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# Hype Cycle: Emerging Technologies, 2018 Edition

Mike J. Walker
@MikeJWalker

Distills must-know emerging technologies and trends from more than 2,000 technologies that show promise of transformational competitive advantage over the next five to ten years.

# Hype Cycle for Emerging Technologies




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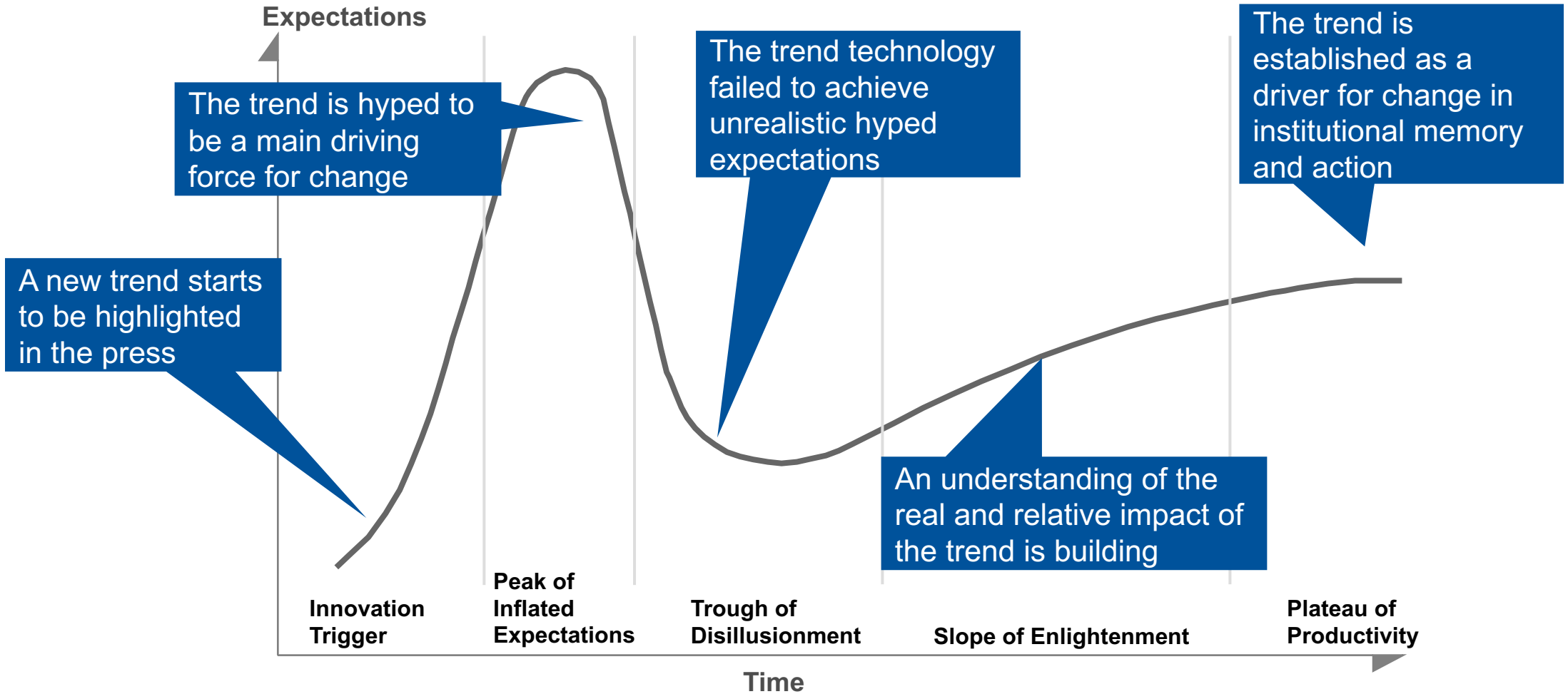
# Explaining the Hype Cycle Stages







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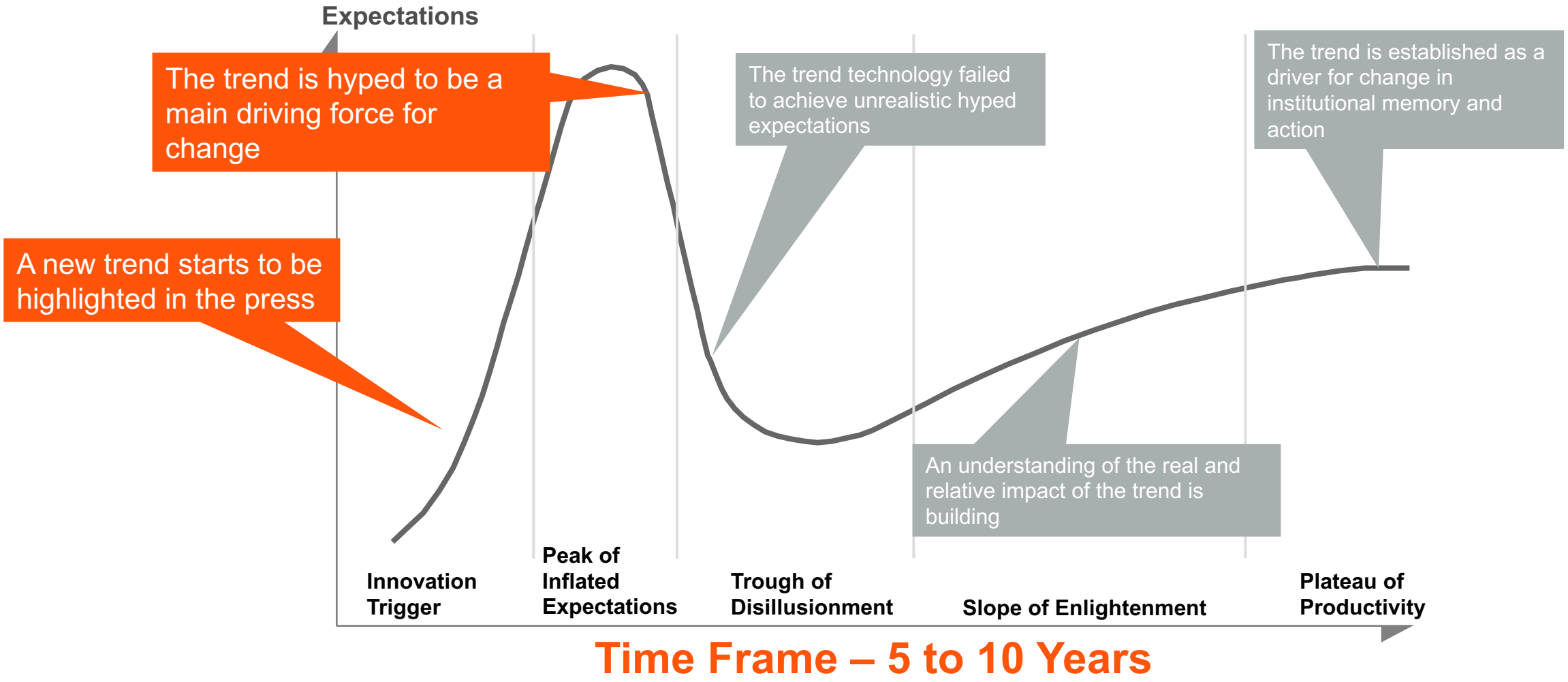
# Focus of the Emerging Technologies Hype Cycle







