

Current Landscape and Outlook of the IoT/M2M

物聯網發展現況及前瞻

國立交通大學資訊工程系
Department of Computer Science
National Chiao Tung University
September 11, 2018



Outline

- Current Landscape of the IoT/M2M
- Outlook of the IoT/M2M



Current Landscape of the IoT/M2M



3

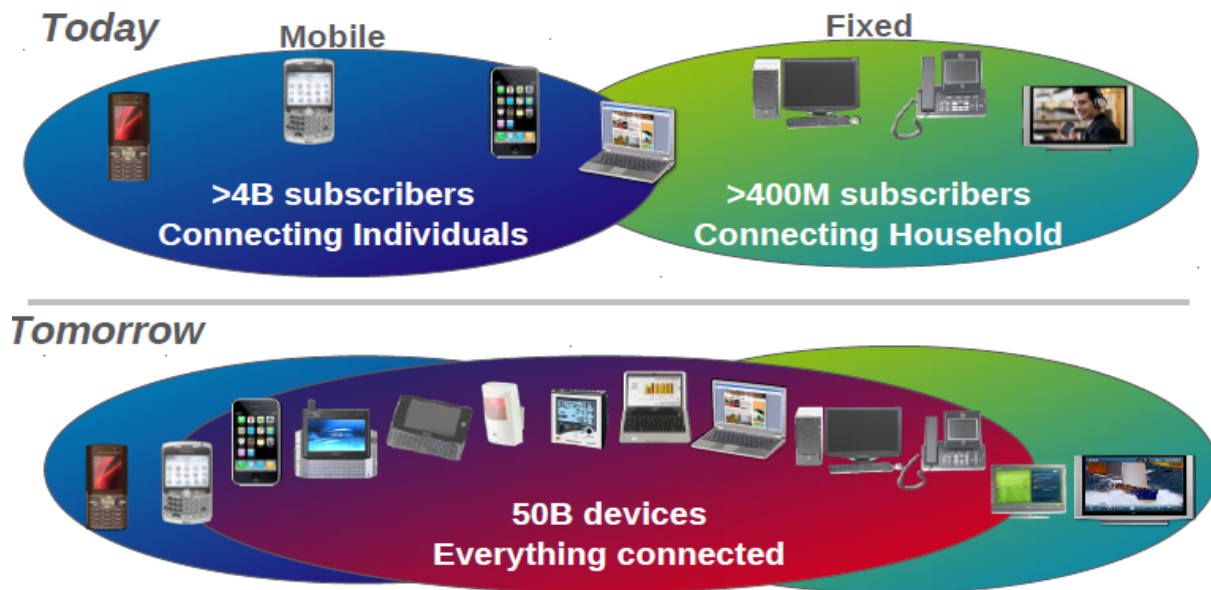
Outline

- IoT/M2M Trends
- IoT/M2M Business Opportunities



