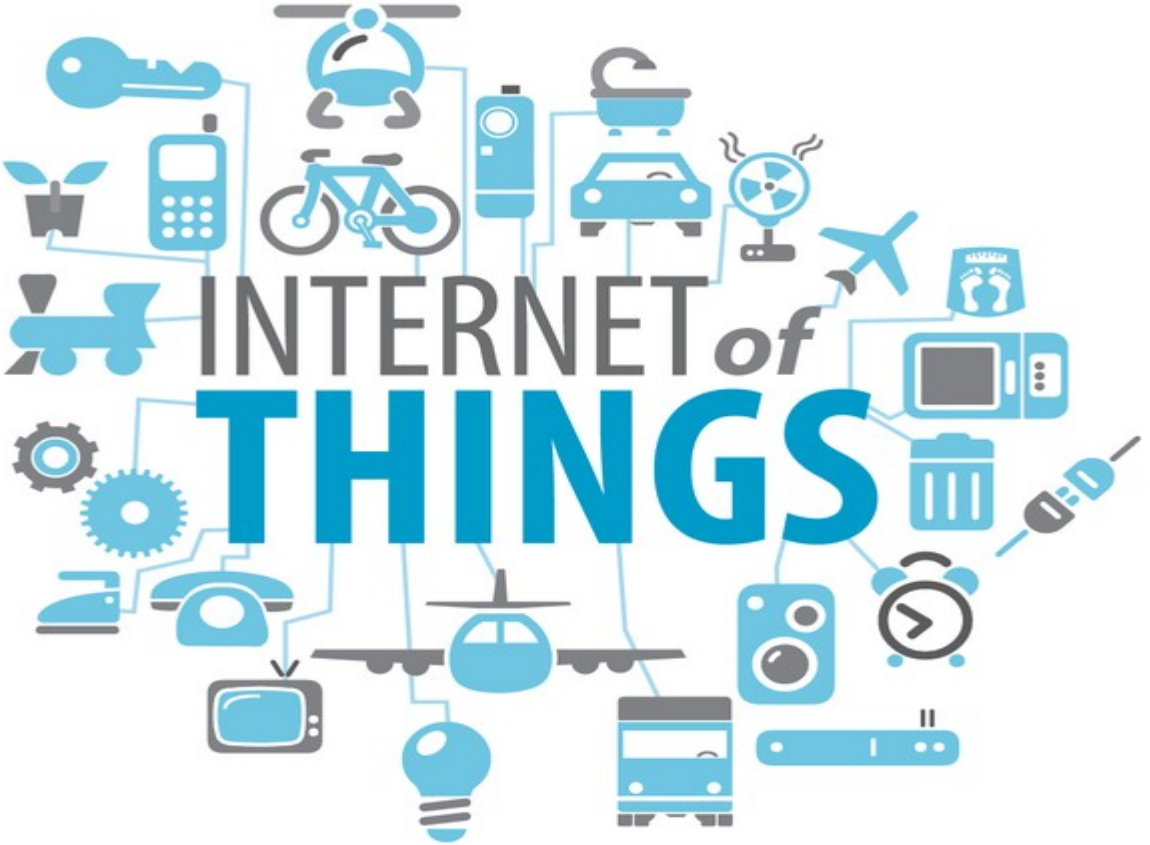
SAPIENZA
UNIVERSITÀ DI ROMA



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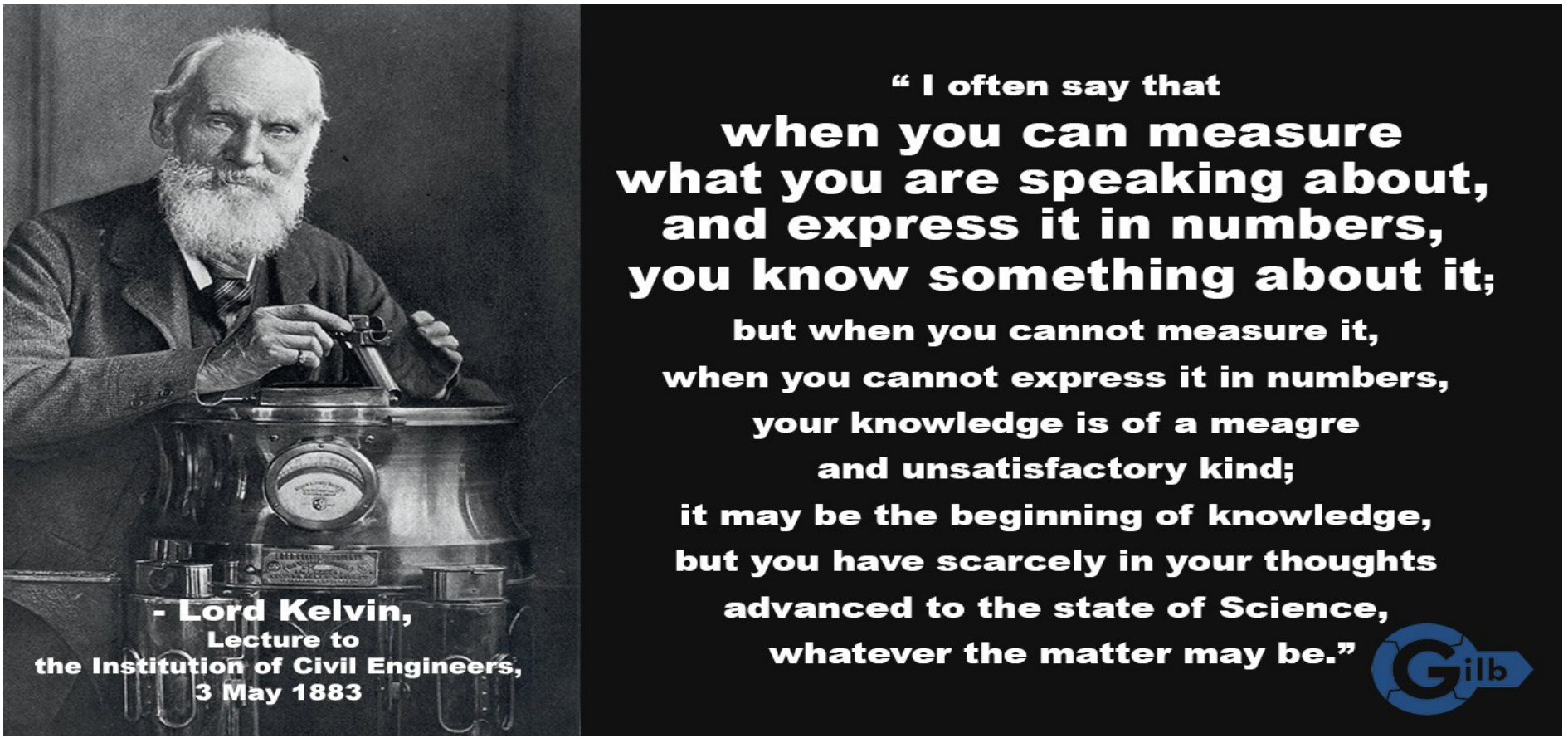
Disclaimer

I do believe: "A picture is worth a thousand words"

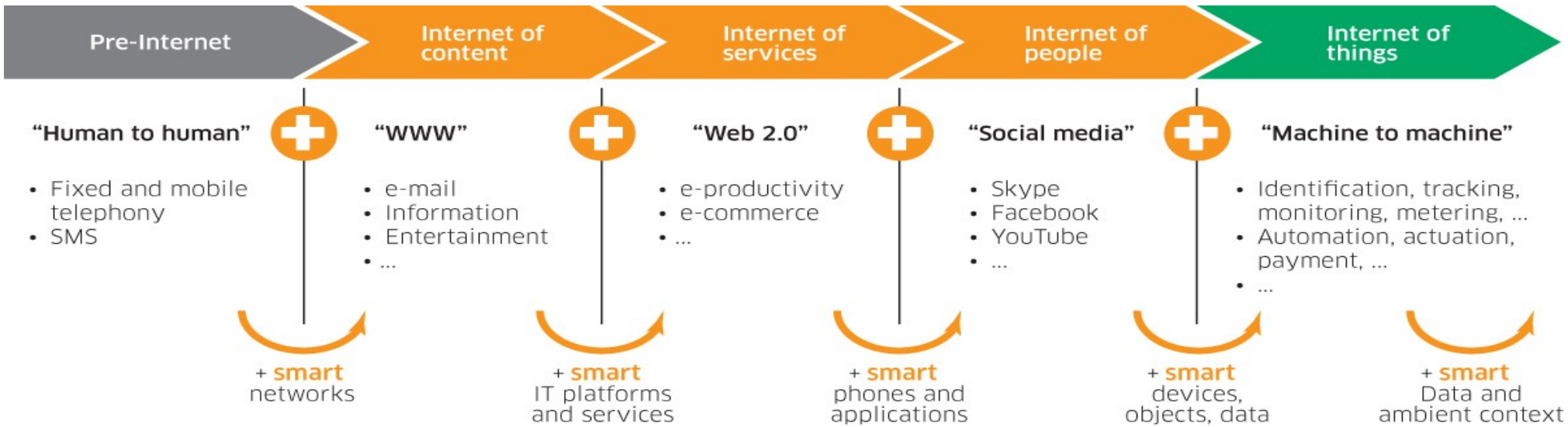
I tried to provide all the sources to the pictures used in this slides … if some are missing or not correct, I apologize and please let me know.