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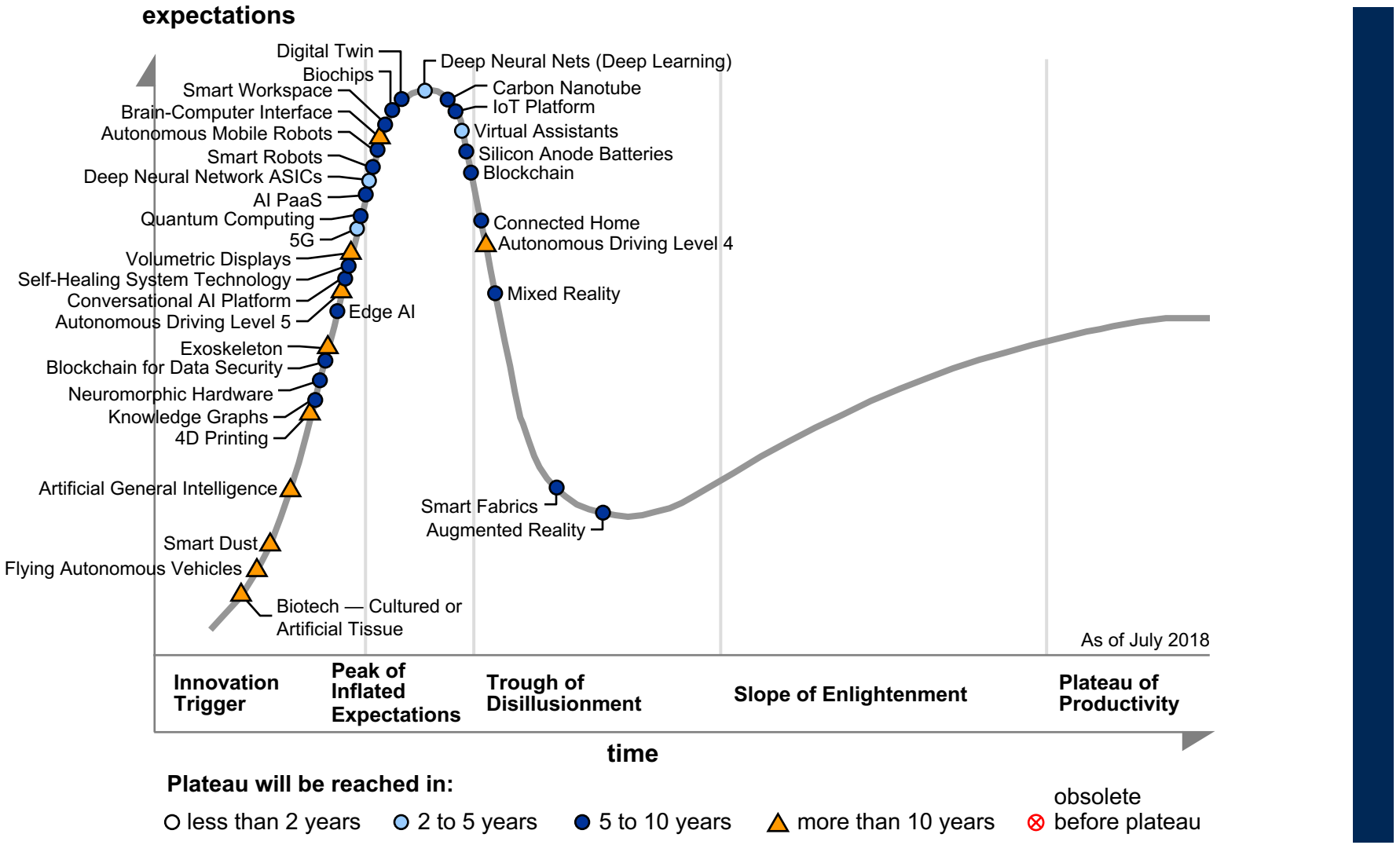
# Hype Cycle for Emerging Technologies, 2018 Edition




From "Hype Cycle for Emerging Technologies, 2018"

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# 5 Emerging Technology Trends




