

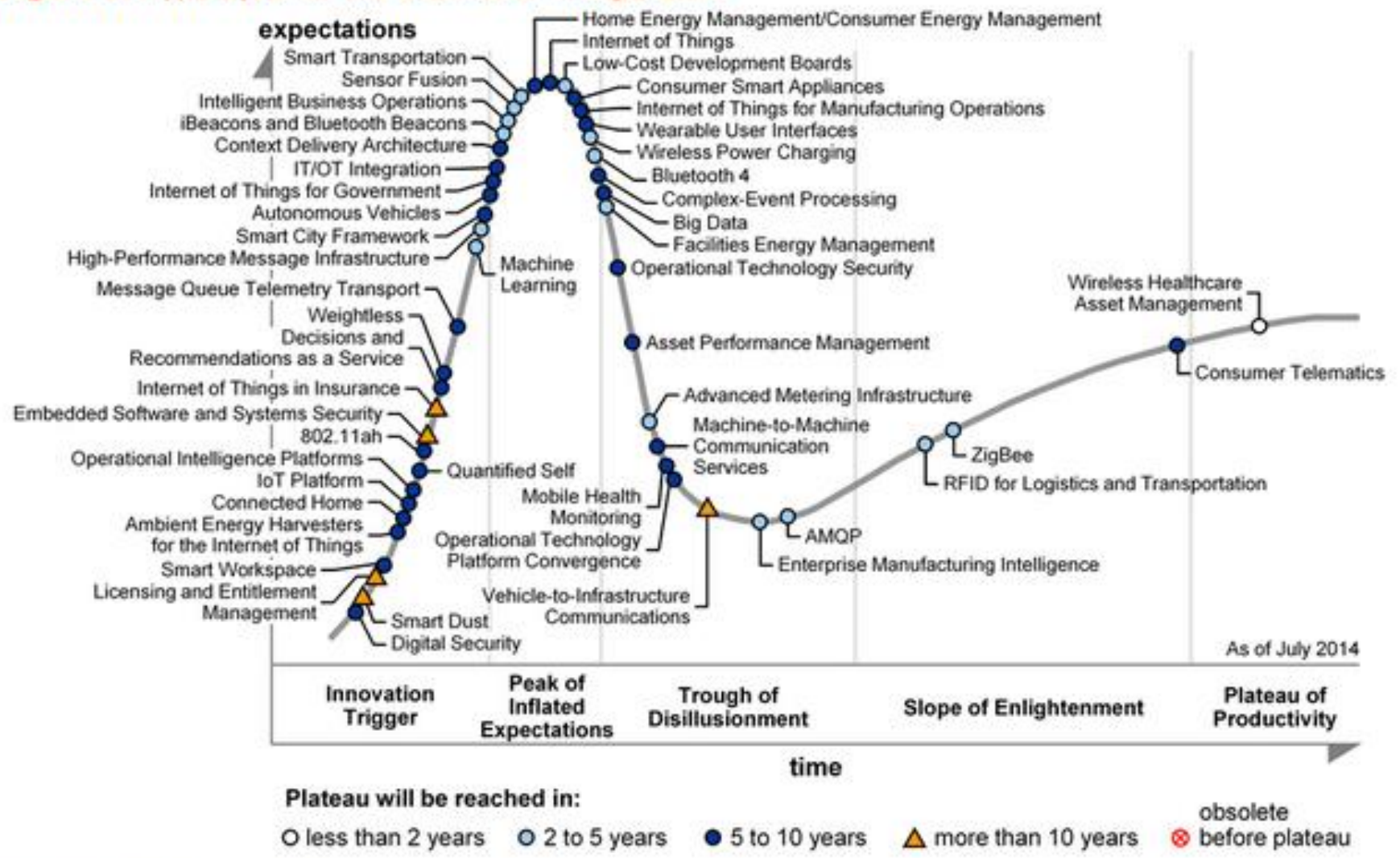
# IoT Panel Discussion

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# The internet has always been about “things”

- But the “things” always had a direct human interface

**Figure 1. Hype Cycle for the Internet of Things, 2014**



Source: Gartner (July 2014)

# What is new ?

- The “things” talk mostly to other “things”
- There are going to be a lot of “things”
- These things are going to be unreliable
- “things” are collecting a lot of data
- This “data” can get into the wrong hands
- But “Data is not “Information”
- The IoT is not just about the “things” and the “data”
- Its all about converting raw data to information – which is contextual
- Its about using that information to make decisions possibly without human intervention.

# So what does this mean for the Packaging community

- We have to more or less do the same things
- But we need to think more about the entire system requirements
- Its not just about packaging sensors – its integrating sensors with some cognitive ability , reliable power, and reasonable communication capability for both data and information
- Its about data centers that can process this data and information and send it to other things
- And all this with minimal human intervention.

# ECTC IoT Panel Questions

- What are the greatest opportunities for IoT (human interaction devices, industrial, automotive, or something else?)
- What are the greatest challenges in the realization of IoT (hardware, software, data security, other?)
- Does the growth of IoT increase the demand for 200mm wafer fabs and different package types such as System-in-Package (SiP)?
- Which will be more cost-effective: SoC or SiP solutions?
- What are RF connectivity options are needed to provide flexibility in IoT products?
- What interconnect “fabric” is required for packages to make a more flexible human application?
- How critical is the need for low-power and what developments look promising?
- What battery technologies to enable longer operation times are on the horizon?
- Are there unique challenges for wearable device manufacturing? Automotive electronics? Industrial machine-to-machine?
- Do wearable electronics and growth in IoT present any new challenges for the supply chain?