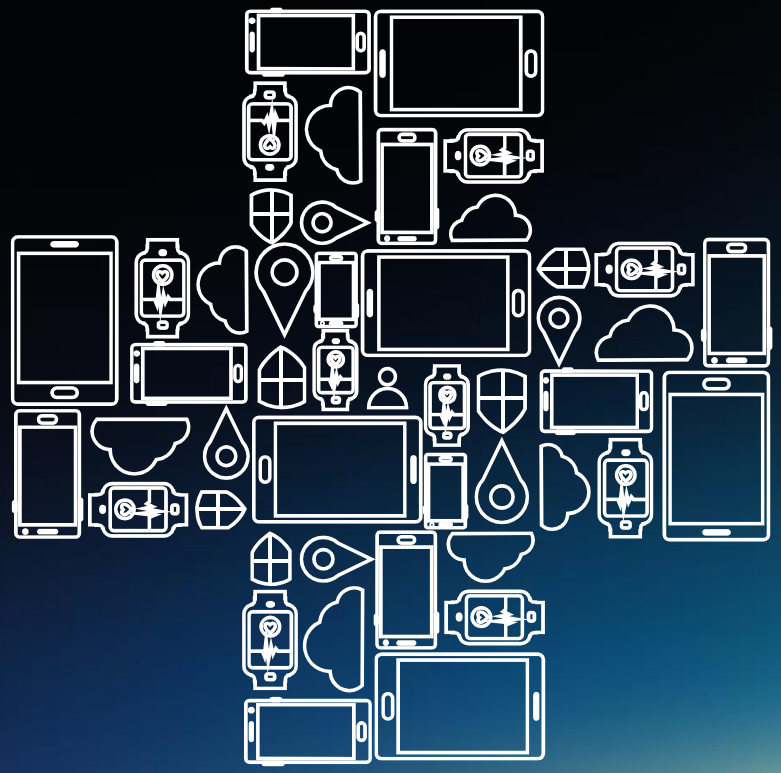


ITU workshop on enabling environment for Internet-of-Things

ICC NETWORKING

Session 7

Standards Perspective: Big Data and IoT

Promoting interoperability via Open Standards, and Semantic Technologies

Keith M. Alexis, CEO of ICC Networking

IoT, Standards, and Technology

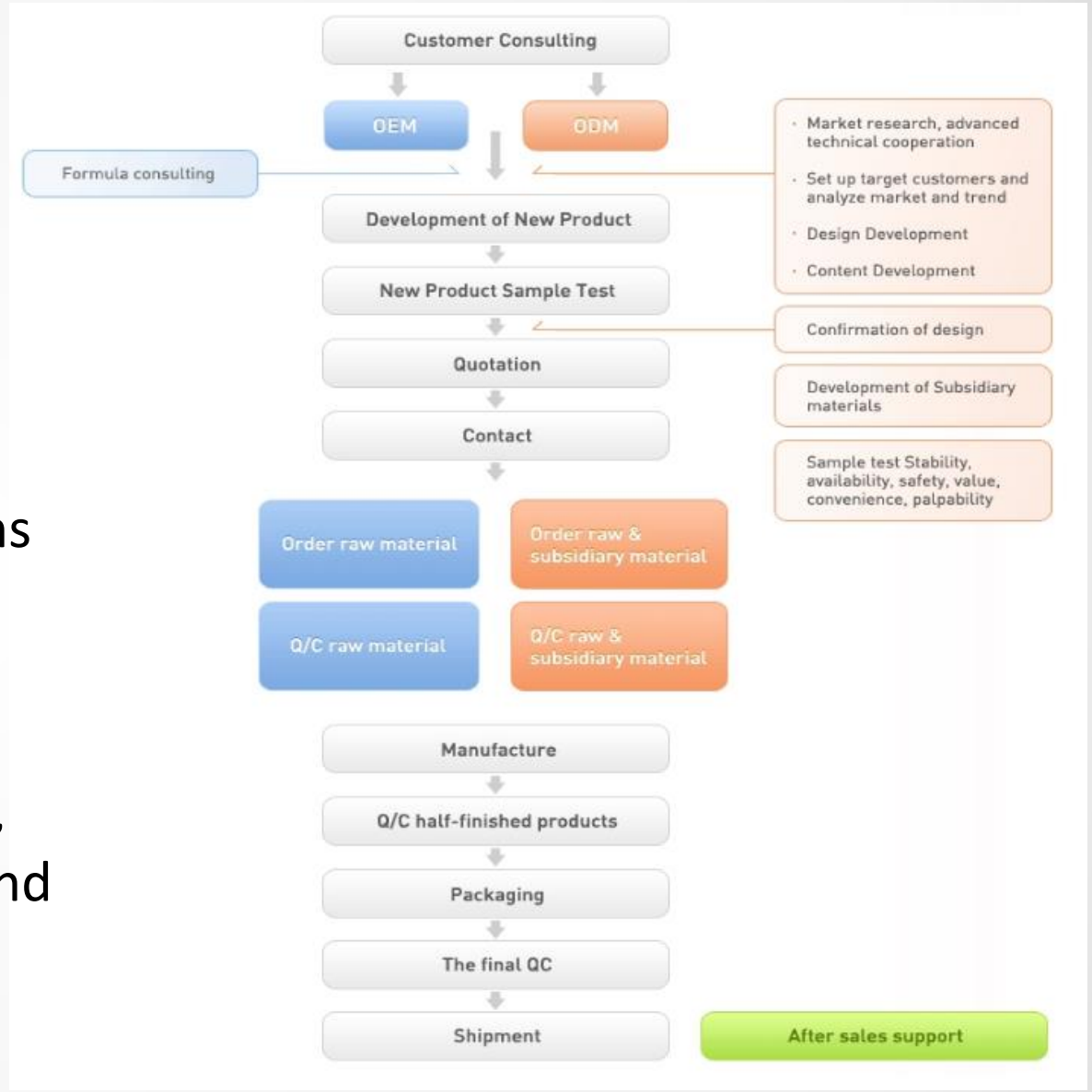
A Vendor's Perspective

- Behind the development scene
- Product life cycles as technology evolves
- Cost of proprietary system
- The need to drive standardization
- The wave of IOT

Manufacturing Ecosystem

Vendors must:
Navigate requirements from manufacturing processes, material liabilities, country certifications, regional laws, and a variety of requirements that impact the cost and decisions to bring a product to market.

Specialist categories like:
OEM/ODM, certification bodies (UL, FCC, vTick, TATT, etc.), associations (Wi-Fi Alliances, etc.) and many others that must be managed by the 'Branded' vendor.

