



IHS Markit™

From AI & IoT to Cloud & 5G

Transformative technology

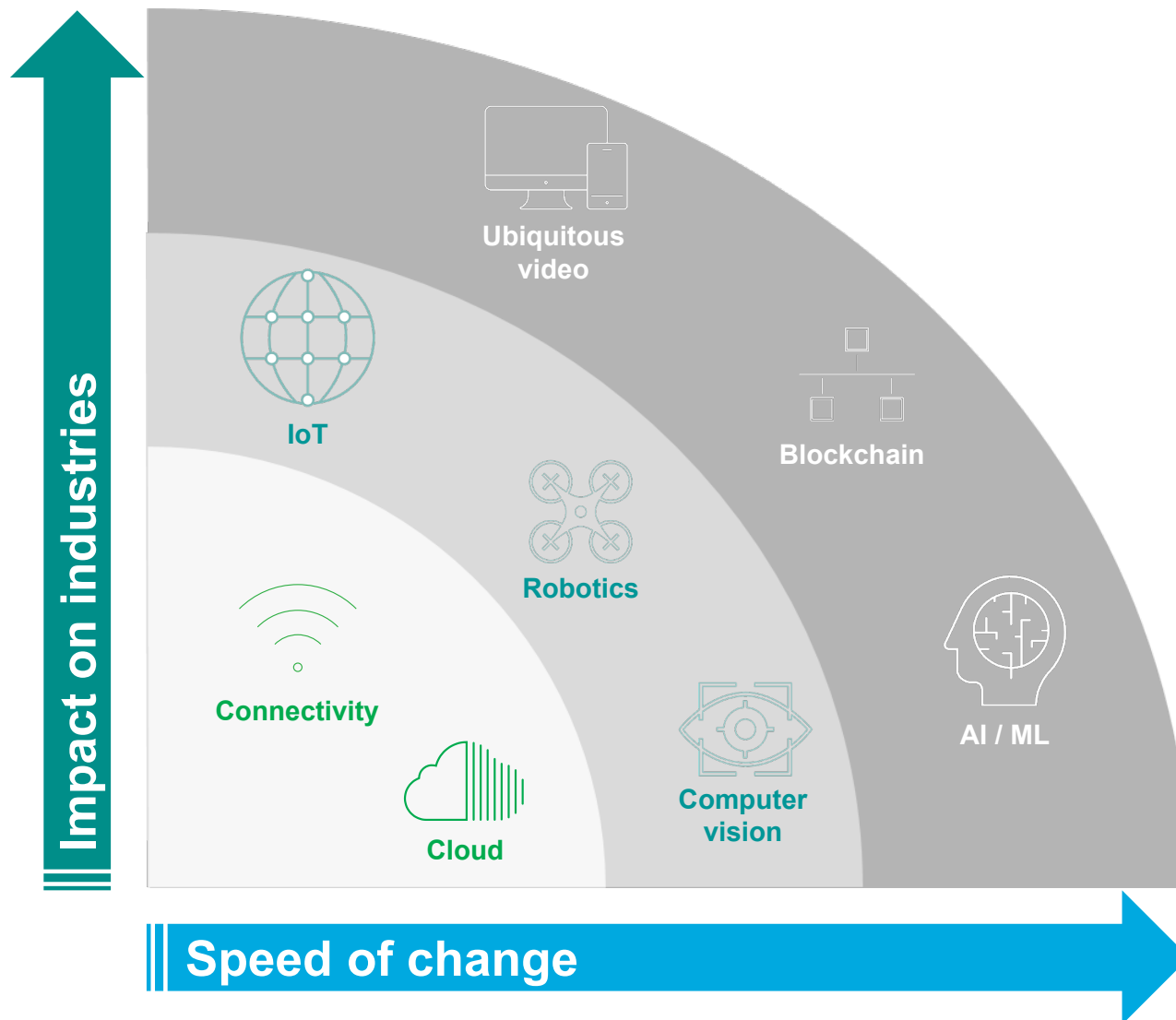
6 June 2019

Tom Morrod

Chief of Research – Consumer Technology

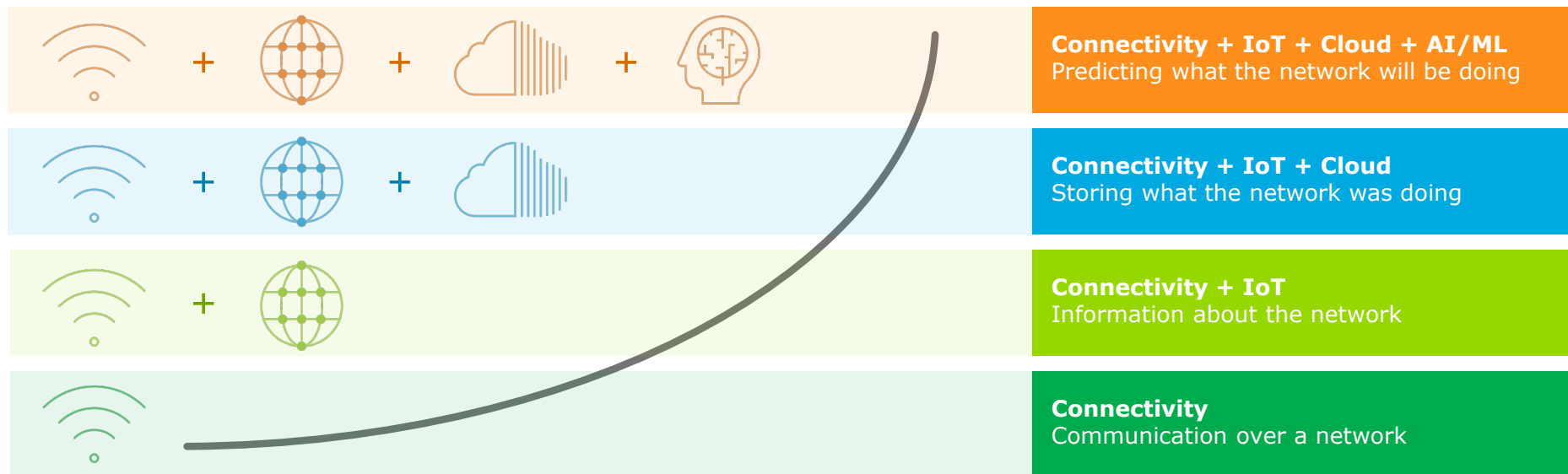
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Big technology ideas can drive exponential change



