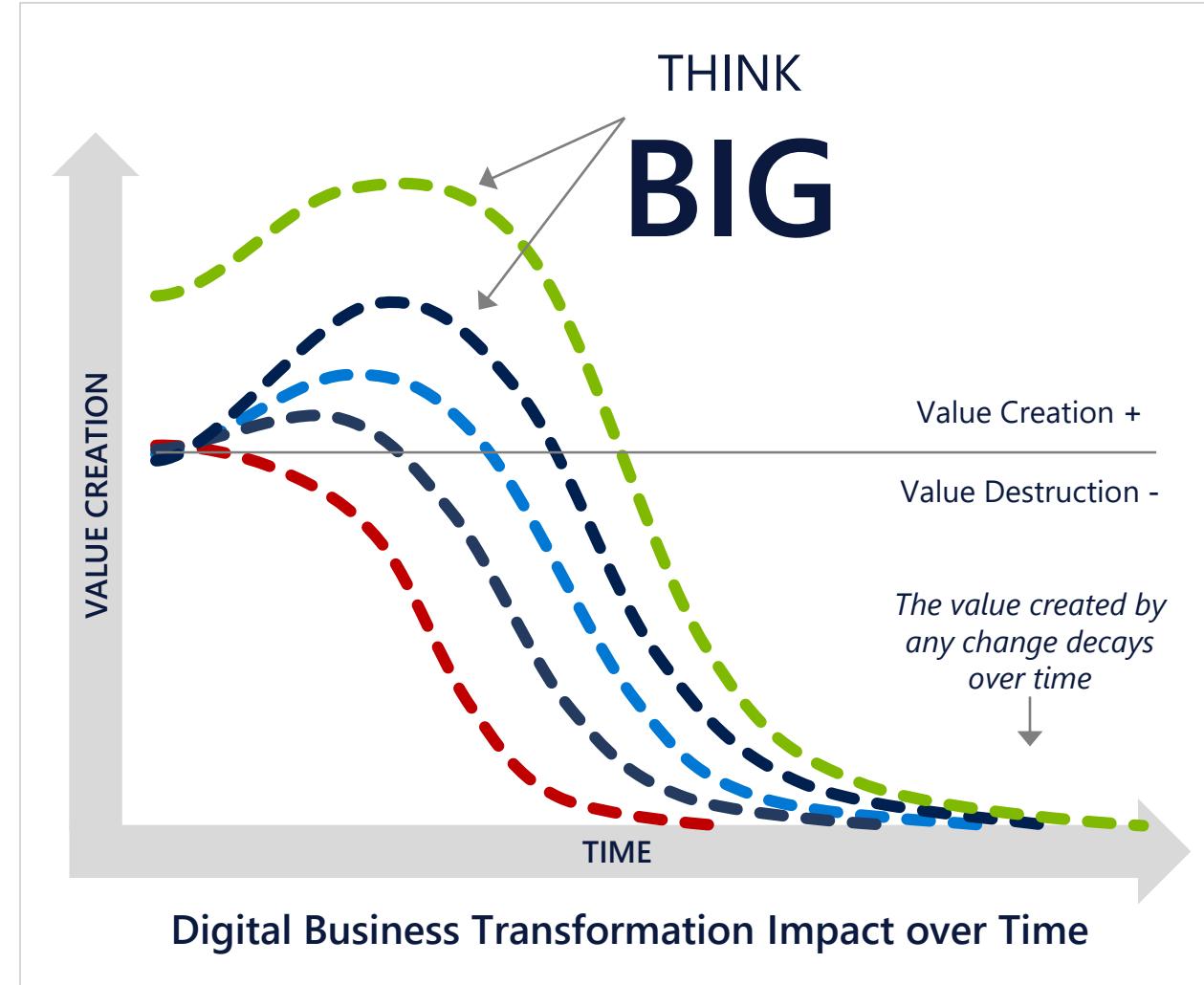
Source: World Economic Forum

In the Digital Era, the fast fish eats the slow fish
it is time to create your next digital business transformation

Degrees of Industry 4.0 opportunities	
Digital Transformation	New ways to create value with a digital business. Business as a Platform, **The value is created by the ecosystem.**
Digital Effectiveness	Redesign and digitize processes to more fully reach desired outcome. **Process and Business Model innovation.**
Digital Efficiencies	Digitize existing processes to reduce waste of time, effort and expense. **Operational Excellence, Increase Efficiency.**
Digital Replacement	Replace existing assets and capabilities with digital technology. **No process innovation, No change at business level.**
Business as Usual (No action)	Value is created when things change or customer asks. **No value creation, No digital strategy, No business growth.**

THINK
BIG

VALUE CREATION

Value Creation +

Value Destruction -

The value created by any change decays over time

TIME

Digital Business Transformation Impact over Time

SMART COLLAR

Retuned home at 5:07pm

FAVORITE STATION
Jazz Classics

3 NEW MESSAGES
Re: Medical Education

WATER LEVEL

FULL

pH

14

NEUTRAL

0

26° INDOOR TEMPERATURE

MORNING COFFEE
Normally wakes up at 7:00am

PURCHASED ON AMAZON
Reminder: Shall I reorder
more detergent?

THE DIGITAL ERA IS HERE

What does this mean to you?

" Every company is a software company. You have to start thinking and operating like a digital company. It's no longer just about procuring one solution and deploying one. It's really you, yourself, thinking of your own future as a digital company. "

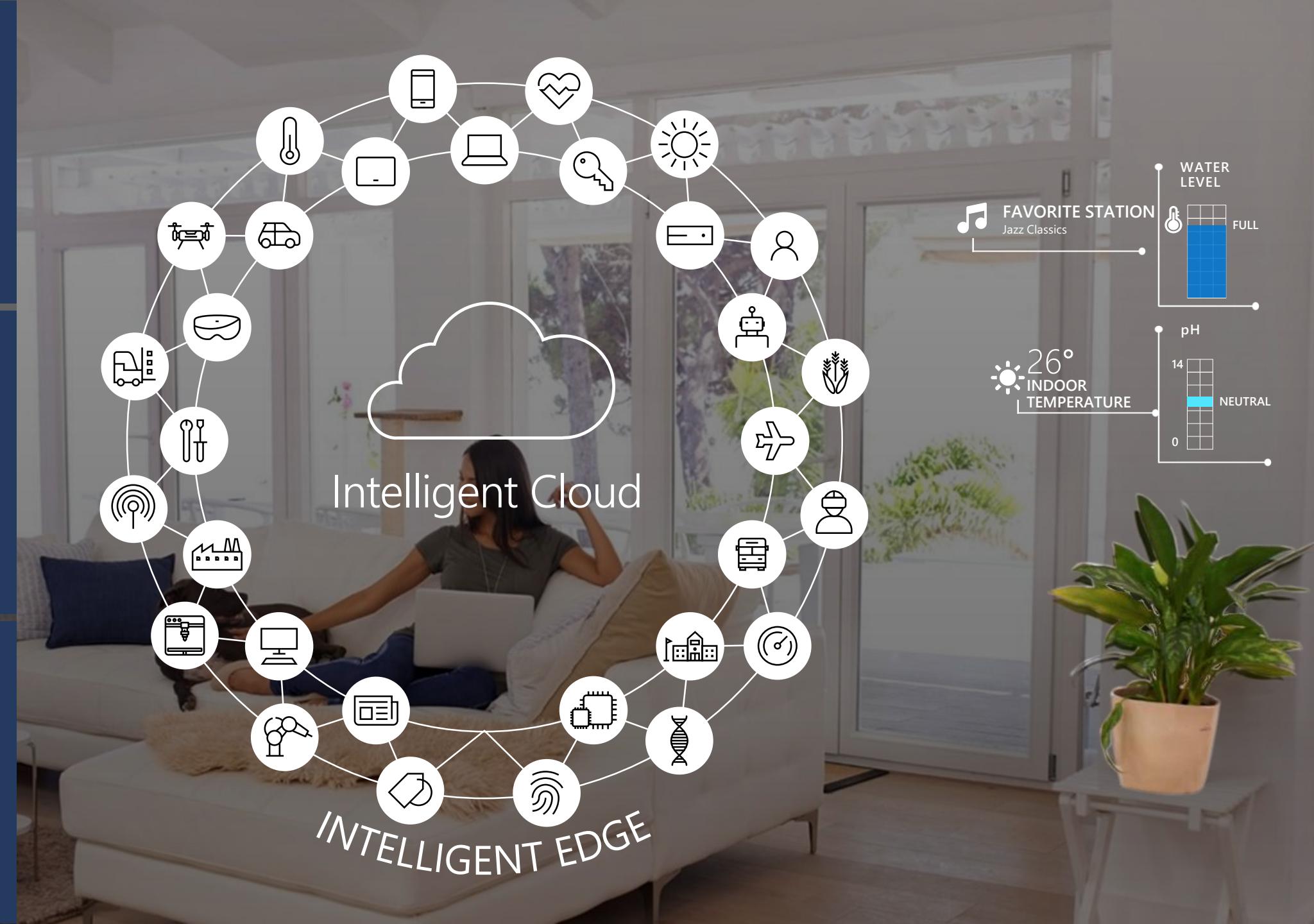– Satya Nadella, Microsoft CEO

MULTI-DEVICE, MULTI-SENSE
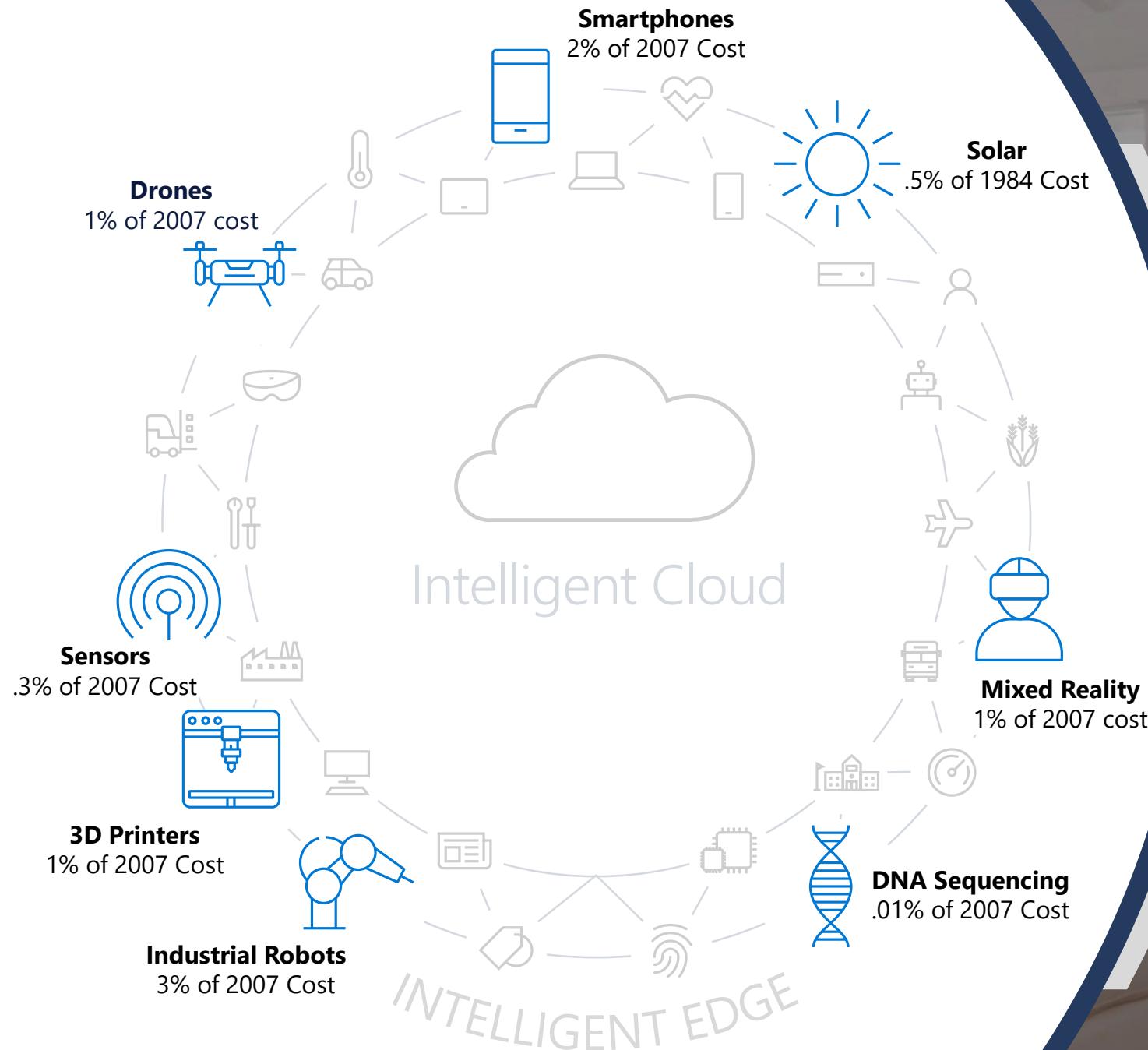
experiences span all devices and all senses