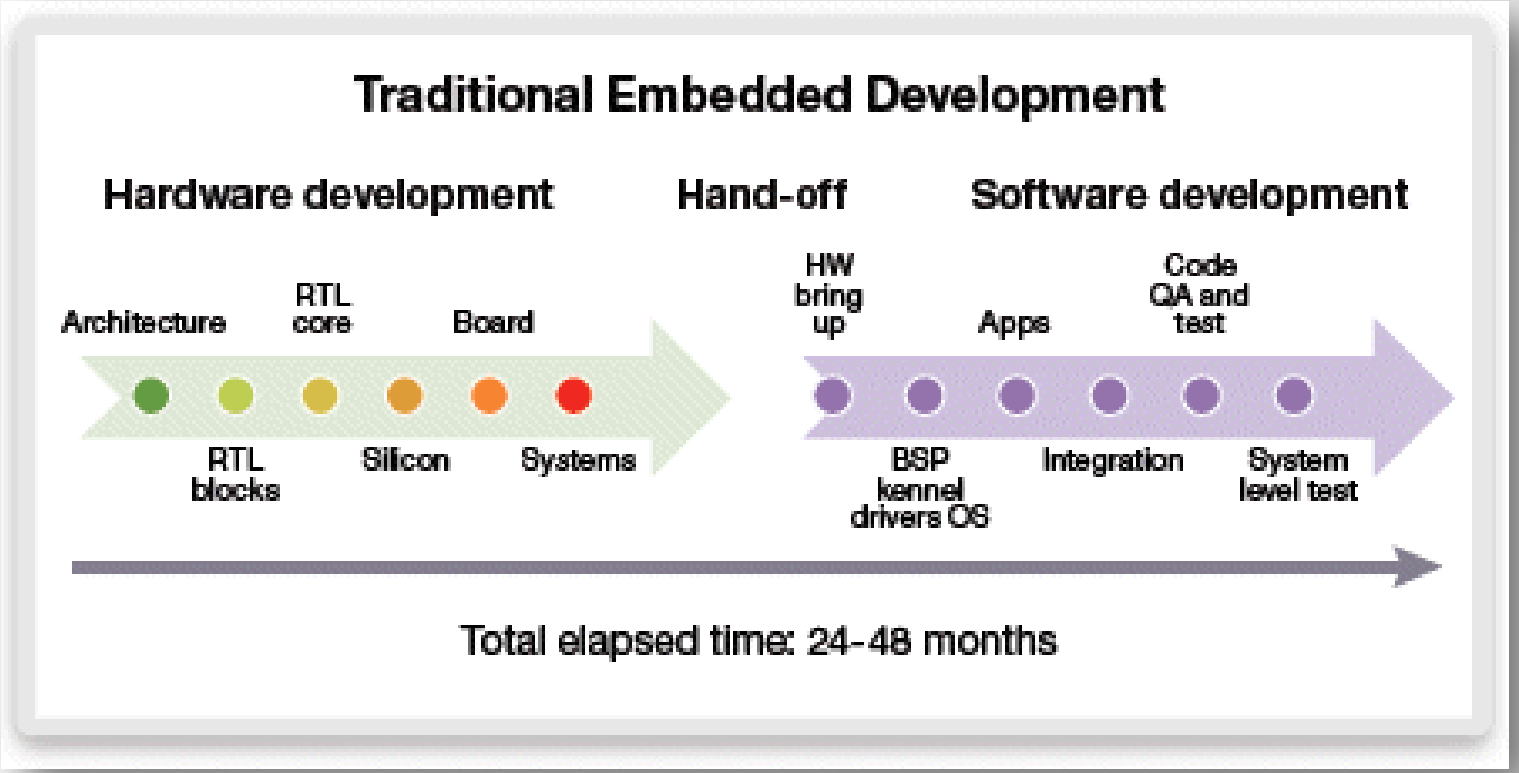


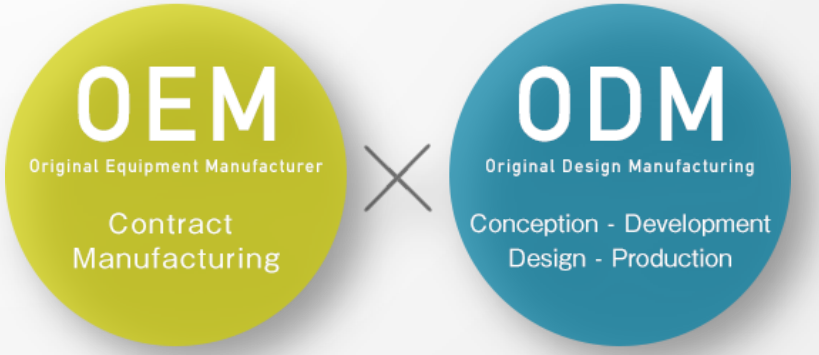
Product Development

Product development use to be in silos, each using proprietary internal systems being designed for a market limited by propriety systems.

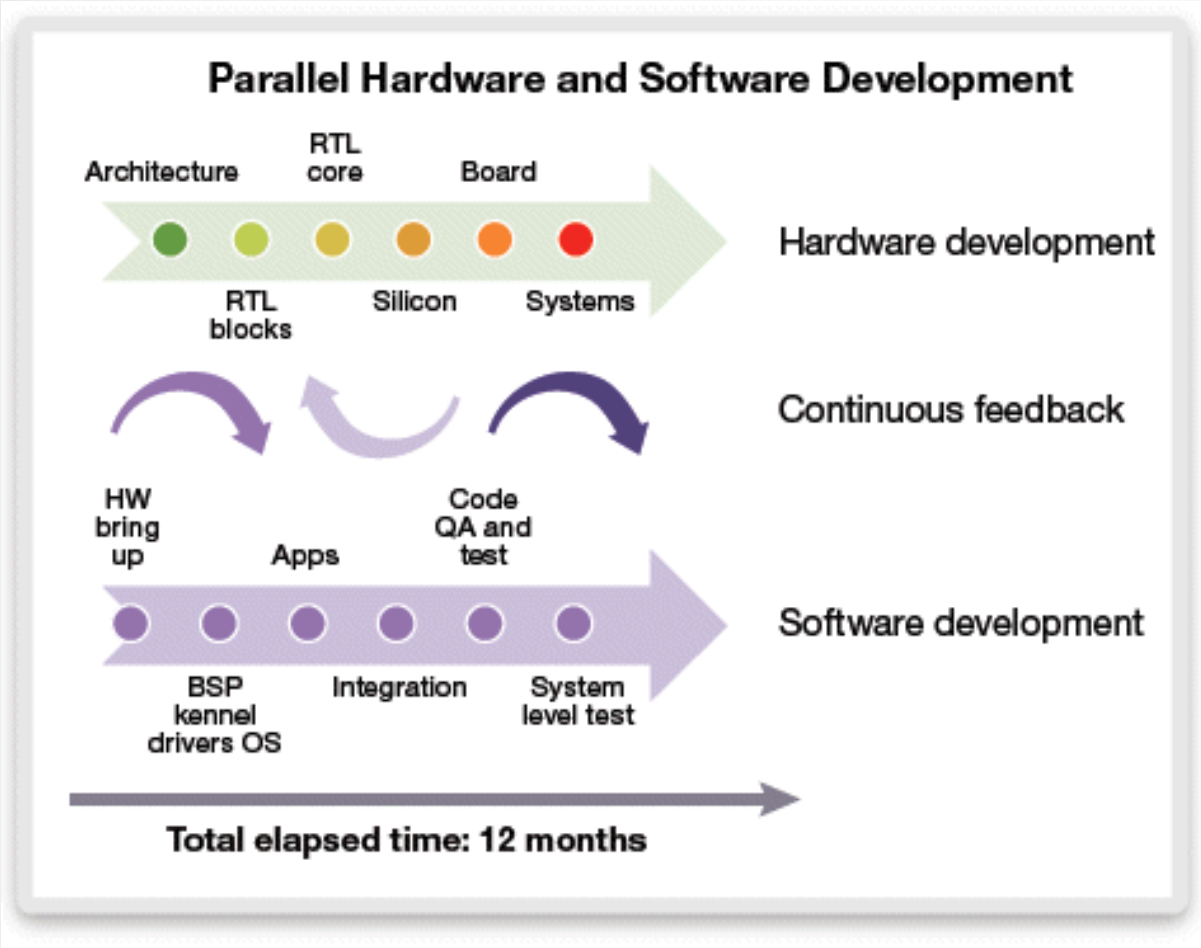
Results:

- Expensive solutions
- Long lead times
- No flexibility
- Few product options





How Products are Developed Has Changed



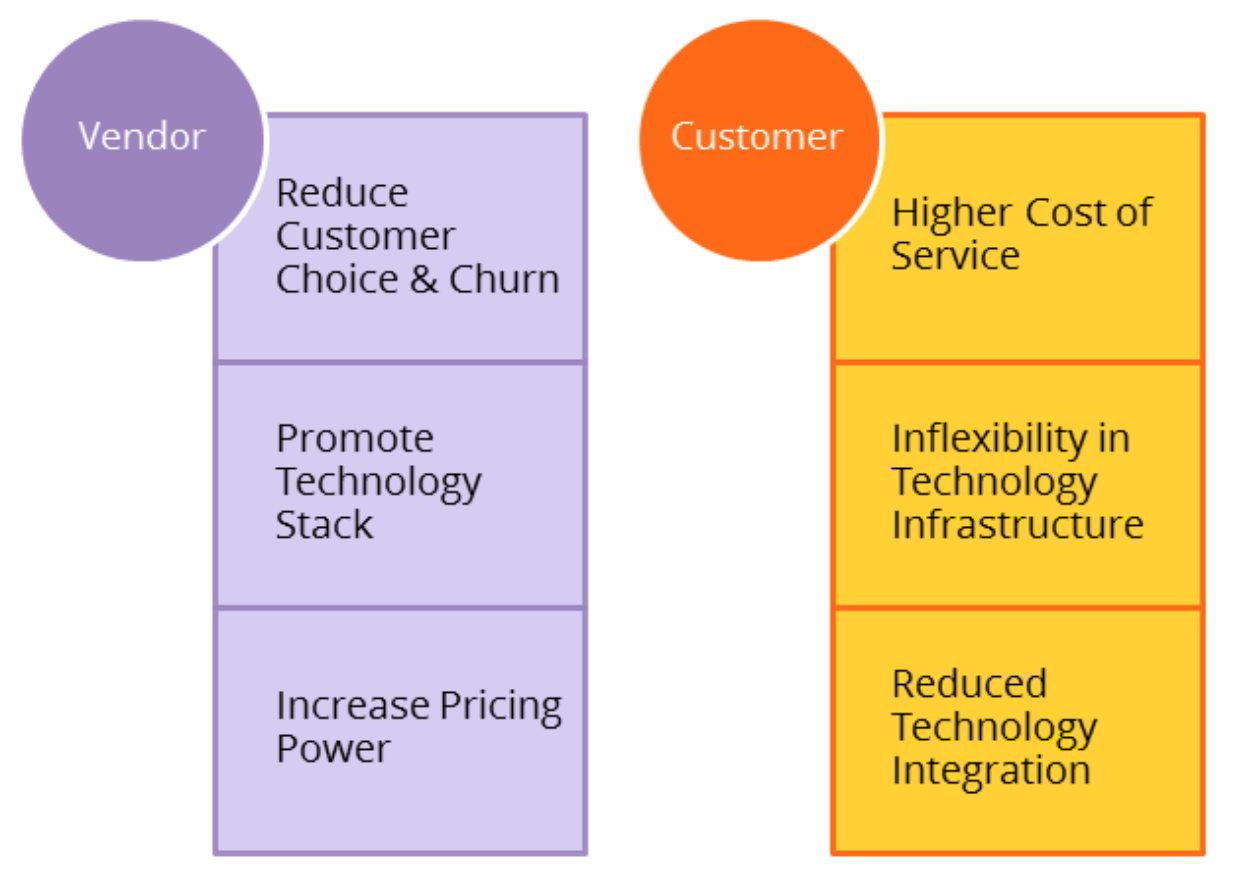
Results:

- Lower cost
- Faster time to market
- Higher volumes
- More options
- Greater customer base
- Greater flexibility
- Streamlined process
- New IT ecosystem