4

IoT/M2M Trends

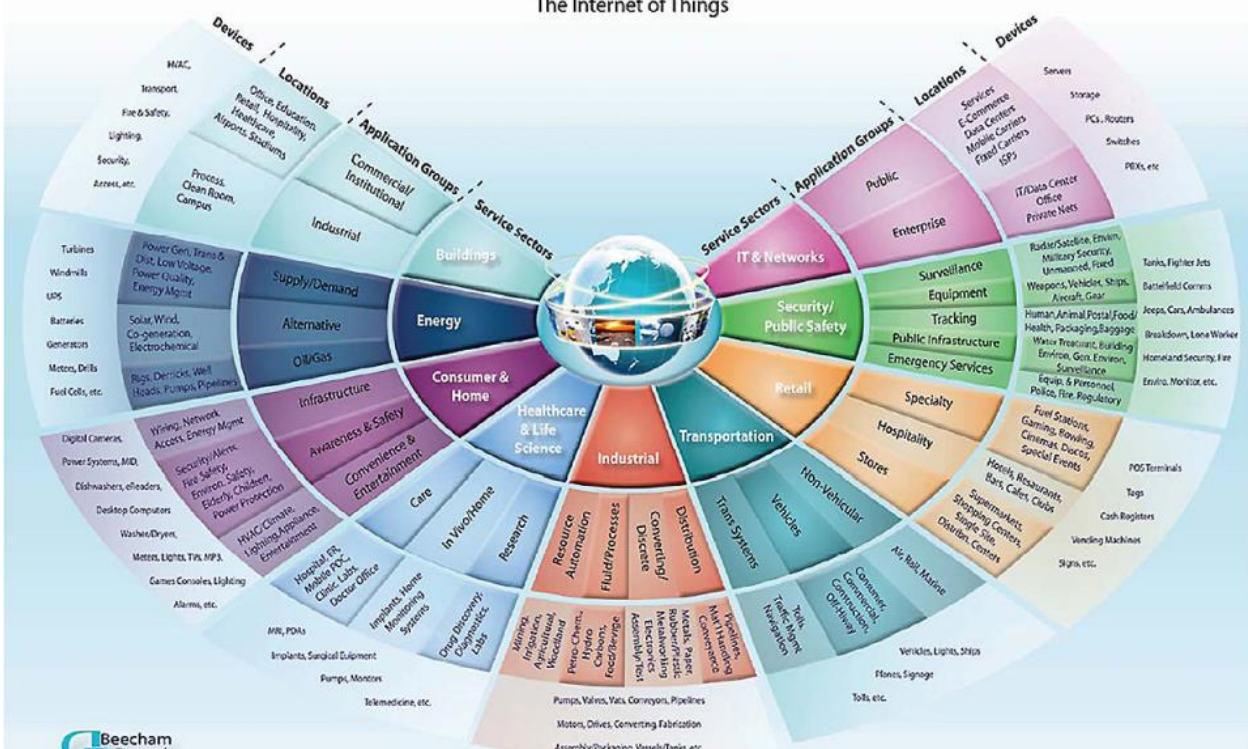


Source: Ericsson Research

5

Varieties of IoT/M2M

The Internet of Things



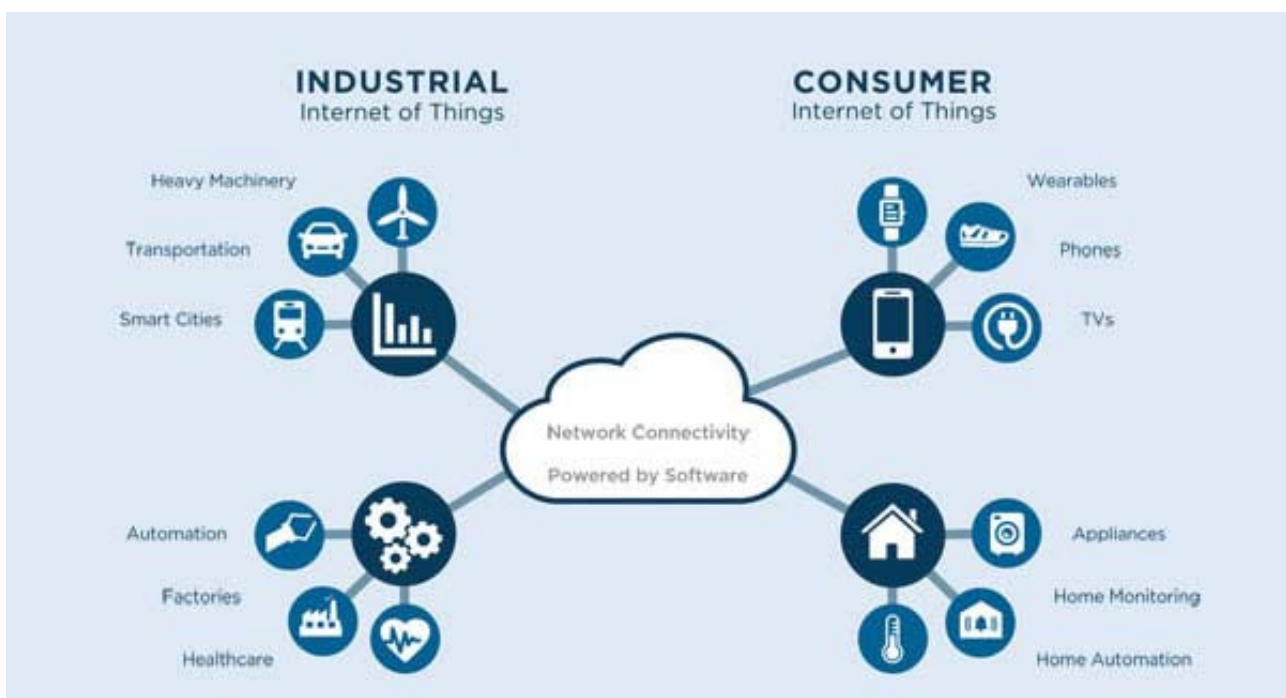
6

Most Promising IoT/M2M Verticals

- Smart Grid
- eHealth
- Connected Vehicle
- Smart Home
- Smart Building
- Smart Campus
- Smart City
- Industry 4.0