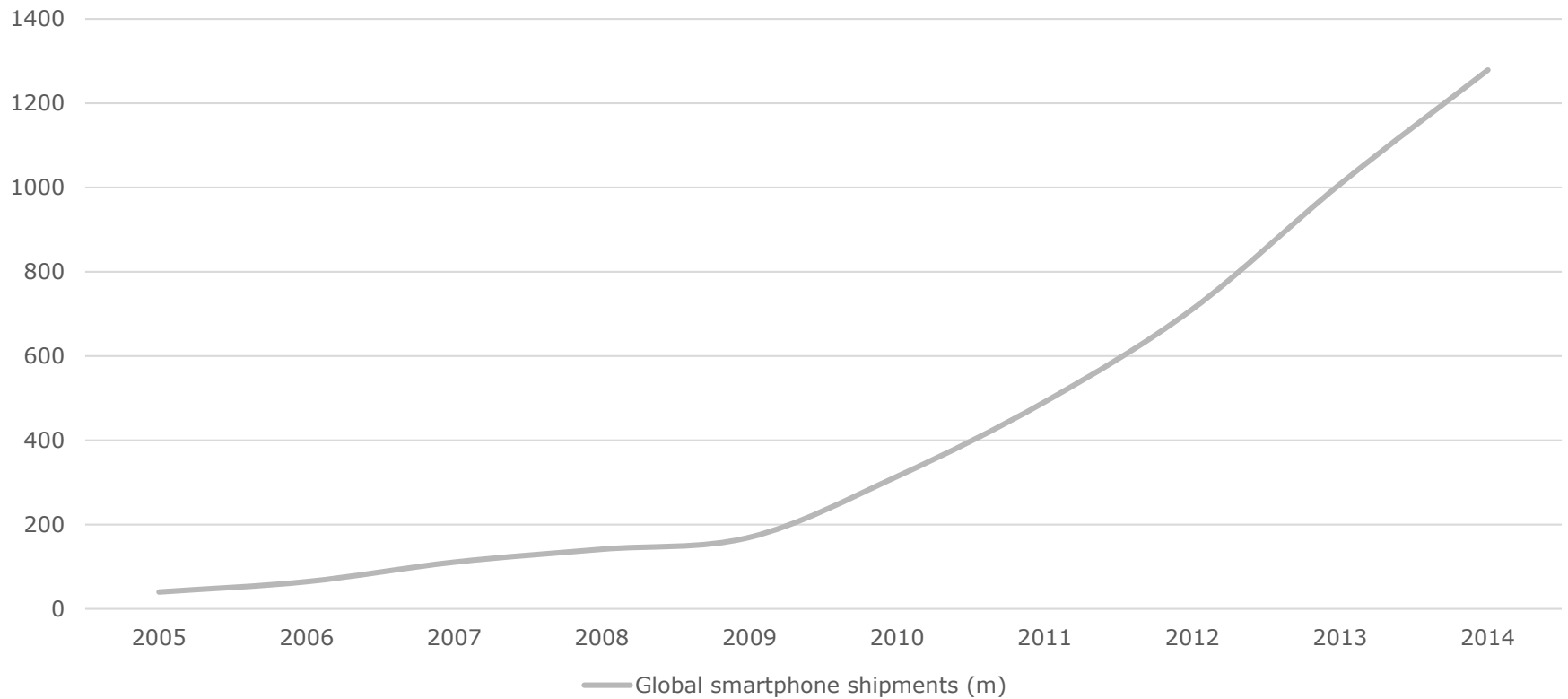
Convergence of transformative technologies accelerates change

As different transformative technologies come together, impact goes from linear to exponential



