Internet of Things (IoT)
Strategic Vision Team Update

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The team

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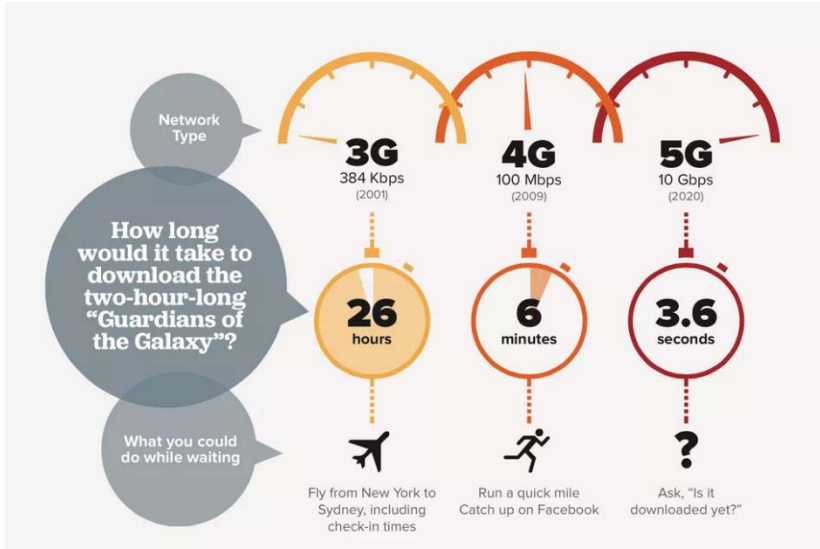
The Imperative of IoT

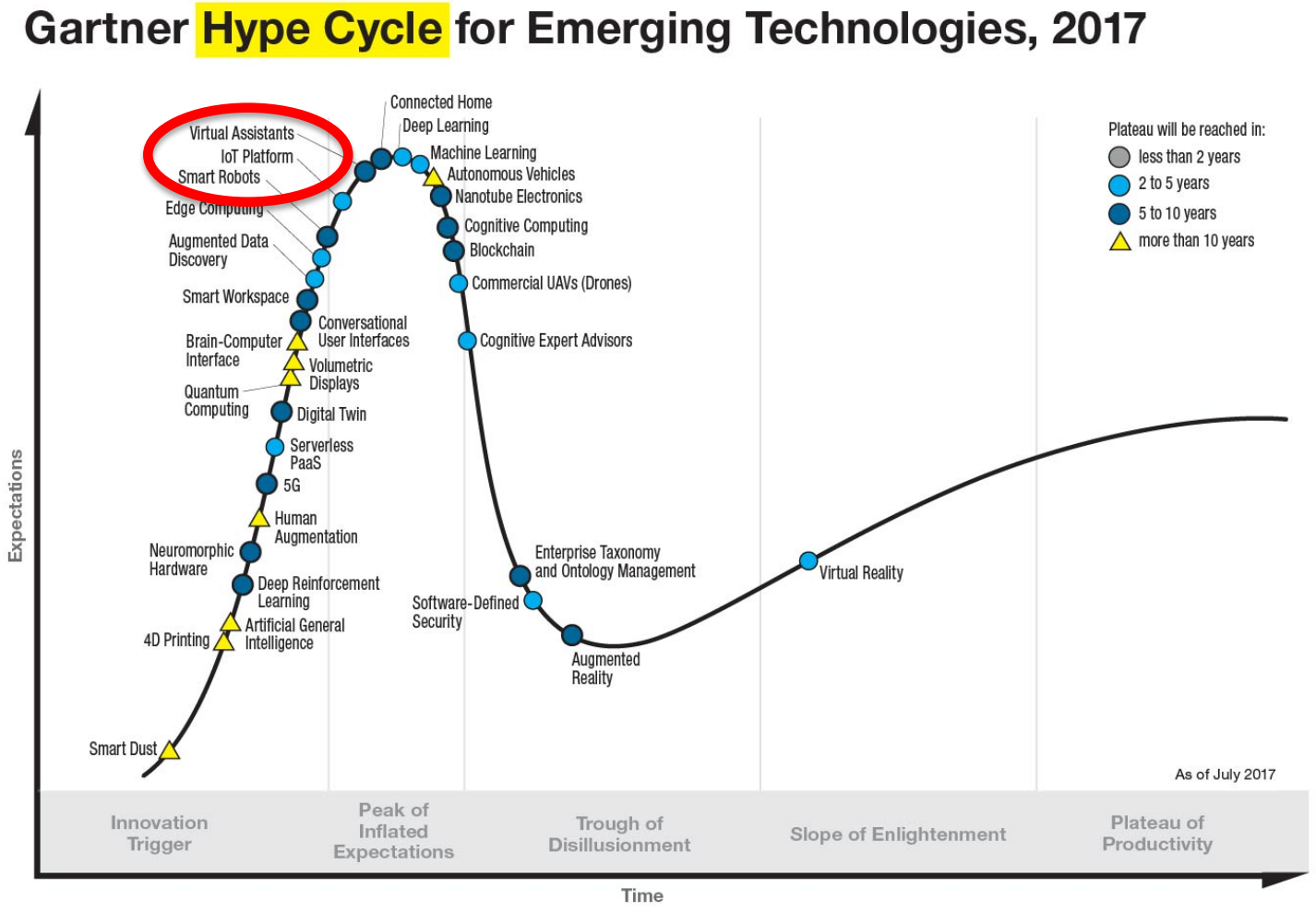
Source: McKinsey Global Institute Study, The Internet of Things, Mapping The Value Beyond The Hype, 2015