7

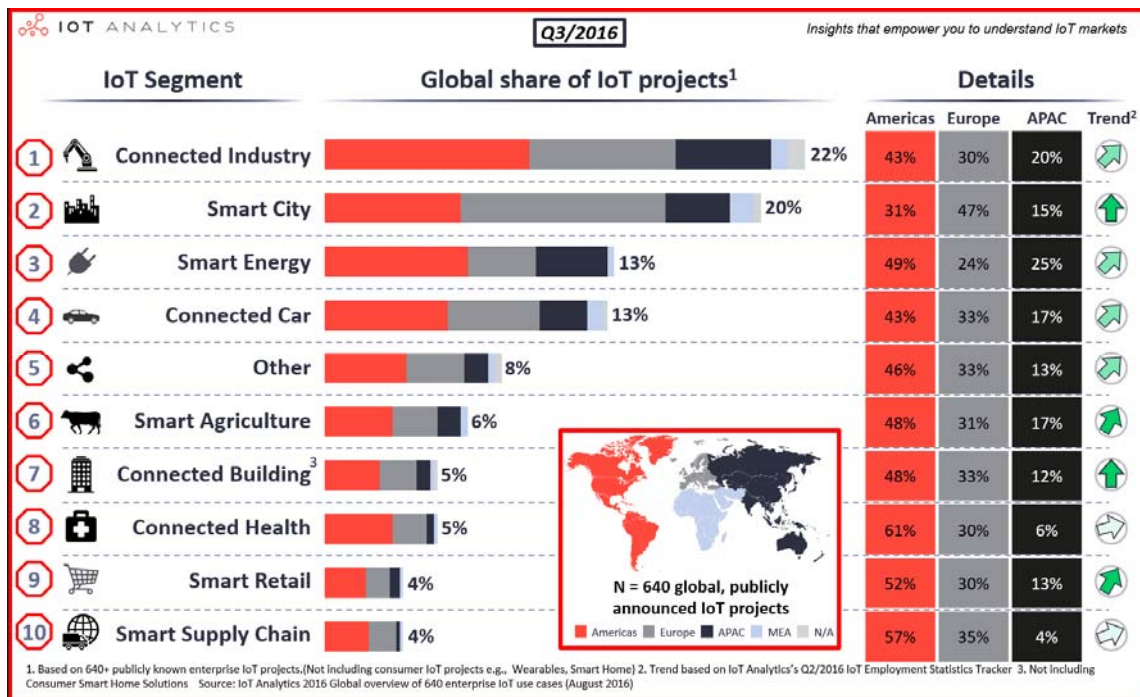
Industrial IoT vs. Consumer IoT



<https://www.i-scoop.eu/internet-of-things-guide/internet-of-things-definition/>

8

Investment on Industrial IoT

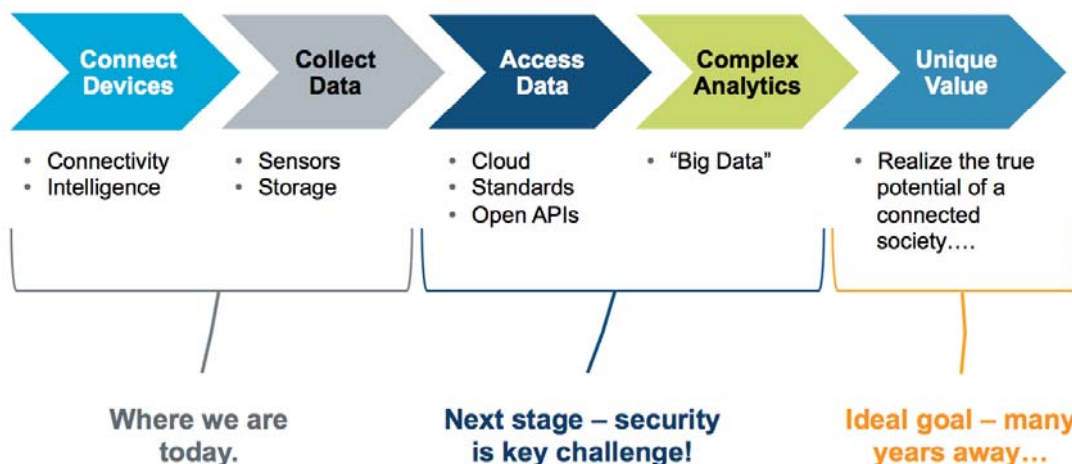


<https://iot-analytics.com/top-10-iot-project-application-areas-q3-2016/>

9

Internet of Things Evolution

Internet of Everything (IoE): represents the open access to data from one or more monitoring and control systems by third-party applications to provide unique, additional value to stakeholders.



<http://electronics360.globalspec.com/article/4890/optimal-analysis-algorithms-are-iot-s-big-opportunity>