Source: https://en.wikipedia.org/wiki/A_picture_is_worth_a_thousand_words

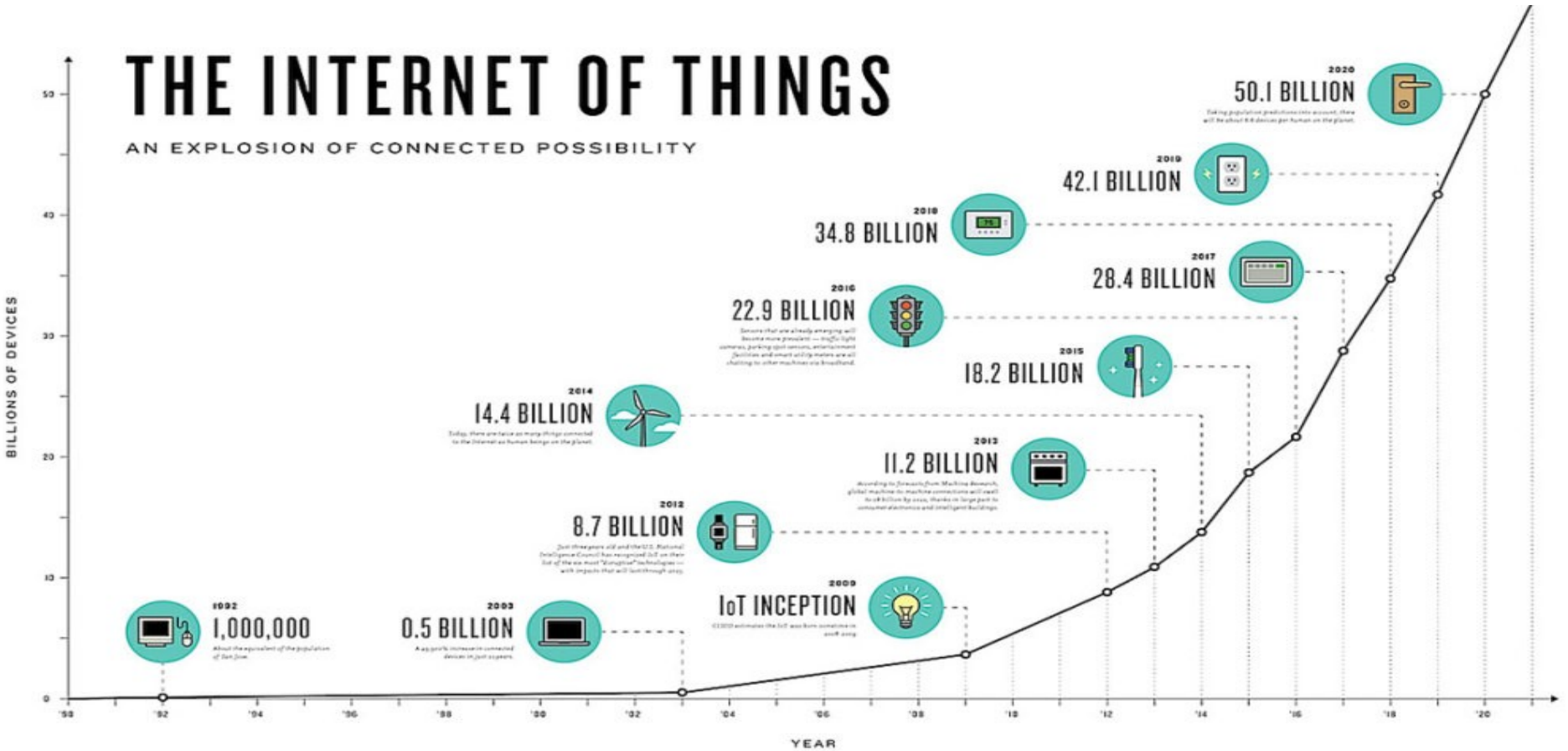


Source: https://www.gilb.com/blog/when-you-can-measure-what-you-are-speaking-about-and-express-it-in-numbers-you-know-something-about-it

The evolution of Internet



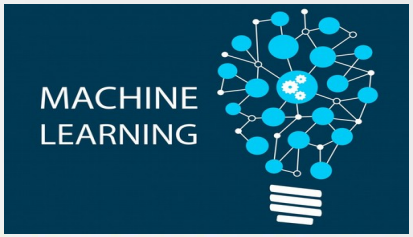
Source: https://codeforbillion.blogspot.com/2017/10/evolution-of-internet-of-thingsiot.html



Source: https://smuva.com/ioto/knowledge/iot-connected-devices/

The Internet of Things

From connecting devices to human value



01 Device connection

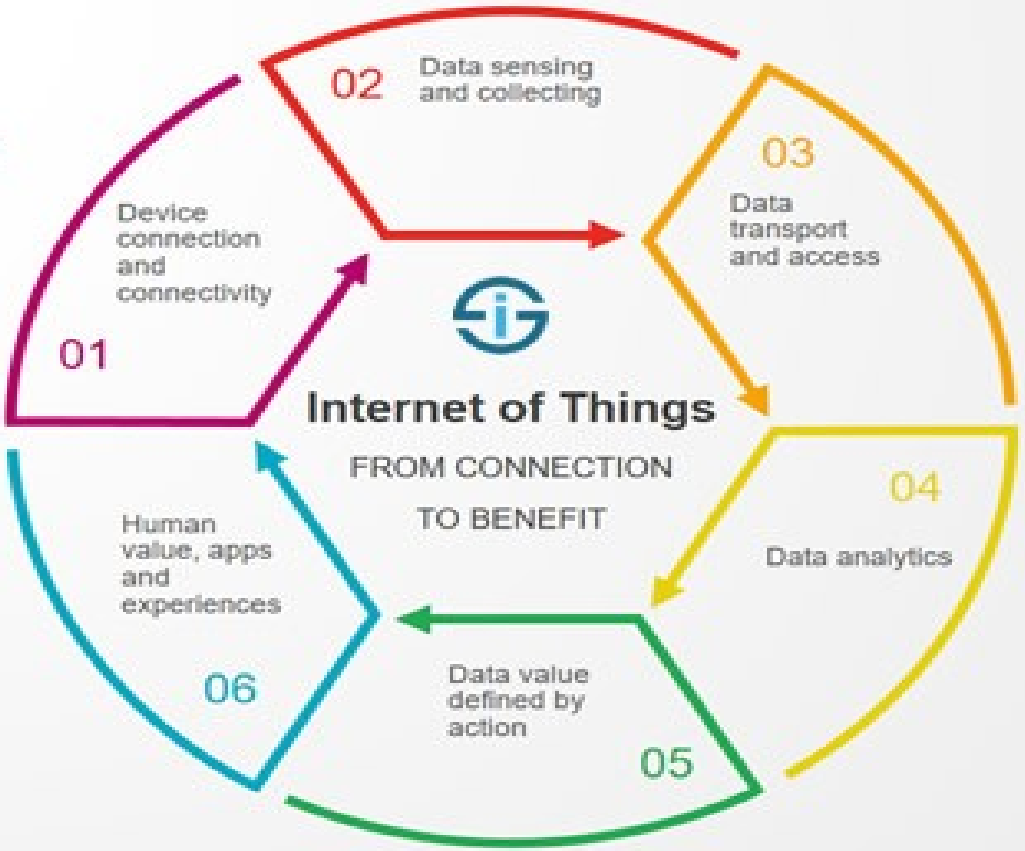
IoT devices
IoT connectivity
Embedded intelligence

