

IoT PLATFORMS

Connectivity is not enough!



- ❑ IIoT is about data sensed and transmitted from objects
- ❑ The “real” goal is to develop services/applications to gather, manage and use such data
- ❑ You need “tools” to ease up your life along the way
- ❑ These tools are called “platforms”

Hardware architectures

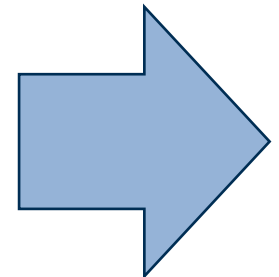
es: piattaforma AVR, ARM, x86

Software Framework

es: AllJoyn, IoTivity, HomeKit (Apple), Brillo

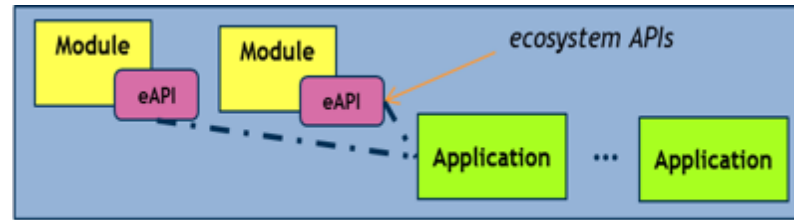
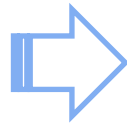
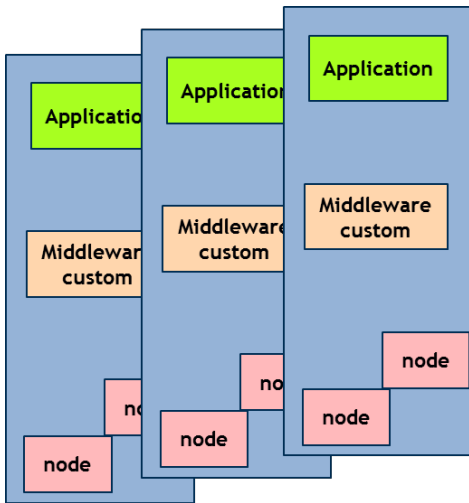
Platform: a (coarse) definition

Set of software functions (tipycally cloud-based) to manage smart objects and data

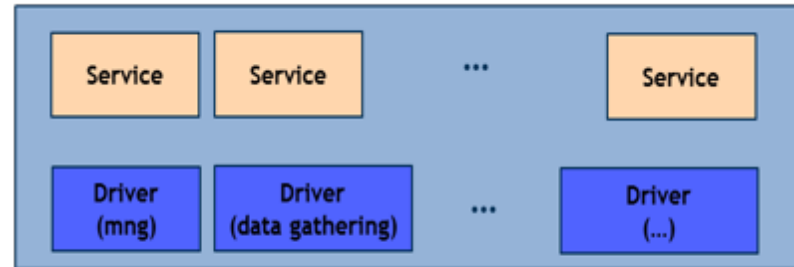


IoT Platforms

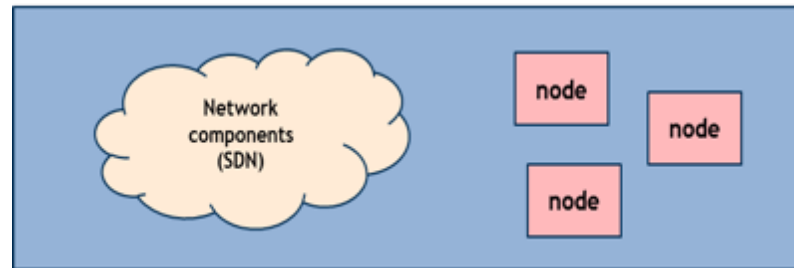
From a *vertical* to a *horizontal* approach