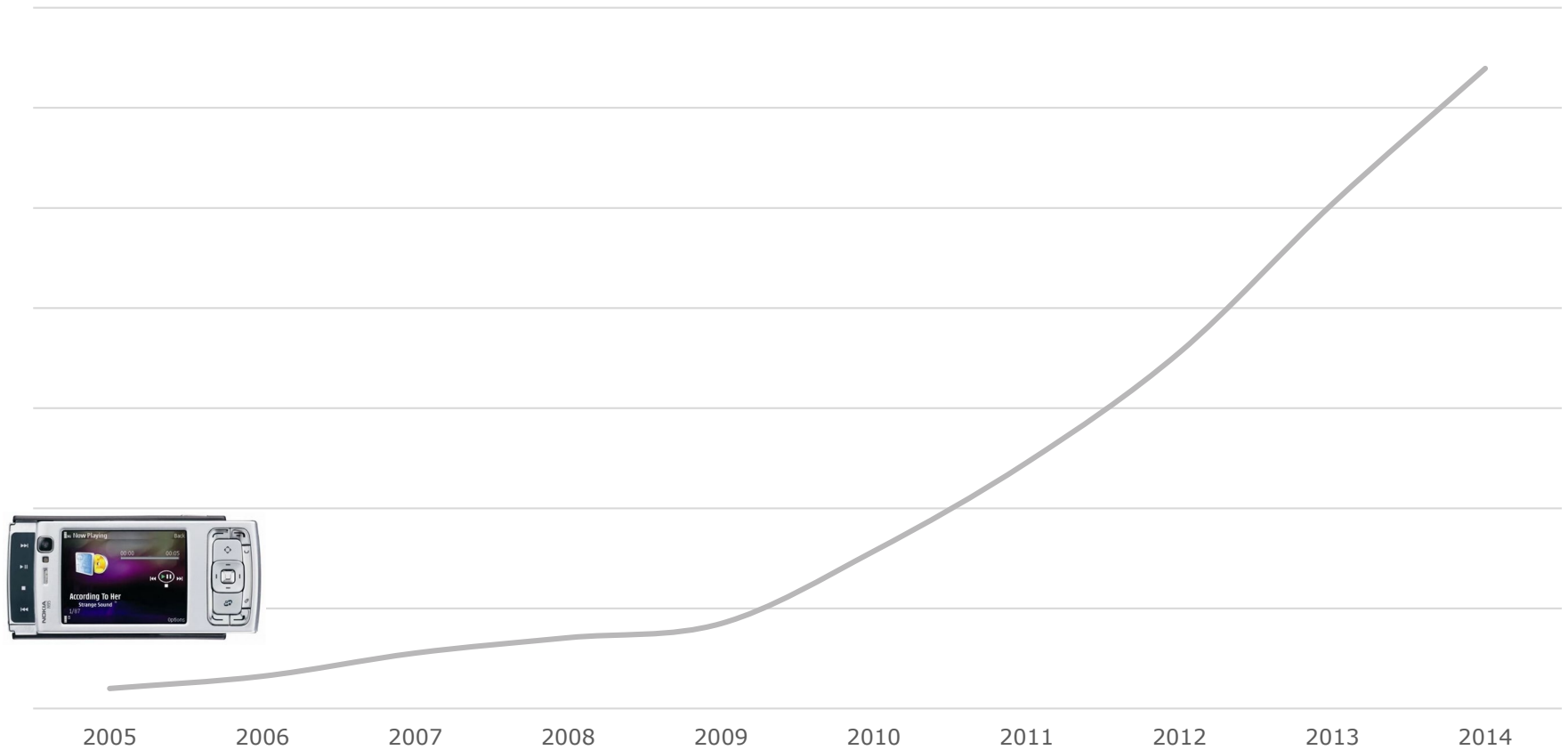
We see this trend in smartphones

Global smartphone shipments (m)



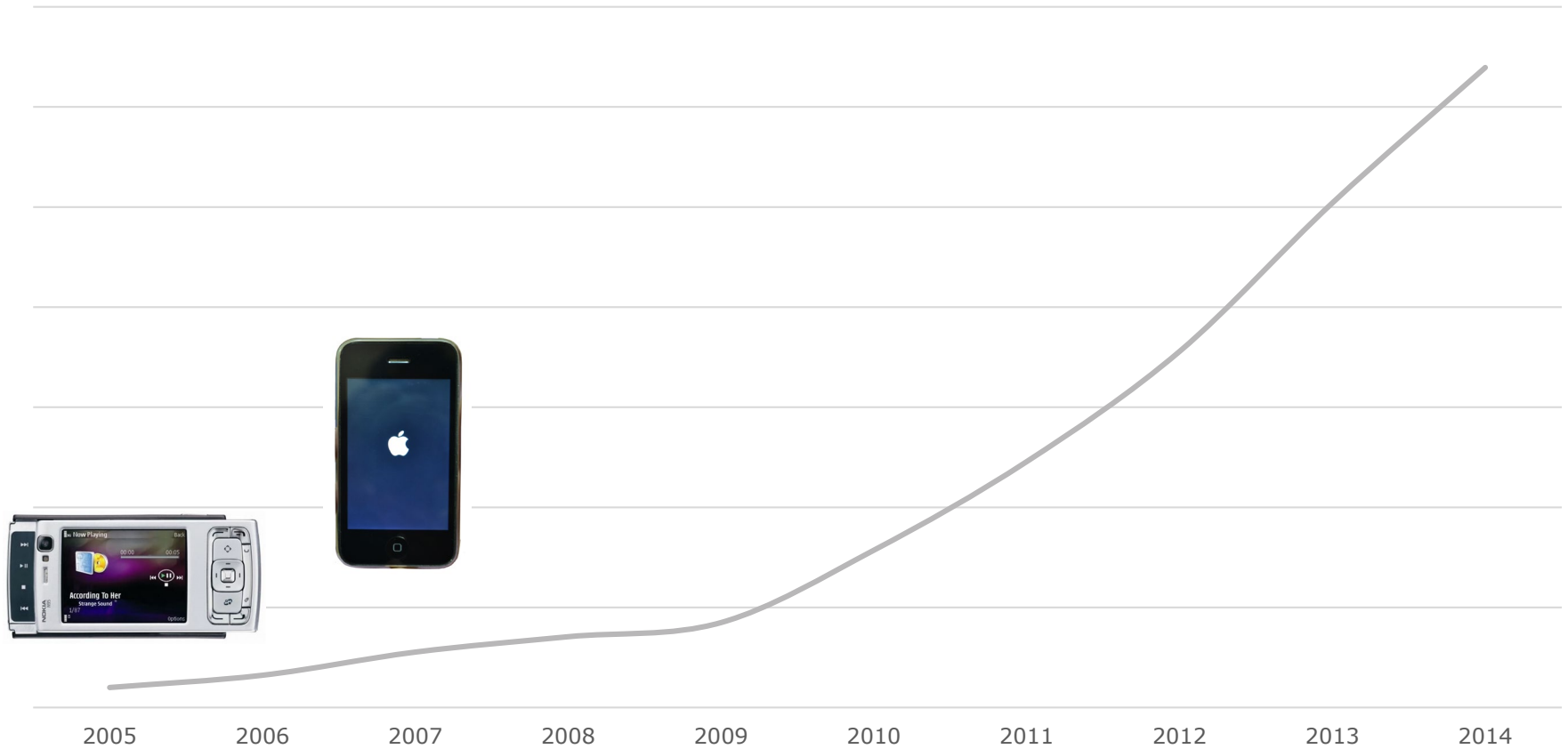
Several technologies converged before the market took off