UBIQUITOUS COMPUTING

manage the complexity of distributed computing and billions of events

INTELLIGENCE LED

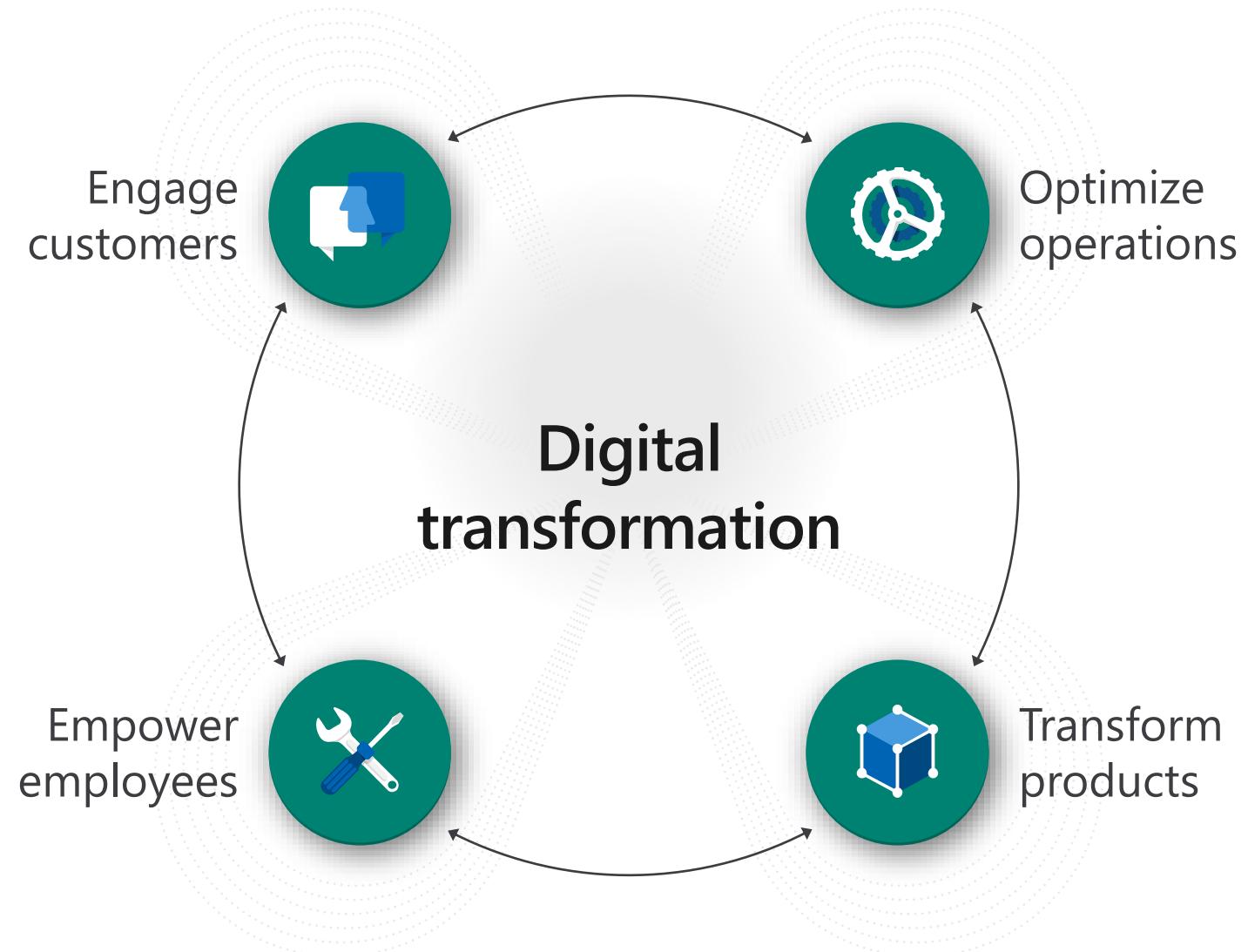*infused with the ability to reason*

Intelligent Cloud

INTELLIGENT EDGE

FAVORITE STATION
Jazz Classics

WATER LEVEL
FULL

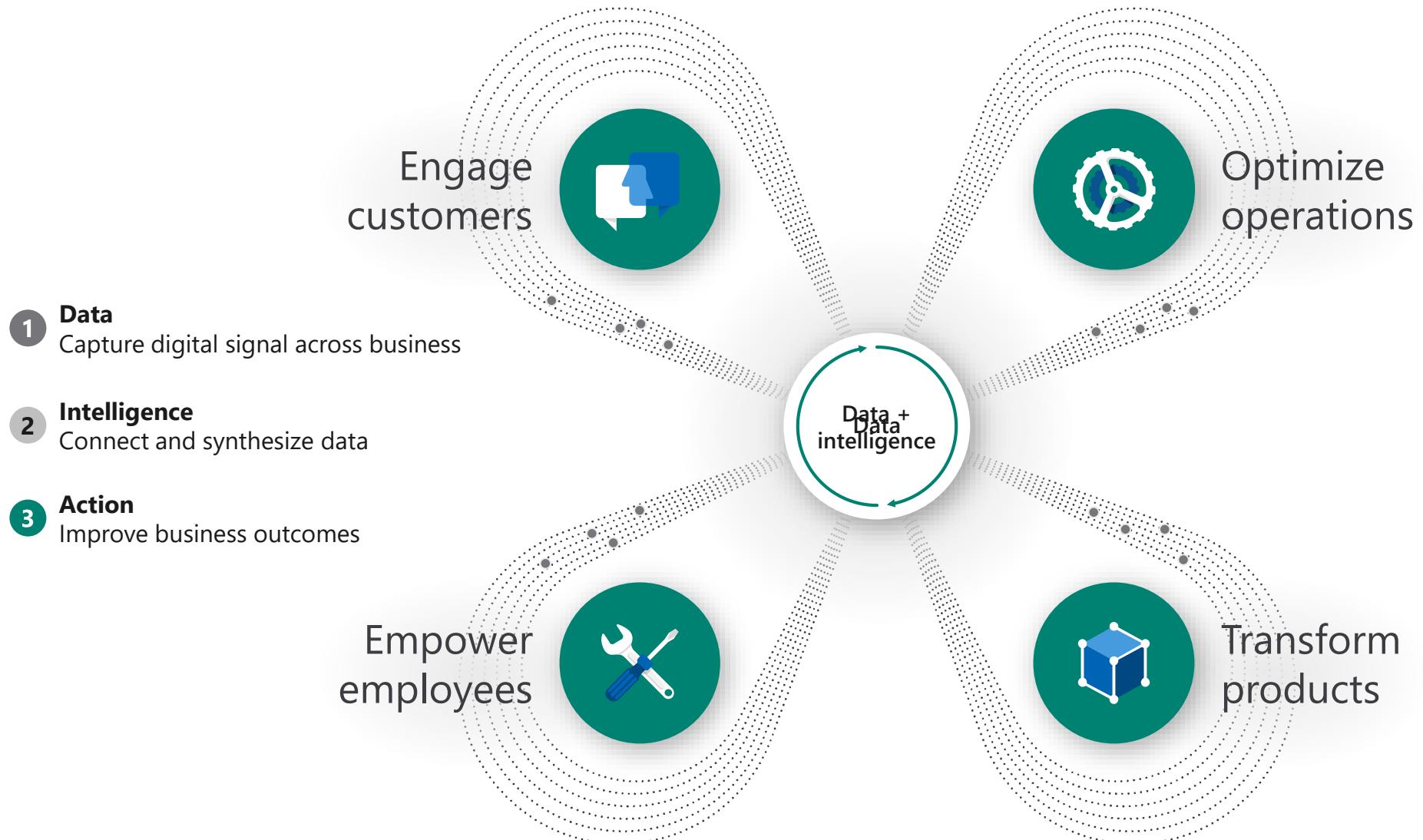26° INDOOR TEMPERATURE

pH
14
0
NEUTRAL

The call to action is clear

" Every organization will need to have what I describe as **tech intensity** … every organization will need to be a **fast adopter of digital technology** … every organization will need to **build their own proprietary digital capability**. "
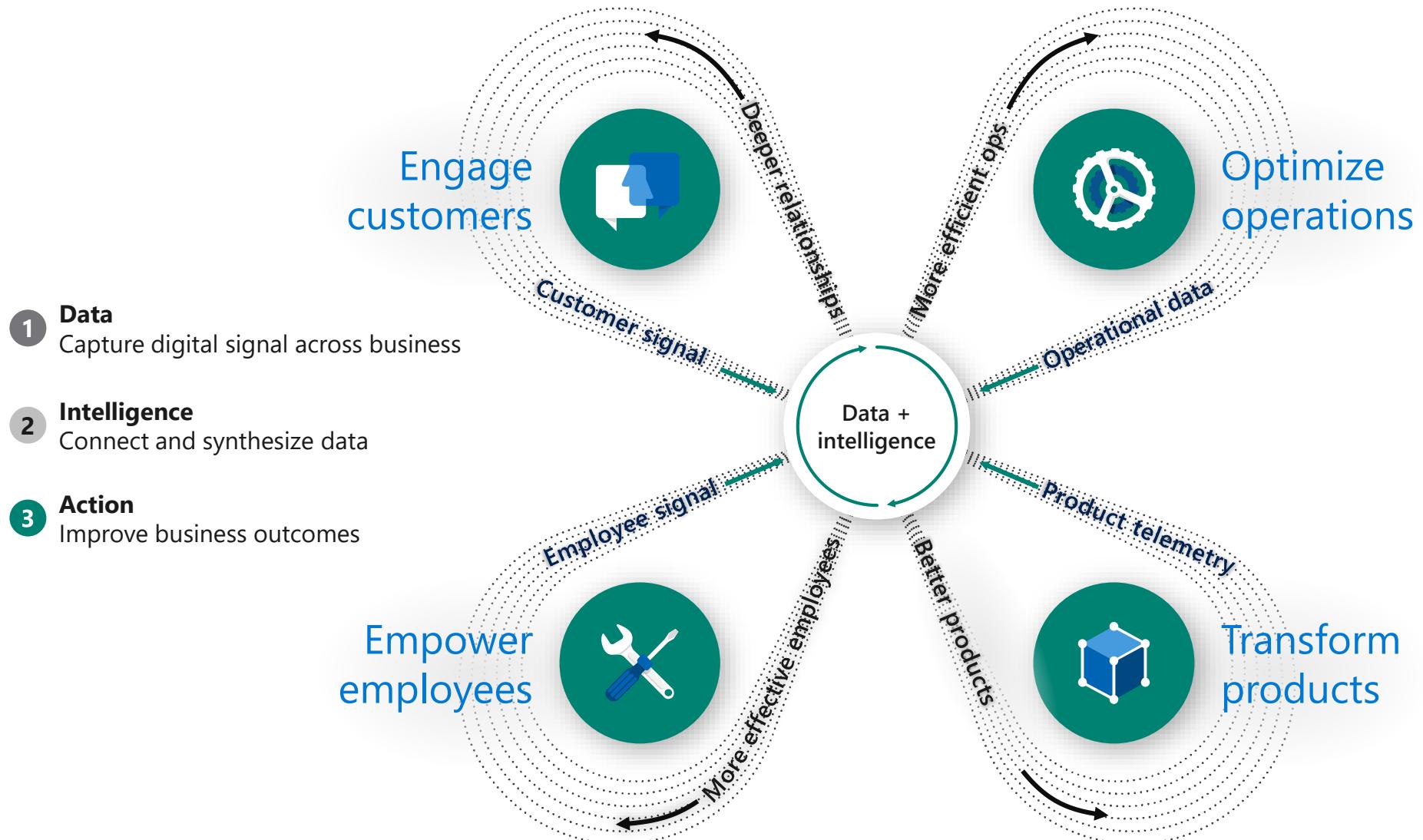
Tech intensity $= (\text{Tech adoption} \times \text{Tech capability})^{\text{Trust}}$

THE DIGITAL FEEDBACK LOOP

Engage customers

Optimize operations

Empower employees

Transform products

Data + intelligence

1 **Data**
Capture digital signal across business

2 **Intelligence**
Connect and synthesize data

3 **Action**
Improve business outcomes

THE DIGITAL FEEDBACK LOOP

1. **Data**
   Capture digital signal across business

2. **Intelligence**
   Connect and synthesize data

3. **Action**
   Improve business outcomes

Engage customers

Optimize operations

Empower employees

Transform products

Data + intelligence

Deeper relationships

More efficient ops.

Customer signal

Operational data

Employee signal

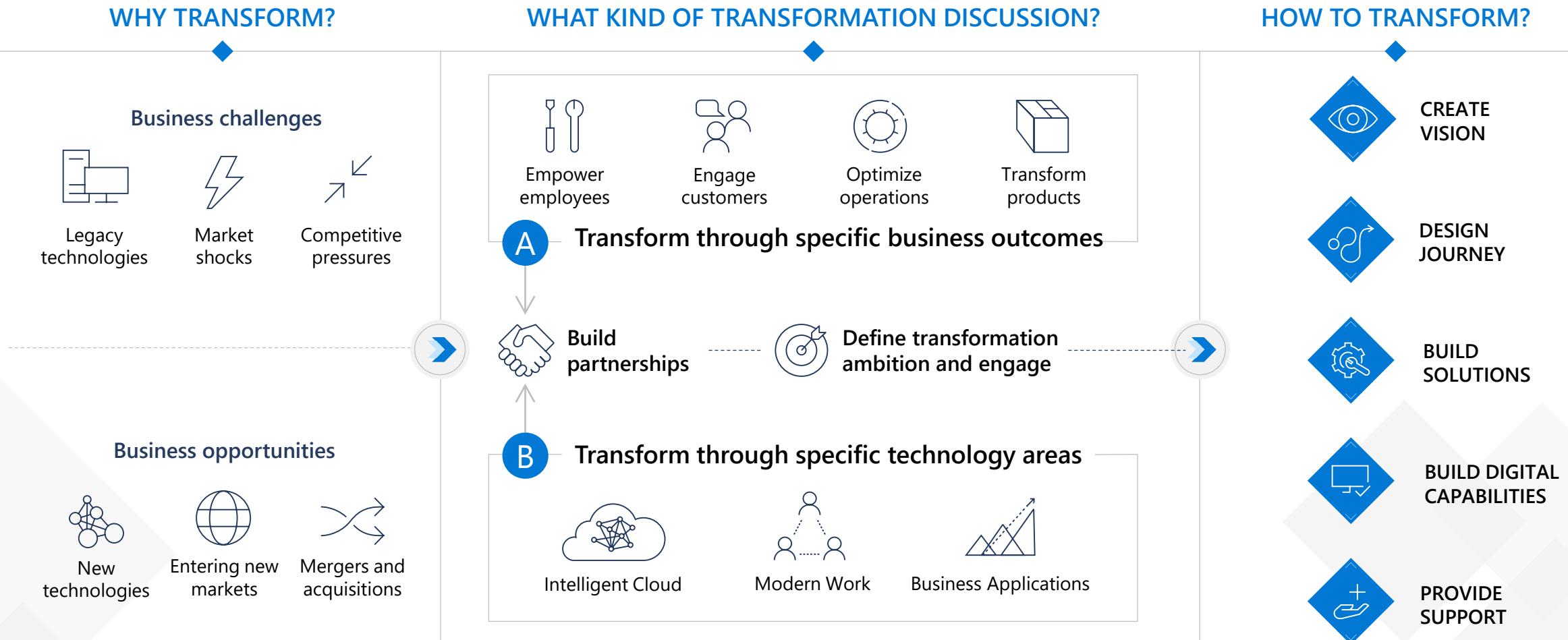Product telemetry

More effective employees

Better products

A **journey**, not a master move

Pathways to transformation

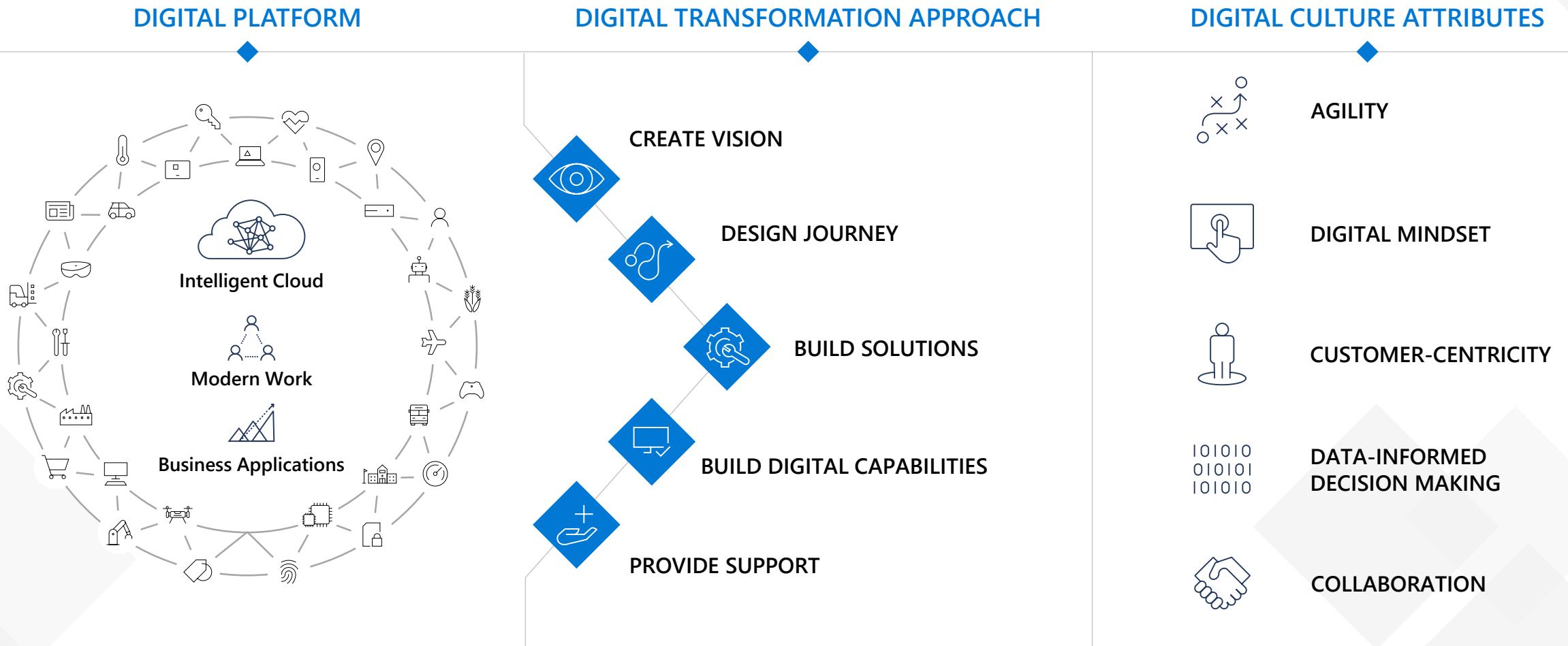# Pathways to transformation

On a journey yet to start or one well underway, it begins with a conversation that suits your business

WHY TRANSFORM?

Business challenges

Legacy technologies

Market shocks

Competitive pressures

Business opportunities

New technologies

Entering new markets

Mergers and acquisitions

WHAT KIND OF TRANSFORMATION DISCUSSION?

Empower employees

Engage customers

Optimize operations

Transform products

A Transform through specific business outcomes

Build partnerships

Define transformation ambition and engage

B Transform through specific technology areas

Intelligent Cloud

Modern Work

Business Applications

HOW TO TRANSFORM?

CREATE VISION

DESIGN JOURNEY

BUILD SOLUTIONS

BUILD DIGITAL CAPABILITIES

PROVIDE SUPPORT

Pathways to transformation
Digital transformation program of change

DIGITAL PLATFORM

Intelligent Cloud

Modern Work

Business Applications

DIGITAL TRANSFORMATION APPROACH

CREATE VISION

DESIGN JOURNEY

BUILD SOLUTIONS

BUILD DIGITAL CAPABILITIES

PROVIDE SUPPORT

DIGITAL CULTURE ATTRIBUTES

AGILITY

DIGITAL MINDSET

CUSTOMER-CENTRICITY

DATA-INFORMED DECISION MAKING

COLLABORATION

DIGITAL TRANSFORMATION APPROACH

Helping organizations to

◆ BEGIN

◆ ACCELERATE

◆ EXPAND

◆ SHIFT

their digital transformation journeys

BUILD SOLUTIONS
Scalable and secure products, assets, and services that deliver the vision

CREATE VISION
Strategy, goals and prioritized scenarios

DESIGN JOURNEY
Business case and detailed roadmap to execute the vision

BUILD DIGITAL CAPABILITIES
Teams with the digital skill set to govern, operate, measure and continue to innovate

PROVIDE SUPPORT
Industrialized support to keep solutions running secure and up-to-date

DIGITAL STRATEGY

DIGITAL ENABLEMENT

HORIZONS-BASED TRANSFORMATION

The horizons-based framework provides a structure for organizations to assess potential opportunities for growth without neglecting performance in the present.

All horizons map to the **north star**—which represents the vision for the organization's future relevance.