10

Outline

- IoT/M2M Trends
- IoT/M2M Business Opportunities

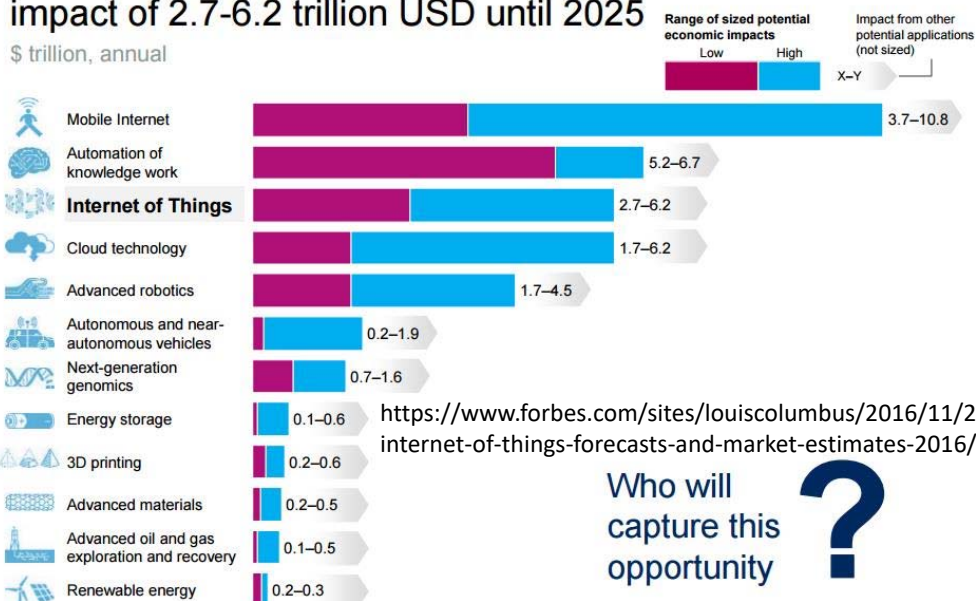
11

Economic Impact of the IoT

THE IoT PLATFORM OPPORTUNITY

The Internet of Things (IoT) has a potential economic impact of 2.7-6.2 trillion USD until 2025

\$ trillion, annual



<https://www.forbes.com/sites/louiscolumbus/2016/11/27/roundup-of-internet-of-things-forecasts-and-market-estimates-2016/#3aca69af292d>

Who will capture this opportunity ?

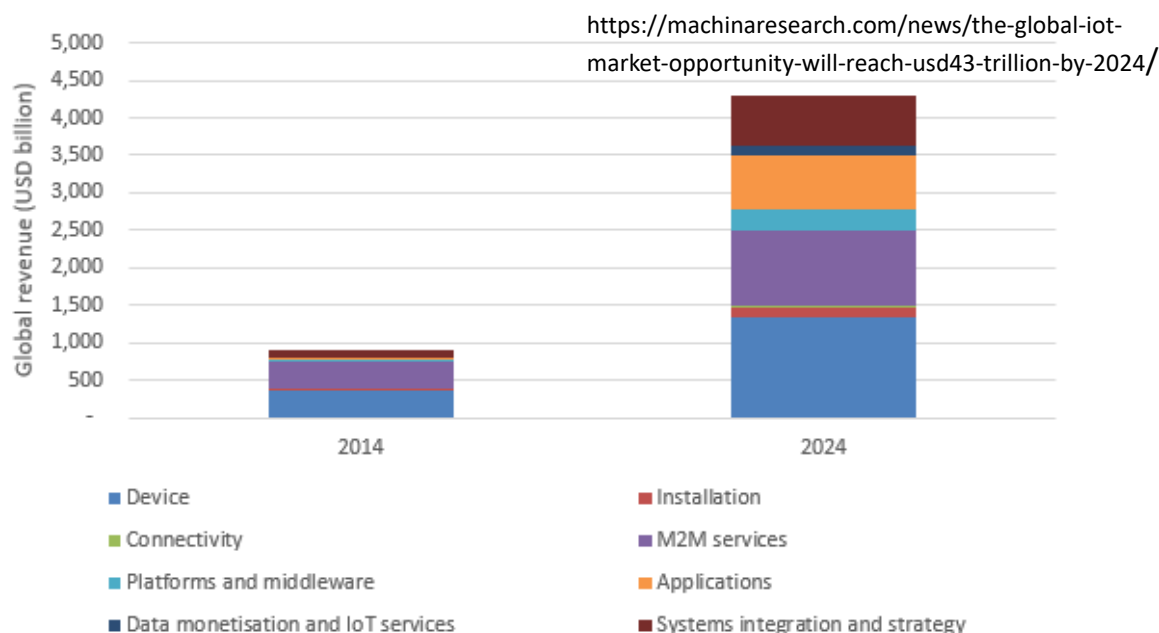
SOURCE: McKinsey Global Institute analysis