Displays + SoCs + antennas + OS



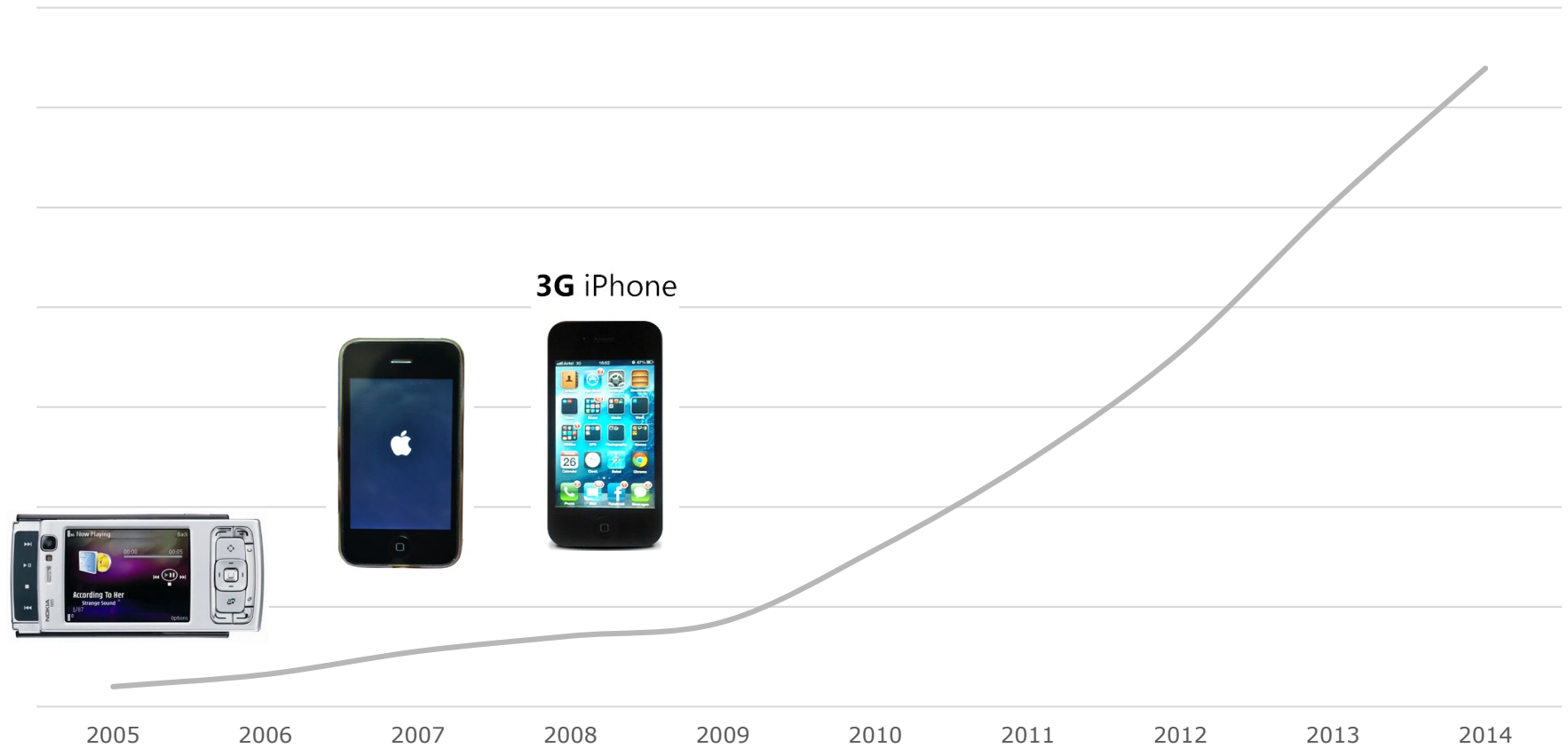
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Several technologies converged before the market took off

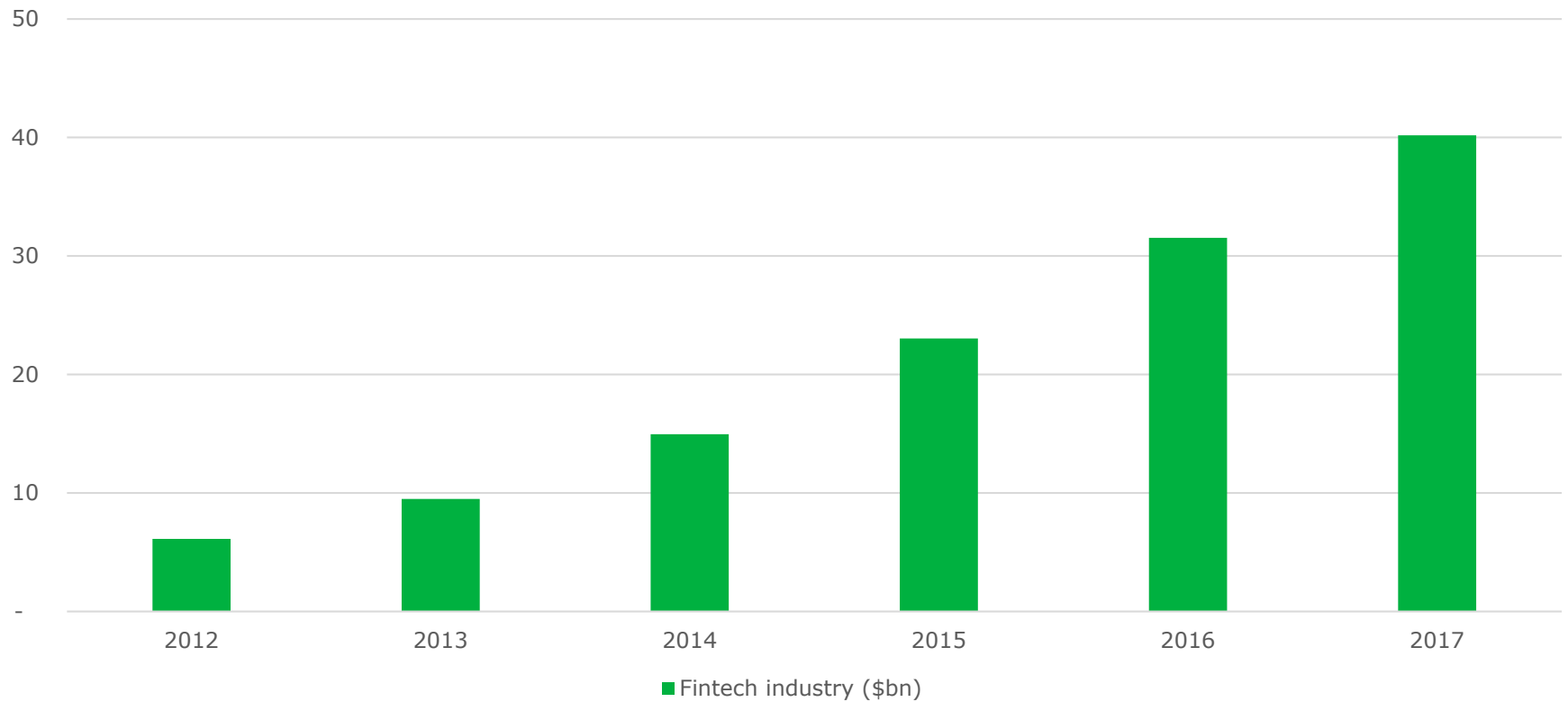
Displays + SoCs + antennas + OS + apps + data