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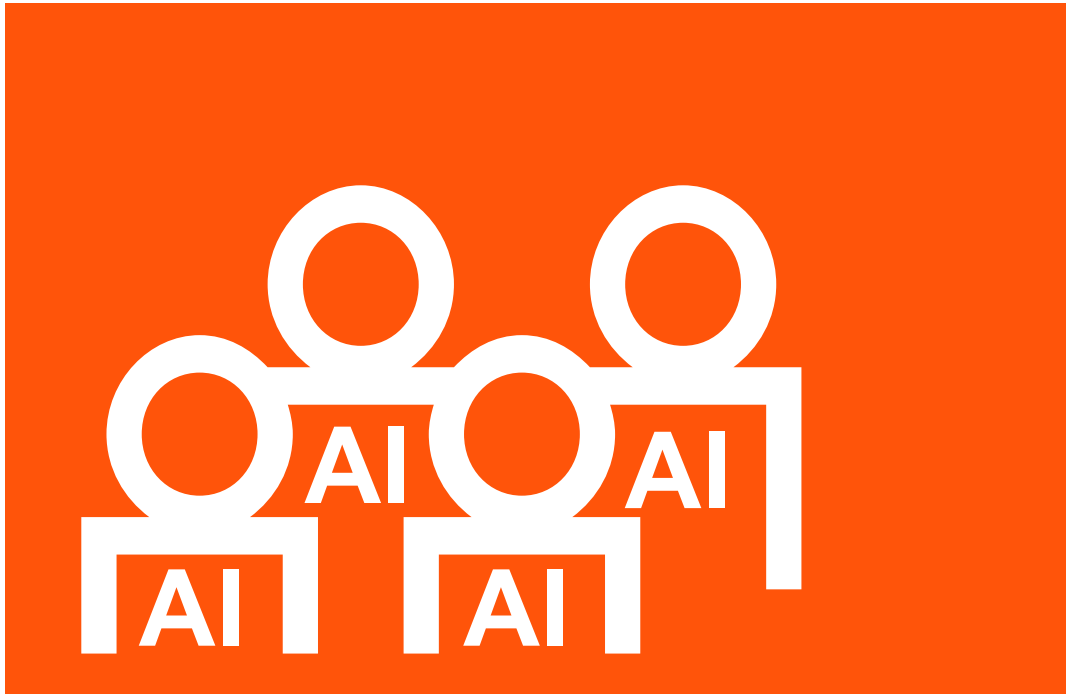
# 1 Democratized Artificial Intelligence







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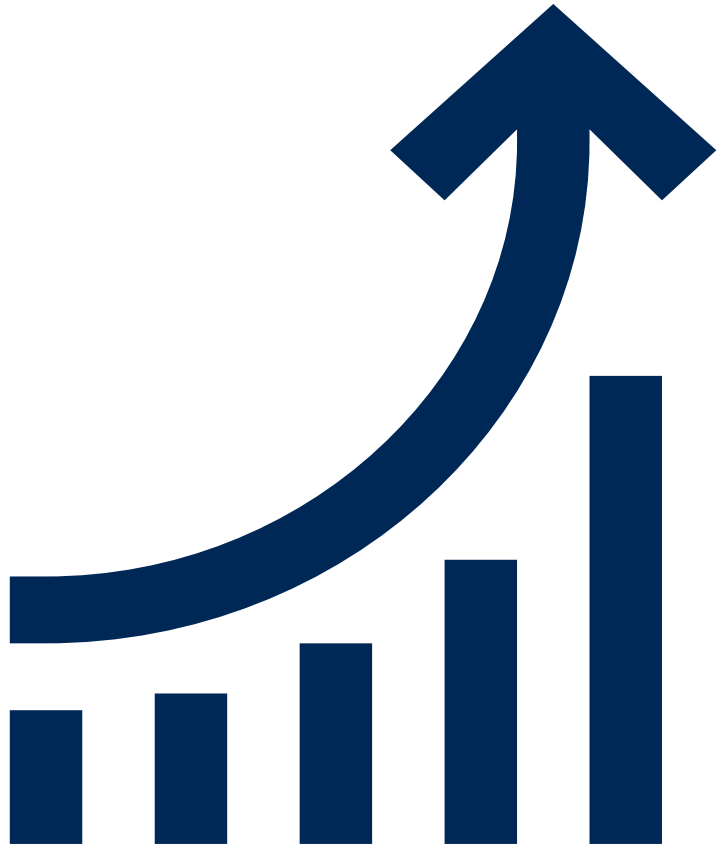
# By 2020