Modular services



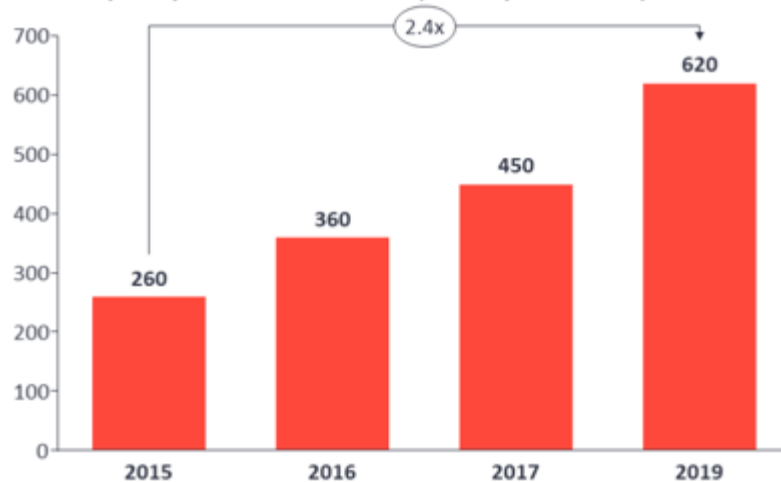
Service Platforms delivered in the cloud



Cheap and fast development

Growth

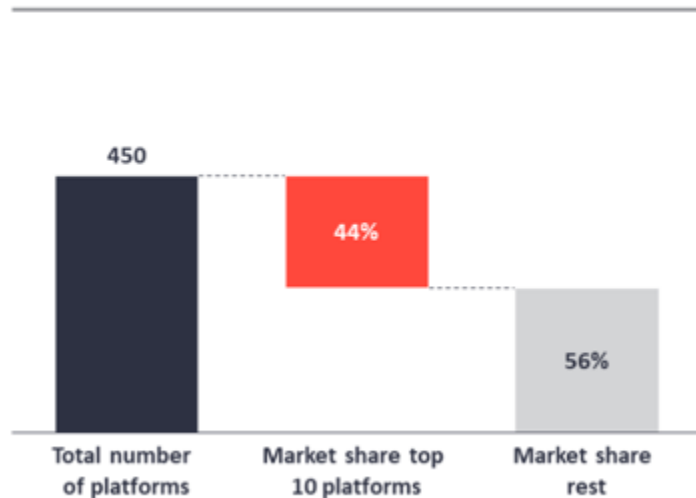
Number of publicly known "IoT Platforms" (IoT Analytics Research)



Source(s): IoT Analytics Research

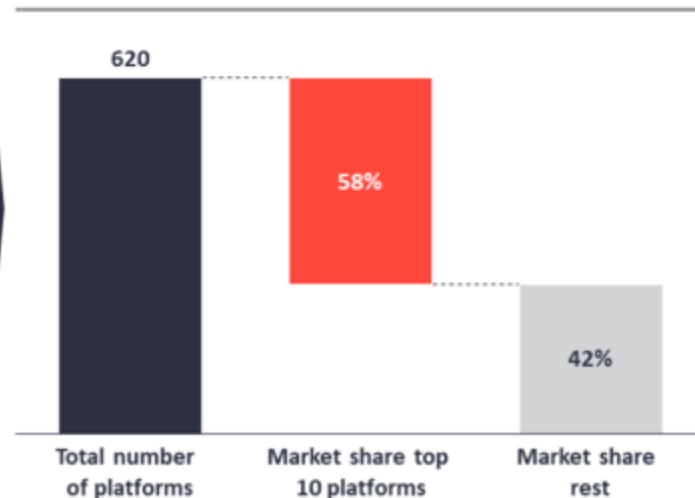
- Rich and heterogeneous market offer
- Open Source vs Proprietary
- Old Giants vs Start Ups vs SMEs