We see the same thing happening with Fintech

Smart cards + ecommerce + smartphones + cybersecurity

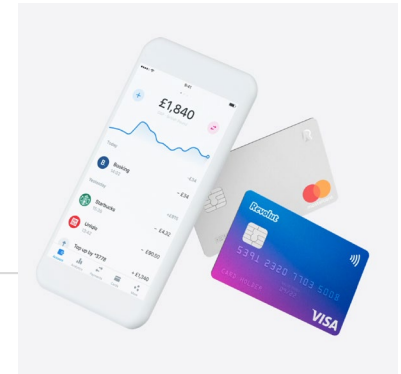
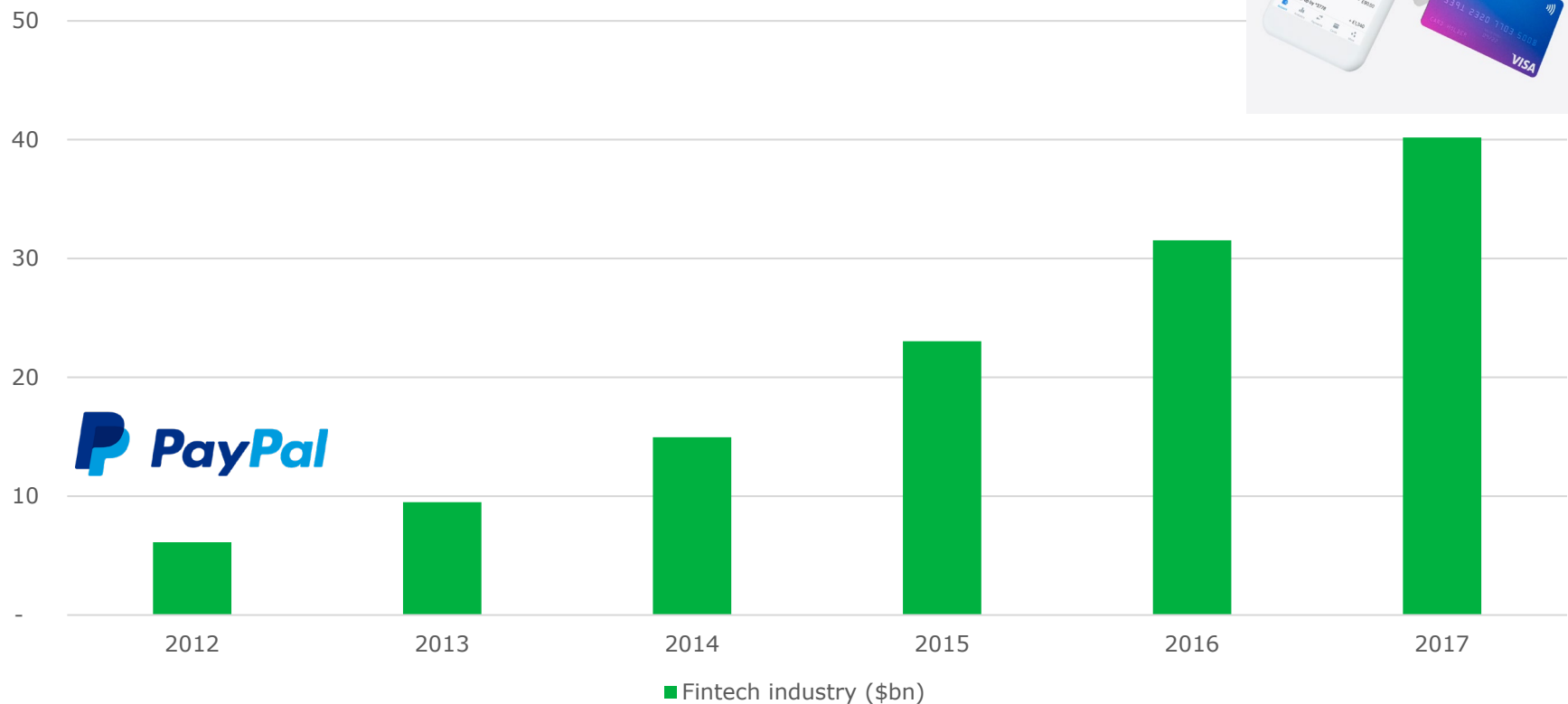
Fintech industry (\$bn)



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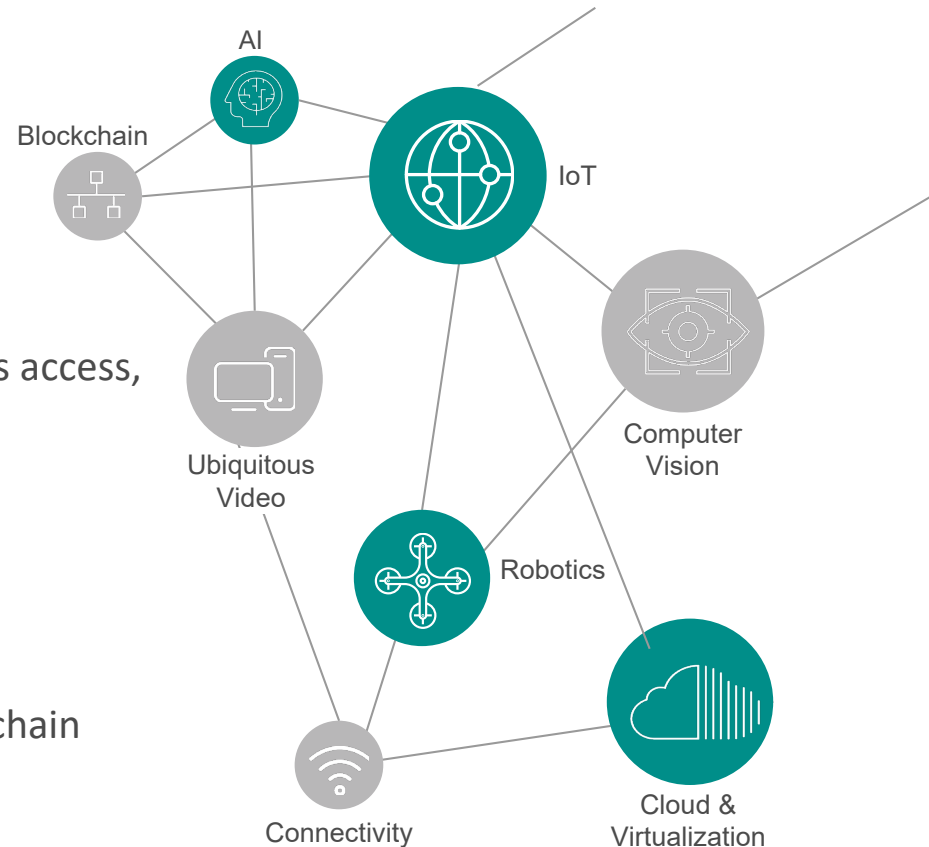
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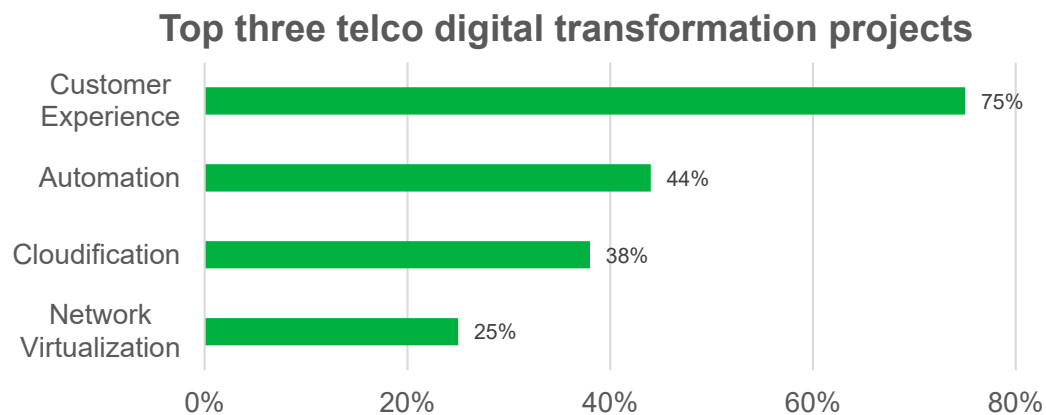
Why is this important?