North star 'vision'

VALUE

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

TIME
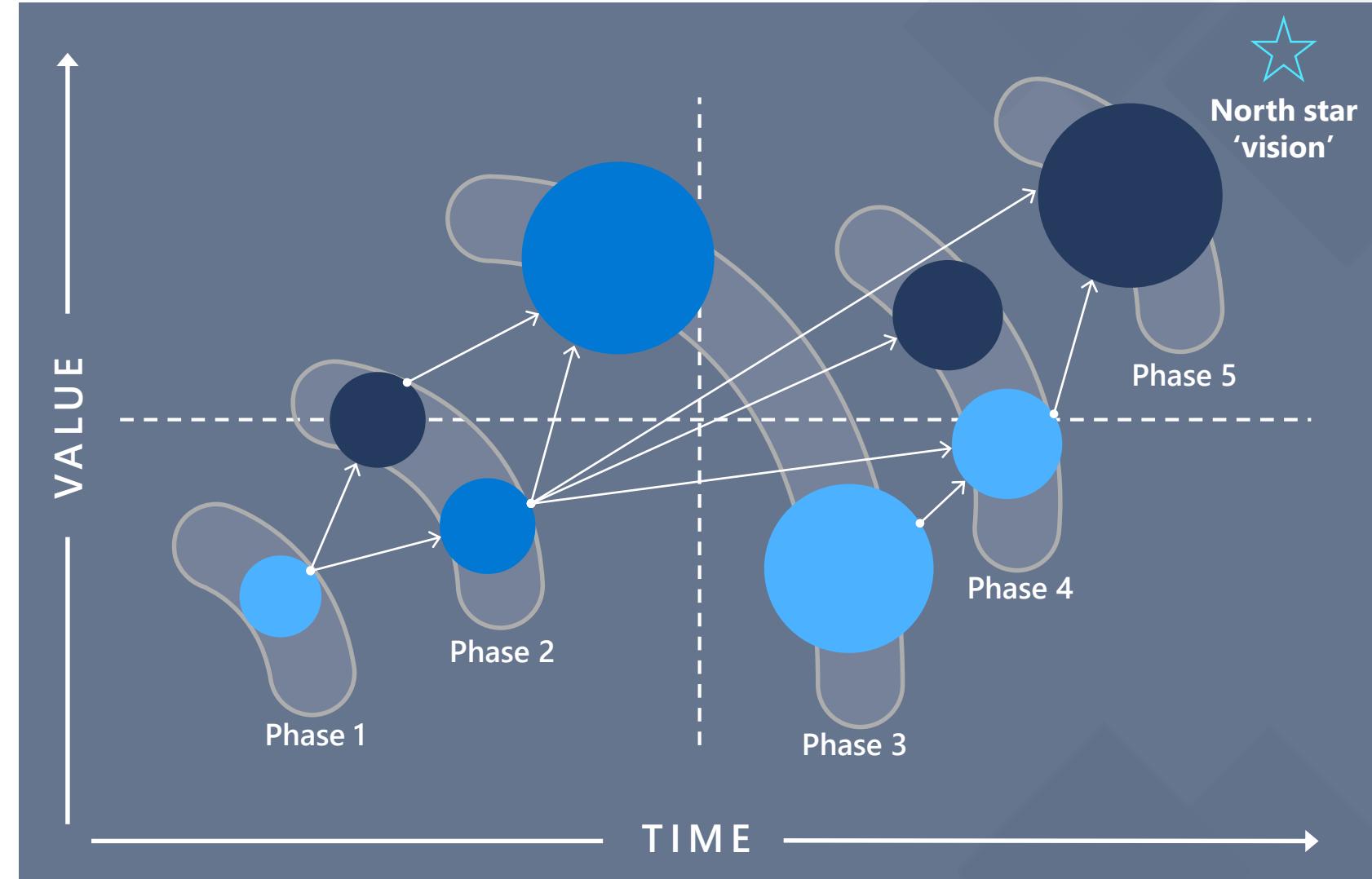
HORIZON 1

HORIZON 2

HORIZON 3

Customer Experience Journey Map
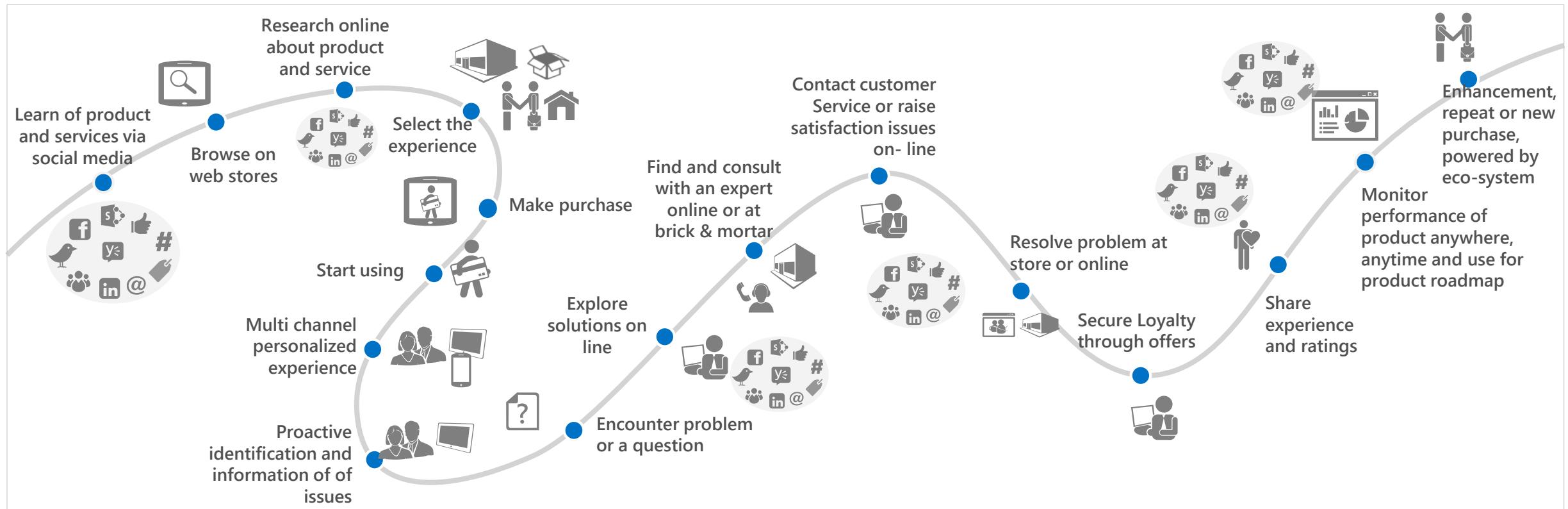
Digital Hotspots

Pre-Purchase
- Digital presence for products and store awareness
- Omni channel purchase
- Multi channel distribution and interactivity

Purchase
- Omni channel, multi device solution for purchase
- Customer support
- Arranging payment
- Tracking shipment

Post-Purchase
- Social network presence and management
- Receiving customer service
- Resolving problems anywhere
- Continuoud the experience
- Developing eco-system
- Product life cycle and organisations interlocks

49

Patient experience journey map

Preventative Care

Seek Health Information Using Bots

Chat Remotely with Clinicians about Concerns

Schedule an appointment by self or with assistance

Visit a Provider in Person or Remotely

Chat or Meet with Provider About Results

Receive Treatment Plan

Receive Lab Orders/ Referrals

Visit Pharmacy for Prescriptions/ Refills

Providers Remotely Monitor Patient's Health Data

Chat or Meet with Provider to Discuss Progress

Access History, Lab Results, Insurance Claims

Receive Reminders for Follow-up Care

Wellness Management

DIGITAL HOT SPOTS	**Prior to Visit**	**Diagnosis and Treatment**	**Follow-up Care**
	Seeking healthcare information, remote triage	Remote interactions with providers	Filling, refilling, and approving prescriptions
	Choosing a physician or caregiving facility for treatment	Accessing and sharing electronic health records (EHR)	Remote health monitoring
	Appointment scheduling and reminders	AI-based provider support	Ongoing patient care and plan reminders
		Care team collaboration	

050

Driving transformation with a digital culture

Key attributes of a digital culture

AGILITY

Respond to change: perform rapid experiments with fast feedback loops and adapt

DIGITAL MINDSET

Approach any new challenges and opportunities with digital solutions and assume that any services you create will be used in digital form

CUSTOMER-CENTRICITY

Wrap the business around future customers and learn from their behavior

DATA-INFORMED DECISION MAKING

Learn from data and insights to reduce the risks of biases and assumptions

COLLABORATION

Work like a network in open ways and collaborate cross-group, cross-org, cross-company