McKinsey & Company 3

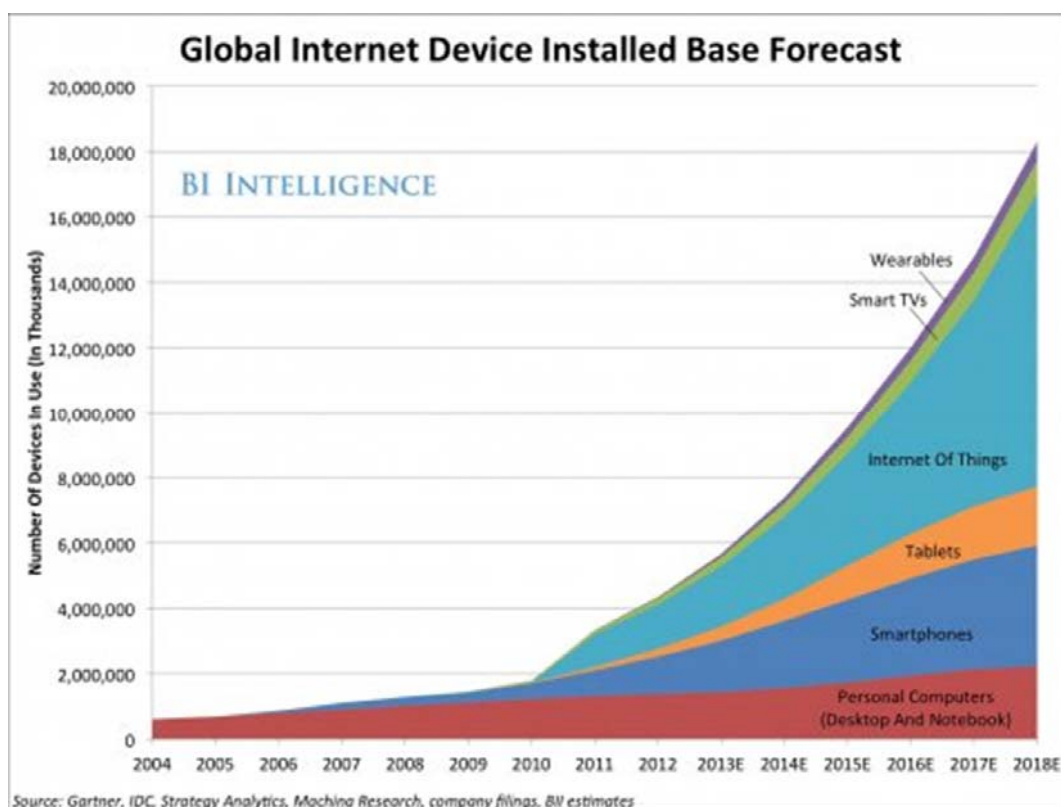
12

Market Size Projections

Global IoT opportunity, 2014 and 2024 [Source: Machina Research, 2015]