IoT Platform Market 2016



Source(s): IoT Analytics Research

IoT Platform Market 2019

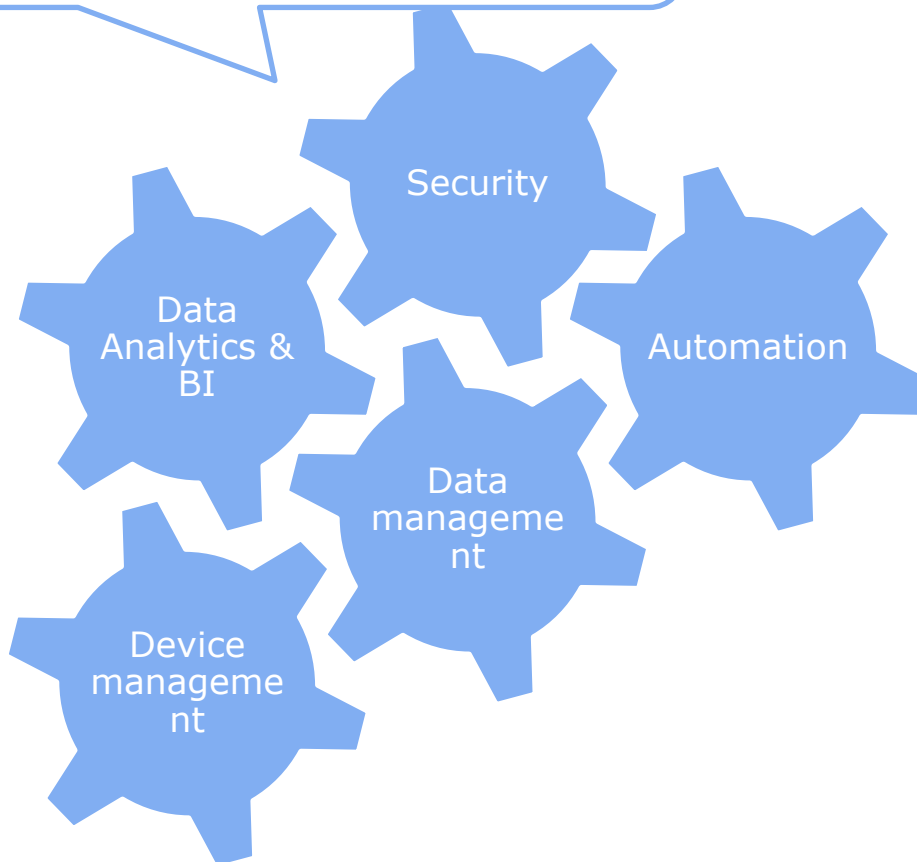


Desired features

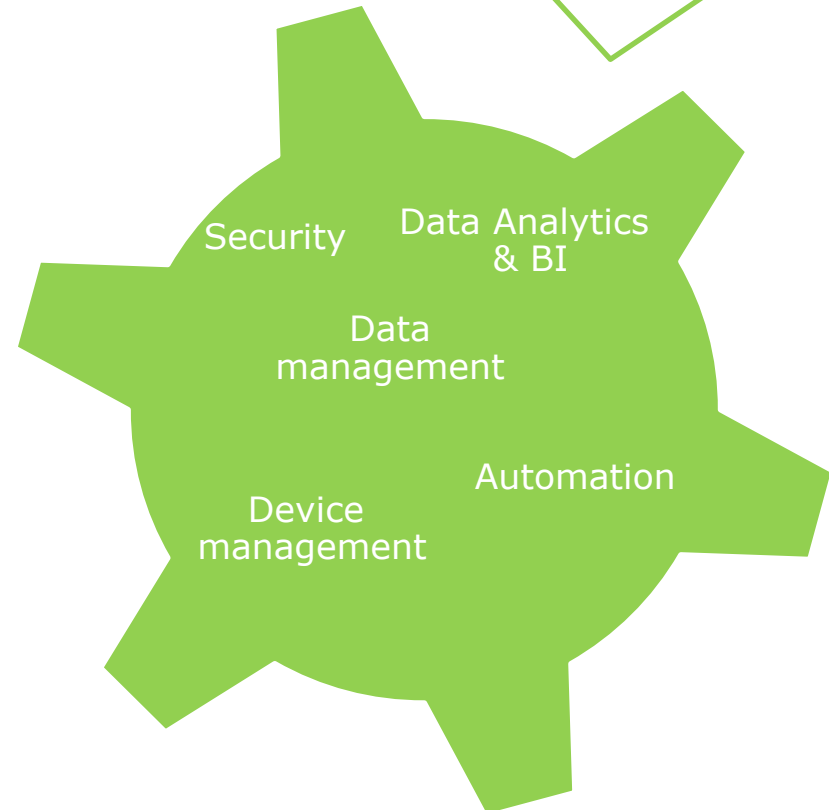
- ☐ Device management
 - Connect devices to the cloud, configure devices, update firmware, monitor devices...
- ☐ Data management
 - Store and retrieve data, manage events, visualize and share data
- ☐ Data analysis / automation
 - Statistical analysis, data mining, machine learning, etc...
- ☐ Security