The future from an alternative perspective

A

L

T
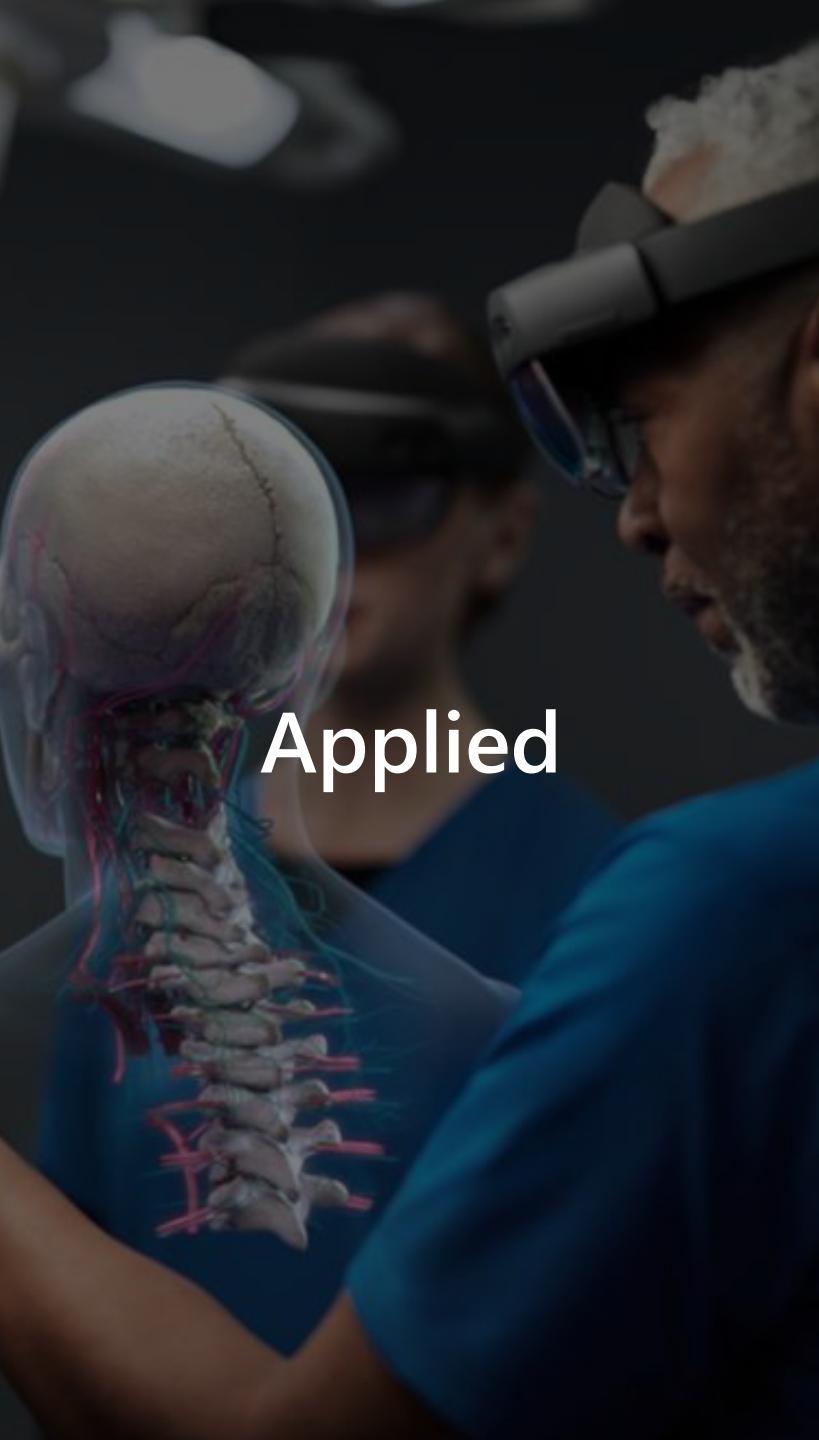
Meaningful

Applied

Responsible

Meaningful

Applied
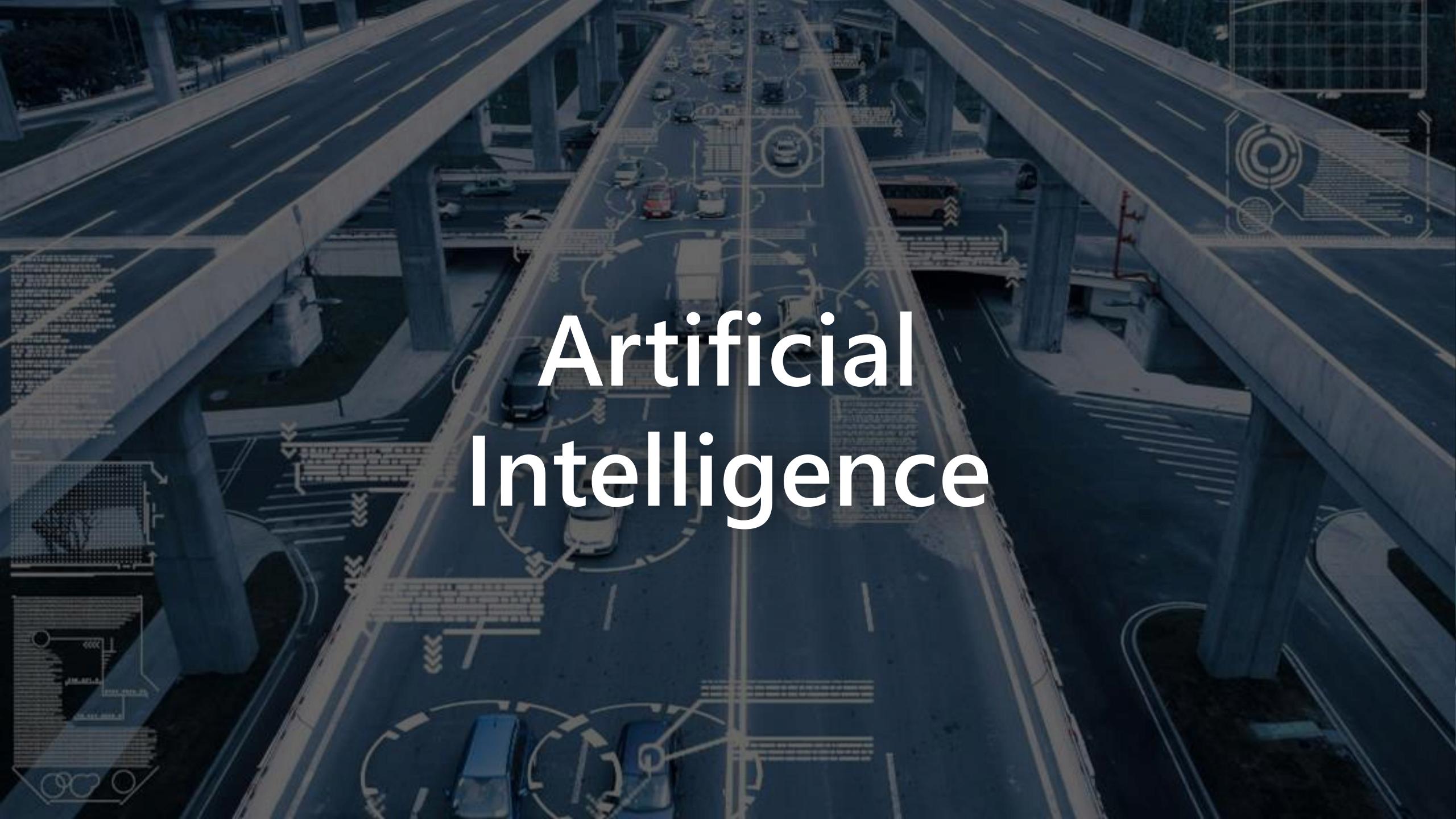
Responsible

Artificial Intelligence
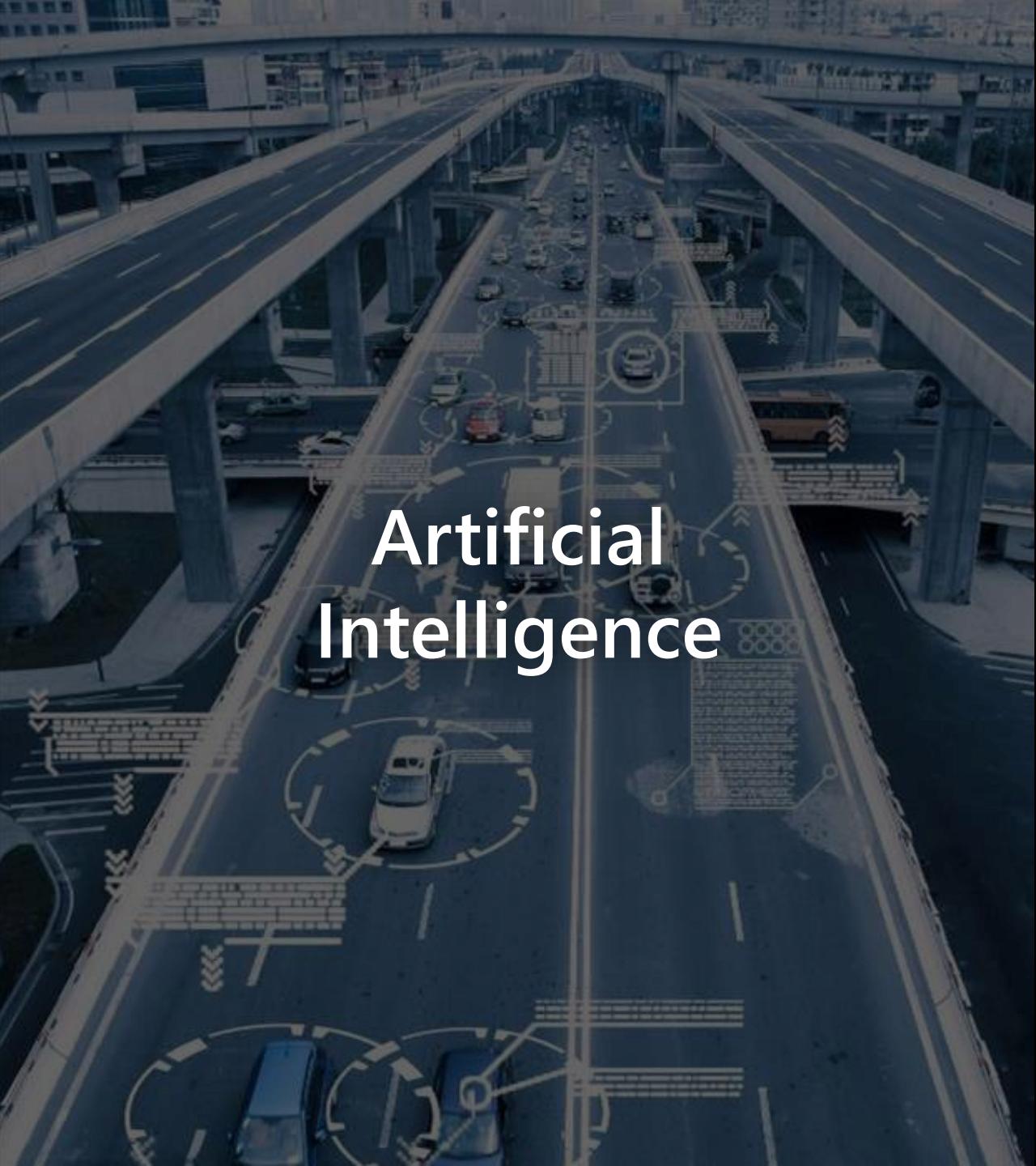
Artificial Intelligence
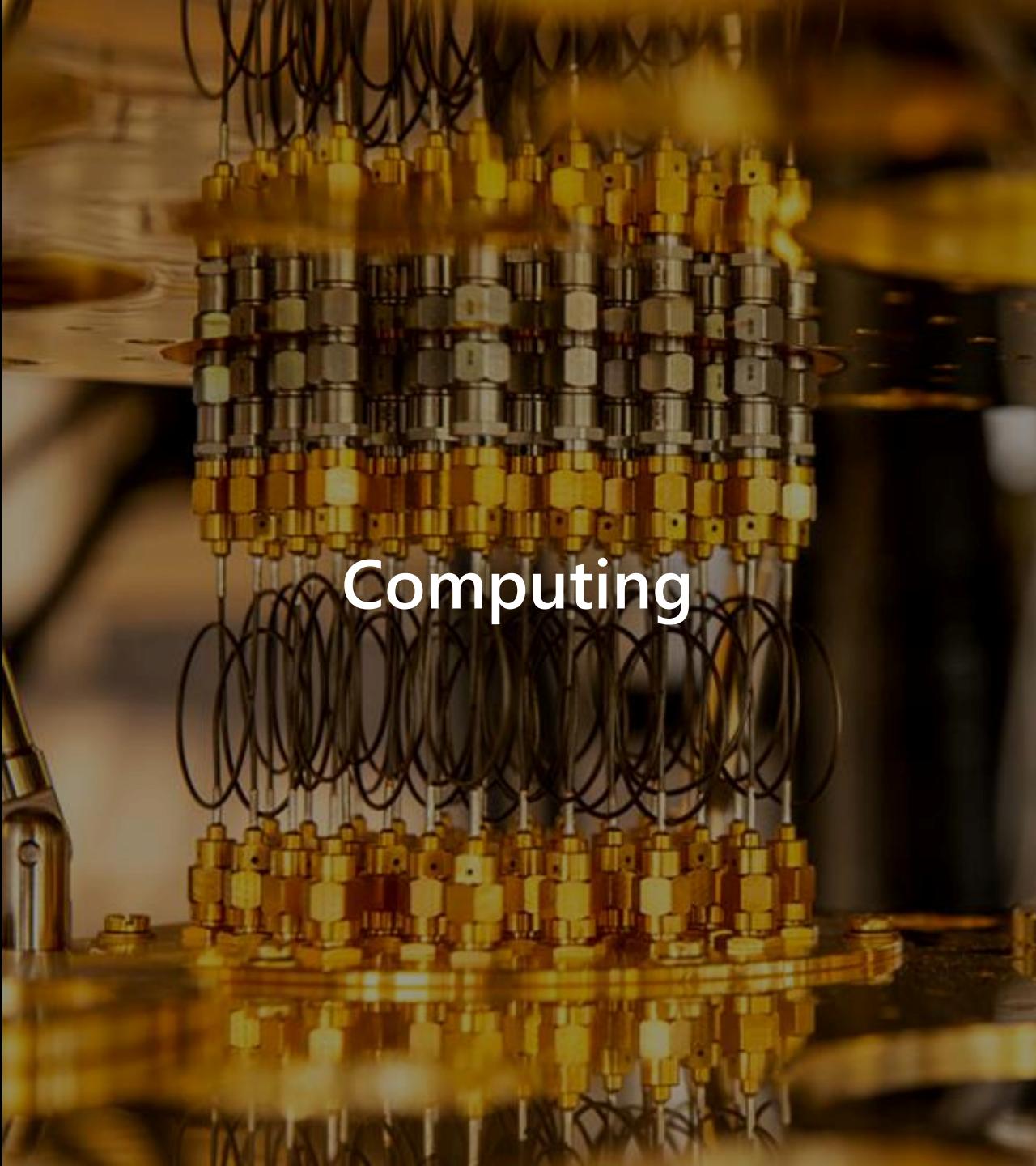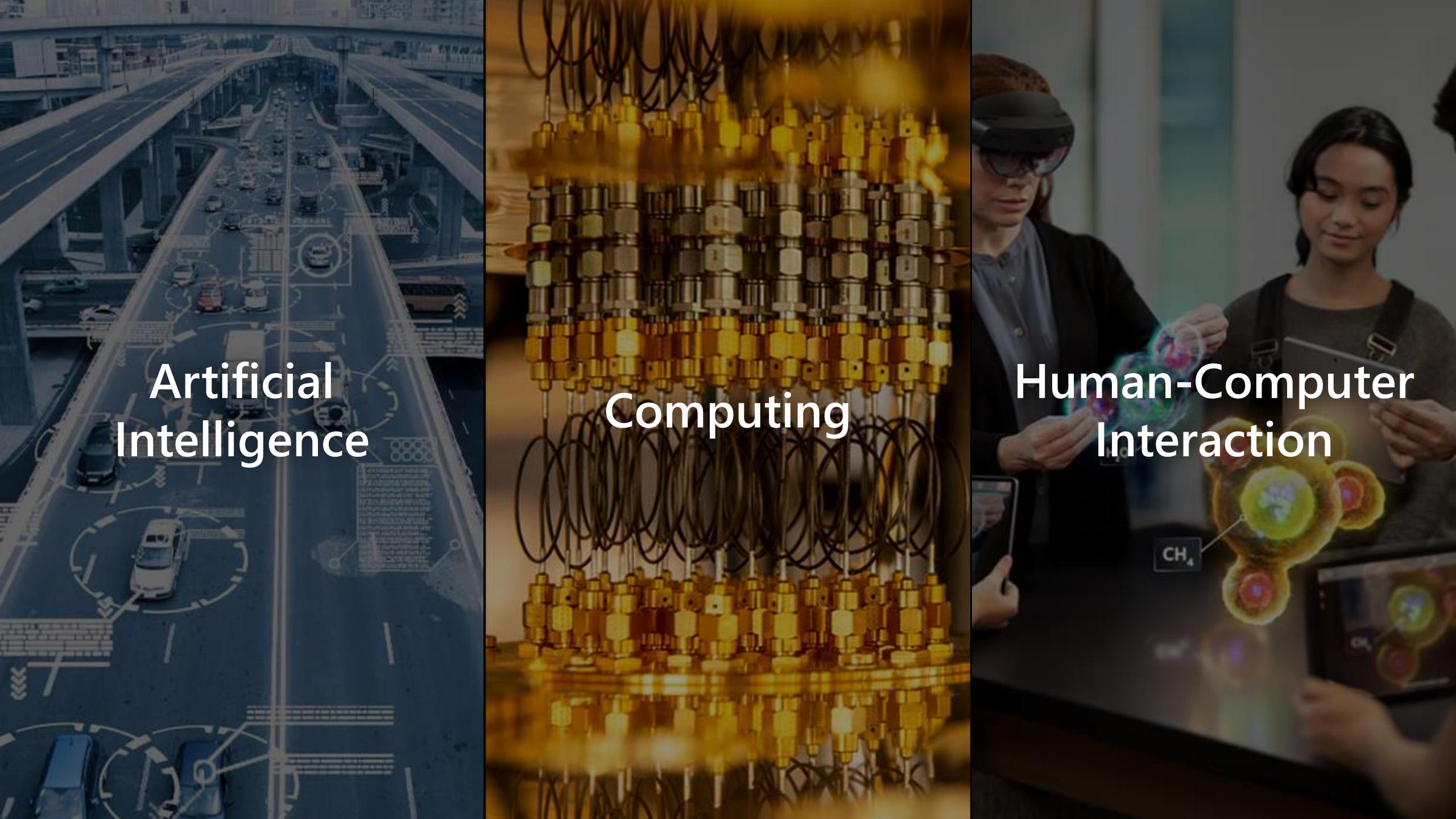
Computing

Artificial Intelligence

Computing

Human-Computer Interaction
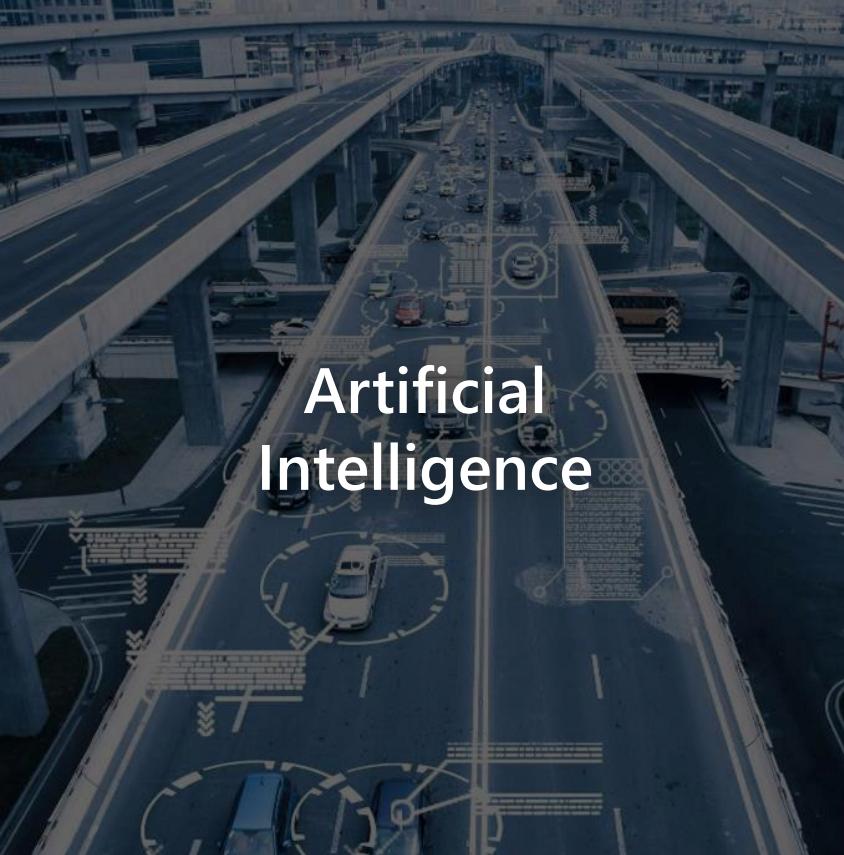
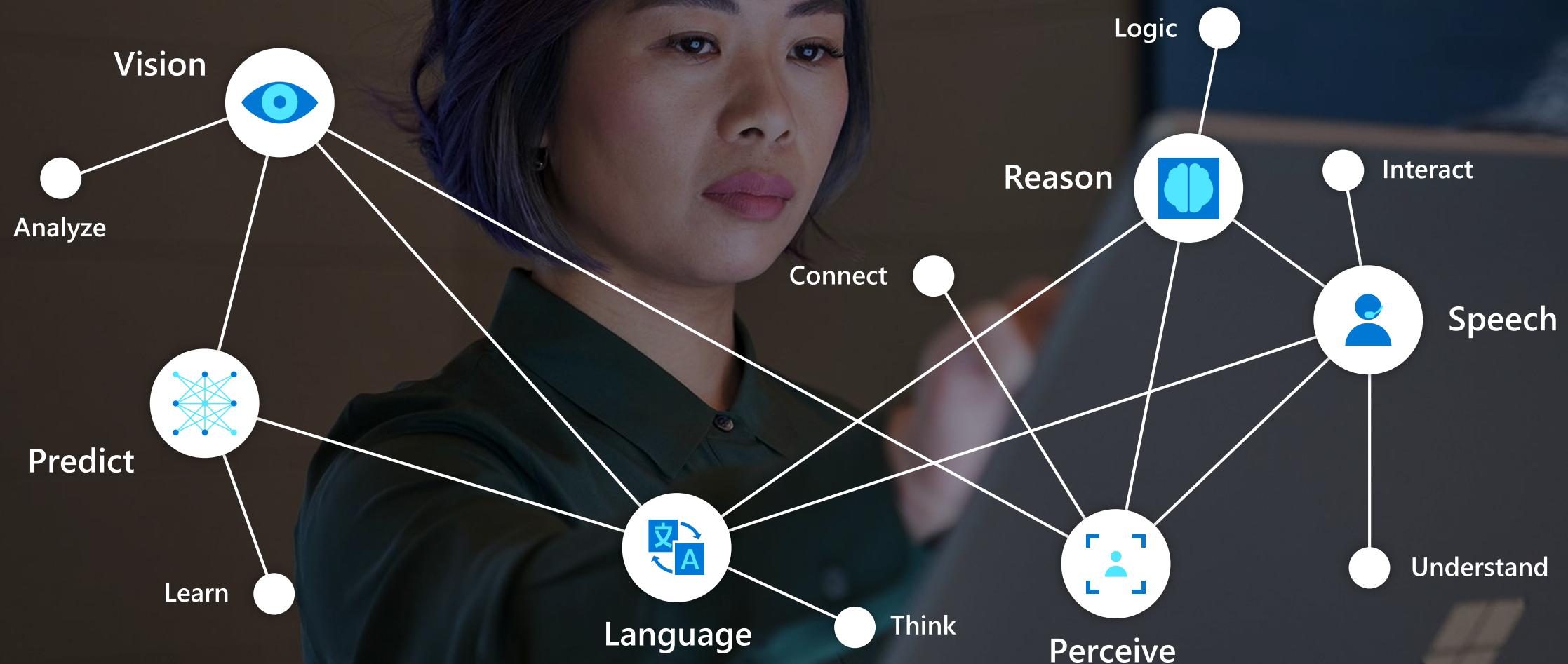Artificial Intelligence
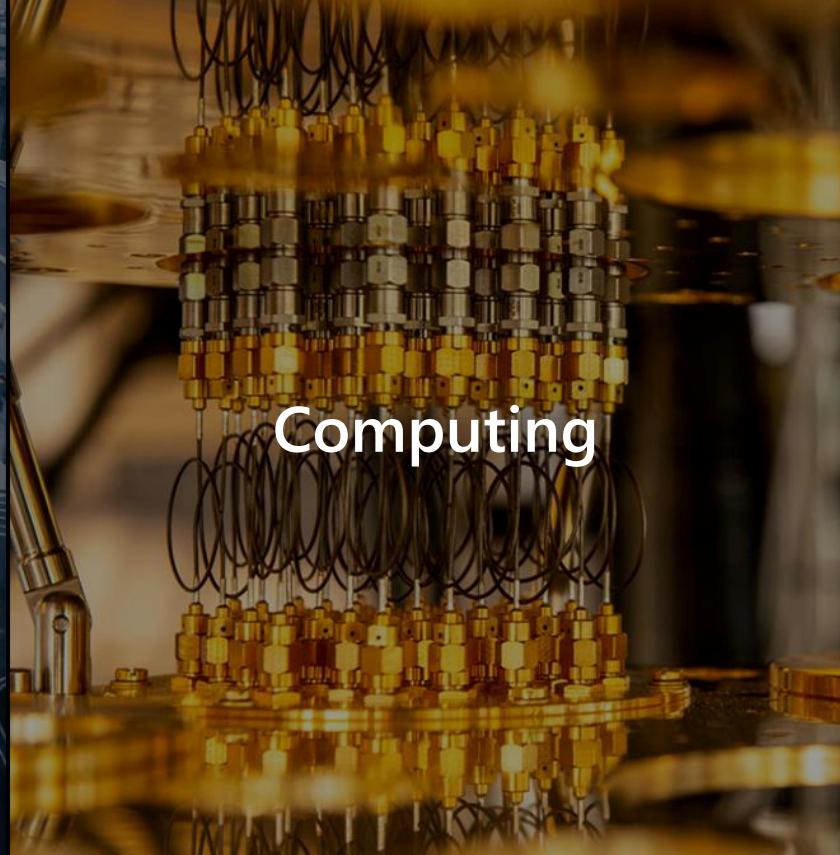
Computing

Human-Computer Interaction

Digital Responsibility

Artificial intelligence (AI)

[ar . ti . fi . cial . in . tell . i . gence]

Humans + artificial intelligence

Speech recognition human parity

What does she say?

Speech-recognition word-error rates

A. "haha, that's about all ours is."

B. "uhhuh that's about the horses."

C. "uhhuh that's about how old ours is."

1993   1996   1998   2000   2002   2004   2006   2008   2010   2012   2014   2016
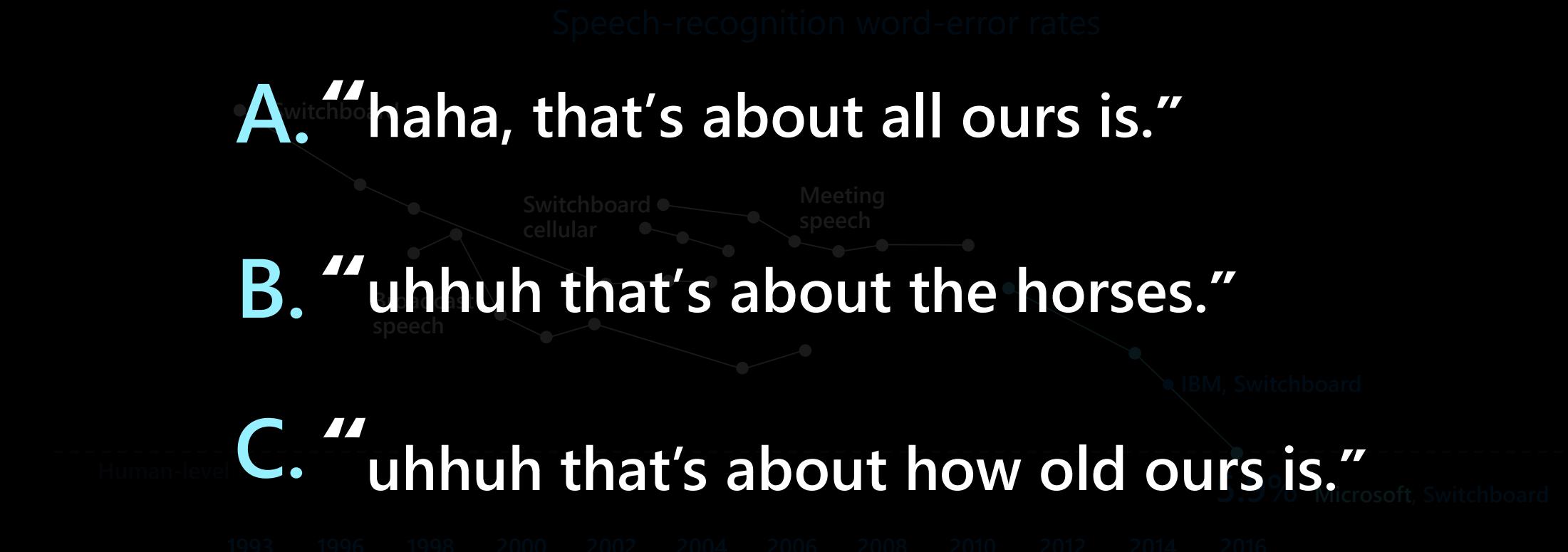
Sources: Microsoft; research papers

Speech synthesis near human parity

Which is artificial?

A. ""As the name suggests, the original submarines came from Yugoslavia."

B. ""This is easy enough if you have an unfinished attic directly above the bathroom."

Innovation and business transformation are linked; The first to transform wins the race.