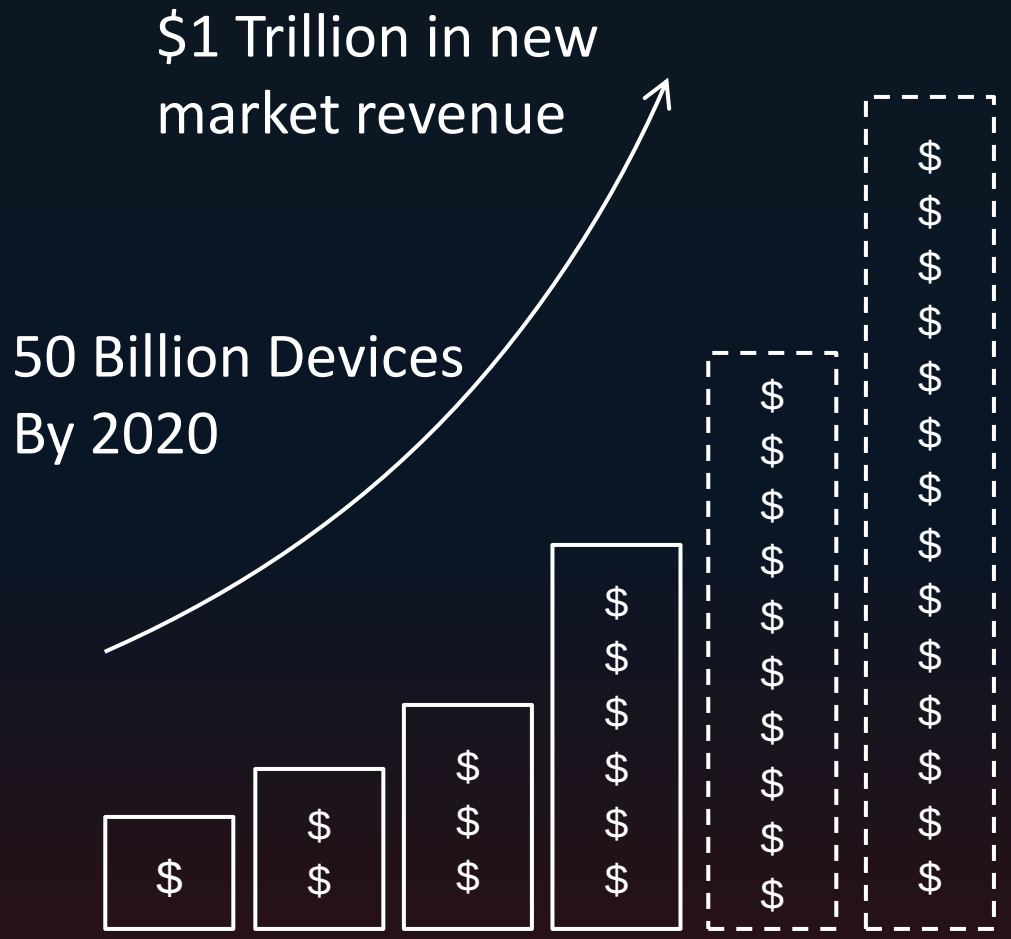
Technology, IoT, and Cloud systems enabled fewer internal silos just as it did to the general market, resulting in lower consumer cost, more options and greater access to technology

How Customers are developed MUST change

Customers challenged the old paradigm that only focused on the vendor business model



If customers have more control, what do they want and how do we deliver it?



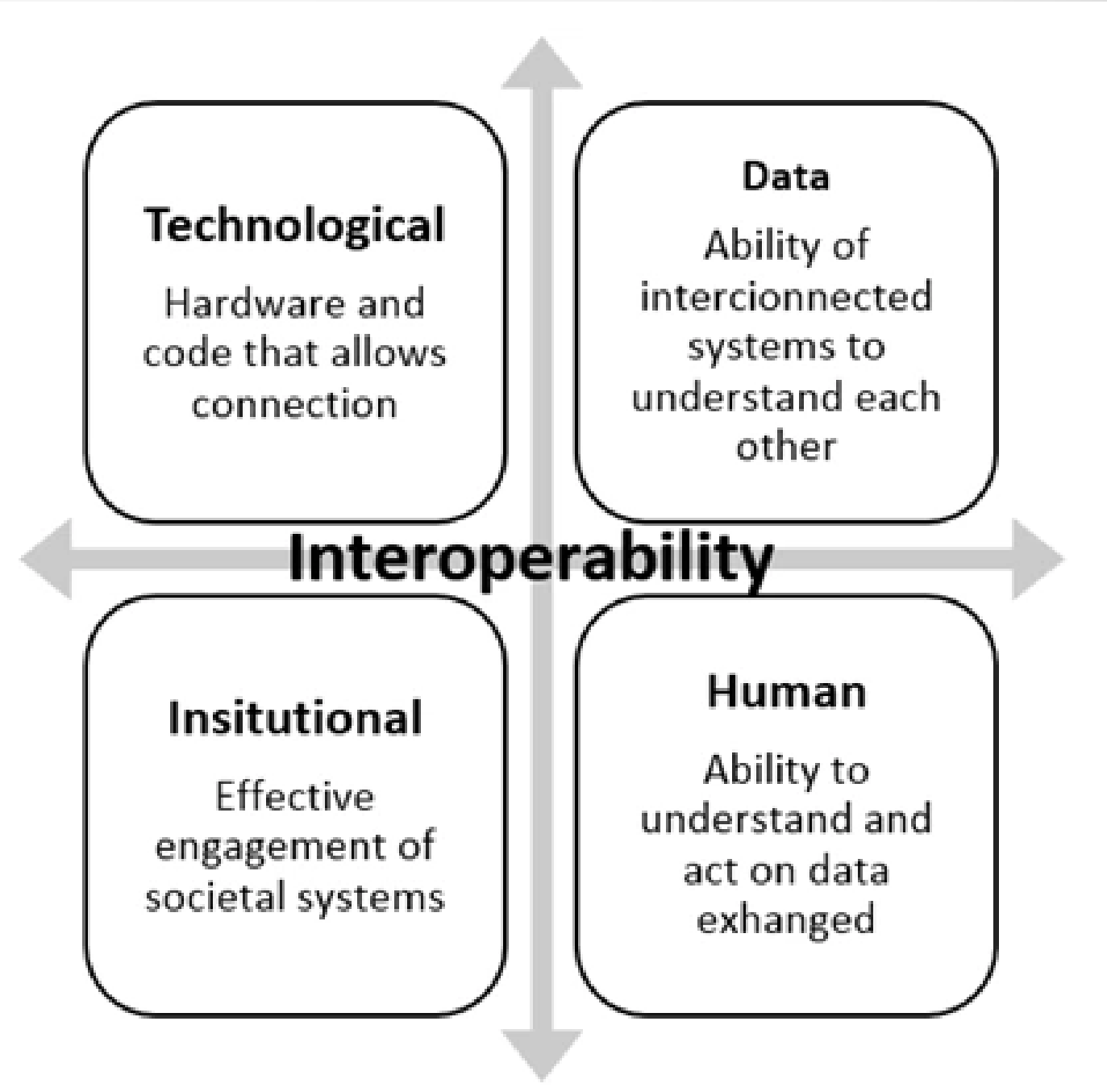
The Rise of IOT and the impact on Interoperability

As customers challenge the old manufacturing paradigm, new technology show promise and high growth

- Cloud systems shift cost, reduce time to market, and drive industry communication
- Internet of Things enable new business models and accelerate the need for more connected ‘things’

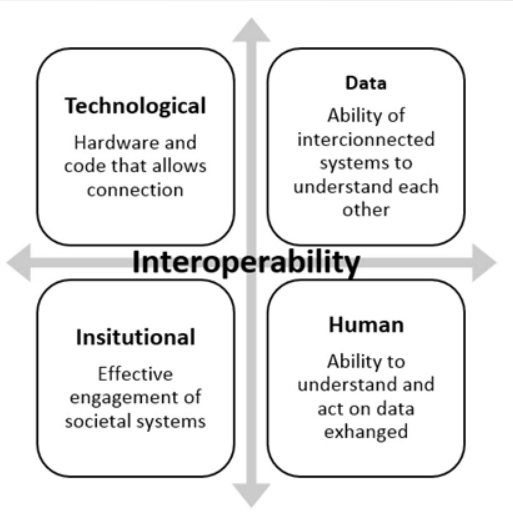
Move from proprietary to interoperability

Technological
Data
Human
Institutional



Move from proprietary to interoperability

Technological: The technological layer is the hardware and code that allow one system to physically connect to another. It allows systems to connect to one another and share data, often through an explicit, agreed-upon interface.