Source: Stephen Shankland for CNET News, MWC 2015

Source: Homi Kharas for the Brookings Inst. Feb. 2017

Why now?



gartner.com/SmarterWithGartner

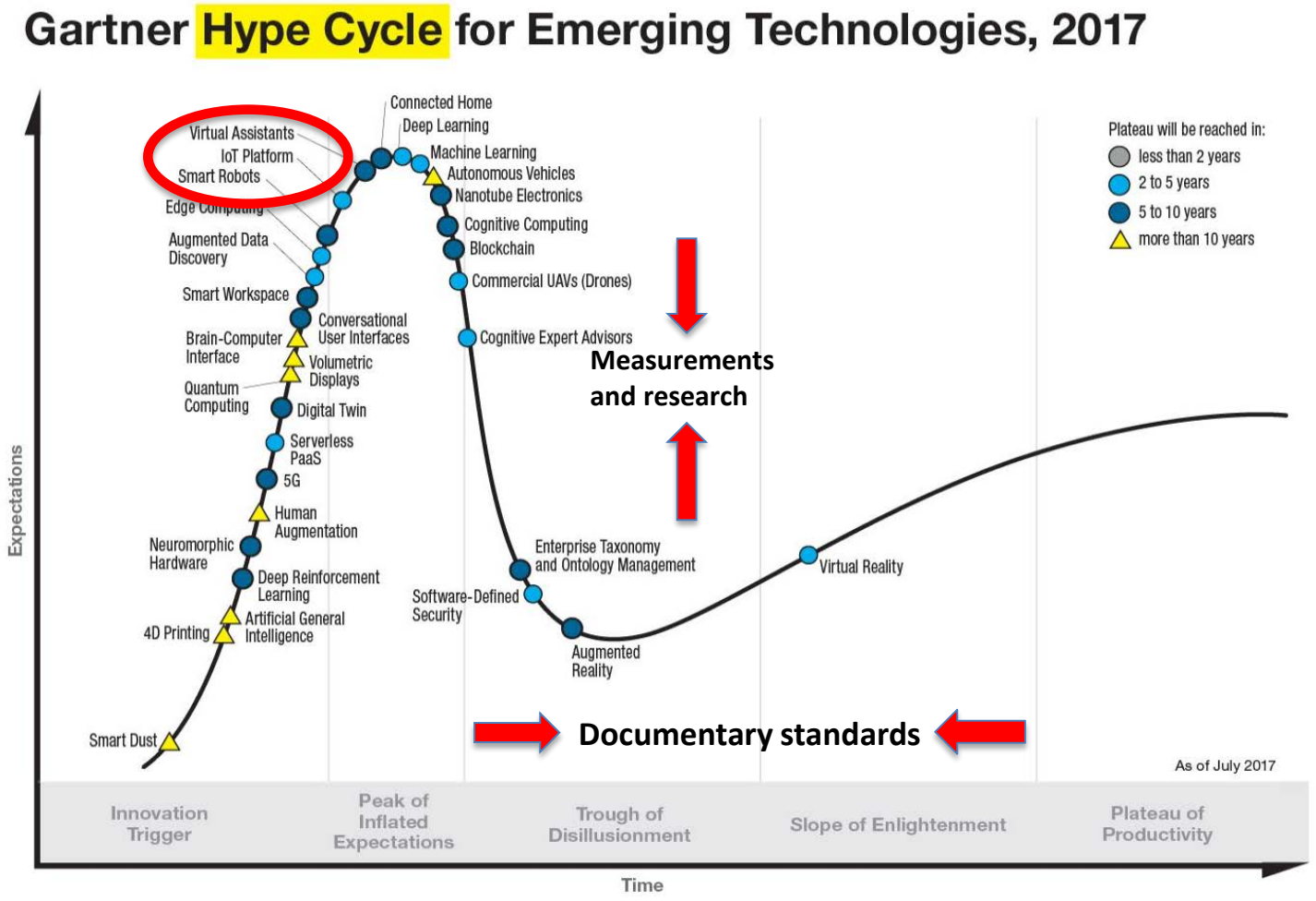
Source: Gartner (July 2017)

Gartner

"..The IoT itself will help digital transformations but will take 5 to 10 years to gain mainstream adoption.." Alfonso Velosa, VP Research, Gartner in Nov. 2016

NIST National Institute of Standards and Technology U.S. Department of Commerce

NIST makes a difference



gartner.com/SmarterWithGartner

Source: Gartner (July 2017)