02 Data sensing

Capture data
Sensors and tags
Storage

01 Communication

Focus on access
Networks, cloud, edge
Data transport



Data analytics 04

Big data analysis
AI and cognitive
Analyis at the edge

Data value 05

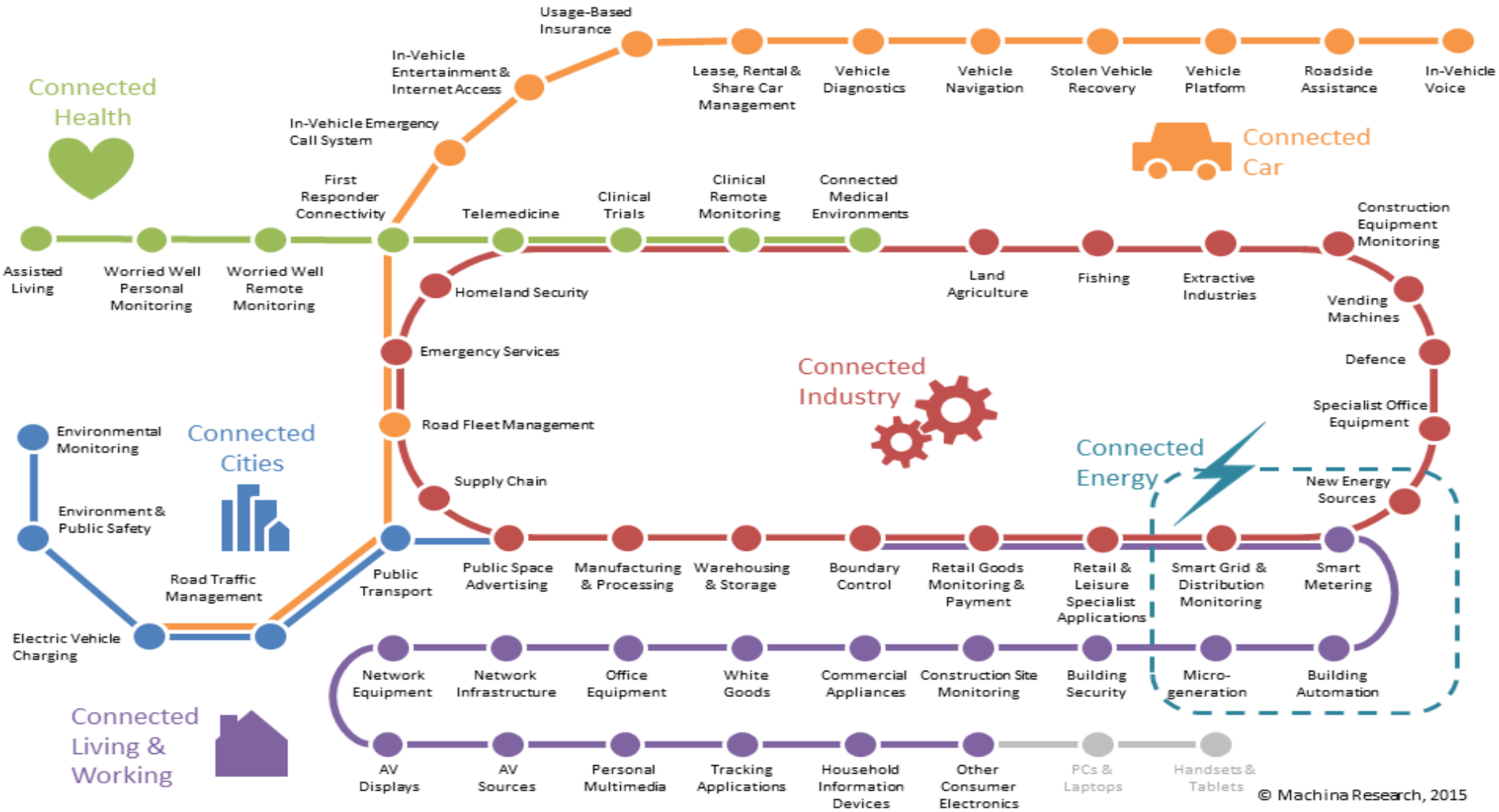
Analysis to action
APIs and processes
Actionable intelligence

Human value 06

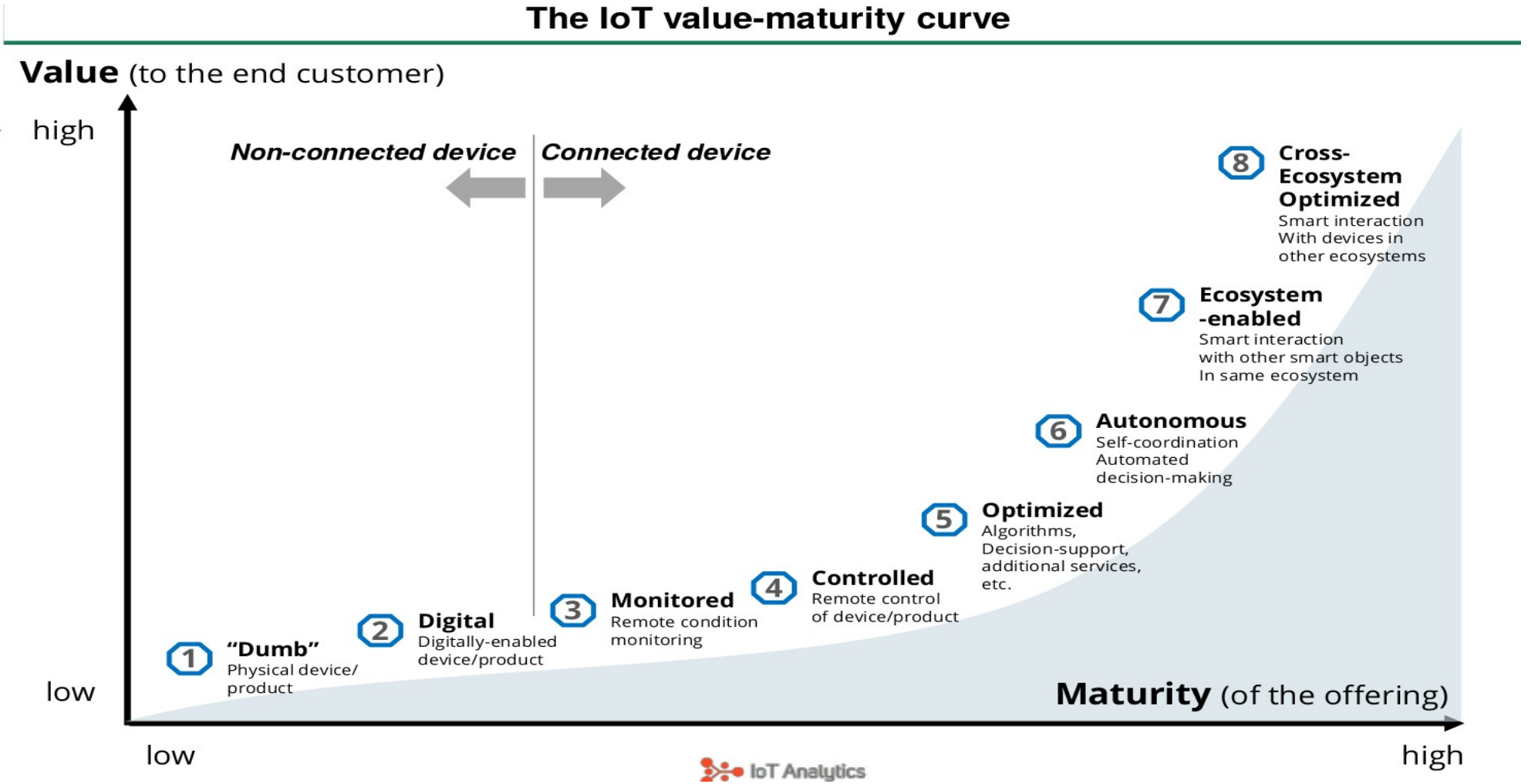
Smart applications
Stakeholder benefits
Tangible benefits