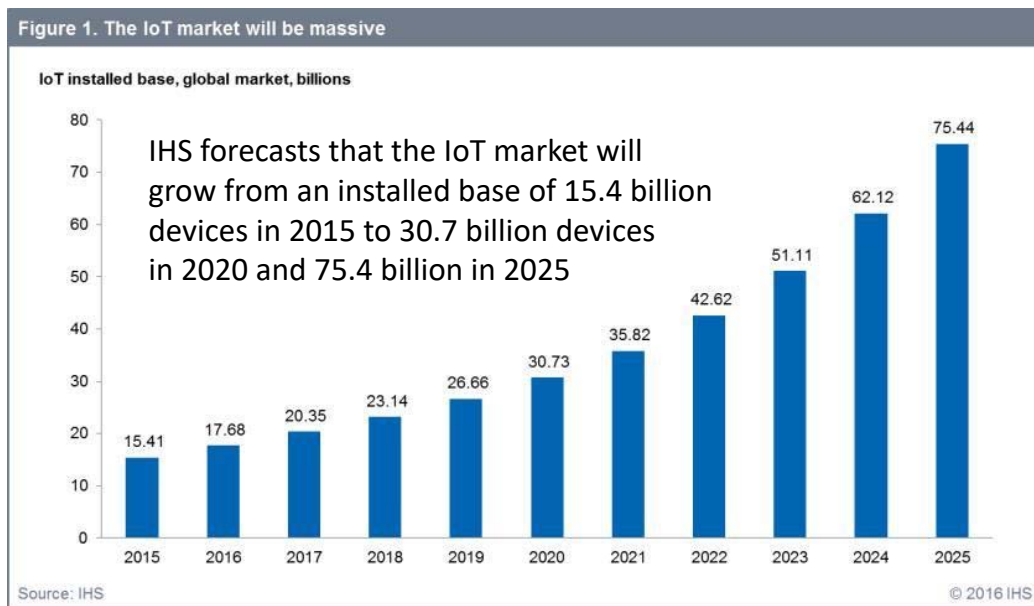


13



14

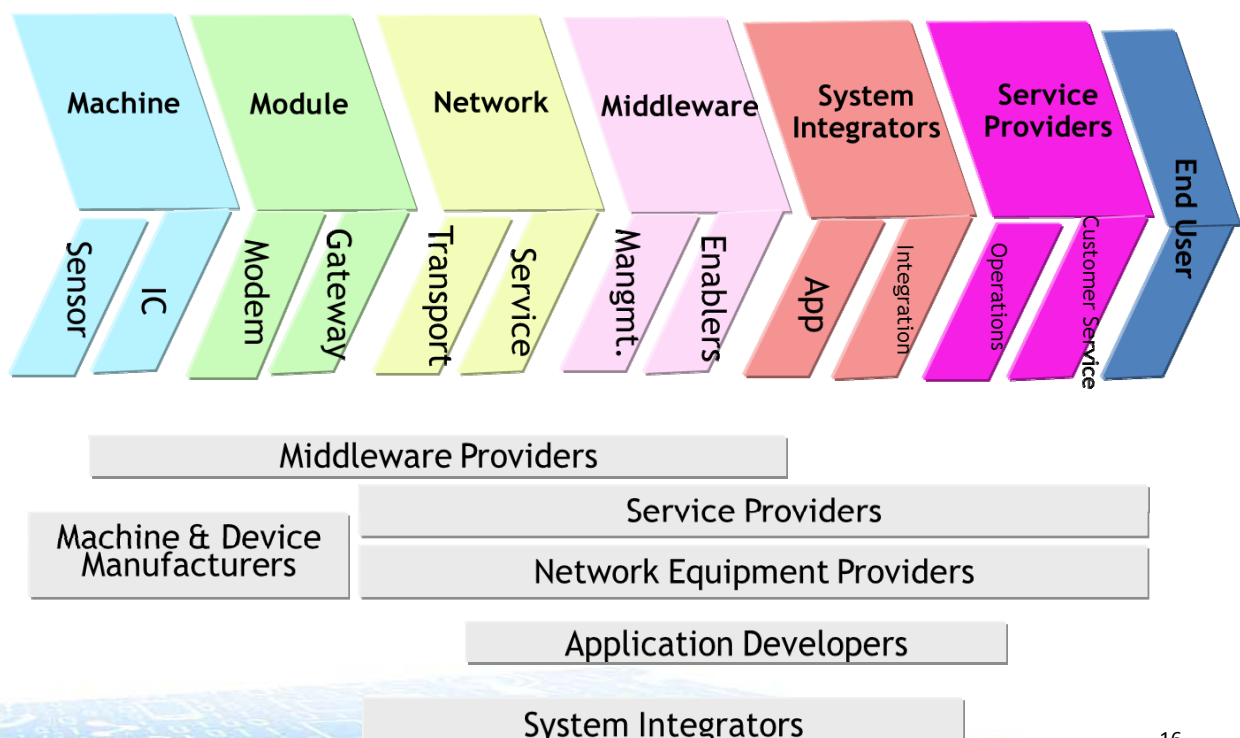
Massive growth of IoT devices



<https://www.ihs.com/Info/0416/internet-of-things.html>

15

IoT/M2M Ecosystem

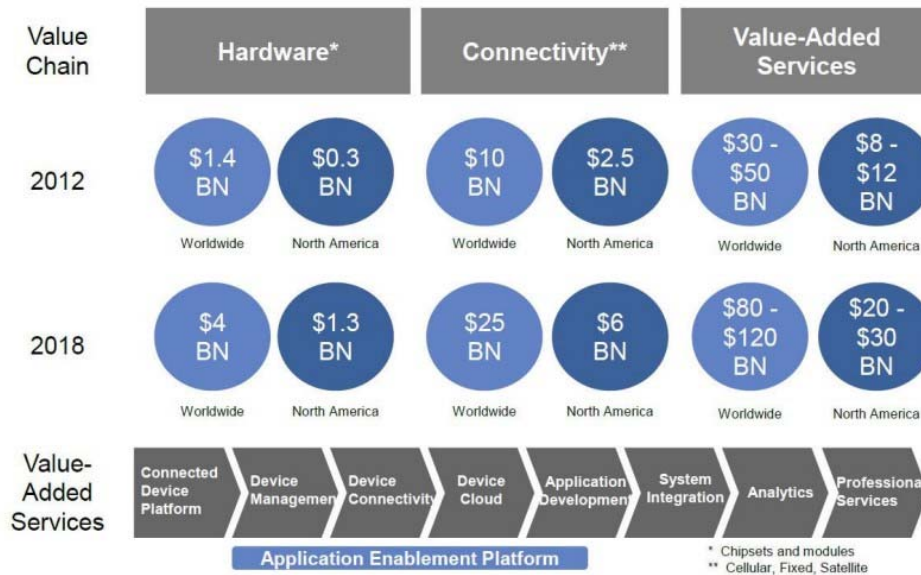


16

IoT/M2M Ecosystem

Values of Different Segments