IoT Platforms

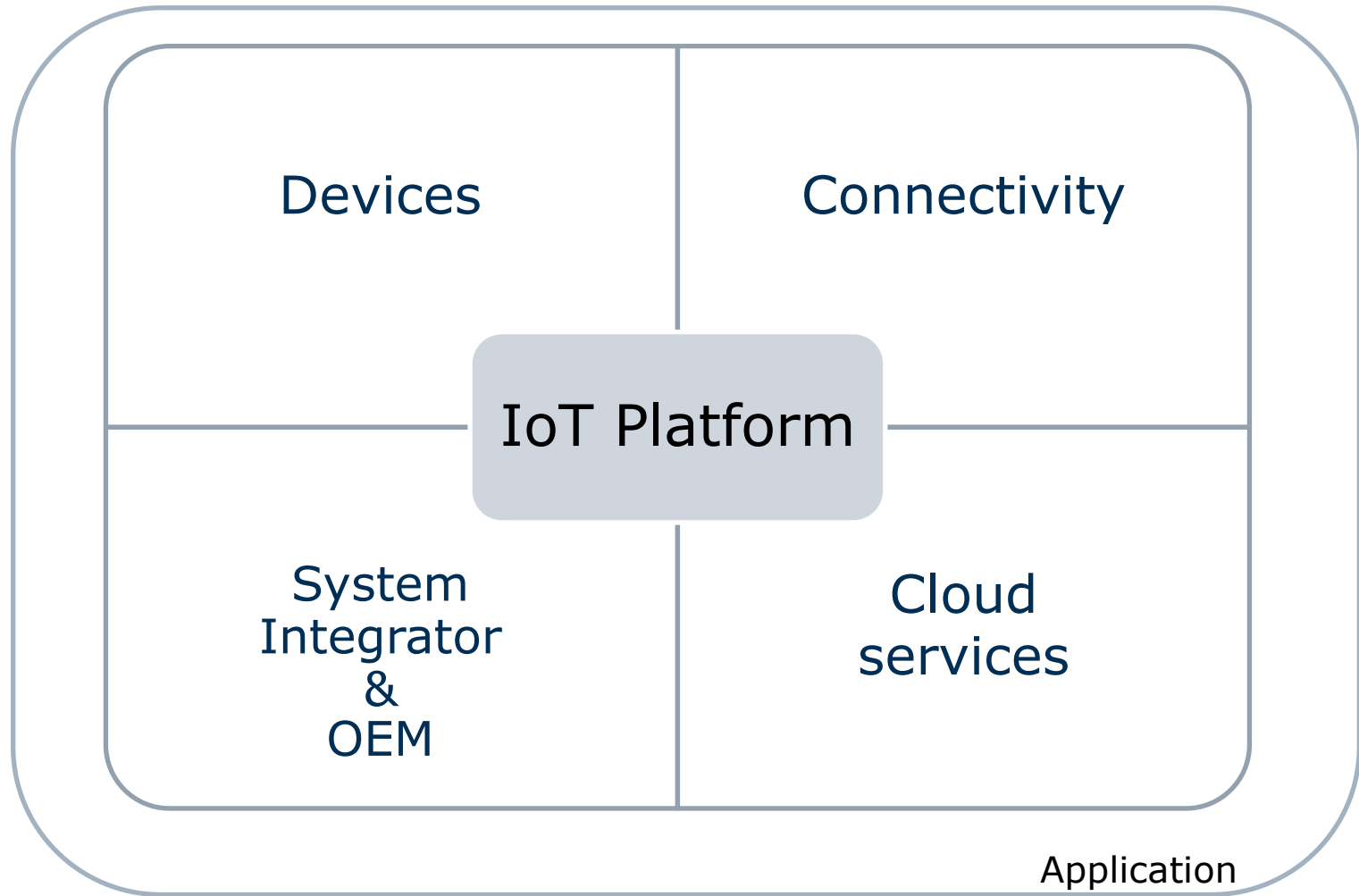
Specialized Platforms:
one main feature