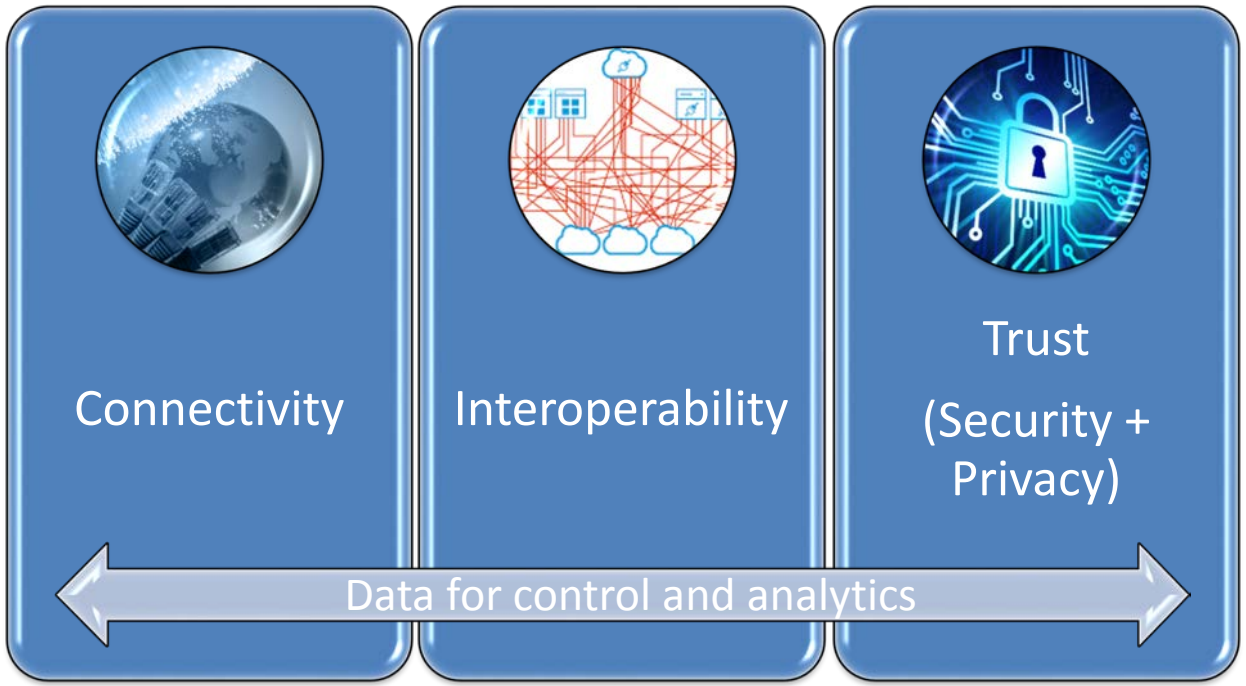
Gartner

NIST's proposed work in measurements and standards can accelerate realizing the value-add of IoT – shrinking the "*Trough of Disillusionment*"

Vision

NIST is recognized for developing measurement solutions and implementation practices that will expedite large-scale adoption of interoperable and trustworthy IoT solutions, helping realize the full potential of connecting humans, systems and devices.

ELEMENTS OF OUR APPROACH



Our strategy:

- **Measurements and research for development of IoT systems**
  - Develop measurement and research capabilities – computational, modeling and simulation capabilities, functional and performance measurement, sensor application and measurement, timing and synchronization capabilities, information-centric approaches to connectivity and information security, device usability, composability and system scalability, data and information analytics, etc.

- **Tools for deployment and operation of IoT systems**
  - Testing and proofing tools and toolkits, application guidelines, test protocols, conformance testing tools, testbeds for functionality, interop, vulnerability, etc.
  - Confidence in IoT deployments

- **Strategic collaborations and partnerships**
  - Working across internal silos – leverage quantum and AI/Data efforts
  - External partnerships to understand stakeholder needs, leverage external knowledge
  - Inform and drive standards development

What does success look like in five years?

- NIST will have articulated, developed and implemented a seamless NIST-wide IoT related measurements research, standards and implementation guide program.
- Leveraging existing capabilities and body of work, NIST will have identified and moved to fill critical expertise gaps through hires and partnerships.
- Key internal NIST collaborations e.g., IoT program connections to the AI/Data and Quantum strategic priorities will be firmly in place and consensus on priorities and timelines established.
- External stakeholders will be adopting and using early NIST outputs as fundamental building blocks for their IoT implementations and providing feedback on strengths, limitations and future needs.
- NIST will have established itself as a leader and contributor to the development of international consensus standards.
- NIST will be a leader within US government and international governmental groups for using science, data, and standards based approaches to developing policies impacting IoT

Questions for Discussion

- What aspects should NIST consider given the exponential differences between industry investments in IoT technologies and applications and NIST's investments (current and future)?
- How should NIST support industry in a market place with externalities that clearly NIST cannot control?
- IoT technologies and its applications will impact society in deeply personal and individualized ways. How should NIST consider issues at the intersection of technology, society and governance in thinking about the work we do?
- What should a "whole of NIST" IoT program look like