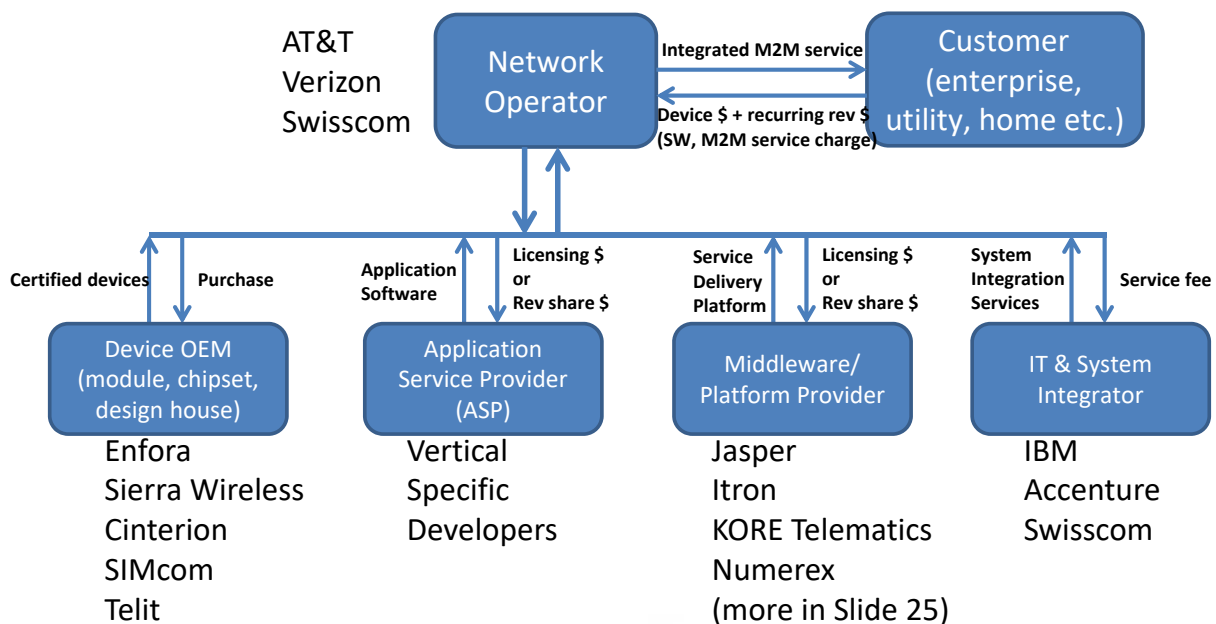
Figure 23 : M2M/IoT Value Chain – Projected Revenues



17

Service Providers & Network Operator

- Network Operator-led Business Model

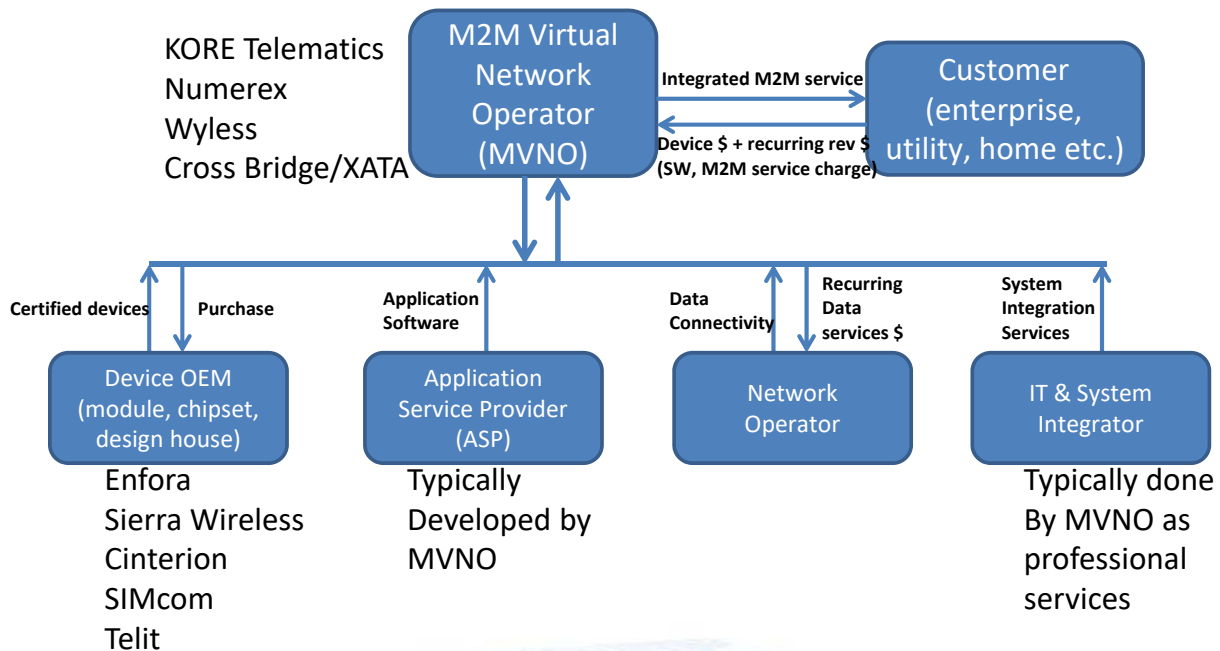


Source: "M2M COMMUNICATIONS - A SYTEMS APPROACH", 2012, Wiley.