Source: https://www.i-scoop.eu/internet-of-things-guide/

An ecosystem of applications

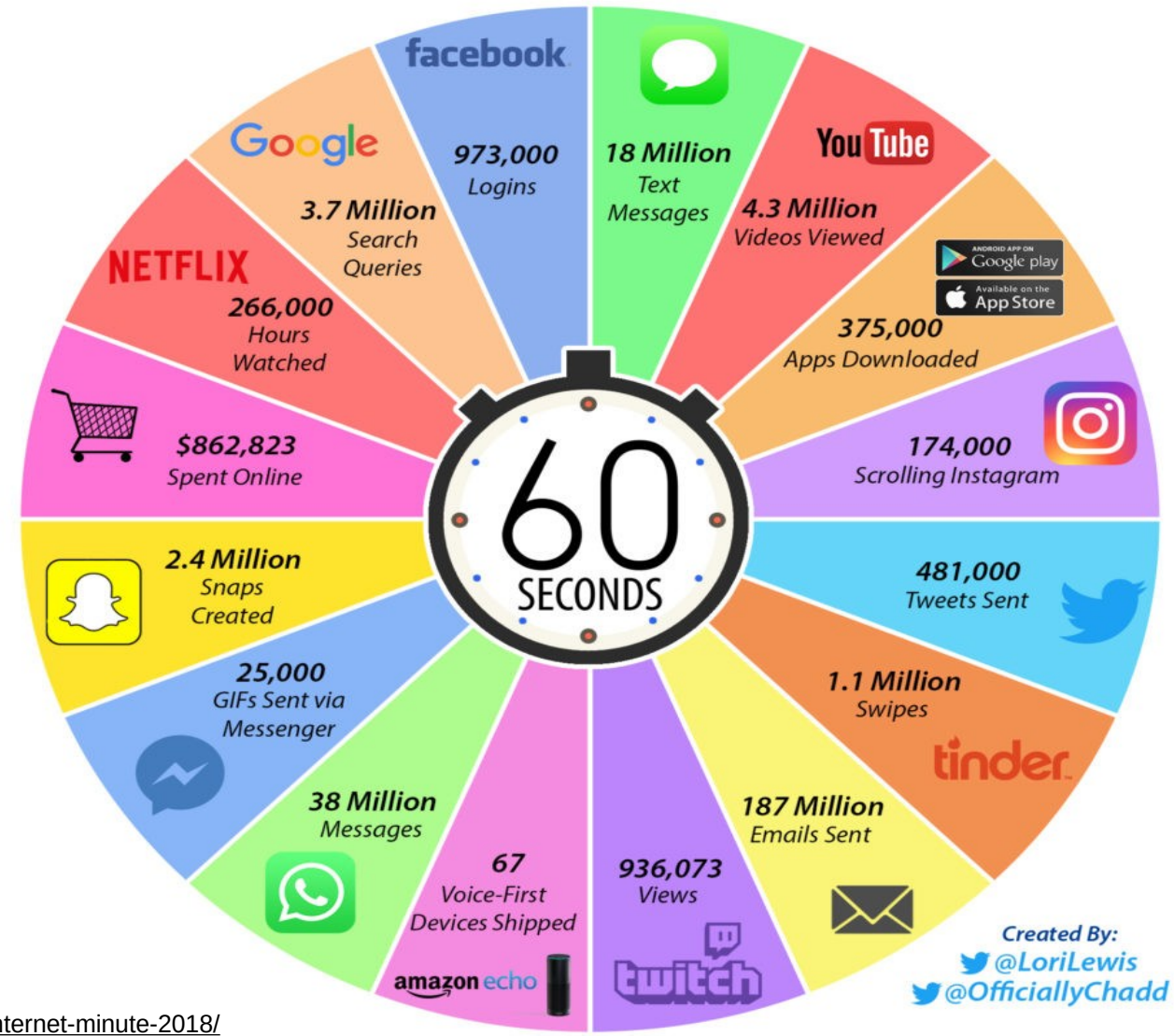


Source: https://whatsthebigdata.com/2016/08/03/internet-of-things-in-2025-3-trillion-market-27-billion-connections/

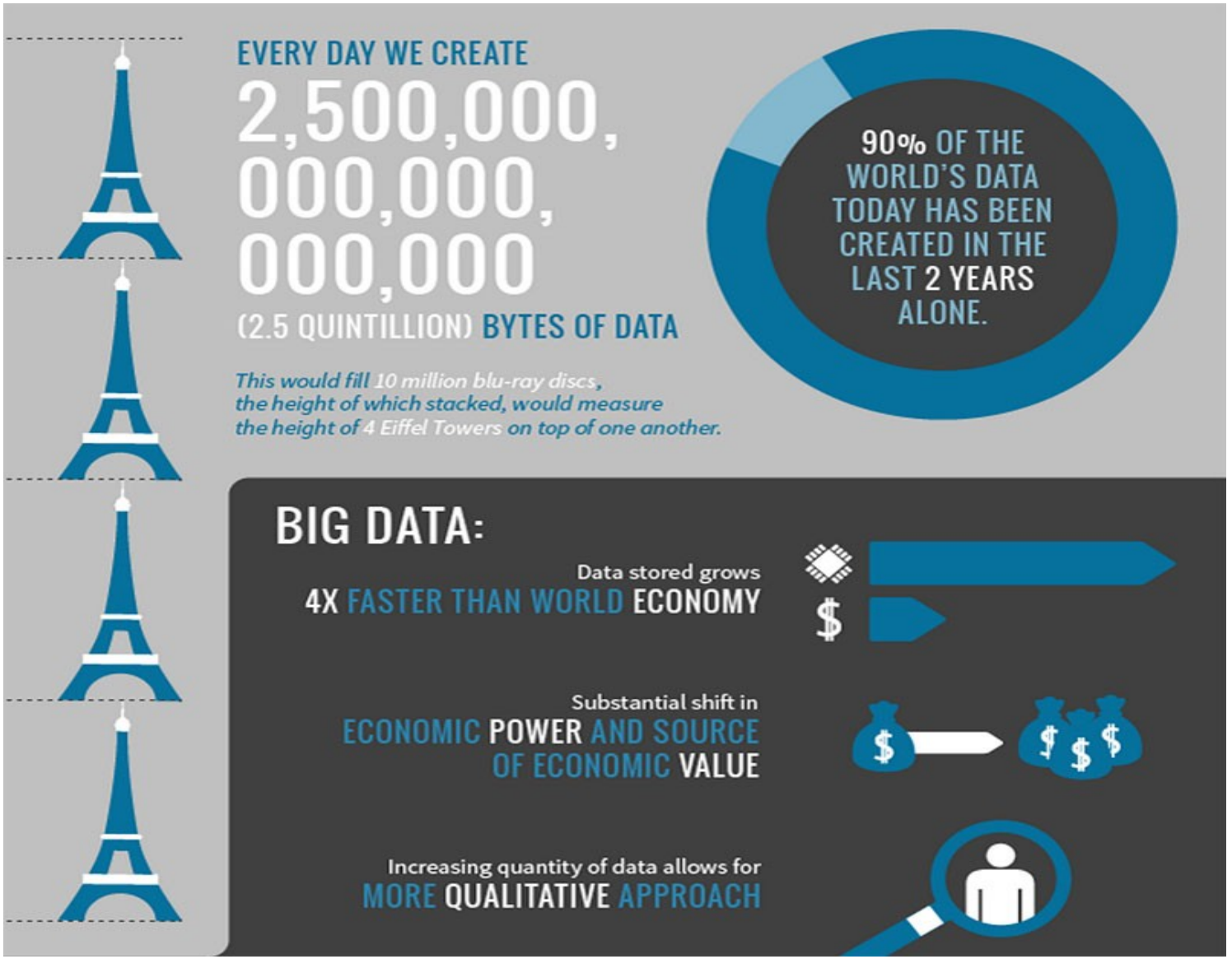


Source: https://twitter.com/josemurl/status/854246030325547009

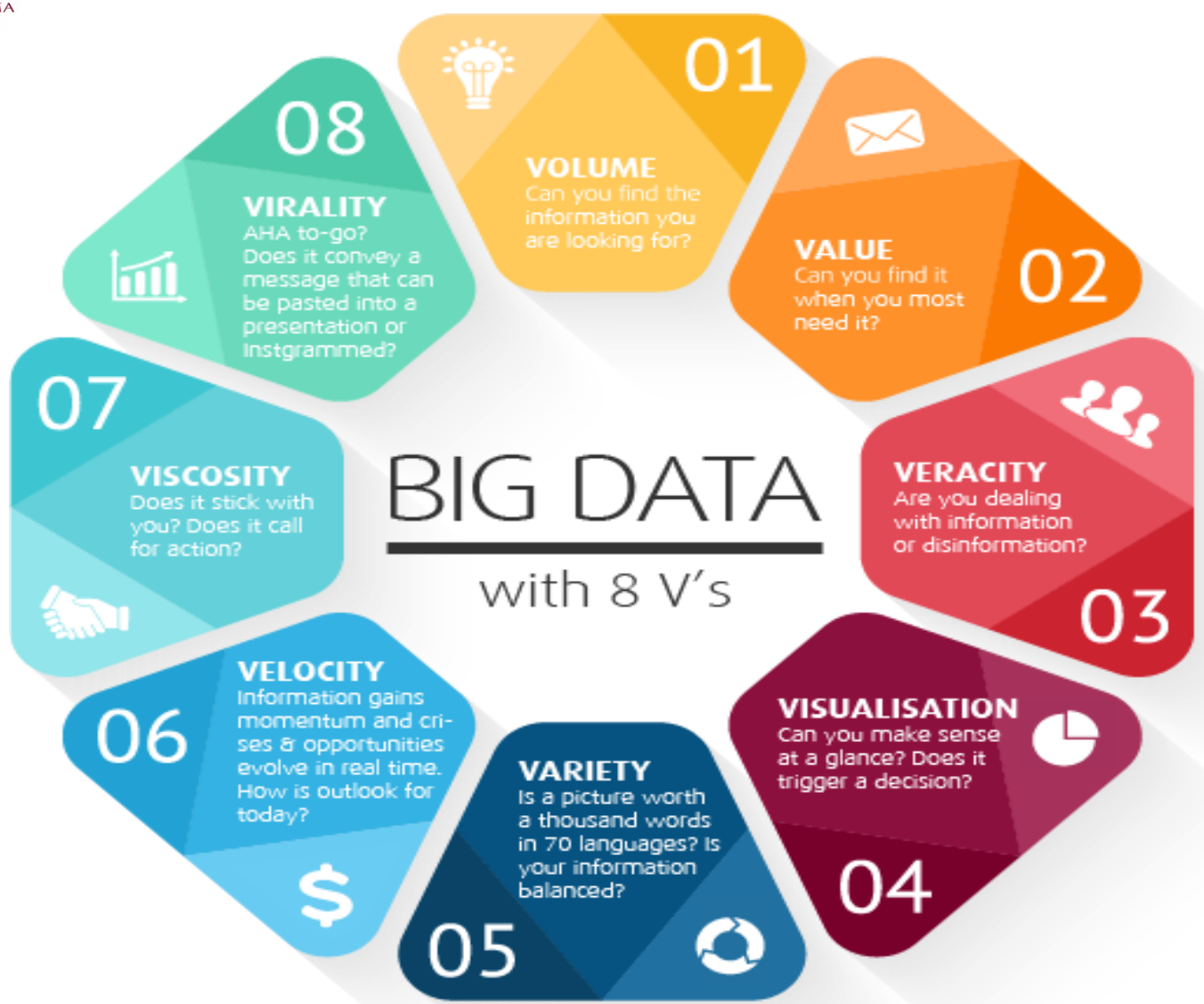
2018 This Is What Happens In An Internet Minute