Relative changes in cash flow by AI adoption cohort
% Change per cohort, cumulative

81% digitally mature companies cite innovation as strength[1]

Strong innovative leaders have extended their lead over the last 5 years[2]

94% C-Level executives agree that digital transformation is a top strategic priority[3]

Front runners
(Absorbing within first 5 to 7 years)
122

Follower
(Absorbing by 2030)
10

Laggard
(Do not absorb by 2030)
-23
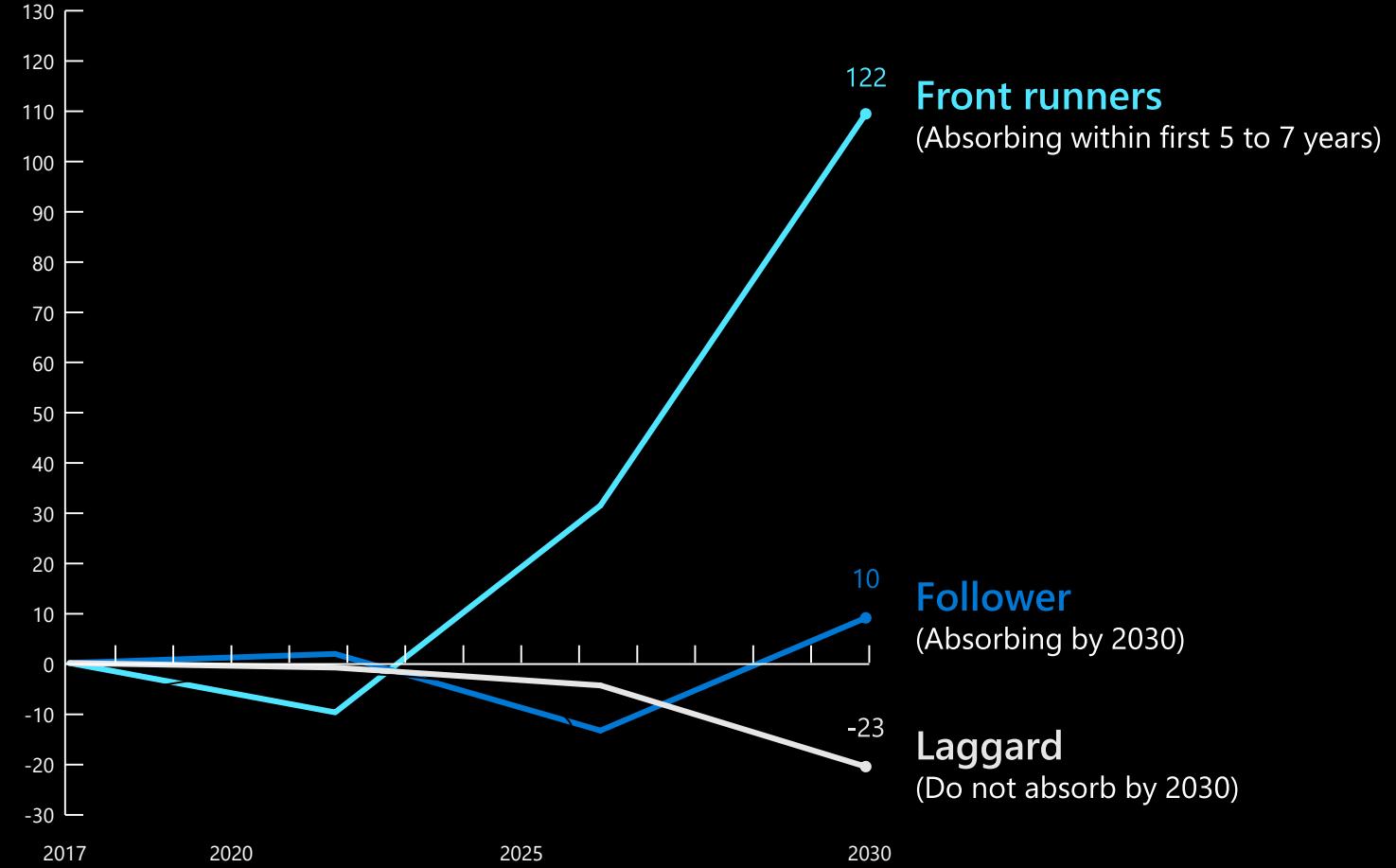
Sources: [1]MIT Sloan Management Review, [2]McKinsey, [3]Accenture

Top barriers to adopting AI

43% Lack of clear strategy for AI

42% Lack of talent with appropriate skill sets for AI work

30% Functional silos constrain end-to-end AI solutions

Barrier	Value
Lack clear AI strategy	43
Lack AI talent and skills	42
Silos constrain AI solutions	30
Lack of ownership and commitment form leaders	27
Lack of infrastructure to support AI	25
Lack of available data	24
Uncertain expectations of AI investments	24
Underresourcing of AI in line organization	21
Limited usefulness of data	20
Personal judgement overrides AI-based decisions	19
Limited relevance of insights from AI	18
Lack of changes to fronline processes after AI…	12

Bridge today *and* tomorrow with AI

1

Put AI into action

Make it meaningful

Empower everyone

Act responsibly

2

Respond today with AI

Solve today's challenges

Lay a foundation for what's next

3

Reimagine what's possible

AI at scale

AI for every employee and skill level

From automation to autonomous

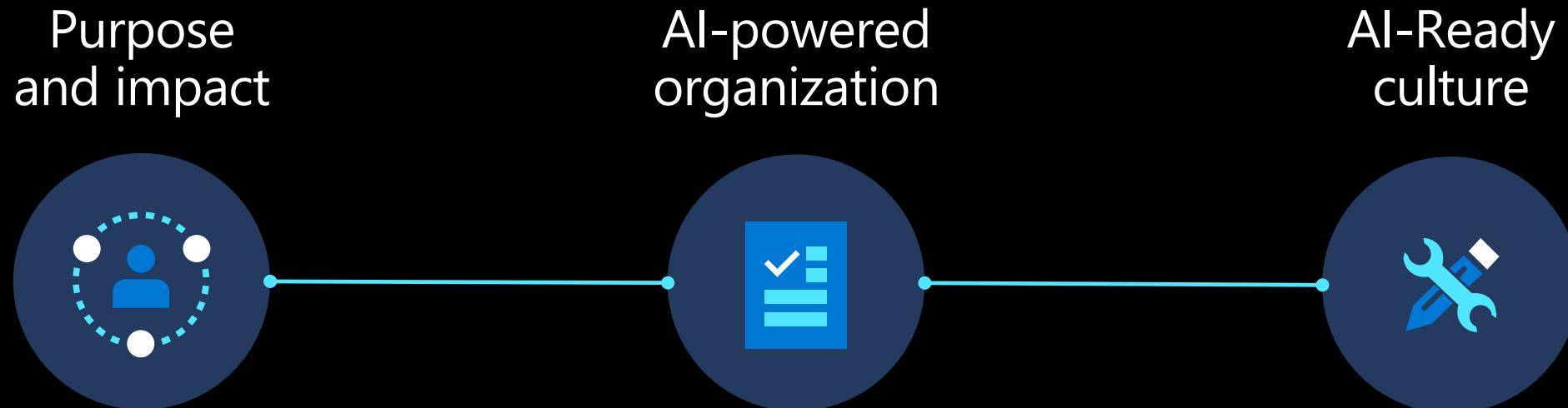# AI in Action
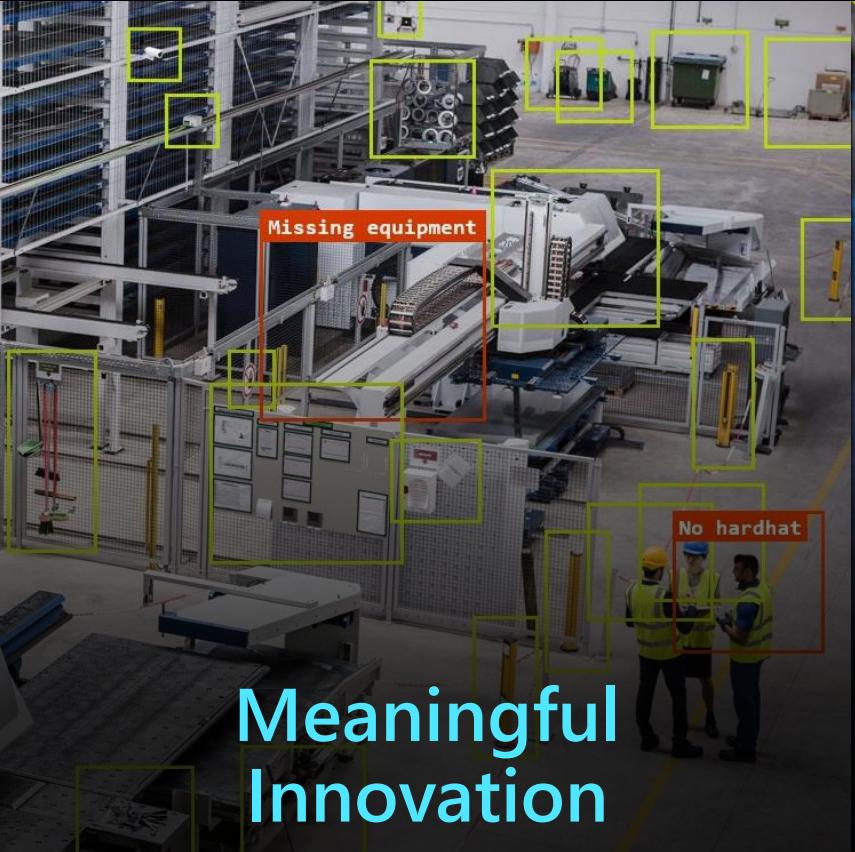
Meaningful Innovation
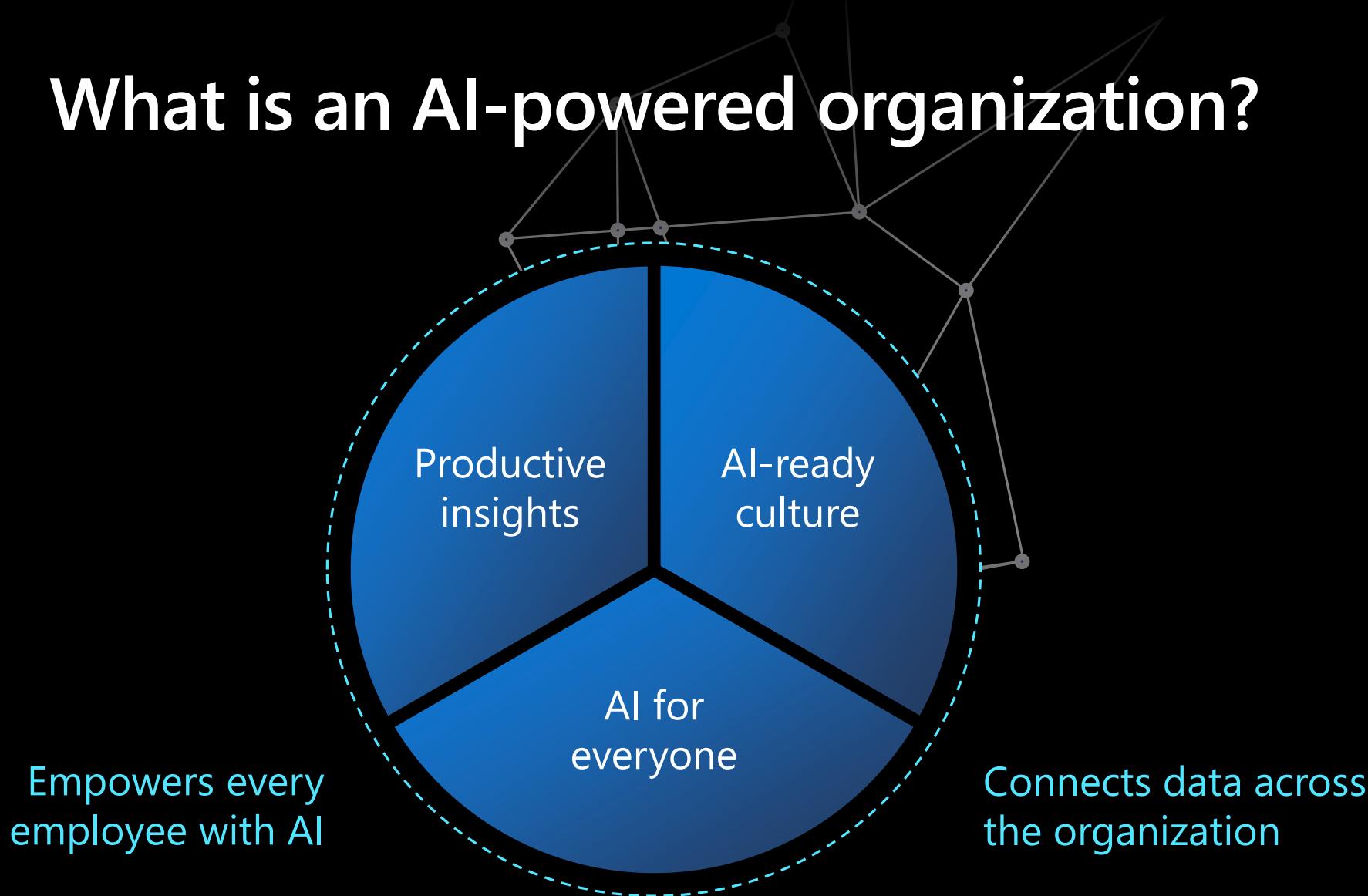
Empowering People

Responsible AI

AI approach

Flammable equipment near heat source

Meaningful Innovation

No hardhat
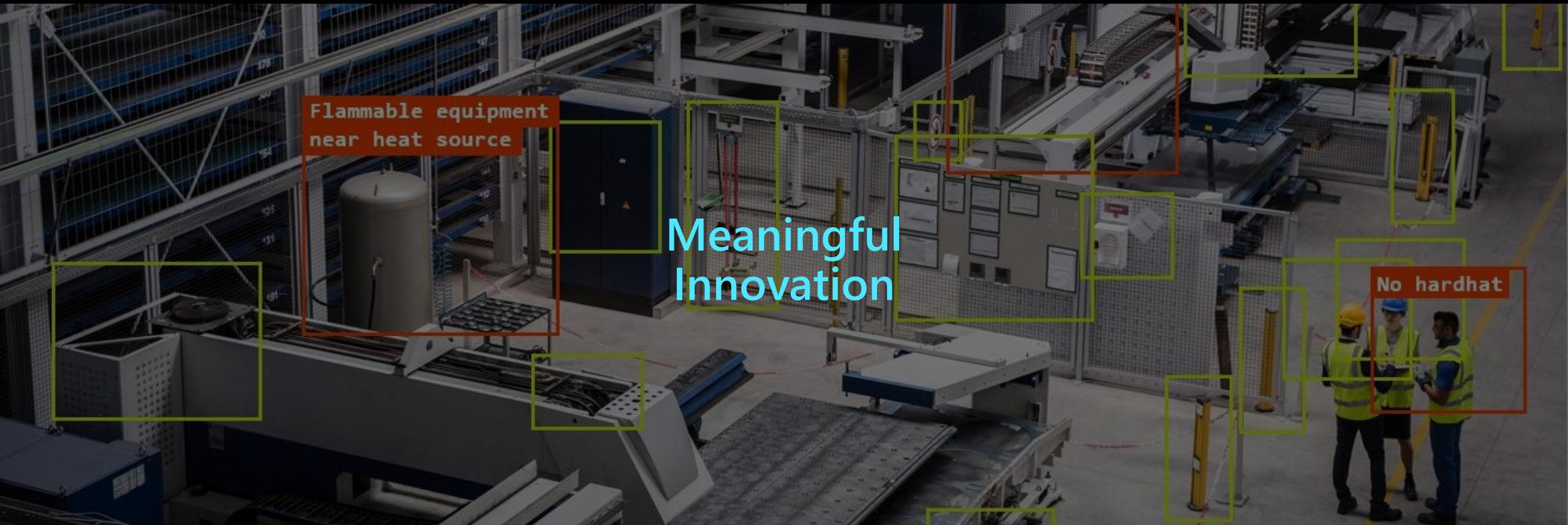
Put Meaningful AI into action

Purpose
and impact

AI-powered
organization

AI-Ready
culture

Plan with purpose for impact

1. Move beyond pilots
2. Balance short-term and long
3. Moonshot thinking

Purpose
and impact

What is an AI-powered organization?