**80%** of Emerging Technologies will have AI foundations



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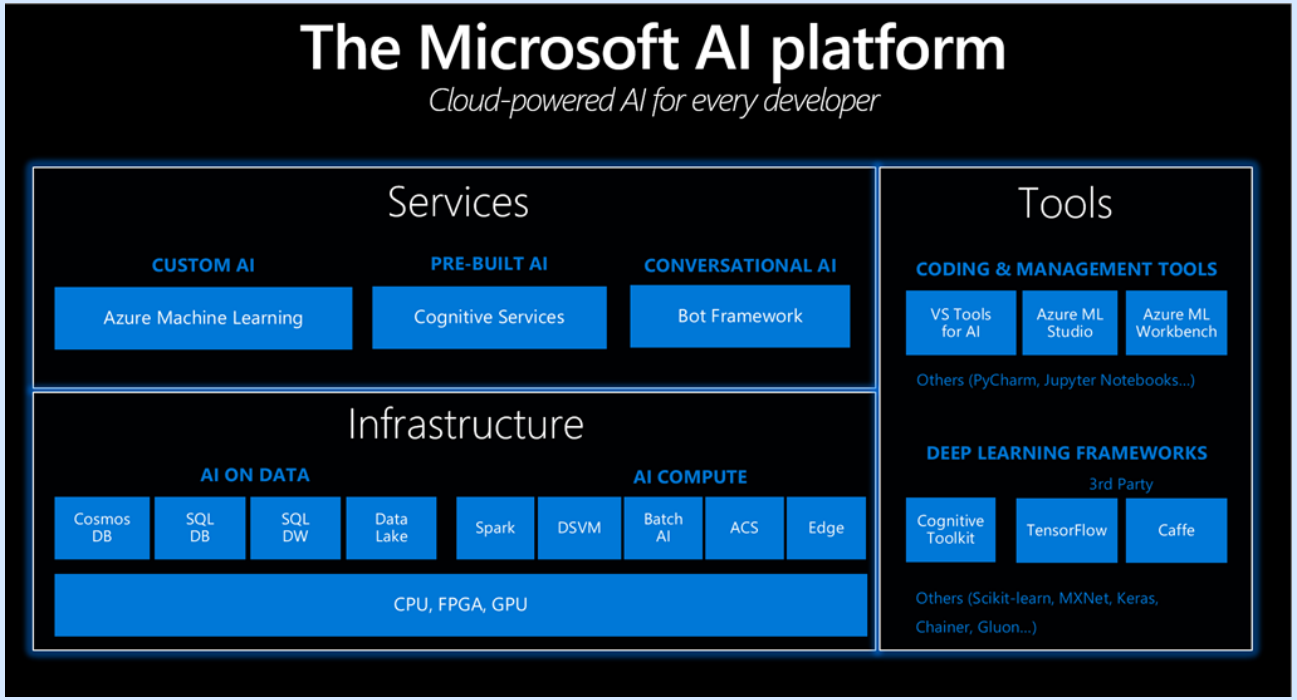
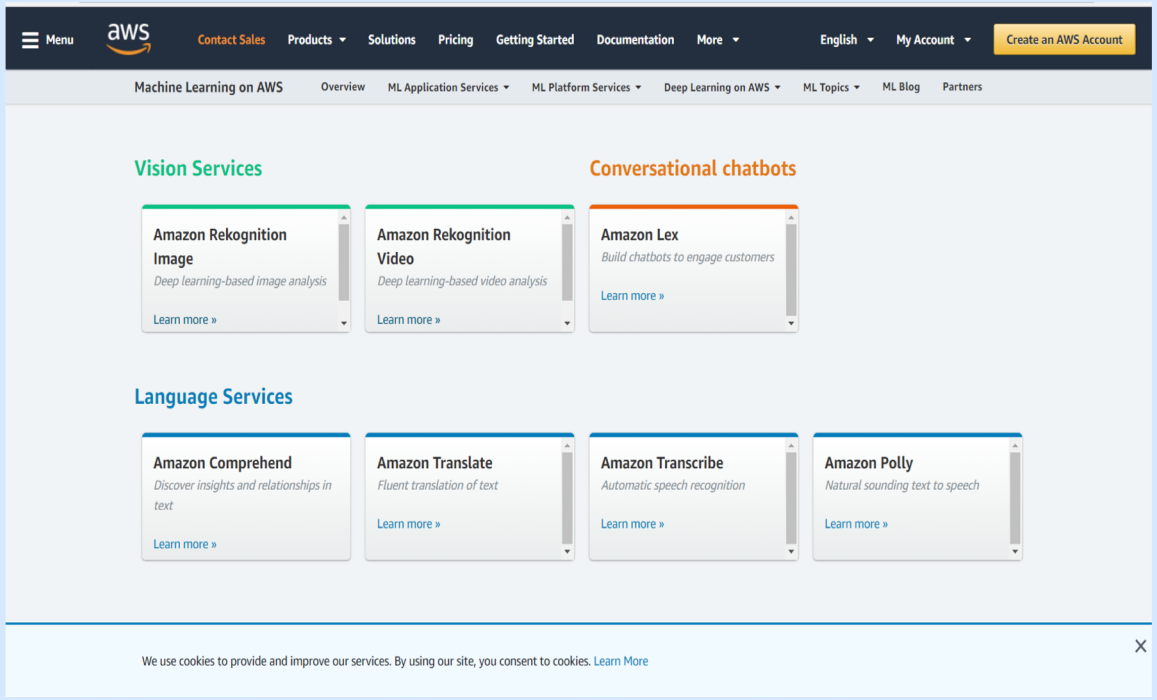
# AI Playing a Critical Role in Development Tools

AI will be accessible to every developer access, simplification (API driven), readily available (cloud-based), and access to broad AI capabilities immediately.



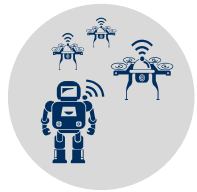



# Democratized AI Emerging Technologies

AI PaaS

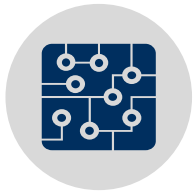
Artificial General Intelligence

Autonomous Driving Level 4 & 5



Autonomous Mobile Robots

Conversational AI Platform



Deep Neural Nets

Flying Autonomous Vehicles

Smart Robots

Virtual Assistants

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# Increasing Retail Service Bots

# Aston Martin Volante

# By 2020

**50%** will lack sufficient AI and data literacy skills to achieve business value




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# 2 Digitalized Ecosystems




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## By 2025

Business value add due to blockchain currently estimated at **$176 billion**

## By 2030

Business value add due to blockchain estimated at **$3.1 trillion**




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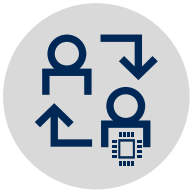
# Digitalized Ecosystems Emerging Technologies