Source: https://www.visualcapitalist.com/internet-minute-2018/

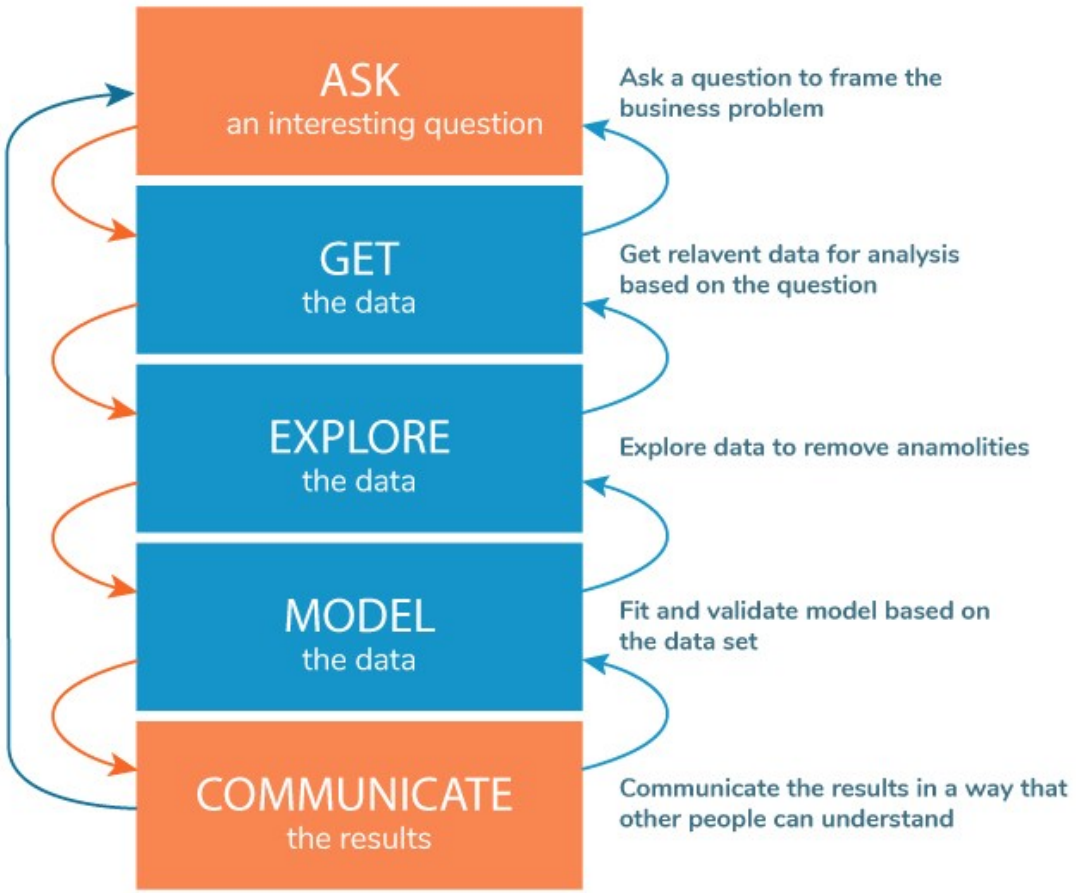


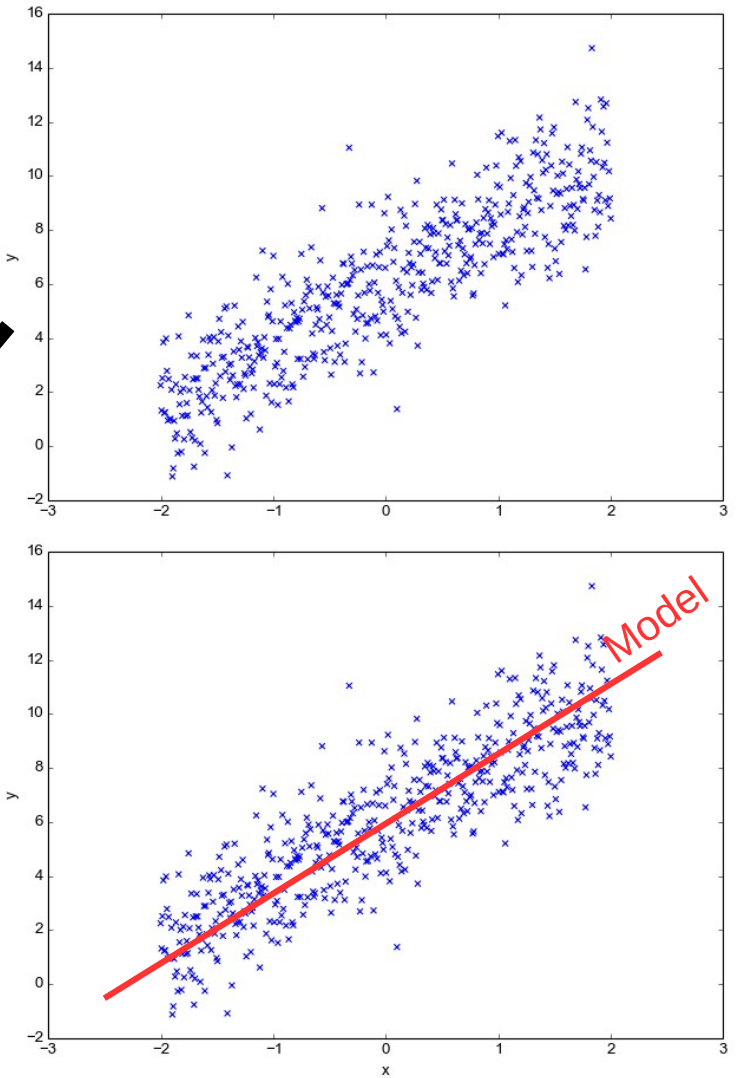
Source: https://growthandcapital.com/2015/03/17/beyond-big-data-to-data-driven-decisions/



Source: https://www.m-brain.com/home/technology/big-data-with-8-vs/

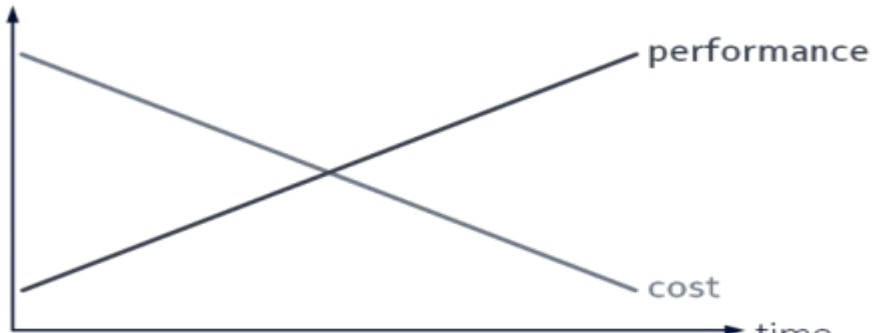
THE DATA SCIENCE PROCESS





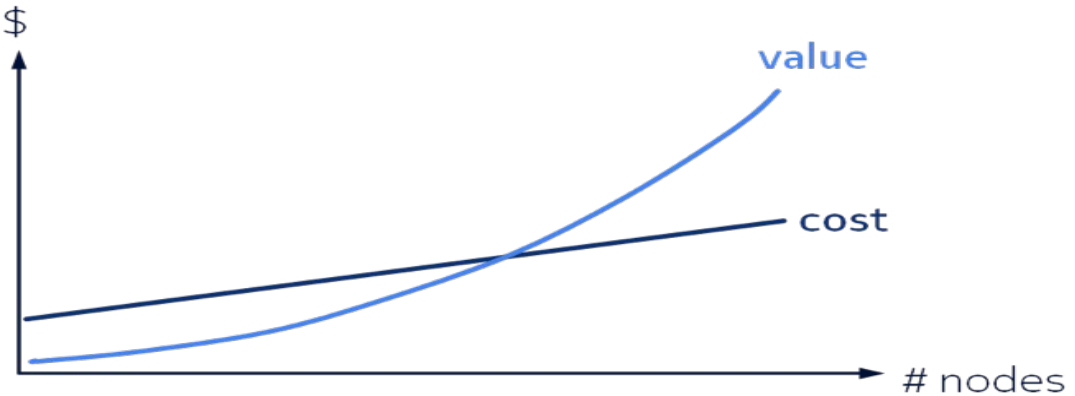
Source: https://www.datamentor.io/what-is-data-science/

Why the IoT is emerging now?