Productive insights

AI-ready culture

AI for everyone

Empowers every employee with AI

Connects data across the organization

AI-powered organization

AI approach
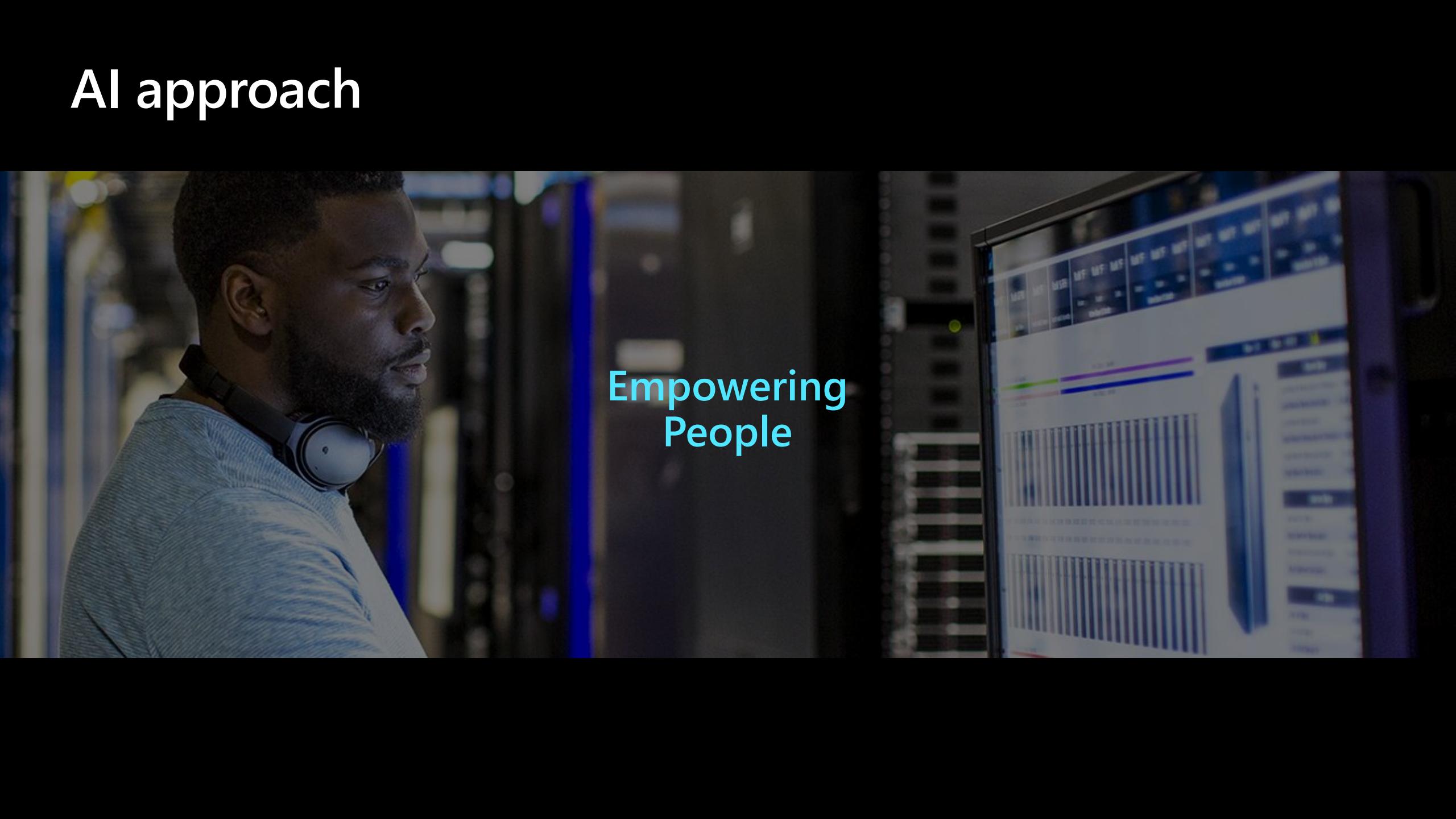
Empowering People

Empower everyone to Put AI into Action

AI for all
employees

Get your people
AI-Ready

Bring it
all together

AI organizational models

Centralized AI

Small group in
full control of AI

Scale with no
empowerment

Decentralized AI

No central group
in control of AI

Pockets of innovation
but no scale

AI-Powered

Centralized Principles
& Practices for AI

Scaled innovation
connected to the business

AI approach

Responsible
AI

Put responsible AI into Action

Responsible AI Standard

The Microsoft Responsible AI Standard is our internal playbook for responsible AI. It shapes the way in which we create AI systems, by guiding how we design, build, and test them.

Get the Responsible AI Standard >

Responsible AI Impact Assessment Template

The Responsible AI Impact Assessment Template is the product of a multi-year effort to define a process for assessing the impact an AI system may have on people, organizations, and society.

Download the Impact Assessment Template >

Responsible AI Impact Assessment Guide

This resource provides activities and guidance for teams working through the Responsible AI Impact Assessment Template to help frame and support conversations about Responsible AI.

Read the Impact Assessment Guide >

Transparency Notes

Transparency Notes allow us to communicate the intended uses, capabilities, and limitations of our AI platform systems to customers, building trust and enabling our customers to build more responsible AI products and services on top of our platforms.

Explore Transparency Notes >

https://www.microsoft.com/en-us/ai/responsible-ai

Putting AI principles into practice

Governance

Tools

Practices

Principles
Fairness
Accountability
Transparency
Inclusiveness
Reliability & Safety
Privacy & Security

Human-AI Guidelines

Conversational AI Guidelines

Inclusive Design Guidelines

AI Fairness Checklist

Datasheets for Datasets

https://www.microsoft.com/en-us/ai/responsible-ai-resources

Tools for responsible AI

Protect

Control

Technology Tool

Fairlearn

Fairlearn empowers AI developers to assess their systems' fairness and mitigate any negative impacts for groups of people, such as those defined in terms of race, gender, age, or disability status.

Use FairLearn >

FairLearn

Technolog...

Countert...

Microsoft cr...
help organi...
developers...
robust, relia...

Learn more

Use Counte...

Technology tool

SEAL Homomorphic Encryption

SEAL uses open-source homomorphic encryption technology to allow computations to be performed on encrypted data while preventing private data from being exposed to cloud operators.

Use SEAL with Azure ML >

Register for the SEAL webinar >

Machine-learning operations (MLOps)

Azure Machine Learning capabilities that automate and accelerate the machine learning lifecycle

MLOps ∨   Features   Resources   Interactive demos   Customer stories

Explore Azure Machine Learning to build and deploy models faster

Training reproducibility with advanced tracking of datasets, code, experiments and environments in a rich model registry.

Autoscaling, powerful managed compute, no-code deploy and tools for easy model training and deployment.

Efficient workflows with scheduling and management capabilities to build and deploy with continuous integration/continuous deployment (CI/CD).

Advanced capabilities to meet governance and control objectives and promote model transparency and fairness.

https://www.microsoft.com/en-us/ai/responsible-ai-resources

"People will not use technology they do not trust. Our ability to innovate therefore depends on maintaining a greater level of transparency."

Brad Smith
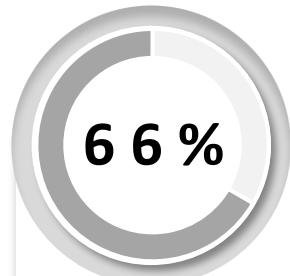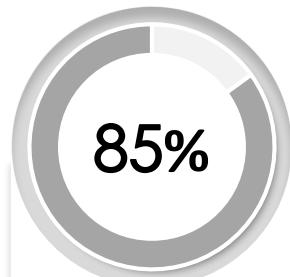
President & Chief Legal Officer

Why transformations fail ? Mostly due to cultural / behavioral challenges
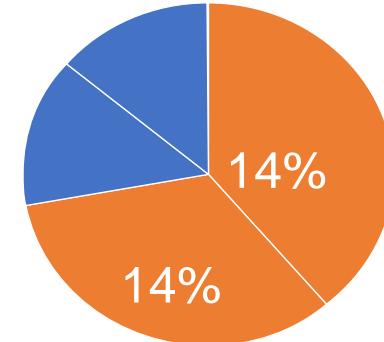
Factors contributing to failure

66%

…of major transformations fail to fully realize business case objectives

85%

…of transformations that fail, do so because of such as culture or behavior

All other obstacles

Inadequate resources or budget

Employee **resistance** to change

14%

14%

Management **behavior** does not support change

>70%
of these failures are due to organizational and culture issues

Cultural transformation framework

A Inspiring mission and actionable strategy
Aligned with customer expectations | Embracing external trends | Differentiate and make us unique

B New culture defined, bought, tested and declared
Connected with mission and strategy | Intentional | Leadership buy-in

C Five execution platforms to change
People | Awareness & Activation | Communities | Enablers | Rs (Rewards, Recognition, R&R)

D Governance model designed and launched
Performance, Power and Health KPIs

PACER

Five platforms

c

People	**A**wareness and activation	**C**ommunities	**E**mpower and enable	**R** four Rs
☑ Diversity	☑ Strategy	☑ Leaders	☑ Tools	☑ Roles
☑ Inclusion	☑ Mindset/behaviors	☑ Managers	☑ Process	☑ Responsibilities
☑ Hiring	☑ Customer centric	☑ Role based	☑ Readiness	☑ Recognitions
☑ Onboarding	☑ Celebrate wins	☑ Influential		☑ Rewards
☑ New way of work	☑ Role play, role model			

Measuring progress

Companies need to manage the performance AND health with equal rigor to achieve successful change

Performance metrics	Power metrics	Health metrics

Performance metrics

Our ability to consistently deliver financial and operational value to stakeholders

Examples:
revenue, OPEX, profit, share

Power metrics

Our ability to demonstrate progress toward our transformation journey

Examples:
customer-adds, consumption usage, satisfaction, churn

Health metrics

Our ability to change mindsets and influence behaviors that result in exceptional performance over time

Examples
employee satisfaction, attrition/retention, manager evaluation, strategy understanding, behaviors and practices

10 things we've learned about culture

1. Honor your past; define your future

From: know-it-all
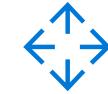
Critical

Fear

Insular

Hero

Individual

To: learn-it-all

Supportive

Brave

External

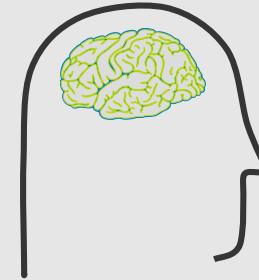Team

One Microsoft

Fixed Mindset
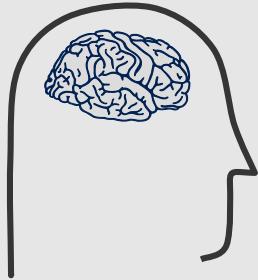
Belief that capabilities are fixed; intelligence is pre-determined

Leads to a desire **to look smart**

Avoiding challenges, seeing failure as a bad outcome

Growth Mindset

Belief that anyone can develop anything, intelligence can be developed

Leads to a desire **to learn**

Embracing challenges, seeing failure as essential to mastery

2. Net it out:
Simple, yet strategic

Build best-in-class platforms and productivity services for a mobile-first, cloud-first world

Reinvent productivity & business processes

Build the intelligent cloud platform

Create more personal computing

Create clarity

Generate energy

Deliver success

Growth mindset →

Customer obsessed
Diverse and inclusive
One Microsoft

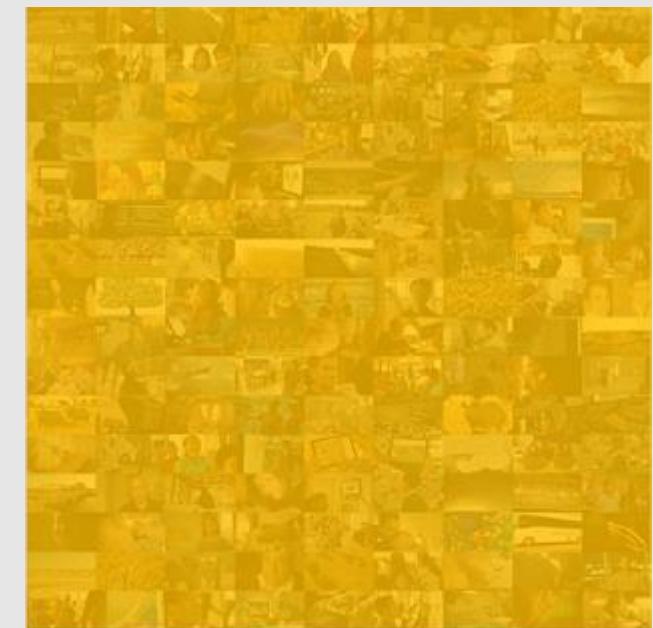→ Making a difference

MODEL

COACH

CARE

3. You can't fake it

4. Have a purpose-driven mission

Microsoft's mission

Empower every person and every organization on the planet to achieve more

Microsoft

5. Make symbolic changes
big and small

Microsoft

Growth Mindset

An invitation to a new way of thinking

ACT I: Change your mind
ACT II: What is growth mindset?
ACT III: How do you apply a growth mindset?

Outside in: Carol Dweck Discusses the Power of a Growth Mindset

Microsoft is building a culture founded in a growth mindset, creating an environment where everyone can grow and develop. Carol S. Dweck discusses the critical role of how a growth mindset effects achievement, and how a focus on intelligence or talent can undermine motivation and learning.
Please Give Us Your Feedback

6. Make it who you are

Come as you are.
Do what you love.

Maximizing the contribution of every individual allows us to infuse diverse thought as a natural part of the way we innovate.

Meet Migela ⊙

About Our Autism Hiring Program

Our vision is to partner across Microsoft to build a recruitment and onboarding model that increases the percentage of employees with disabilities at Microsoft.
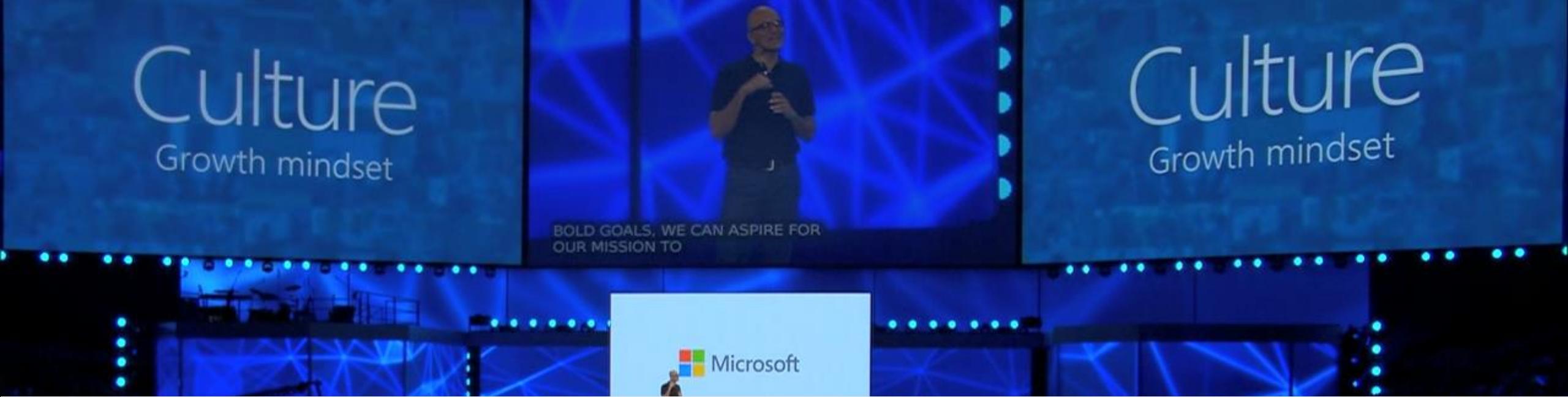
CVP Promotion recommendation template

Executive Attributes and Leadership Principles

Name:	
Current Level:	
Proposed Level:	
Proposed Title:	

Accountability: What are the clear and unique accountabilities and expected business impact that the nominated CVP will have going forward?

7. Communicate, communicate, communicate

Inside Stories

Meet employees who are living our culture

Culture

Learn how we're evolving

8. Let technology accelerate the change

8. Let technology accelerate the change

Keep score

Myths and insights

Collaborate and learn

Connect at scale

9. All oars in the water

10. Stay humble, stay the course

10 things we've learned about culture

1. Honor your past; define your future
2. Net it out: Simple yet strategic
3. You can't fake it
4. Have a purpose-driven mission
5. Make symbolic changes big and small
6. Make it who you are
7. Communicate, communicate, communicate
8. Let technology accelerate the change
9. All oars in the water
10. Stay humble, stay the course

What did I learn

#1 Start with the customer journey
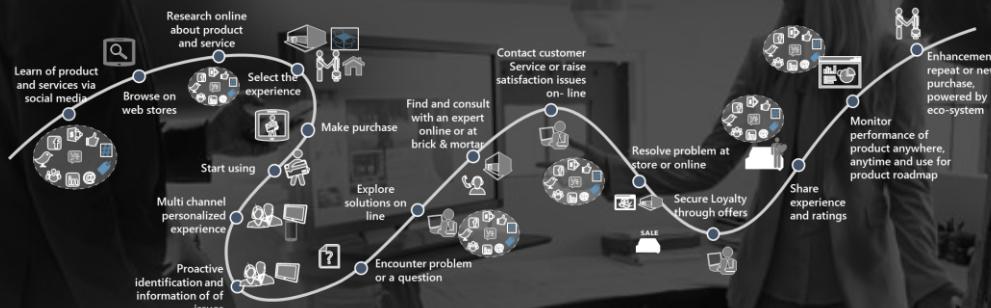
#2 Leadership commitment

1 Be genuine – You can't fake it	6 Make it who you are
2 Honor your past; define your future	7 Let technology accelerate the change
3 Have a purpose-driven mission	8 Communicate, communicate, communicate
4 Net it out: simple yet memorable	9 All oars in the water
5 Make symbolic changes big and small	10 Be humble, stay the course

#3 Plan for a journey

1 Dream
2 Design
3 Deliver

#4 Culture eats strategy for breakfast

70% of transformations fails due to management behavior or engagement, not resources or strategy
McKinsey

- *Define, measure and manage the cultural change*
- *Build and leverage 5 transformation platforms*

(People, Awareness / Activation, Communities, Empower and enable, R&R&R&R)

#5 Keep learning

Customers demographics and expectations will continue to evolve
Innovationn will continue to generate new capabilities
Competition also has a plan and may show up from unusual places

#6 Culture is the ultimate competitive advantage

"What I realize more than ever now is that my job is curation of our culture. If you don't focus on creating a culture that allows people to do their best work, then you've created nothing."
Satya Nadella

Thank you!

Andy Kaplan
Solutions Director Caribbean & Central America
Country manager Puerto Rico
Microsoft

✉ Andy.Kaplan@microsoft.com

in linkedin.com/in/andykaplan

Leaarn more https://www.microsoft.com/en-us/industry

Metaverse

MS Library ProResearch
February 2022

Executive Summary

- By 2026, 25% of people will spend at least one hour a day in the metaverse for work, shopping, education, social and/or entertainment, and 30% of organizations will have products and services ready for metaverse.

Background and Market

- The amount of hype around the metaverse is overwhelming. There is no consensus yet on what the metaverse is, or who it is for.

- The metaverse is still in the first stages of being built. It will require countless new technologies, protocols, companies, innovations, and discoveries to work, and will consist of many elements and opportunities.

- The metaverse market may reach $783.3 billion by 2024 vs. $478.7 billion in 2020 representing a compound annual growth rate of 13.1%.

Microsoft's Role

- Microsoft Cloud provides a comprehensive set of resources designed to power metaverses – IOT capabilities, Microsoft Mesh, AI-powered resources, and game services.

Outlook

- The adoption of metaverse technologies is nascent and fragmented.

- To be successful, the metaverse will require key elements such as standards, rules of behavior, digital currencies, and acknowledgement of digital asset ownership.

Introduction & Background

The metaverse has no authoritative definition, though several thought leaders have offered a framework

Realtime 3D social medium where people can create and engage in shared experiences as equal participants in an economy with societal impact.

A massively scaled and interoperable network of real-time rendered 3D virtual worlds which can be experienced synchronously and persistently by an effectively unlimited number of users with an individual sense of presence, and with continuity of data, such as identity, history, entitlements, objects, communications, and payments.