- 1. Industries start to overlap and blend**
 - consolidation across device makers or across access, communication, entertainment and utilities
- 2. Technology developments ripple out further**
 - reach across auto, device makers and telcos
- 3. Each new development pulls industries together**
 - device technology in cars converges supply chain



Telco digital transformation projects fit this model

To better compete with established internet companies and create new business models, the telecommunications industry is adopting and deploying software technologies that infuse agility into services and automation into operations.



Source: Service Provider Digital Transformation Strategies: Service Provider Survey, May 2018



Connectivity trends lead to network management leads to new functions



Unrelenting data traffic growth drives architectural changes and capacity upgrades for fixed & mobile networks

2010-2015



Network software increases in importance. SDN & NFV help to drive the “cloudification” and automation of SP networks, reducing opex and capex

2015-2020



Increased network automation is a precursor to new on-demand services and self-driving and intent-based networks to address increasing operational complexity

2020-2025

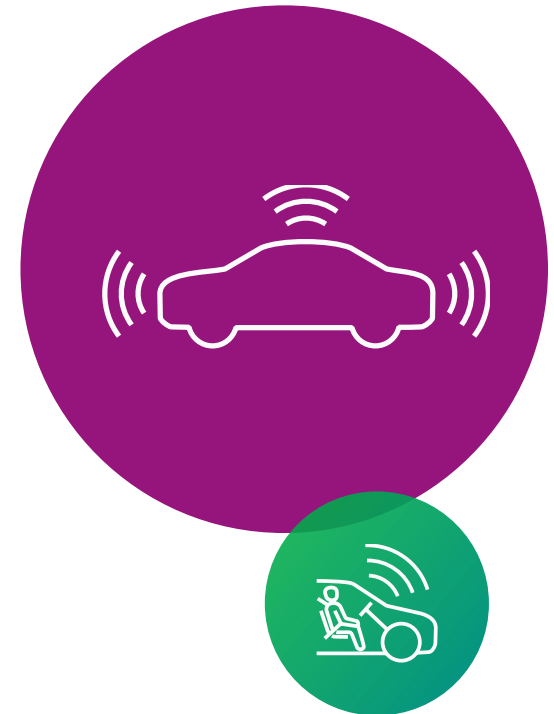
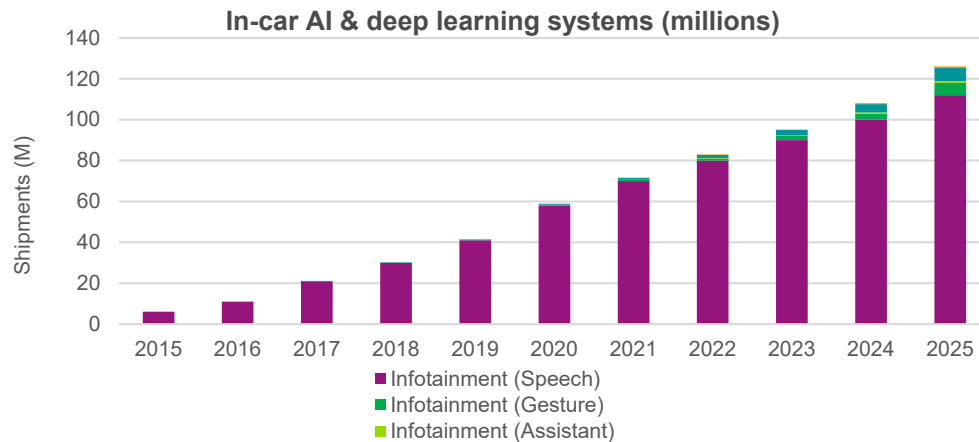


New services & business models become scalable

2025 & Beyond

The automotive industry is starting to undergo similar trends

The automotive industry is rapidly moving from connected cars to autonomous vehicles. Companies like GM, Uber, and Tesla are pushing the boundaries of what is possible with **connectivity, cloud, and AI**.