Blockchain

Blockchain for Data Security



Digital Twin

IoT Platform

Knowledge Graphs

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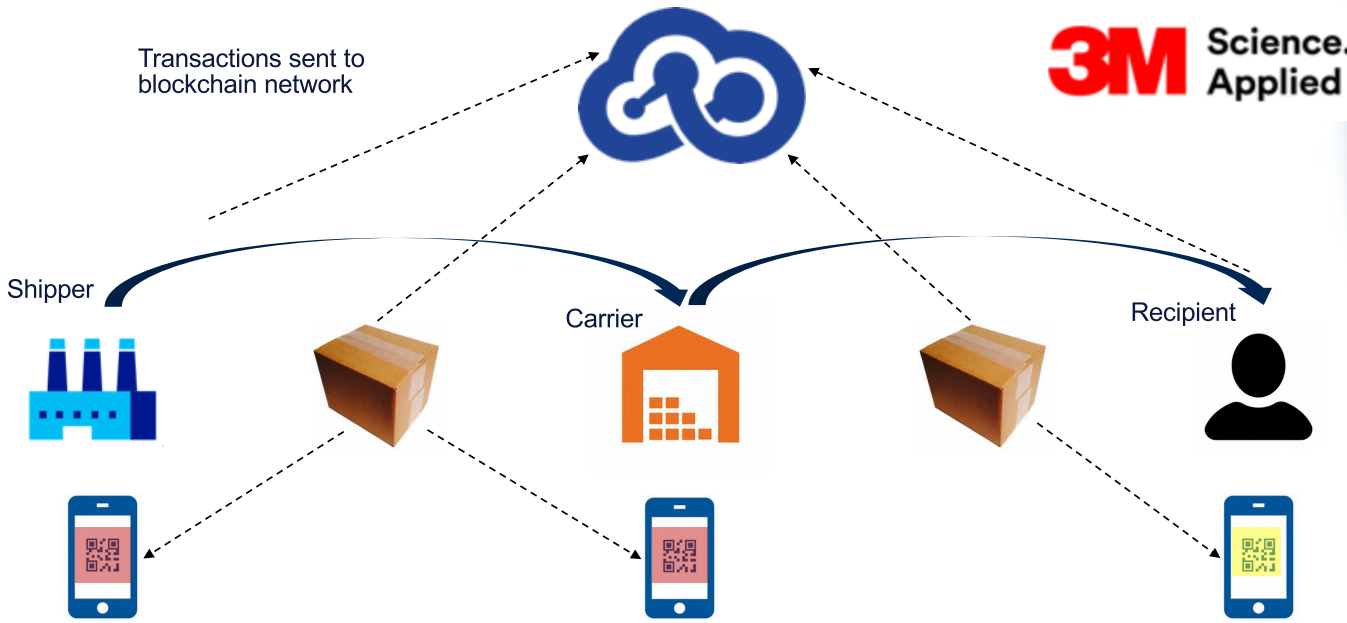
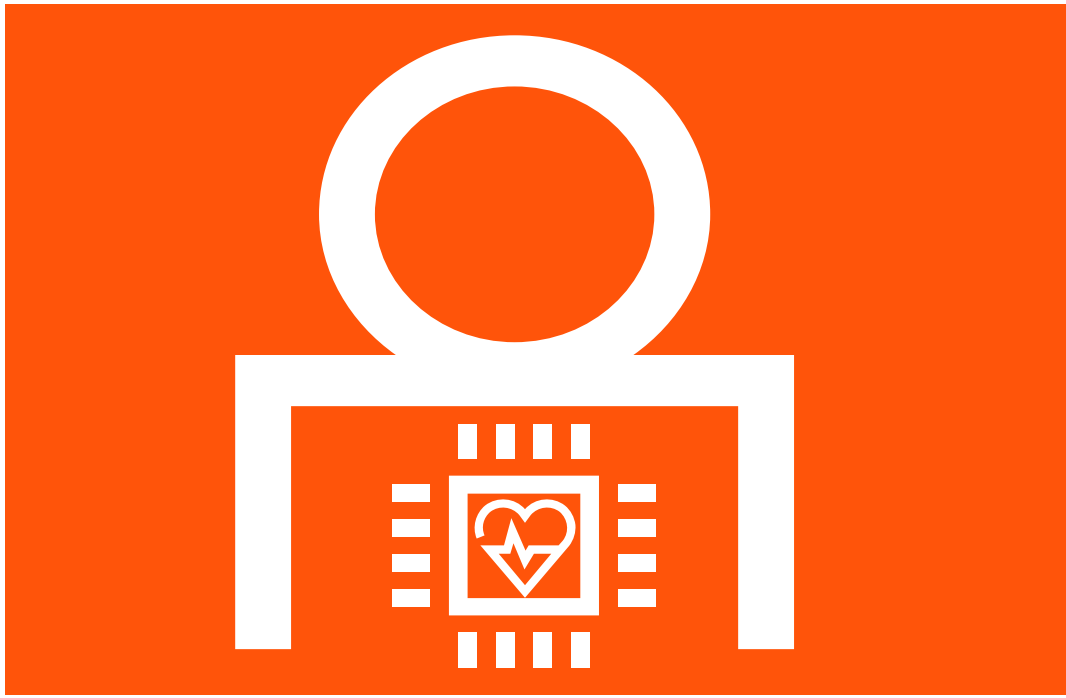
# Blockchain for Autonomous Vehicles

# 3M DoubleTrust Blockchain Solution




3M Science. Applied to Life.™

# 3 Do-It-Yourself Biohacking



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# By 2022

Total Brain Computer Interface market will be worth **$1.73 billion** at a grow at a rate of over 10.0% between 2016 to 2024.

Source: Grand View Research projects




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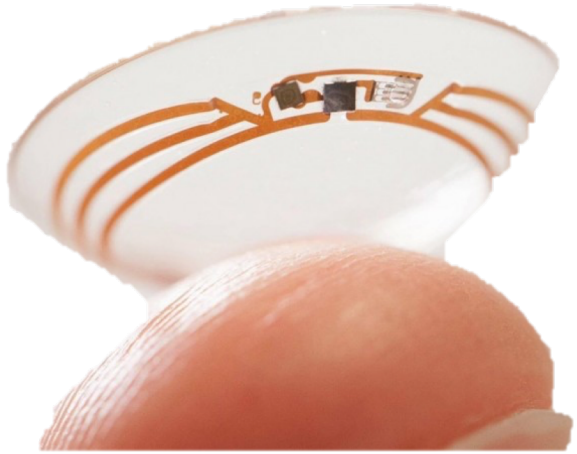
# Hacking has **Already** Begun

## Human Vitals

- Monitoring High Blood Pressure
- Diabetes
- Body temperature
- Blood alcohol levels
- Glaucoma detection



## Enhanced Humans

- Embedded Augmented Reality
- Take Pictures and Videos
- Enhanced Vision Capability (Zoom-In / Zoom-Out)
- Change light spectrums and ambient