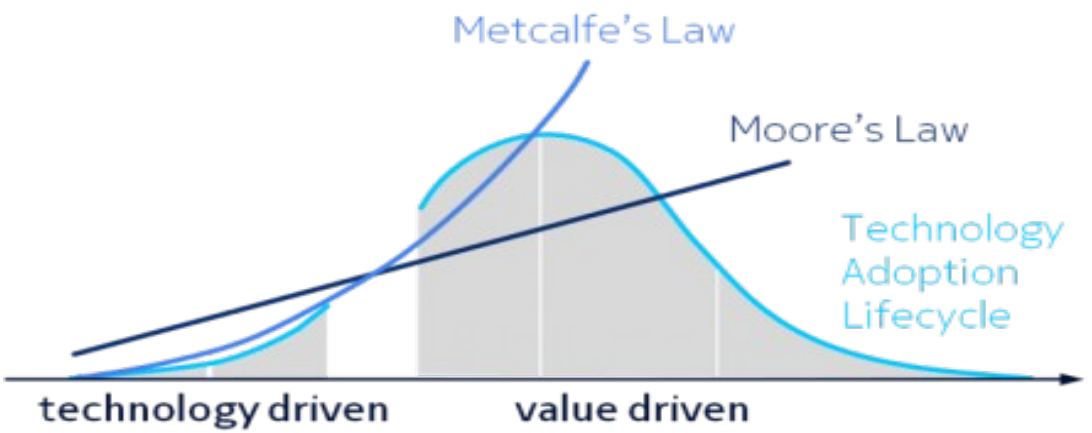


Log

Legge di Moore



Legge di Metcalfe



Source: https://blog.networks.nokia.com/iot/2016/03/21/moores-law-metcalfes-law-iot/

A reference model

which process it and provide it to

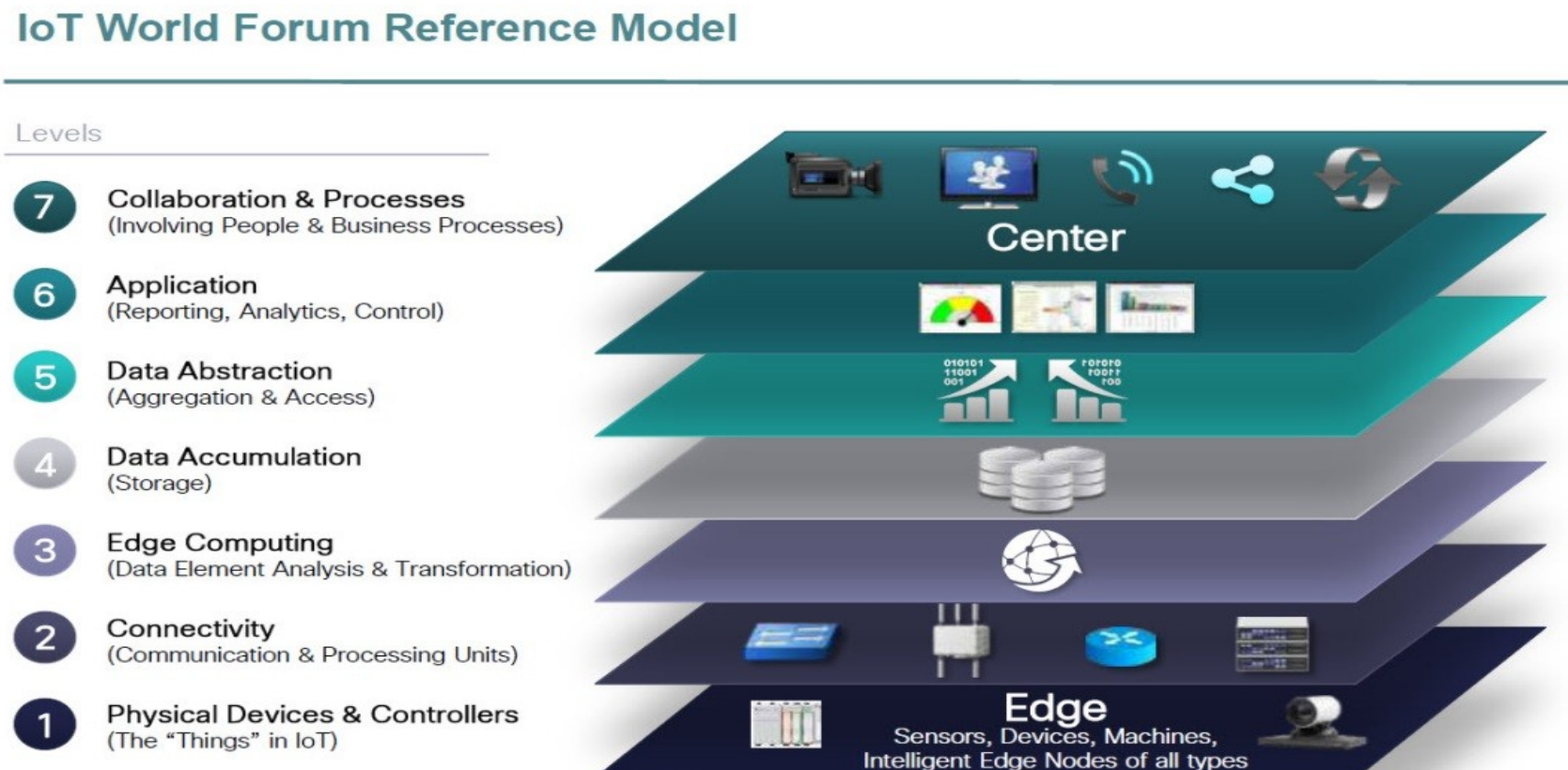
accessible by

Where are processed to

before landing in

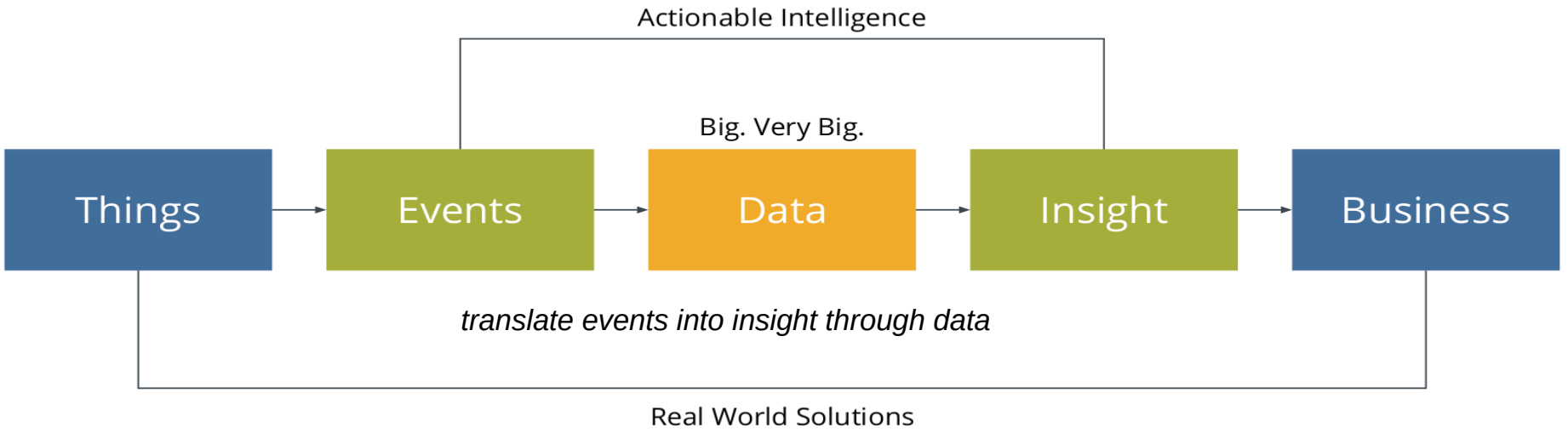
where the data is transmitted, normalized, and filtered using