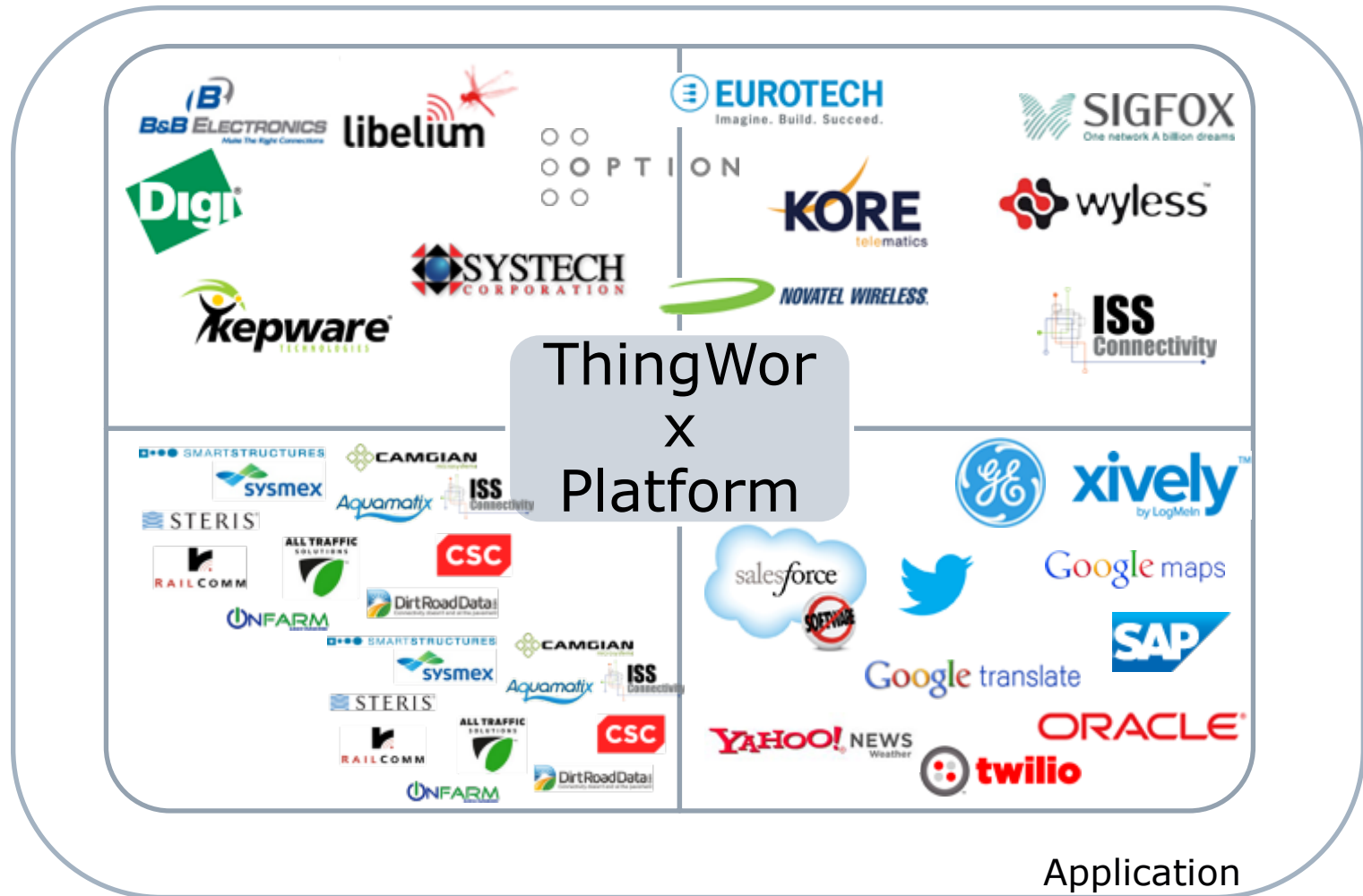
General Platforms:
every feature, with different
degrees of completeness