# Do-It-Yourself Biohacking Emerging Technologies

Augmented Reality

Biochips

Biotech - Cultured or Artificial Tissue

Brain-Computer Interface

Mixed Reality

Smart Fabrics

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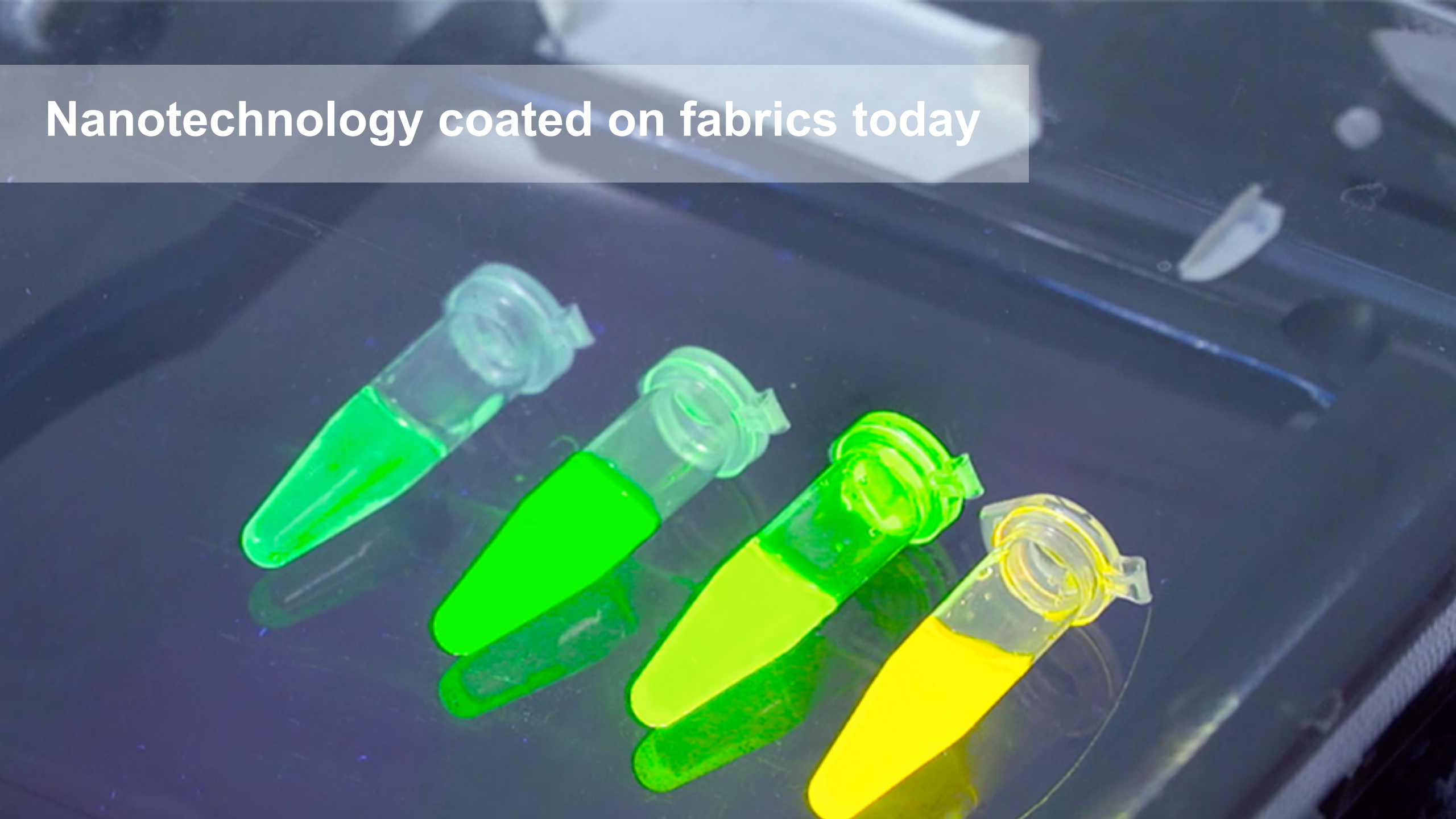
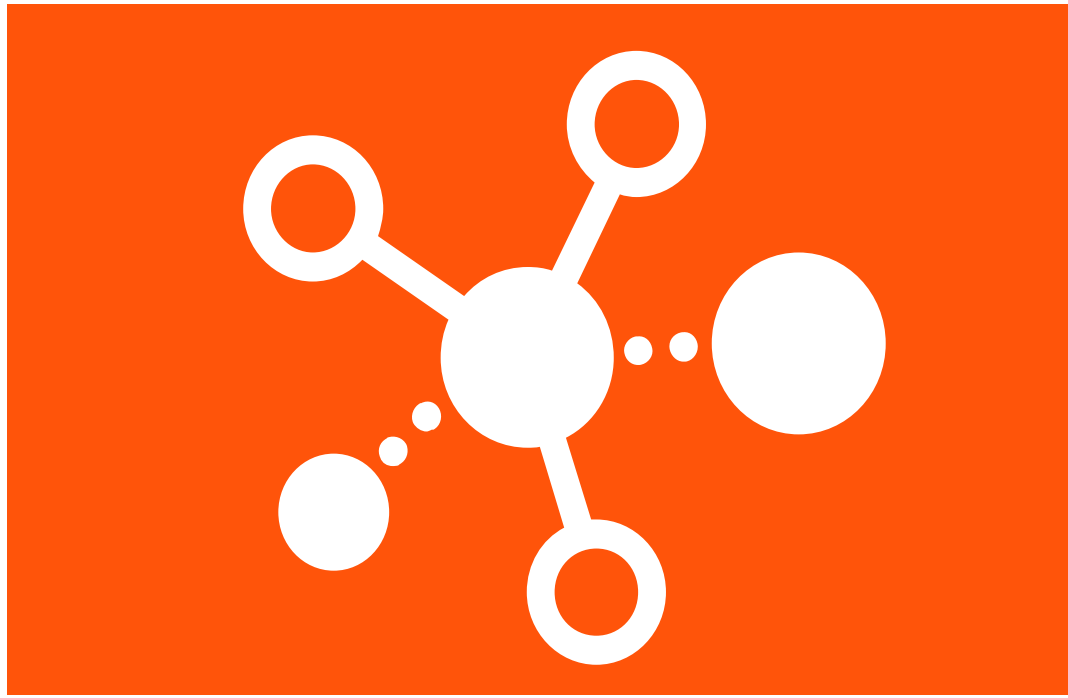
# Nanotechnology coated on fabrics today