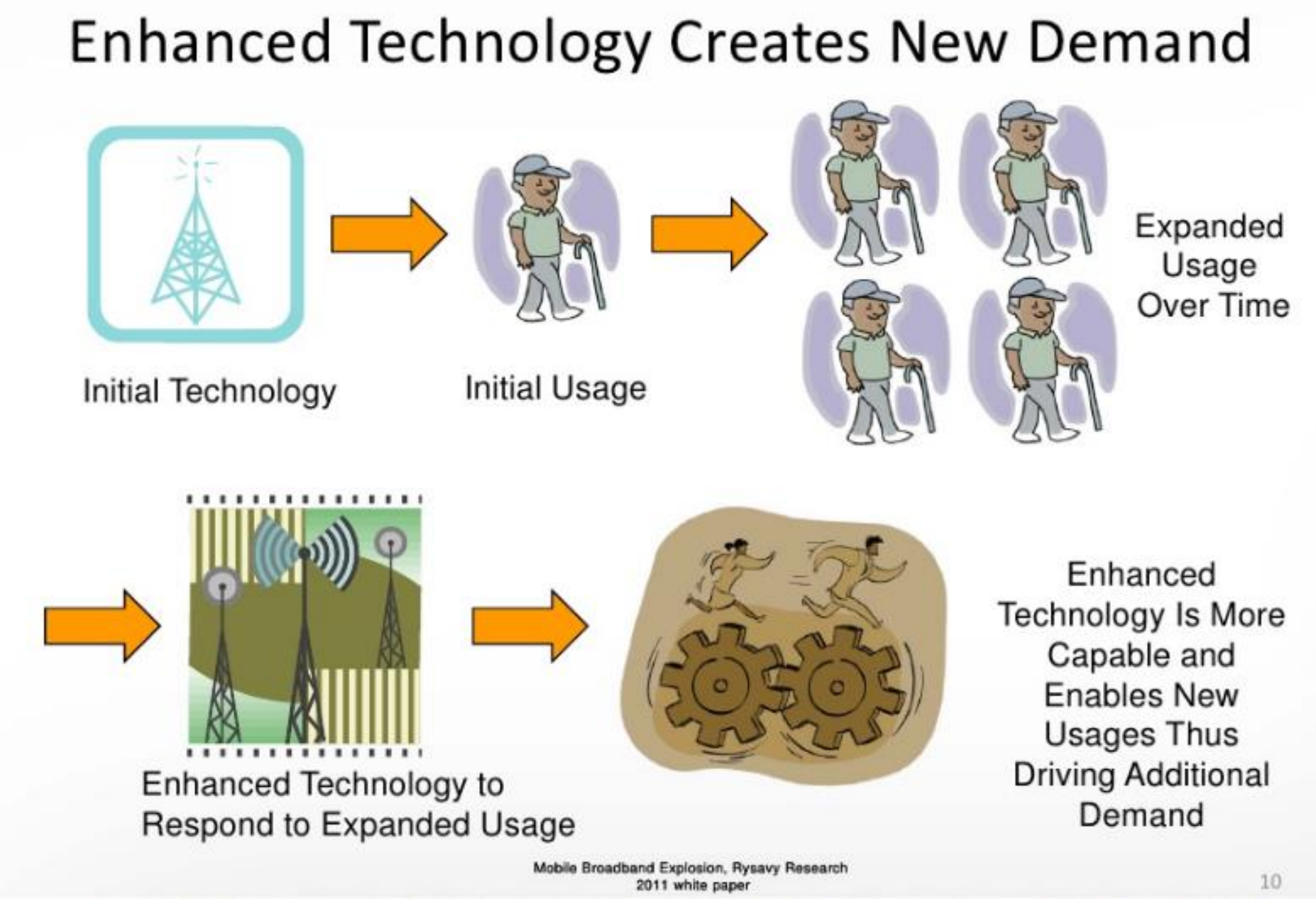


Data: Without the ability to understand and process what is being transmitted, it is insufficient for technological systems to have the capacity to pass bits from one system to another. The data layer is the ability of interconnected systems to understand each other. Anyone who has ever received an e-mail attachment that their computer could not open understands that simply having the technological capacity to receive data is not the same as interoperability at the data layer.

Human: This layer is the ability for humans to understand and act on the data that is exchanged. Although it is more abstract than the technological and data layers, it can be just as crucial for interoperability.

Institutional: The institutional layer is the ability of societal systems to engage effectively. The legal system is one example of an institutional layer of interoperability. Interoperability at the institutional layer does not require homogeneity of legal systems; it instead requires only enough commonality to protect the interest of both parties.