Ecosystem around platforms



Ecosystem around platforms



Take home on Platforms

- Big opportunities/hype here

- What is the “right” platform?
 - Integration with cloud and field network
 - Device management and OTA update
 - Ecosystem critical mass
 - AI/machine learning – compliant
 - Support of On-Premise break outs

Data and Analytics

«AI is nothing without data, IoT is nothing but data»

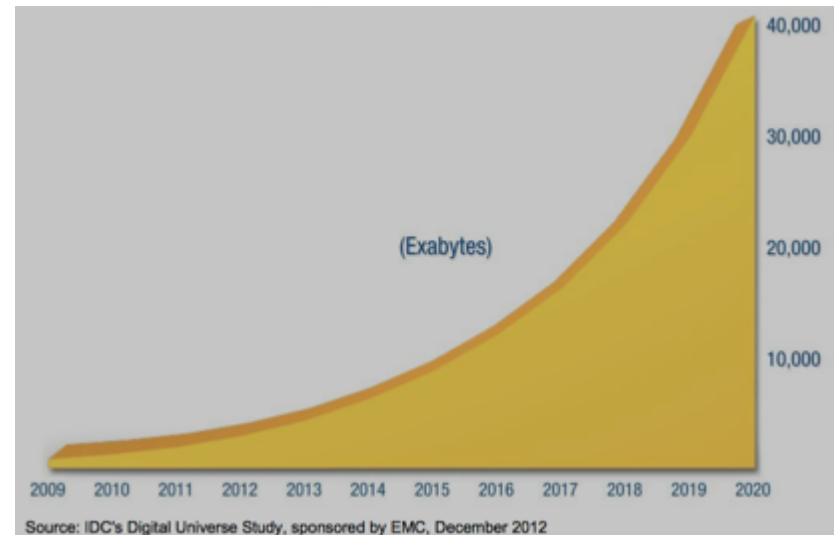
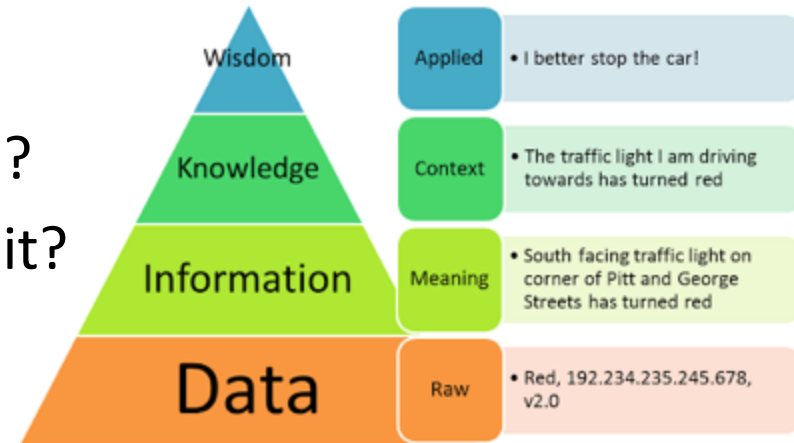
Data

Analytics



IT/OT Check List

- How much data?
- Where to store it?
- What is the feedback?
- What is the needed reactivity?



Data Processing: closing the control loop

- ❑ Consolidation of Cloud-based Big Data-Enabled solutions
 - Stream Analytics
- ❑ Emergence of Edge Clouds and Fog Computing
 - Extremely low latency calls for cloud “closer to the ground”
 - ❑ Mobile Edge Computing (MEC) for cellular networks
 - ❑ Edge clouds and Fog Computing
- ❑ Integration of advanced Machine Learning and AI
 - Predictive analytics