# Nanodrops Correcting Human Vision

# 4 Transparently Immersive Experiences



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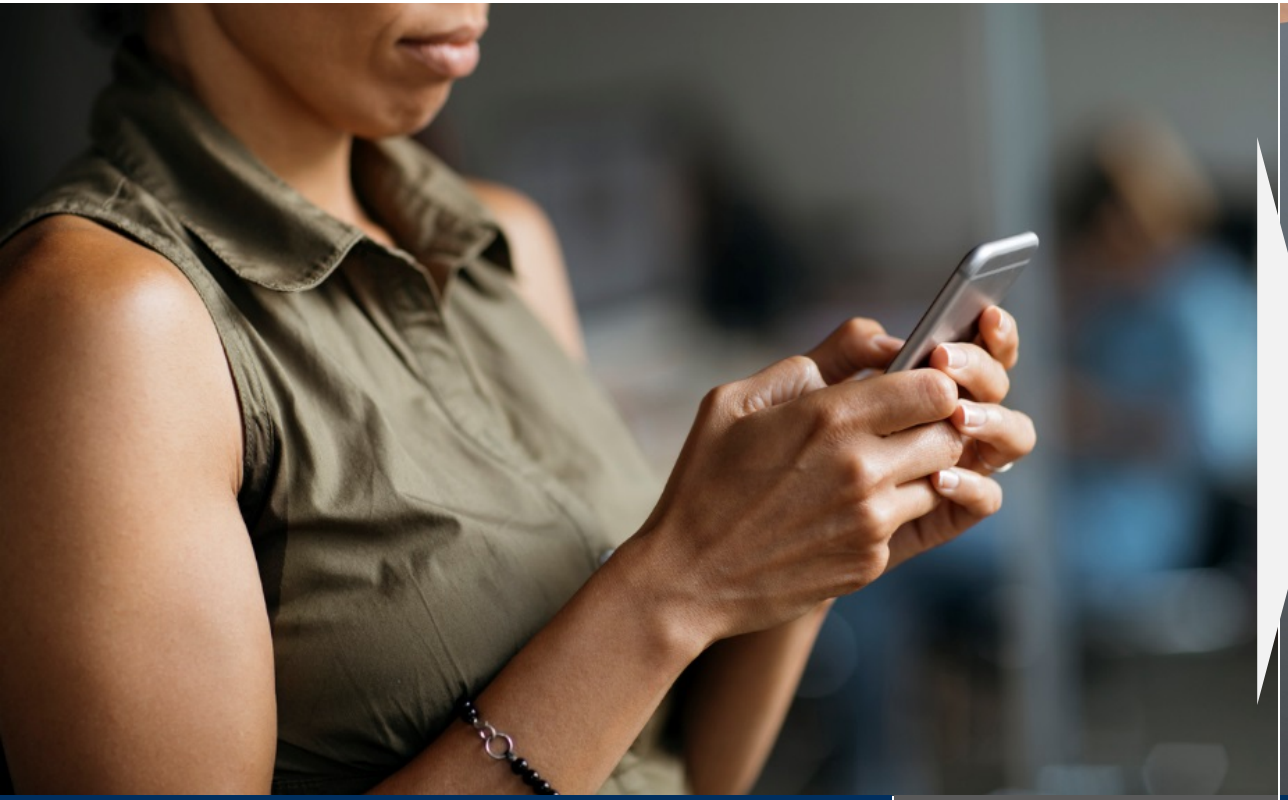
# The Context Switch

## Humans Learn and Adapt to Technology



**System** | Human

## Technology Learns and Adapts to Humans

**Human** | System

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# By 2020

More than **50%** of industrial IoT analytics will be performed at the edge, up from less than 10% in 2017..




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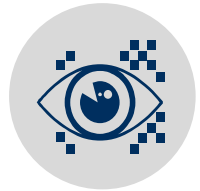
# Transparently Immersive Experiences Emerging Technologies

4D Printing

Connected Home

Edge AI



Self Healing AI

Silicon Anode Batteries

Smart Dust

Smart Workplace

Volumetric Displays

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# By 2020

IoT technology will be in **90%** of new compute-enabled product designs.




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# 5 Ubiquitous Infrastructure




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# By 2022

Leading cloud providers will **predominantly offer** platform services addressing the needs of ecosystems rather than of individual companies.




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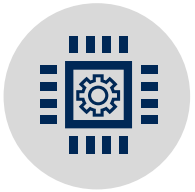
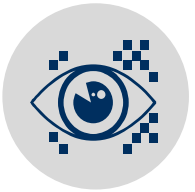
# Ubiquitous Infrastructure Emerging Technologies