A persistent, infinitely-scaling virtual space with its own economy and identity system.

A collective virtual shared space, created by the convergence of virtually enhanced physical and digital reality. It is persistent, providing enhanced immersive experiences, as well as device independent and accessible through any type of device, from tablets to head-mounted displays.

Persistent, shared, 3D virtual spaces in a virtual universe.

The metaverse: an evolution of the internet

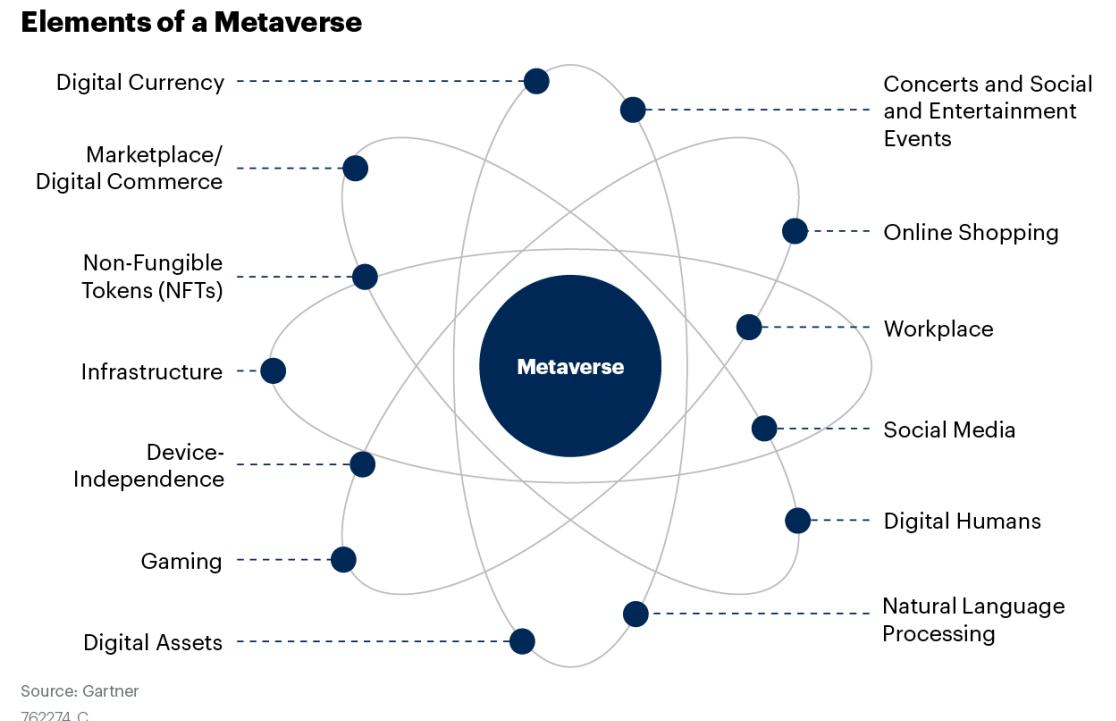| Fixed-line internet	The fixed-line internet of the 1990s and early 2000s inspired many of us to purchase our own personal computer. However, this device was largely isolated to our office, living room or bedroom. As a result, we had only occasional access to and usage of computing resources and an internet connection.
Mobile internet	The mobile internet led many around the globe to purchase their own personal computer and internet service, which meant almost everyone had continuous access to both compute and connectivity. Even though it did not change the underlying architecture of the internet, we still recognize it as iteratively different. This is because the mobile internet has led to changes in how we access the internet, where, when and why, as well as the devices we use, the companies we patron, the products and services we buy, the technologies we use, our culture, our business model, and our politics.
Metaverse	The metaverse is best understood as 'a quasi-successor state to the mobile internet', as it will not fundamentally replace the internet, but instead build upon and iteratively transform it. The metaverse will place everyone inside an 'embodied', or 'virtual' or '3D' version of the internet and on a nearly unending basis. In other words, we will constantly be 'within' the internet, rather than have access to it, and within the billions of interconnected computers around us, rather than occasionally reach for them, and alongside all other users and real-time.

Introduction & Background

The metaverse: building it and using it

- The metaverse is an example of [combinatorial innovation](#) that requires multiple technologies and trends, such as 3D world streaming technology, digital twins, and digitization of real-world objects, to form a complete metaverse.

- It is often [mis-described](#) as virtual reality. In truth, virtual reality is merely a way to experience the metaverse. To say VR is the metaverse is like saying the mobile internet is an app. Note, too, that hundreds of millions are already participating in virtual worlds on a daily basis (and spending tens of billions of hours a month inside them) without VR/AR/MR/XR devices.

- To some extent, there is already a metaverse in games, and it's poised to grow with expanding features.

Introduction & Background

The metaverse: building it and using it

- The metaverse is still in the first stages of being built. It will [require](#) countless new technologies, protocols, companies, innovations, and discoveries to work. And it won't directly come into existence; there will be no clean "Before metaverse" and "After metaverse". Instead, it will slowly emerge over time as different products, services, and capabilities integrate and meld together.

- The metaverse will consist of many elements and opportunities such as a digital economy, where users can create, buy, and sell goods.

- In the more idealistic visions of the metaverse, it's interoperable, allowing you to take virtual items like clothes or cars from one platform to another.

Elements of a Metaverse

Digital Currency — Concerts and Social and Entertainment Events

Marketplace/Digital Commerce — Online Shopping

Non-Fungible Tokens (NFTs) — Workplace

Infrastructure — **Metaverse** — Social Media

Device-Independence — Digital Humans

Gaming — Natural Language Processing

Digital Assets

Source: Gartner
762274_C

Gartner.

Image source: [Gartner](#)

The Metaverse: A Broad Timeline of Events 1992-2015

Neal Stephenson coined the term "metaverse" in his novel *Snow Crash*, to describe a 3D virtual space.

Philip Rosedale's Linden Lab's released *Second Life*, an online virtual world.

Roblox, an online platform that allows users to create and share games with others is introduced.

Ernest Cline introduced many young people to the concept of a virtual reality world in his novel *Ready Player One*.

1992	2002	2003	2004	2006	2009	2011	2012

Michael Grieves introduced the concept and model of the digital twin – the digital counterpart of a physical object.

World of Warcraft, an online multiplayer role-playing game, is released by Blizzard Entertainment.

Bitcoin, the worlds first successful cryptocurrency and blockchain platform is created.

The concept of NFTs (Non-Fungible Tokens) is introduced with the creation of "Colored Coins," in which additional information is incorporated onto a bitcoin so that it is no longer fungible but unique.

The Metaverse: A Broad Timeline of Events 2015-2021

Vitalik Buterin and Gavin Wood launch the Ethereum Network, along with the ethereum blockchain.

Introduction of *Pokémon Go*, a game using augmented reality technology to overlay a virtual world onto the real world.

Travis Scott and Marshmello perform in the video game *Fortnite* to just under 30 million people.

Facebook changed its name to Meta and announced its plan to bring the metaverse to life.

| 2015 | 2015 | 2016 | 2017 | 2020 | 2021 | 2021 |

Decentraland's first iteration of an online virtual world is created. It allocated "land" via a proof of work algorithm.

Fortnite, a multiplayer video game introduced many people to the look and feel of the metaverse and cryptocurrency. Fortnite user base totals 350 million.

Microsoft announced Mesh, a platform designed for virtual collaboration across platforms.

Mixed Reality:
A New Vision for Computing

Adrian Michels

Mixed Reality Engineering
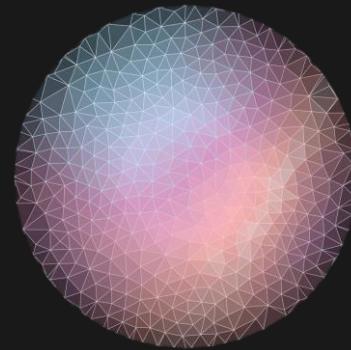
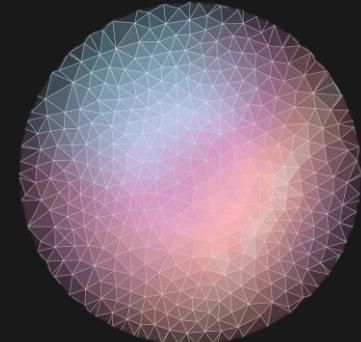WHAT IS MIXED REALITY?

PHYSICAL WORLD

DIGITAL WORLD
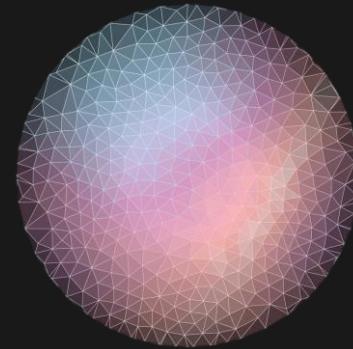
MIXED REALITY SPECTRUM

PHYSICAL WORLD

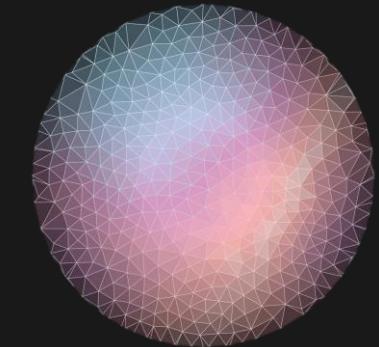DIGITAL WORLD

AUGMENTED REALITY

VIRTUAL REALITY

MIXED REALITY SPECTRUM

MIXED REALITY HELPS SOLVE FOUNDATIONAL BUSINESS PROBLEMS

Remote assistance

Empower employees to work together, even when they're worlds apart.

Training & task guidance

Enhance learning with step-by-step instructions that help employees learn new skills faster.

Collaborative visualization

Visualize room layouts and product designs before building out physical models.

Contextual data access

Gain real-time insight from the working environment to improve operational efficiency.

MIXED REALITY VALUE PROPOSITION

Improved skilling

4x improvement to service time among employees receiving who receive mixed reality training. 80% of companies improve collaboration across cross-functional teams using mixed reality.

Efficiency and quality gains

25% boost in productivity, plus errors reduced to effectively zero, with directions and data given in mixed reality.

Empower First-line Workers

Bring innovative technology and drive digital transformation across your first-line workers, an audience traditionally underserved by tech.

Microsoft Dynamics 365

Remote Assist

Technicians solve problems in real-time with the help of remote experts

Managers walk the job site without being on site

Bring information into view

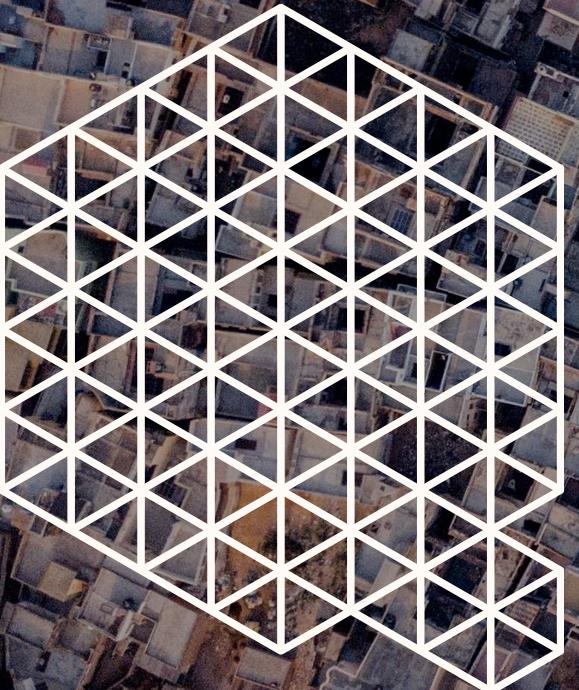*Available for preview on mobile devices starting April 1*

C3 Vertebra

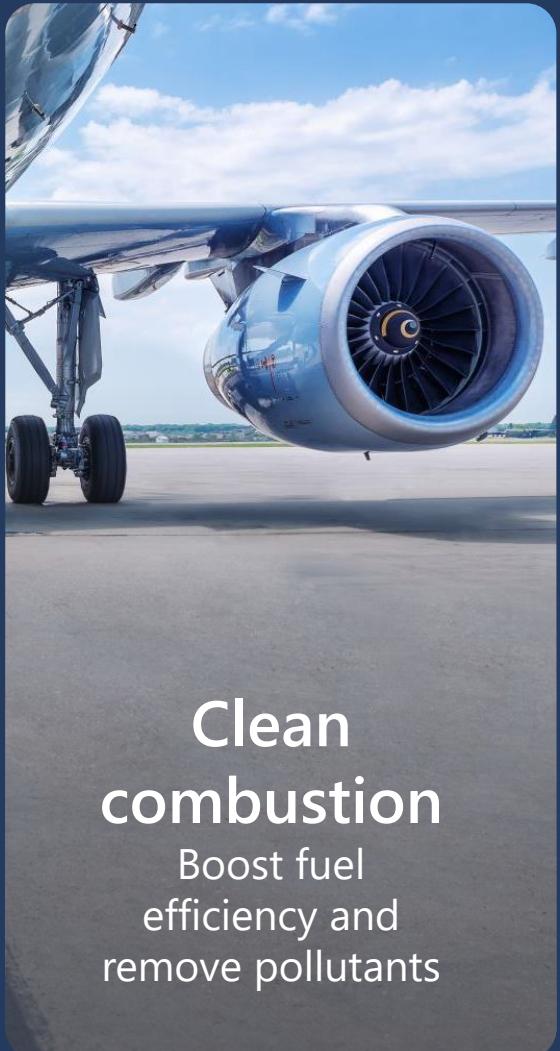DATA IN CONTEXT

Microsoft

Quantum
Solving for a Better Future

May 2022

From hype to scale

We are engineering
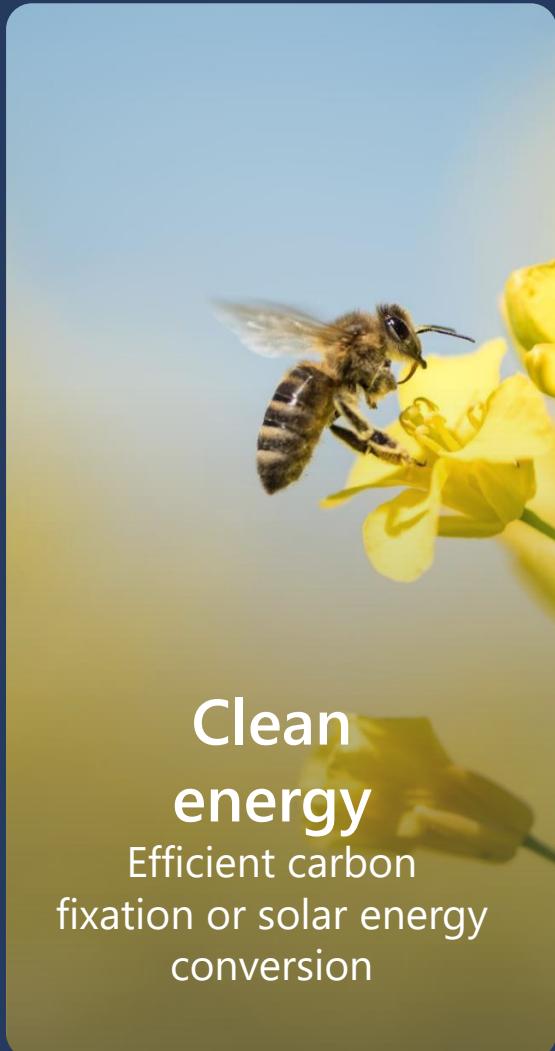the quantum machine
to solve for a better future

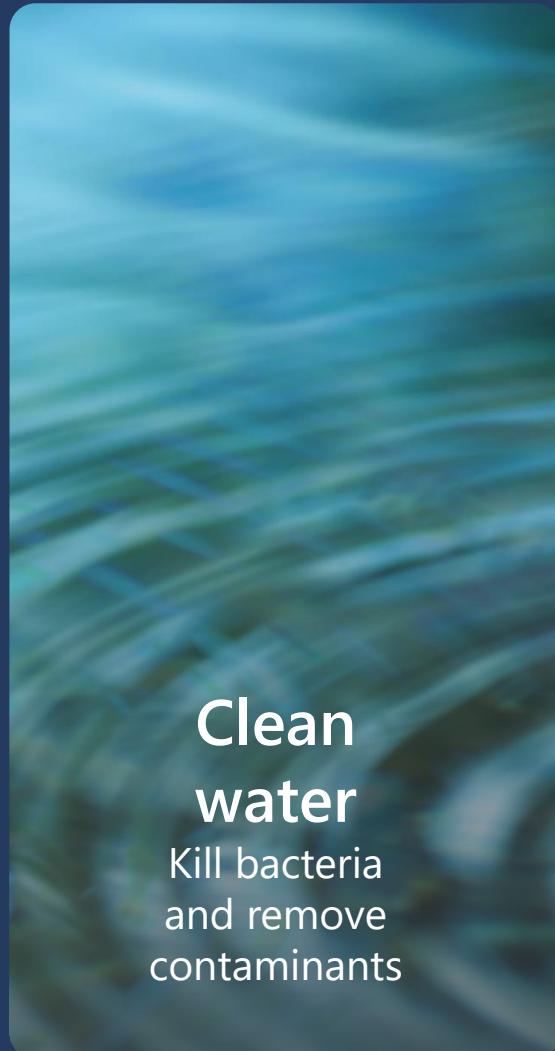# Quantum will disruptively impact chemistry/materials science