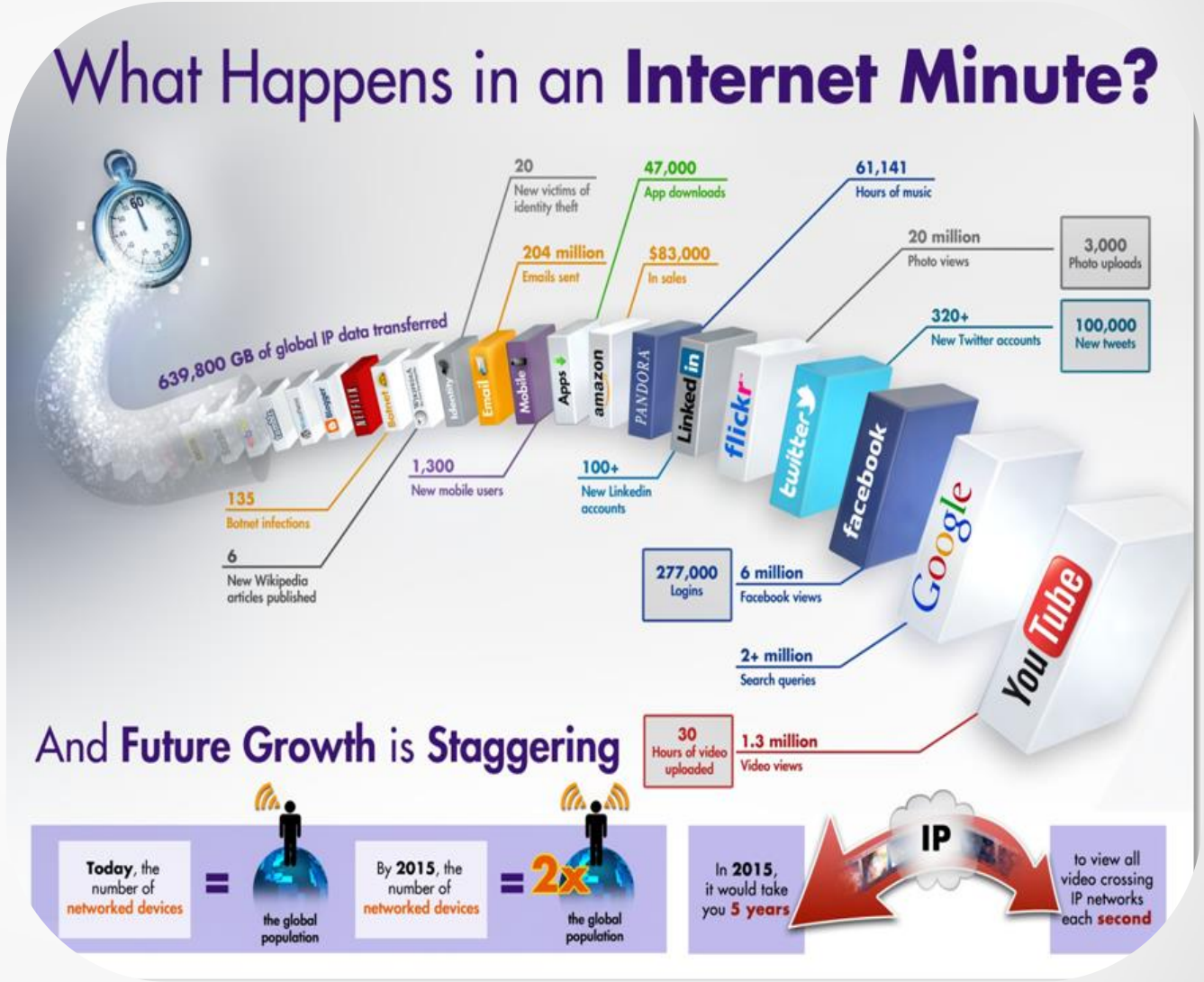
How Customer Demand Changes Things



Why we push for interoperability

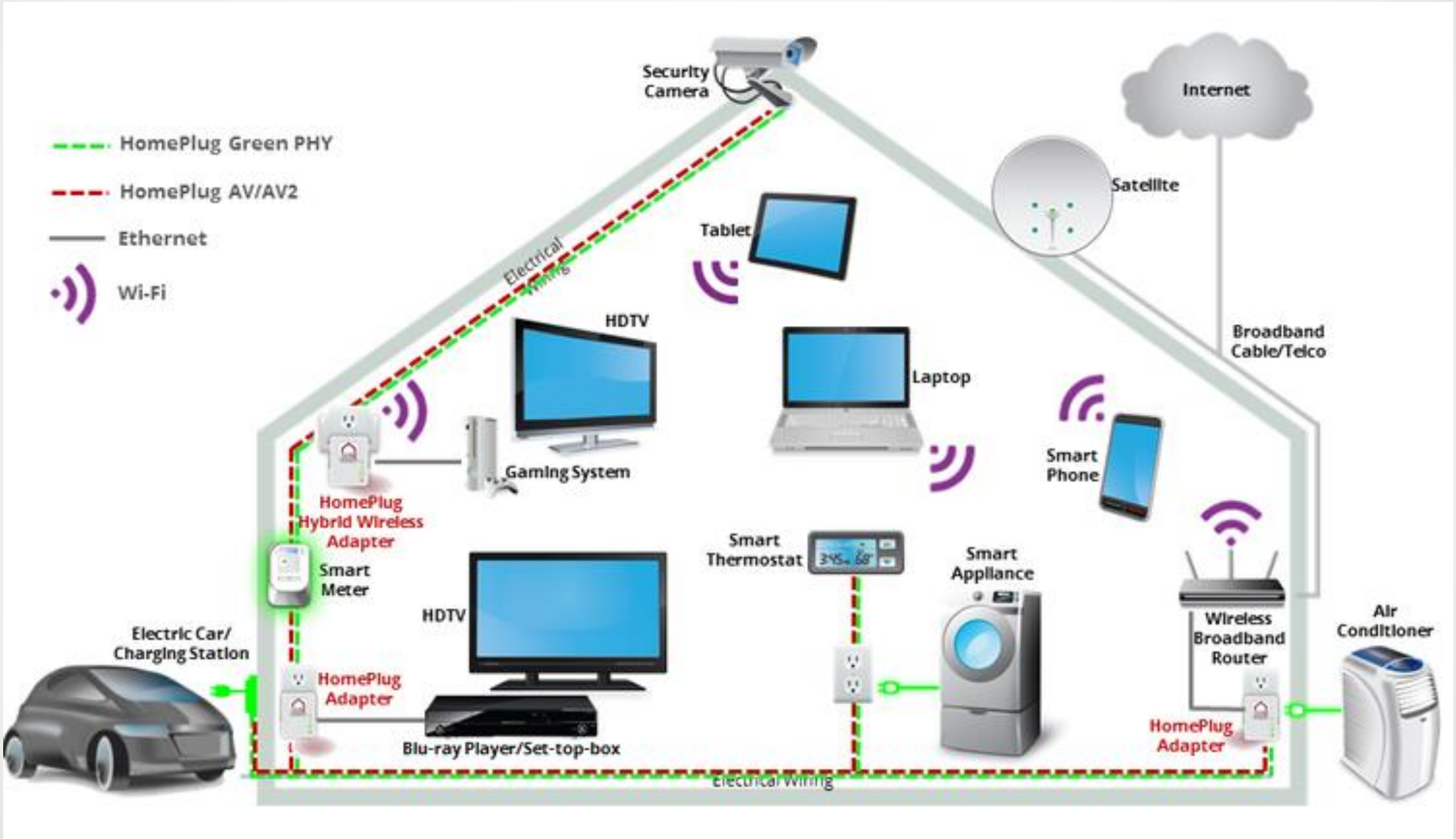
There's no lack of research about the future need to handle the data flood that's already here. The main thrust is that there's a continued need to:

- Expand solution options for data centers
- Increase consolidation of network ecosystems as businesses push more cloud or hosted solutions
- Evolve how we address Bring Your Own Device (BYOD) as well as the evolution of Bring Your own ID
- Increase efficiency at all levels of the ecosystem through software instead of additional hardware



Proprietary system would slow the use of different technology

The more we use technology, the more we want technology to work together



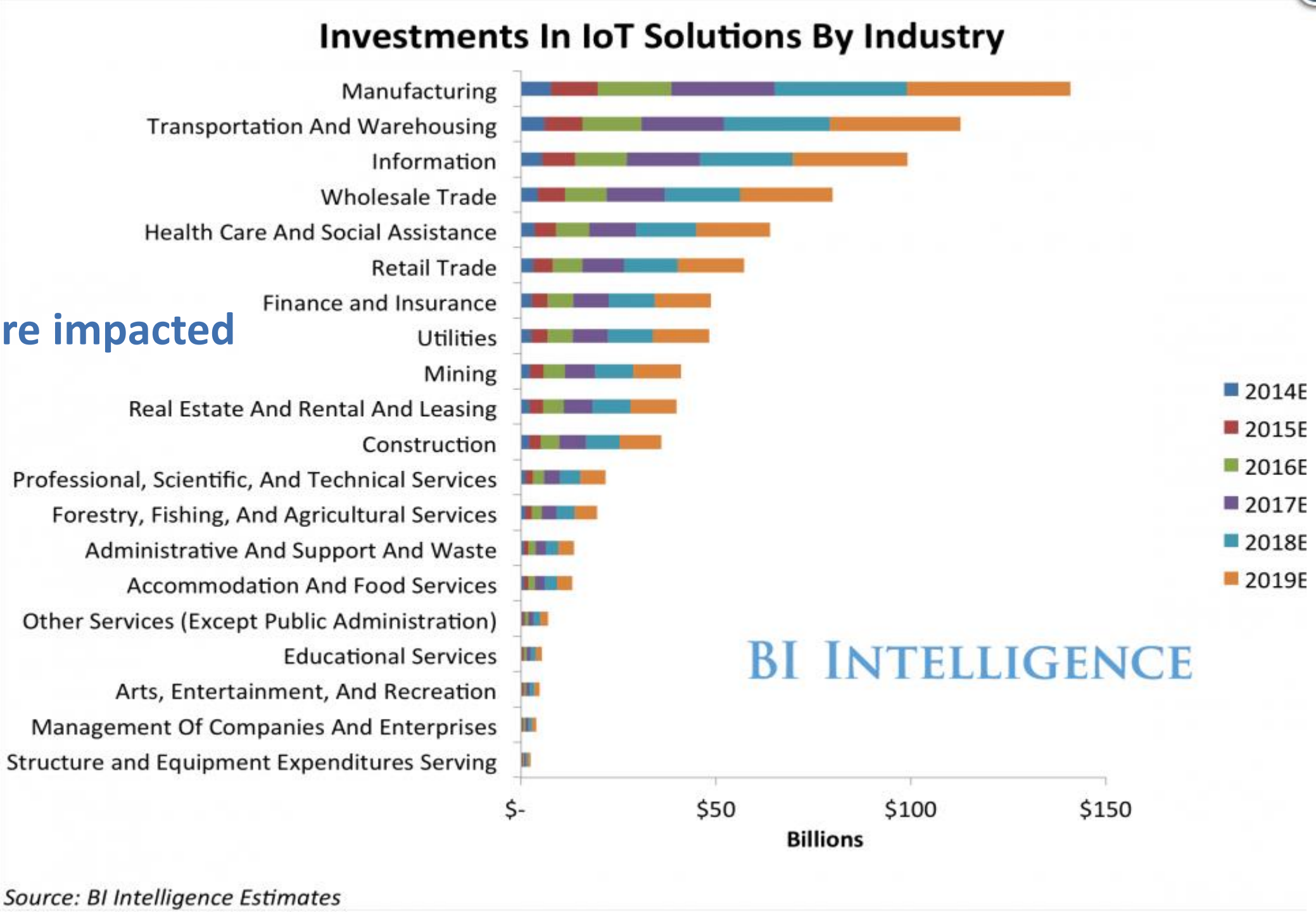
The more end users engage with technology, the more their requirements start to influence technology development. This start the 'Consumerization of IT'

Parks Associates research shows:

- 50% of North American broadband households will have a smart home device by 2020.
- Nearly 20% of U.S. broadband households plan to acquire a networked security camera in the next 12 months.
- More than 80% of smartphone/tablet users who own at least one smart home device have downloaded mobile apps for these devices.
- 27% of U.S. car owners want their car to be able to connect to their smart home devices.

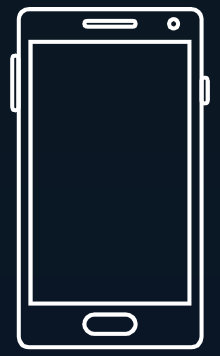
Why we push interoperability

All segments are impacted

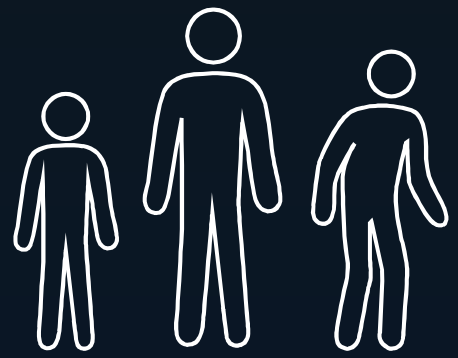


Source: BI Intelligence Estimates

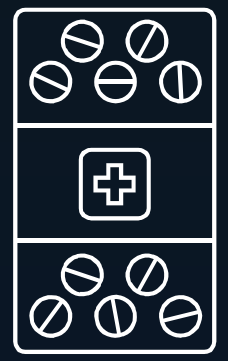
Manufacturing Considerations



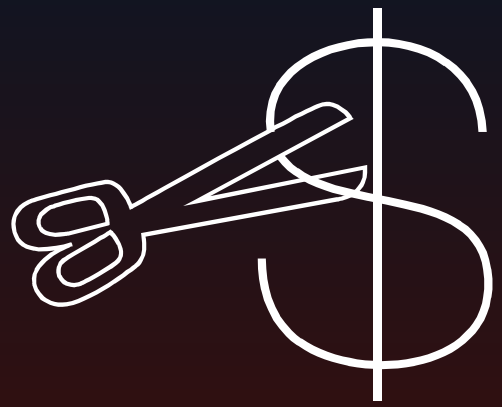
Can the device be sold



Who's my customer?