Autonomous driving is the long-term paradigm shift



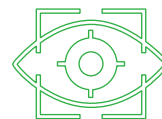
Car becomes
technology platform &
data nodes

2010-2015



Connected car
generates & consumes
big data

2015-2020



Autonomous
transportation starts to
become a reality

2020-2025



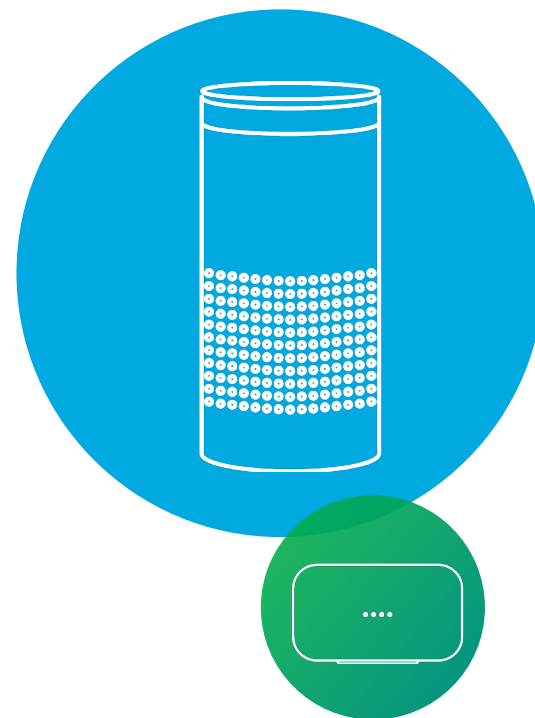
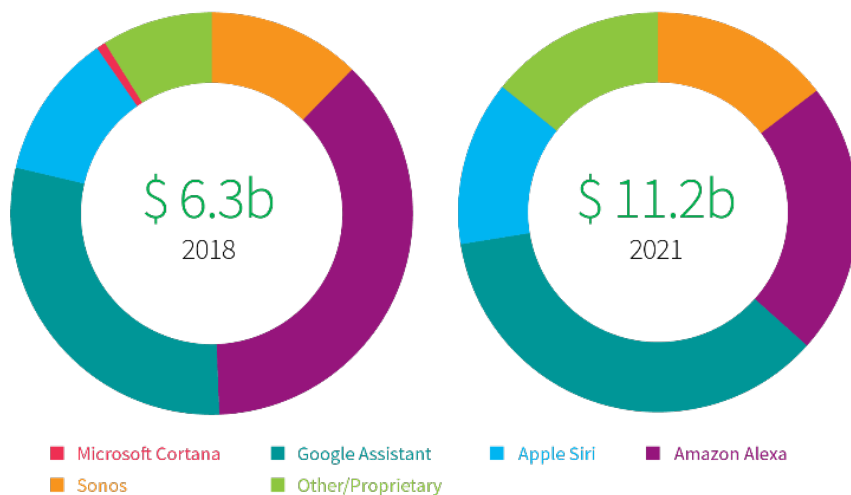
Transportation industry
undergoes paradigm
shift

2025 &
Beyond

Digital assistants are just starting to find utilization

The new battleground for the consumer is digital assistants, with Apple, Amazon, Google, and Microsoft all working to integrate the smart home and mobile ecosystems utilizing **cloud, connectivity, and AI**.

Smart Speaker Market by Revenues



Anticipating and responding to consumers is the next frontier



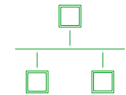
Broadband access and WLAN provide a strong foundation for consumer connectivity



Proliferation of connected consumer devices—trend to cloud profiles for most consumers



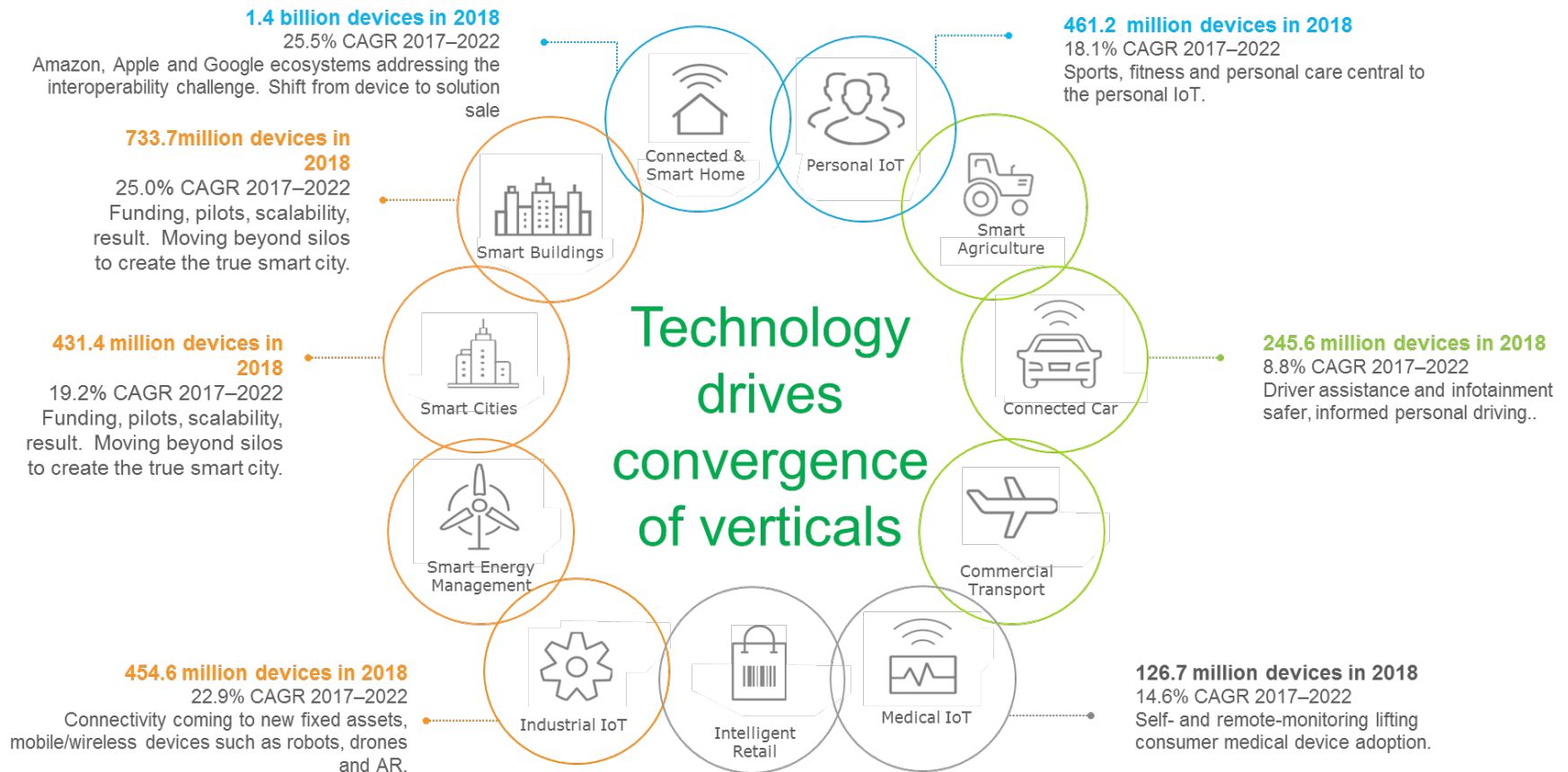
Push for increased intelligence to anticipate consumer needs