18

Service Providers & Network Operator

- MVNO (M2M Virtual Network Provider)-led Model



Source: "M2M COMMUNICATIONS - A SYTEMS APPROACH", 2012, Wiley.

19

Stakeholders in IoT/M2M Ecosystem



<http://digitaltransformation.frost.com/expert-insights/viewpoints/show-me-money-who-really-makes-money-iot/>

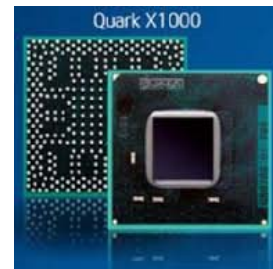
20

Chip Manufacturer (Just an example here)



Intel Quark

Mediatek, Marvel, ARM, Intel, TI, QUALCOMM etc.



Intel Quark

21

Outlook of the IoT/M2M

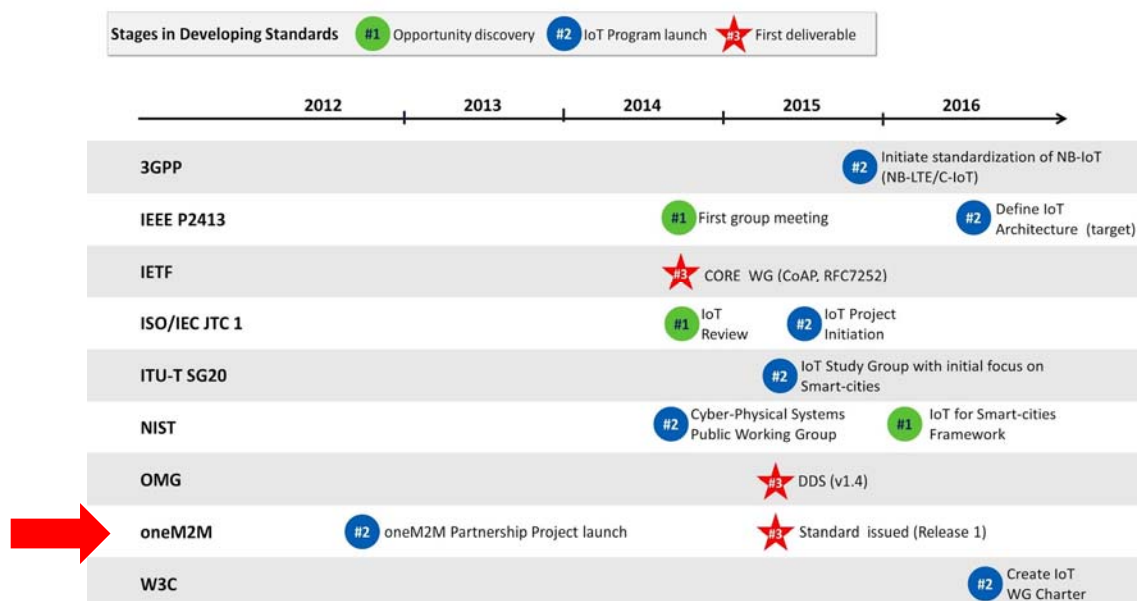
Outline

- Diversification of Many Standards
- Existence of Many IoT/M2M Industry Alliances

23

Diversification of Many Standards

Timeline of open, IoT standardization initiatives



SOURCE: more-with-mobile.com, SDO announcements (2016)

<http://www.more-with-mobile.com/2016/08/comparative-advantage-in-iot.html>

24

Middleware/Platform Providers

Commercial Offers

- OpenMTC (Licensed Source)
- Xively
- Nimbits
- Axeda
- Device Insight
- Thingworx
- Ninja Blocks platform
- ioBridge (Web Gateway)
- Thingvibe
- Digi
- Bosch
- SAP
- Etc.

Open Source

- OSIOT Interoperability Project
- Eclipse M2M Industry Group
- Koneki
- Paho
- Lua
- MQTT
- OM2M (Open Source)
- Contiki – IP-based open source operating system for the IoT
- Etc.

25

Existence of Many IoT/M2M Industry Alliances

- AllSeen Alliance
- Open Connectivity Foundation (OCF)
- Google Weave
- Apple Homekit
- Industrial Internet Consortium

26

Summary

- Current Landscape of the IoT/M2M
 - IoT/M2M Trends
 - IoT/M2M Business Opportunities
- Outlook of the IoT/M2M
 - Diversification of Many Standards
 - Existence of Many IoT/M2M Industry Alliances