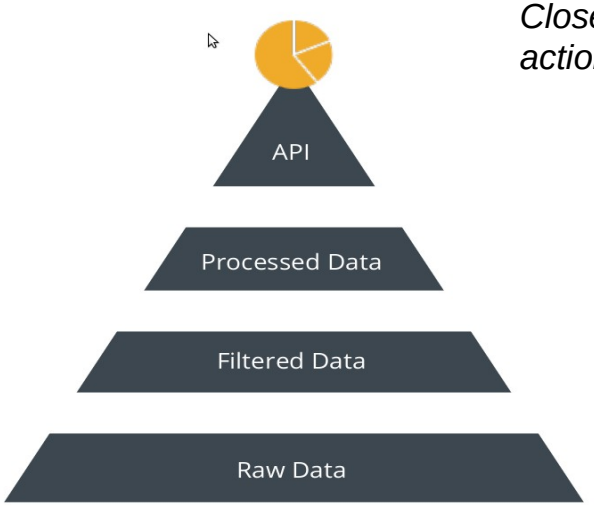
send and receive data interacting with



Source: https://www.researchgate.net/figure/IoT-World-Forum-Reference-Model_fig2_323525875

The real value is on data



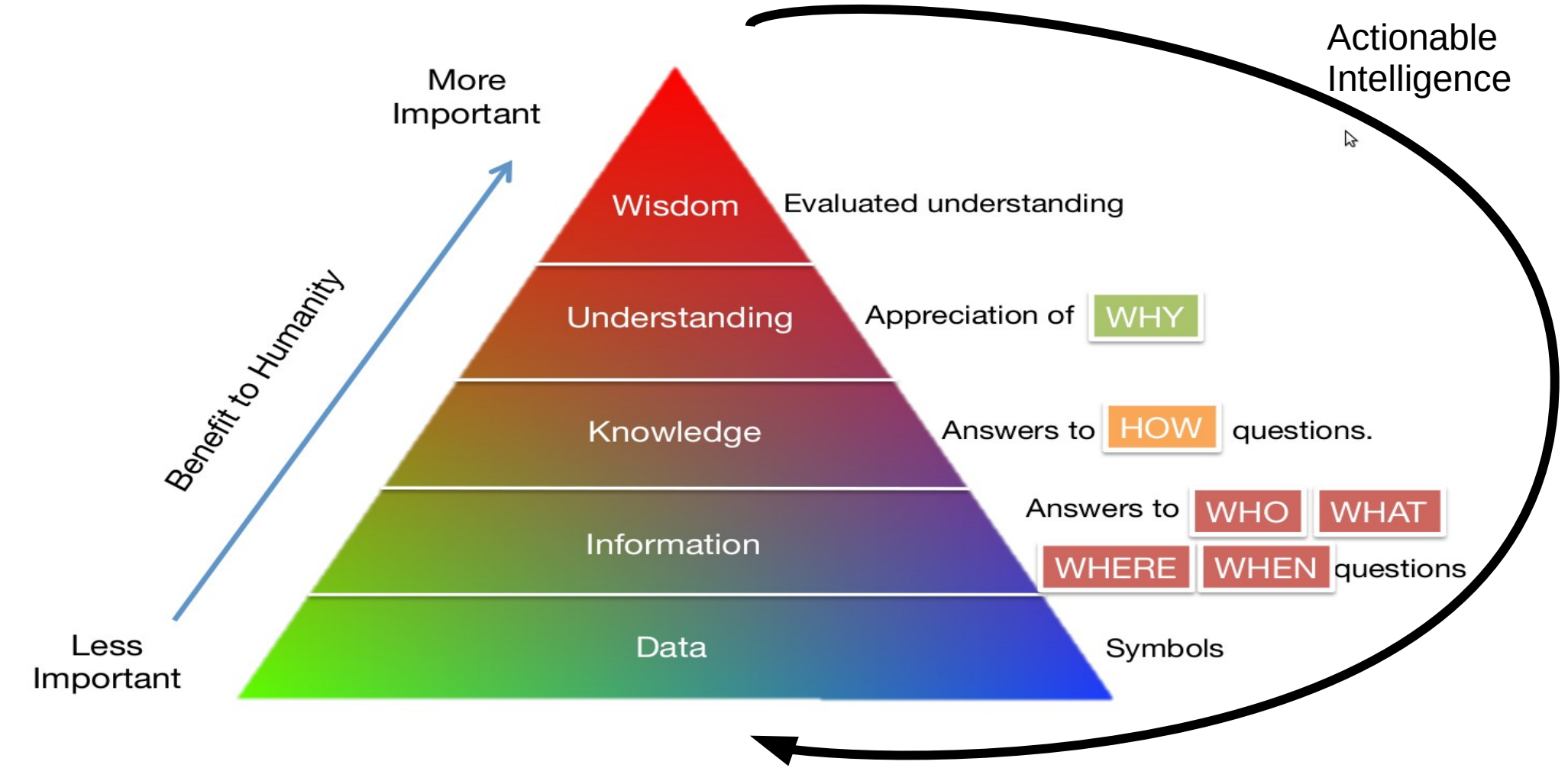


Close the gap between raw data and actionable intelligence

- Expose for application building
- Run through analytics engines
- Dispatch workloads with relevant data
- Capture from connected devices

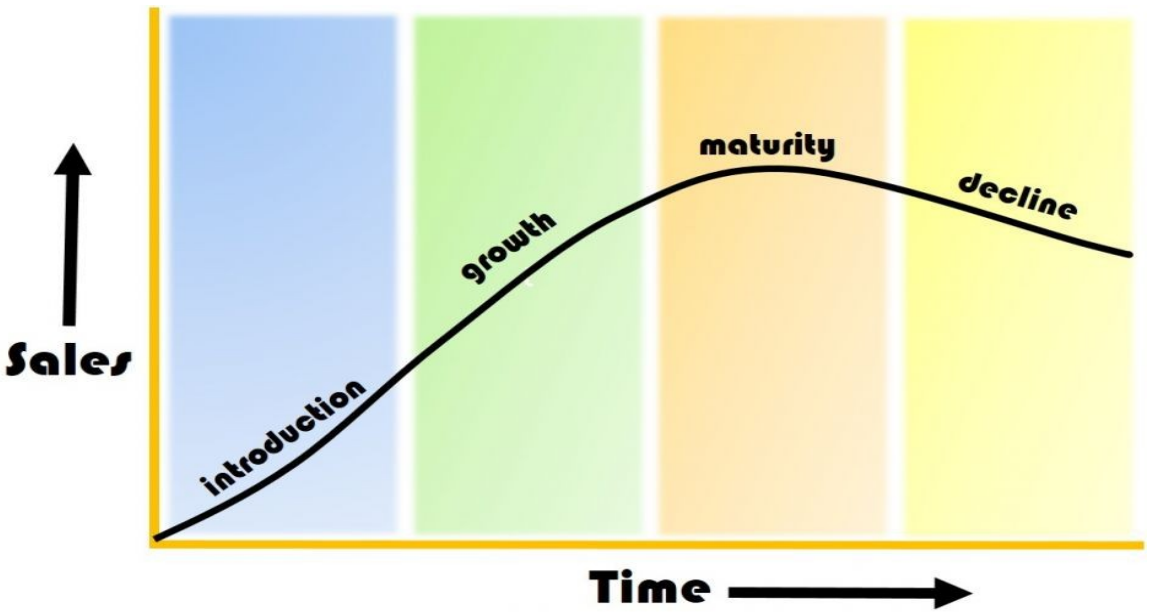
Source: https://blog.iron.io/the-workloads-of-the-internet-of-things-2/

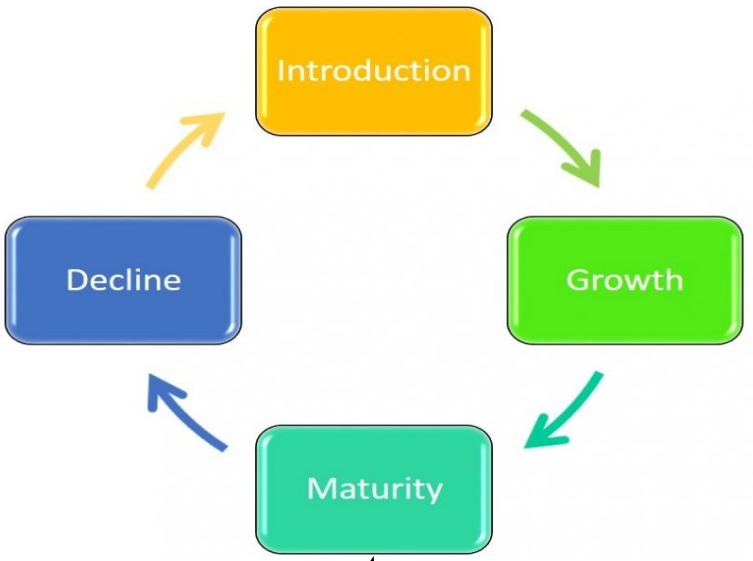
Collect, share, learn

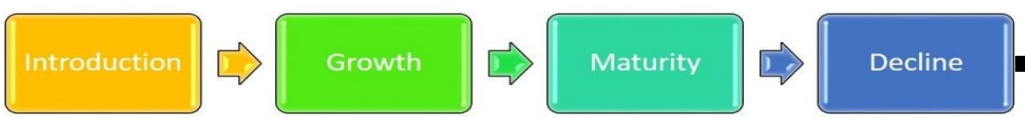


Source: https://www.slideshare.net/mazlan1/internet-of-things-benefits-for-the-ummah/19-Example_Hajj_Umrah_IOT_Scenario