Challenge is to enable robust ecosystems while securing consumer information



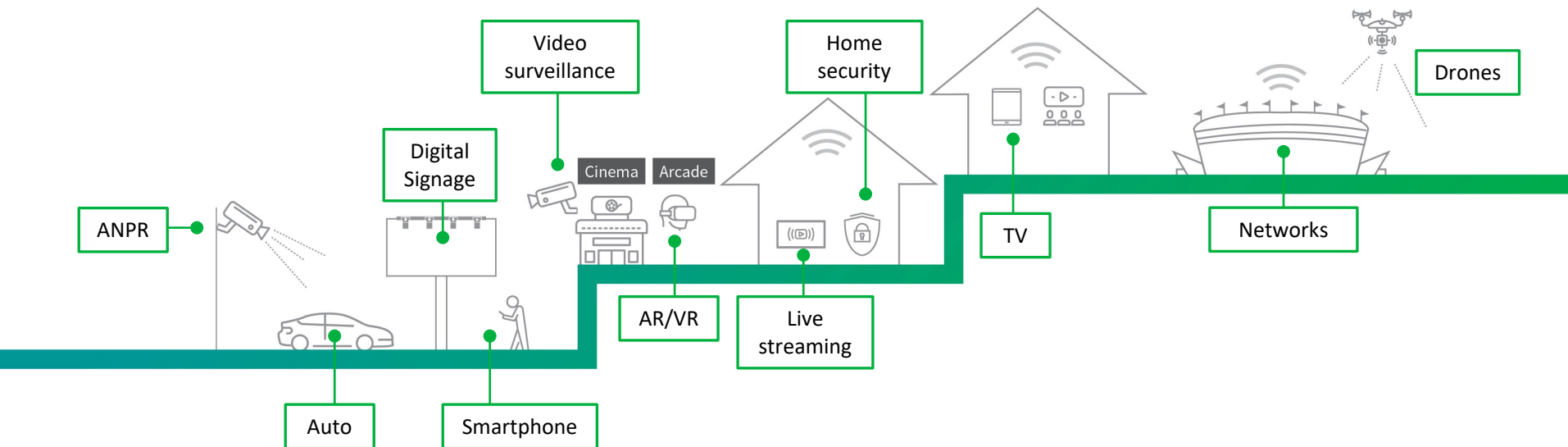
The more places we look the more opportunity we see



A couple of trends: Video Everywhere

Driving forces

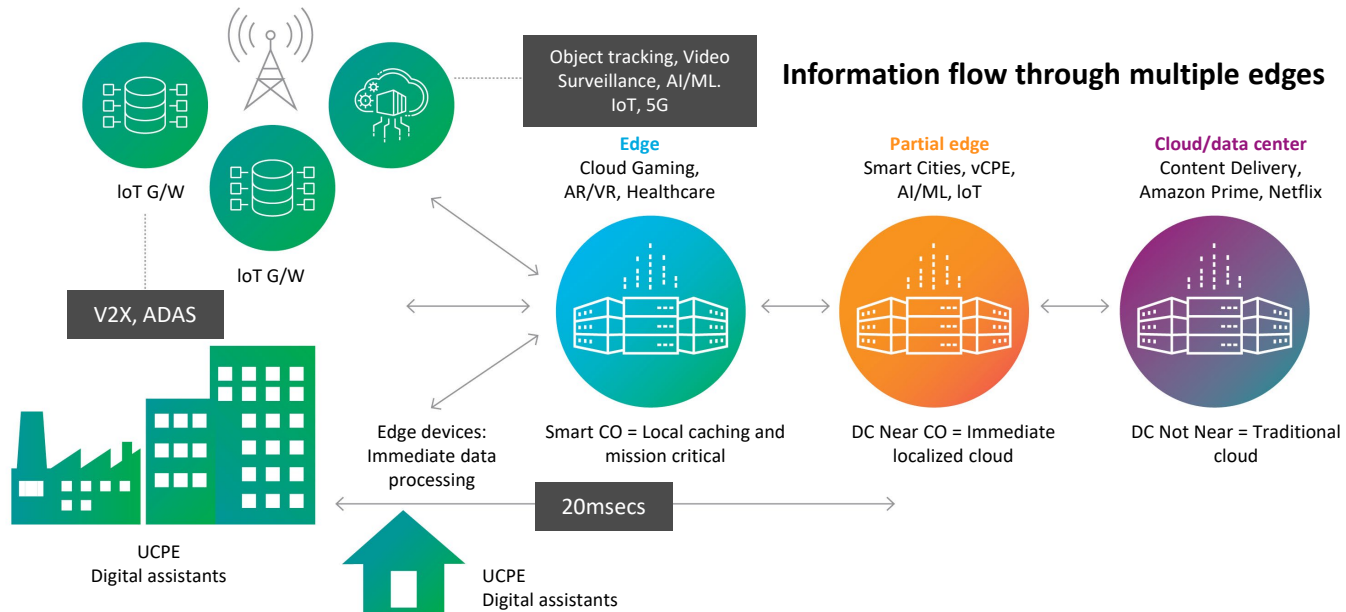
- The rise of online offerings and platforms, including new market entrants
- Penetration of mobile connected devices that capture and display video
- Advances in network and transmission technologies for sharing video
- The explosion of user-generated content and social video



A couple of trends: The Edge

Driving forces

- The top edge application is video content delivery
- Real-time or lower latency for time-critical workloads or safety applications
- Resiliency for situations where the network connection is not optimal or offline
- Data aggregation and the ability to filter: balancing storage, networking, and compute
- Security and privacy functionality centralized and enhanced



A couple of trends: Artificial Intelligence (AI)

Driving forces

- The ability of machines to become more independent and autonomous
- The explosion of collectable and analyze-able data through numerous platforms
- High-performing electronics able to elaborate huge amounts of data and extract structured knowledge
- Availability of adjacent transformative technologies creating the perfect storm: IoT and cloud