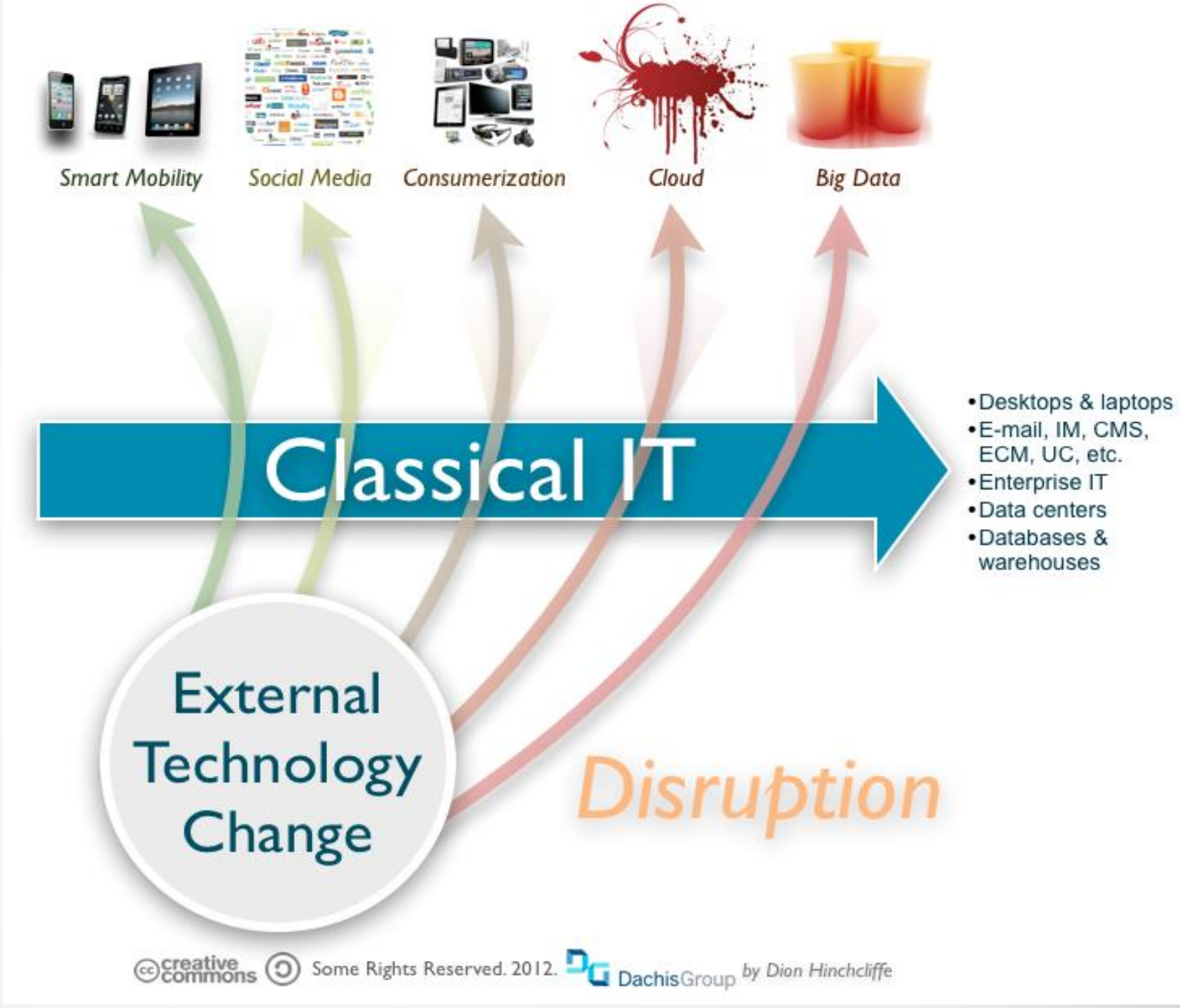
Are there complimentary variables to consider?



If equipment prices go down, where else is there opportunity for market growth?

How Technology changes

The more customers change how they want to engage with technology, the more traditional IT will have to adjust



Why we push interoperability

“Consumerization of IT” is a core catalyst for other IT mega-trends. The spread of social media and BYOD are clear outcomes, but “consumer” expectations play a surprisingly large role in the development of Big Data and cloud-based applications.

Mobility is forcing new approaches to data security. User expectations of anytime/anywhere access to enterprise data conflict directly with IT’s charter to secure and protect the same data; this conflict is one of the sources of the rise of rogue IT.

Both mobile and social applications are (finally) adding definable value to enterprises. Social media apps with definable ROI are primarily customer-facing; high-value mobile apps are still mostly internal.

“Big Data” will affect every aspect of business. From plant operations to stock trading to predicting terrorist behavior, the combination of huge data volumes and massive compute power is beginning to answer questions never even asked before, particularly with respect to predictive analytics.

“Designing for loss of control” is one of IT’s key challenges. Between consumerization/BYOD, rogue IT and the cloud, centralized IT can’t keep up with demands yet will still be held accountable for security, reliability and performance.

IT’s future differentiation is far more about insight than about operations. With technology so widespread, the ability to compete on IT operations has vanished. IT’s future value lies in delivering immediate, actionable knowledge.

POPULATION EXPLOSION:

The Internet of Things will include

26 BILLION

units installed by 2020.*

REVENUE EXPLOSION:

The Internet of Things product and service suppliers will generate incremental revenue exceeding

$300 BILLION

by 2020.*

VALUE EXPLOSION:

The Internet of Things will result in

$1.9 TRILLION

in global economic value-add through sales into diverse end markets.*

5 TIPS FOR MONETIZING THE $1.9 Trillion INTERNET OF THINGS

1 Simplify

Build a single device model that contains all capabilities and capacity then use licensing and entitlement management to configure.

2 Differentiate

Drive more value from your device with software and monetize all aspects of your solution.

3 Drive Revenue

Device + software + licensing helps drive new, recurring revenue streams.

4 Grow Market

Move into new markets quickly by slicing and dicing your product by features, capacity, and more.

5 Protect Your IP

Protect your devices and applications against IP theft with licensing.

* Source: Gartner, Forecast: The Internet of Things, Worldwide, 2013, 18 November 2013

Markets across all industries continue their use of IP-based technology. The major shifts into video, online, and mobile devices will continue to affect how networks are integrated.

No longer do customers rely on large static localized networks, but more distributed, flexible, and lighter systems to fit the needs of their business models.

Network ecosystems do not need to be one single platform supporting only devices that can integrate with it. However, future platforms will continue to evolve and interoperate to allow a variety of connectivity methods and devices.

This will continue to drive to personalize every aspect of a users interaction with technology.

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