Clean combustion
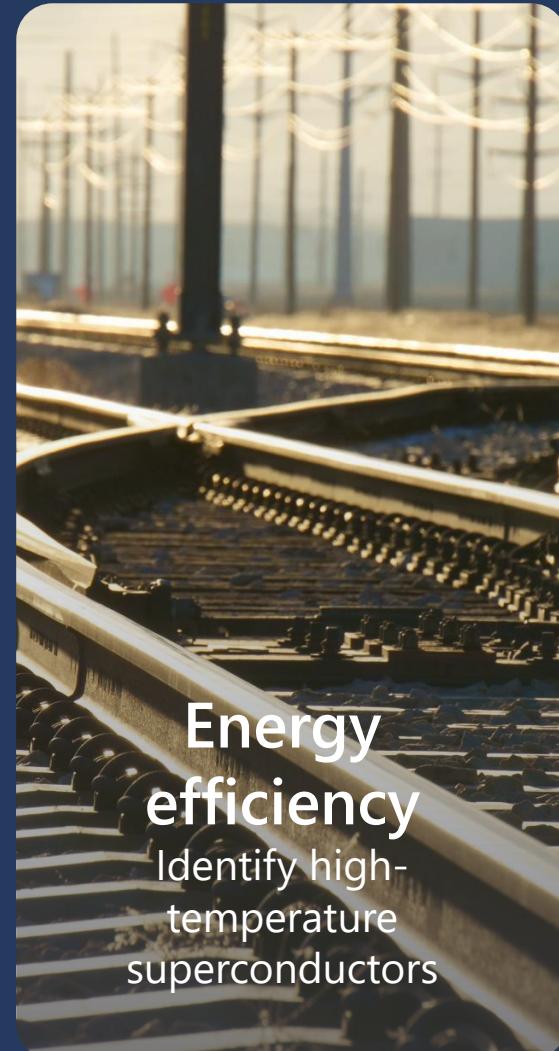Boost fuel efficiency and remove pollutants

Clean energy
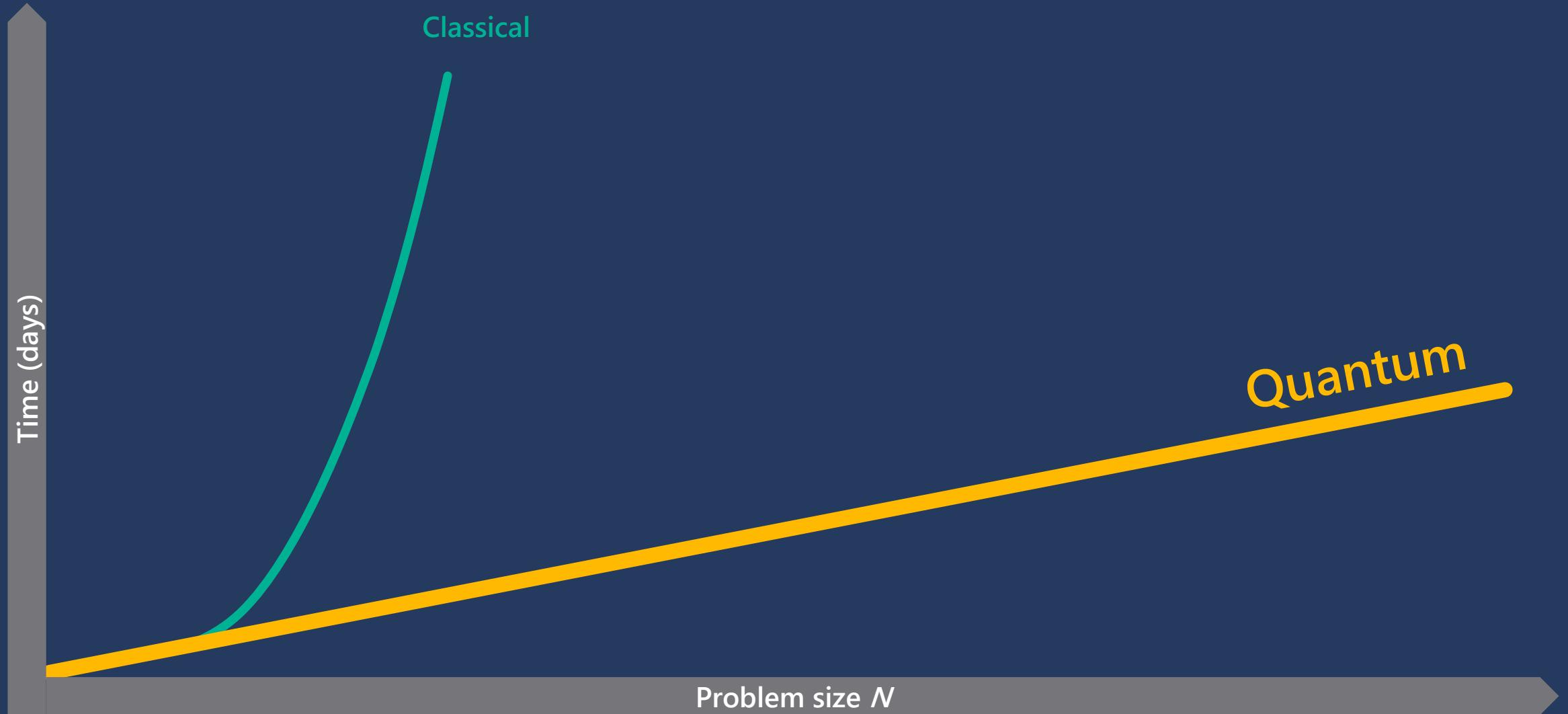Efficient carbon fixation or solar energy conversion

Clean water
Kill bacteria and remove contaminants

Energy efficiency
Identify high-temperature superconductors

Scalable quantum computing can solve classically intractable problems

Classical

Quantum

Time (days)

Problem size N

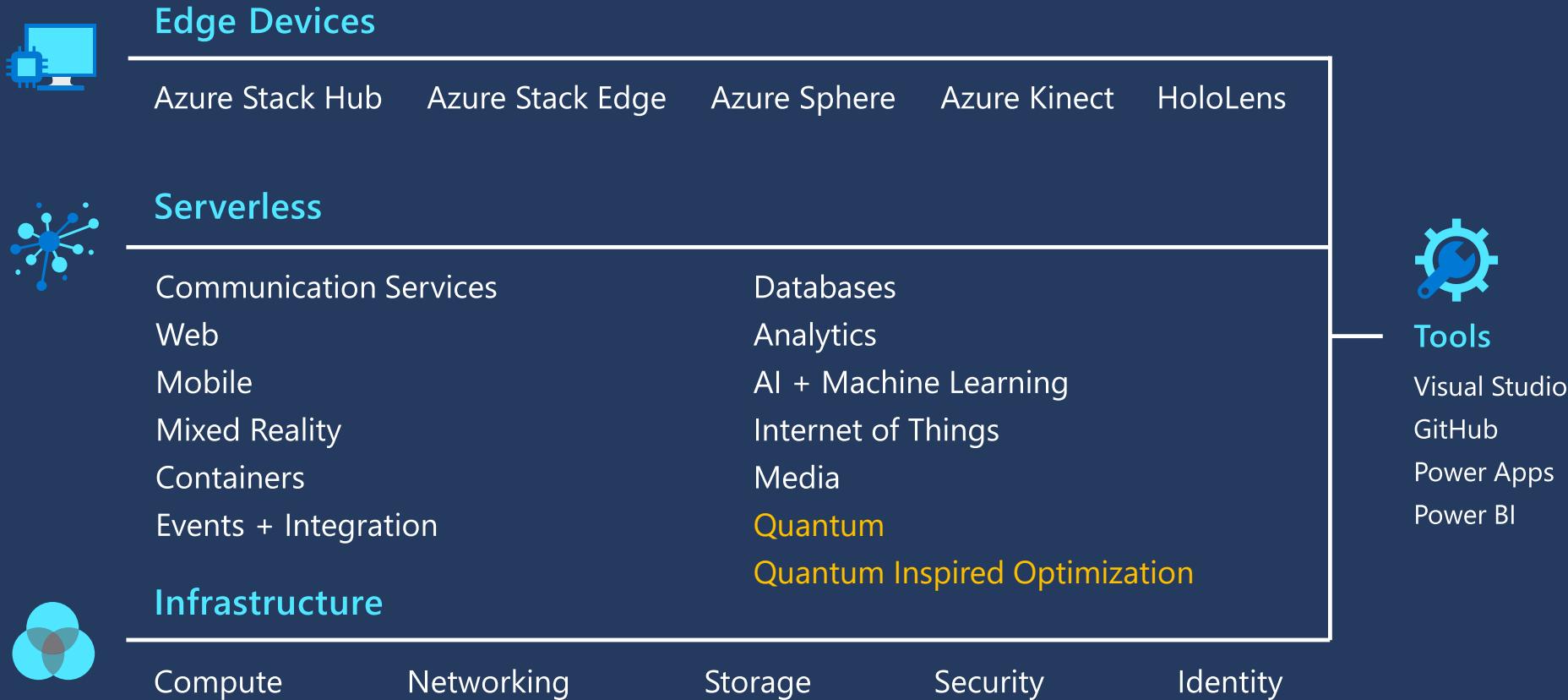# Azure Quantum – Solving for a better future

Horizon 3 ++
Deploying industrial-scale capabilities

Quantum accelerated commercial apps

Continuing scaling of partner systems available through Azure Quantum

Azure Quantum delivery of a scaled quantum machine

Horizon 2
Scaling up

Migrating future quantum workloads to cloud

Advancements in partner hardware and system offerings

Azure Quantum delivers critical topological qubit milestones

Horizon 1
Getting started with quantum computing

Improving classical computing

Diverse portfolio of partner hardware facilitating research and learning

Building a vibrant ecosystem and workforce

Azure Quantum is part of Azure

Edge Devices

Azure Stack Hub   Azure Stack Edge   Azure Sphere   Azure Kinect   HoloLens

Serverless

Communication Services   Databases
Web   Analytics
Mobile   AI + Machine Learning
Mixed Reality   Internet of Things
Containers   Media
Events + Integration   Quantum
                                Quantum Inspired Optimization

Infrastructure

Compute   Networking   Storage   Security   Identity

Tools

Visual Studio
GitHub
Power Apps
Power BI
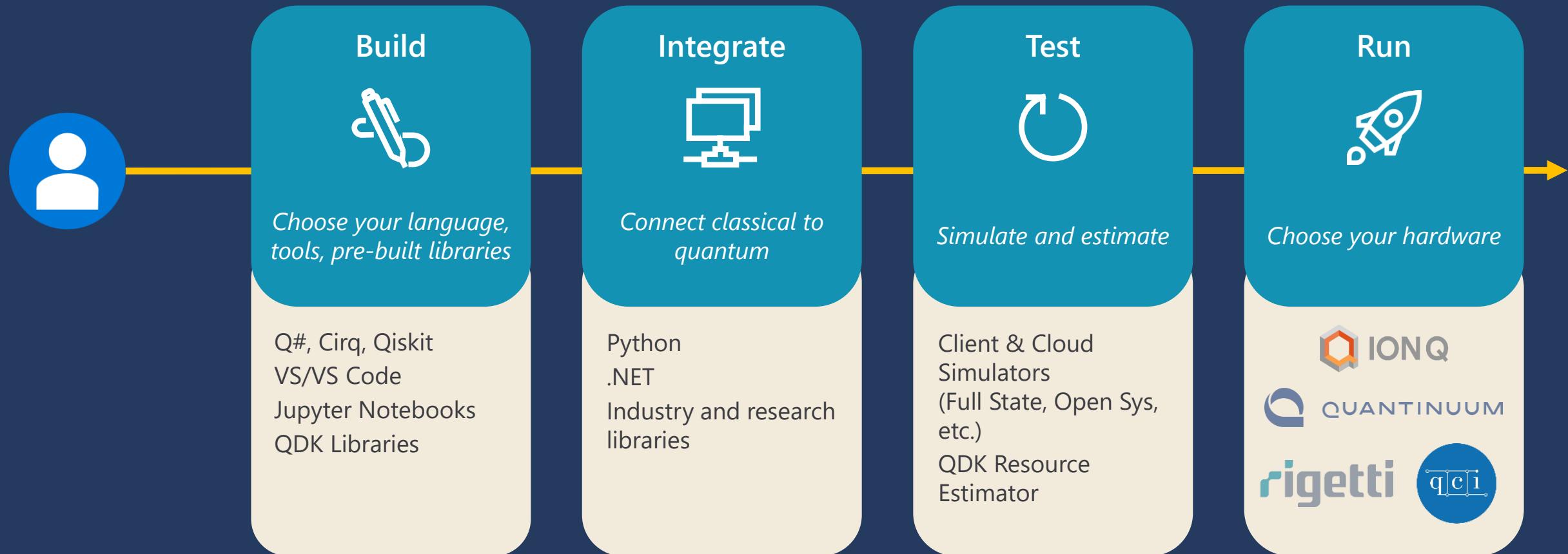
Azure

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Azure Quantum

Get to know the world's first full-stack, open cloud quantum computing ecosystem
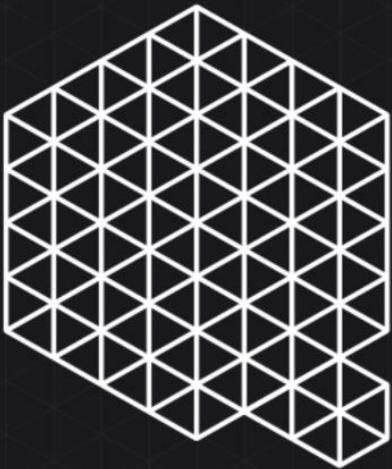
Quantum ⌃ | Quantum impact | Learning | News and blogs

Azure Quantum

Quantum Development Kit

Quantum technology

Azure Quantum Network

```
/// # Summary
/// This operation applies Grover's algorithm to
/// inputs to an operation to find a particular m
operation SearchForMarkedInput (nQubits : INT) :
    using (qubits = Qubit [nQubits])  {
        // Initialize a uniform superposition over a
        PrepareUniform(qubits);
        // The search itself consists fof repeatedly
        // marked state and our start state, which w
        // as a for loop.
        for (idxIteration  in  0...NIterations (nQub
                        ReflectAboutMarked(qubits);
                        ReflectAboutUniform(qubits);
        }
        // Measure and return the answer.
        return ForEach(MResetZ, qubits);
    }
```
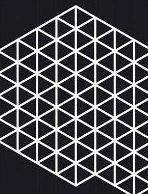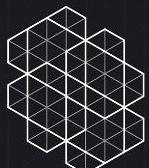
Azure Quantum   +   Quantum Development Kit

Case Study:
MRI Pulse Sequence Optimization

Partner: Case Western Reserve University
Custom optimization protocol to improve
diagnostic capability of MRI with Case Western
Reserve University
Goals:

- Faster and more accurate MRI scans
- Earlier detection
- Avoiding unnecessary surgery
- Increasing MRI throughput

Results

- Either 4x faster scans or
- 50% better image precision

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Case Study:
Traffic Optimization

Customer: Ford Motor Group
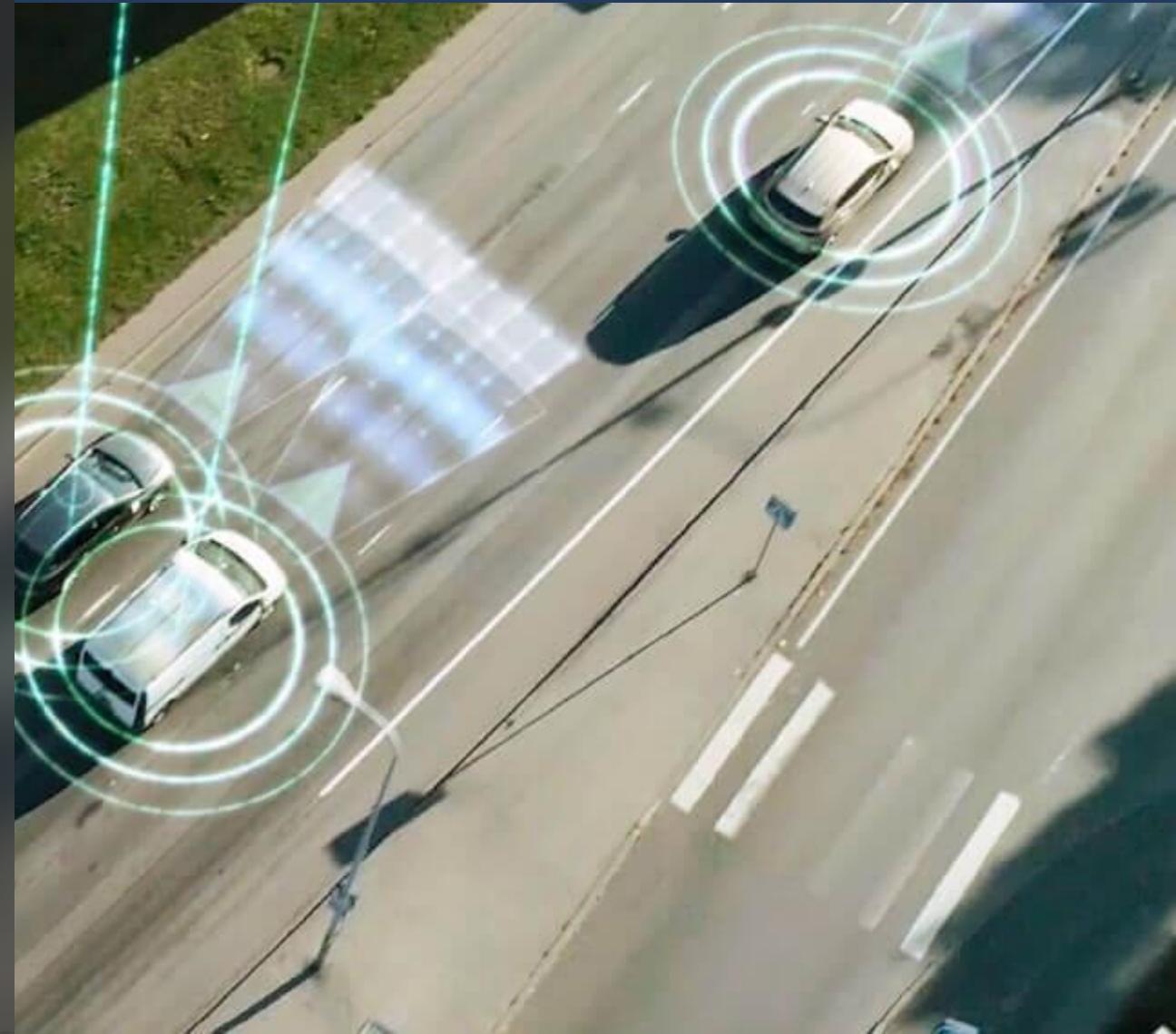**Minimize traffic across a complex road network.**
Demo simulates 5000 cars travelling across the
Seattle area at rush hour.
Goals:

- Reduce average commute time
- Minimize congestion across the road network
- Reduce emissions caused by congestion

Results:

- Congestion level reduced by 73%
- Average commute time reduced by 8%

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