5G

Carbon Nanotube



Deep Neural Network ASICs



Self Healing AI

Neuromorphic Hardware

Quantum Computing

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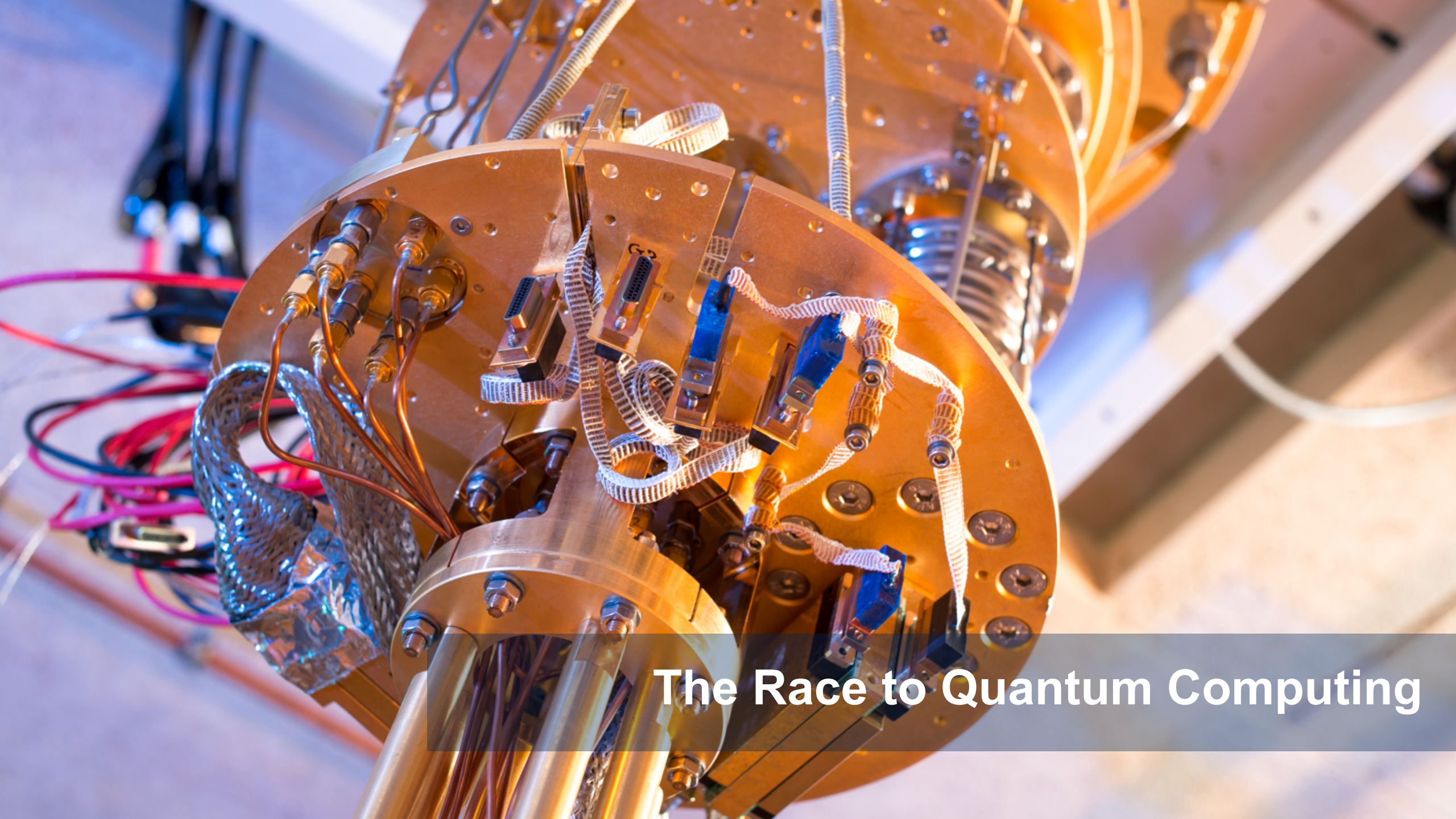

# The Race to Quantum Computing

# By 2023

**20%** of global enterprises will be budgeting for quantum computing (QC) projects, compared with fewer than **1% in 2017**.




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# The Long Journey of the Quantum Promise

A very specialized form of quantum computing with unproven advantages over other specialized forms of conventional computing.

DIFFICULTY LEVEL

The most likely form of quantum computing that will first show true quantum speedup over conventional computing. This could happen within the next five years.

DIFFICULTY LEVEL

The true grand challenge in quantum computing. It offers the potential to be exponentially faster than traditional computers for a number of important applications for science and businesses.

DIFFICULTY LEVEL

## Quantum Annealer

The quantum annealer is least powerful and most restrictive form of quantum computers. It is the easiest to build, yet can only perform one specific function. The consensus of the scientific community is that a quantum annealer has no known advantages over conventional computing.

**APPLICATION**
Optimization Problems

**GENERALITY**
Restrictive

**COMPUTATIONAL POWER**
Same as traditional computers

## Analog Quantum

The analog quantum computer will be able to simulate complex quantum interactions that are intractable for any known conventional machine, or combinations of these machines. It is conjectured that the analog quantum computer will contain somewhere between 50 to 100 qubits.

**APPLICATIONS**
Quantum Chemistry
Material Science
Optimization Problems
Sampling
Quantum Dynamics

**GENERALITY**
Partial

**COMPUTATIONAL POWER**
High

## Universal Quantum

The universal quantum computer is the most powerful, the most general, and the hardest to build, posing a number of difficult technical challenges. Current estimates indicate that this machine will comprise more than 100,000 physical qubits.

**APPLICATIONS**
Secure computing
Machine Learning
Cryptography
Quantum Chemistry
Material Science
Optimization Problems
Sampling
Quantum Dynamics
Searching

**GENERALITY**
Complete with known speed up

**COMPUTATIONAL POWER**
Very High




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1. **Democratized Artificial Intelligence**
2. **Digitalized Ecosystems**
3. **Do-It-Yourself Biohacking**
4. **Transparently Immersive Experiences**
5. **Ubiquitous Infrastructure**




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"We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don’t let yourself be lulled into inaction."

— Bill Gates




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# Thank You!




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# Author

**Mike J. Walker**
Research Director

More Info

## My Latest Research

- "Hype Cycle for Emerging Technologies, 2018
- Top 10 Strategic Technology Trends for 2017
- Information of Everything
- Advanced Machine Learning
- Autonomous Agents and Things
- Advanced System Architecture
- Vanguard Enterprise Architects Will Lead Bimodal Mode 2 Innovations
- Using Enterprise Architecture to Maximize Cloud Strategy Business Outcomes
- Toolkit: The Information Architect's Playbook for EIM

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- Enterprise Architects Should Leverage a Risk-Based Approach to Understand Security in the Digital Business Ecosystem
- Toolkit: EA Identifies Transformational Digital Disruptions Through Strategic Value Assessments
- Toolkit: Workshop for Creating EA Personas in Digital Business Diagnostic Deliverable Analysis



 

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