Product Life Cycle

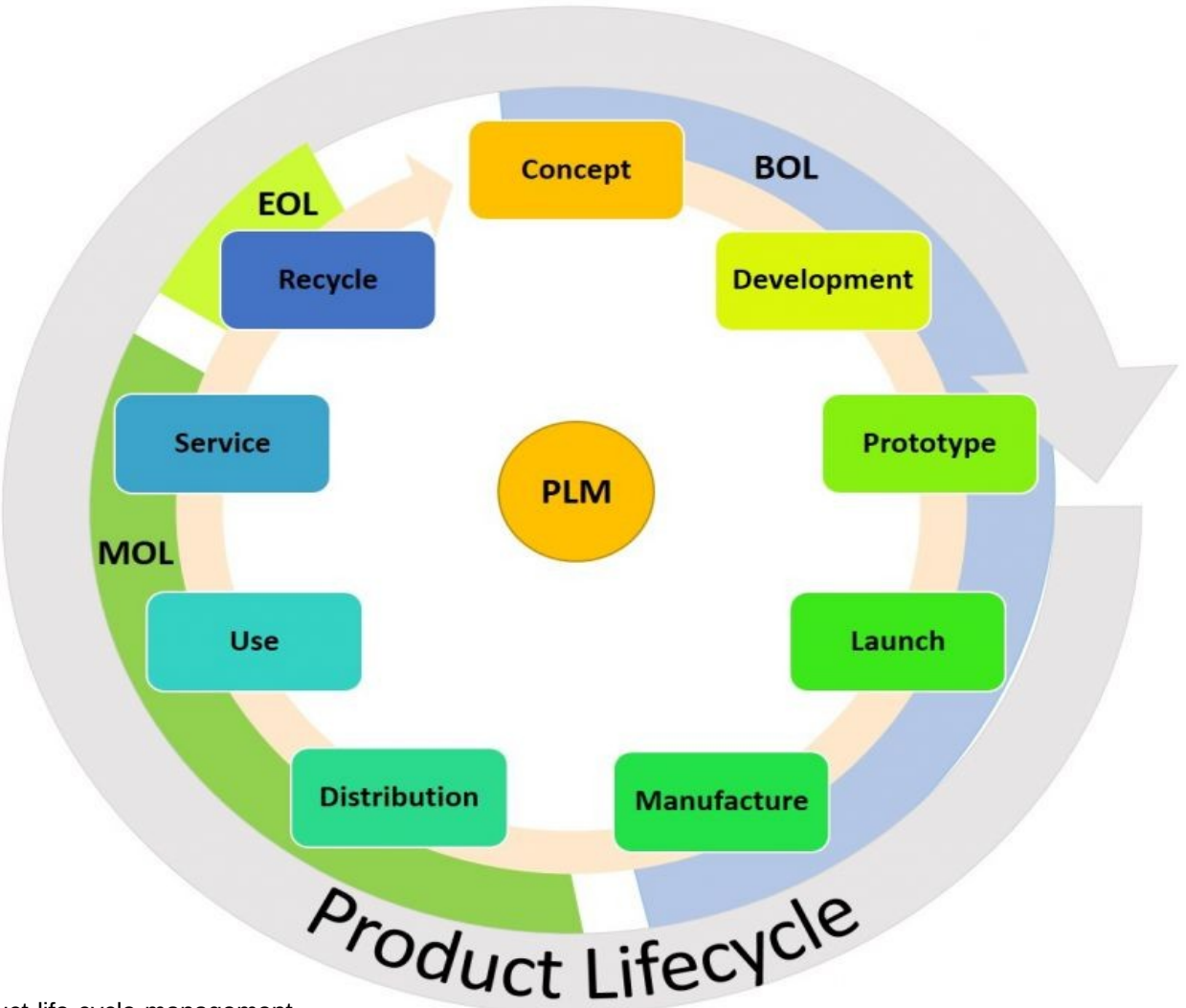






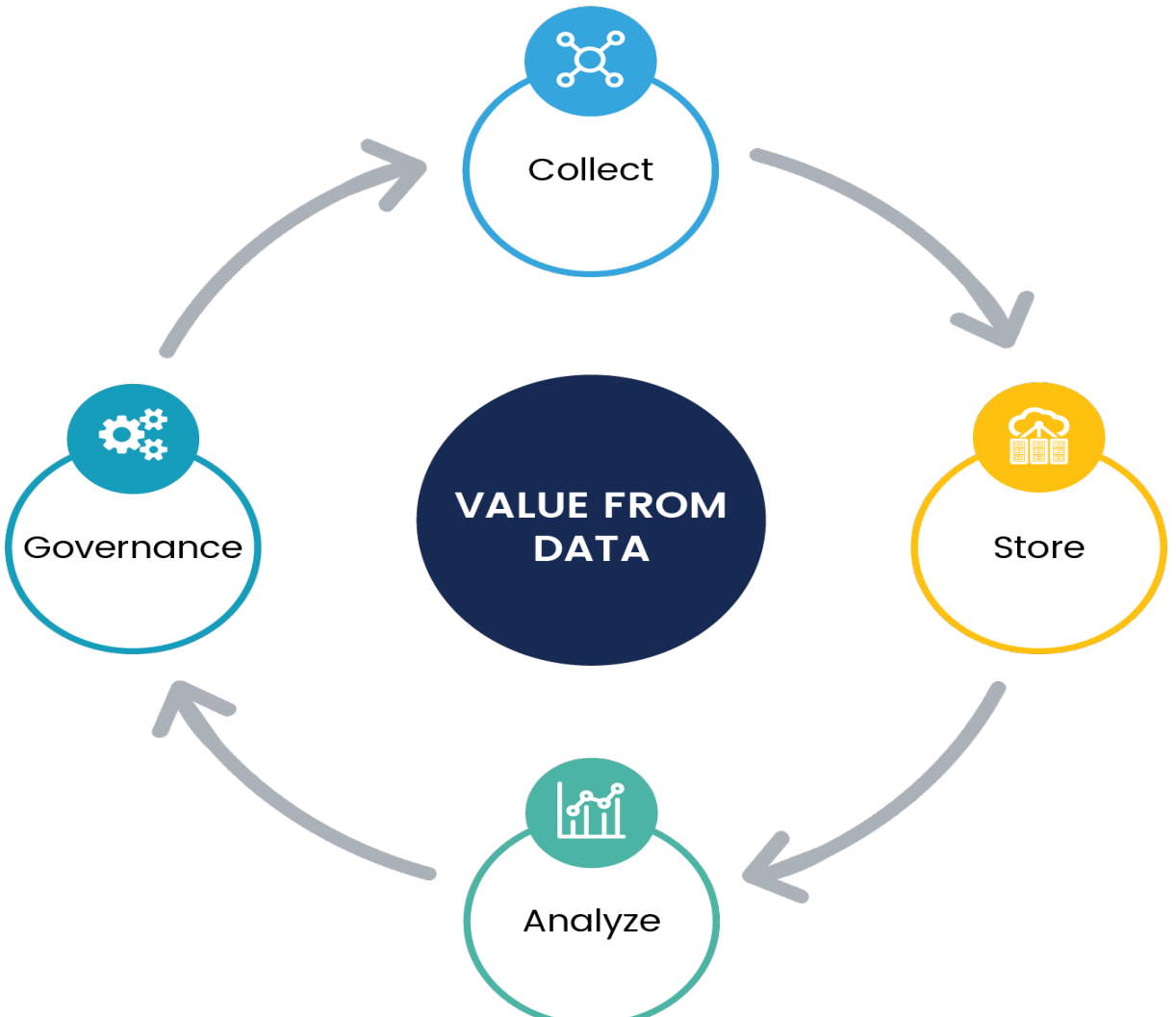
Source: https://www.smartsheet.com/product-life-cycle-management

PRODUCT LIFE CYCLE MANAGEMENT (PLM)

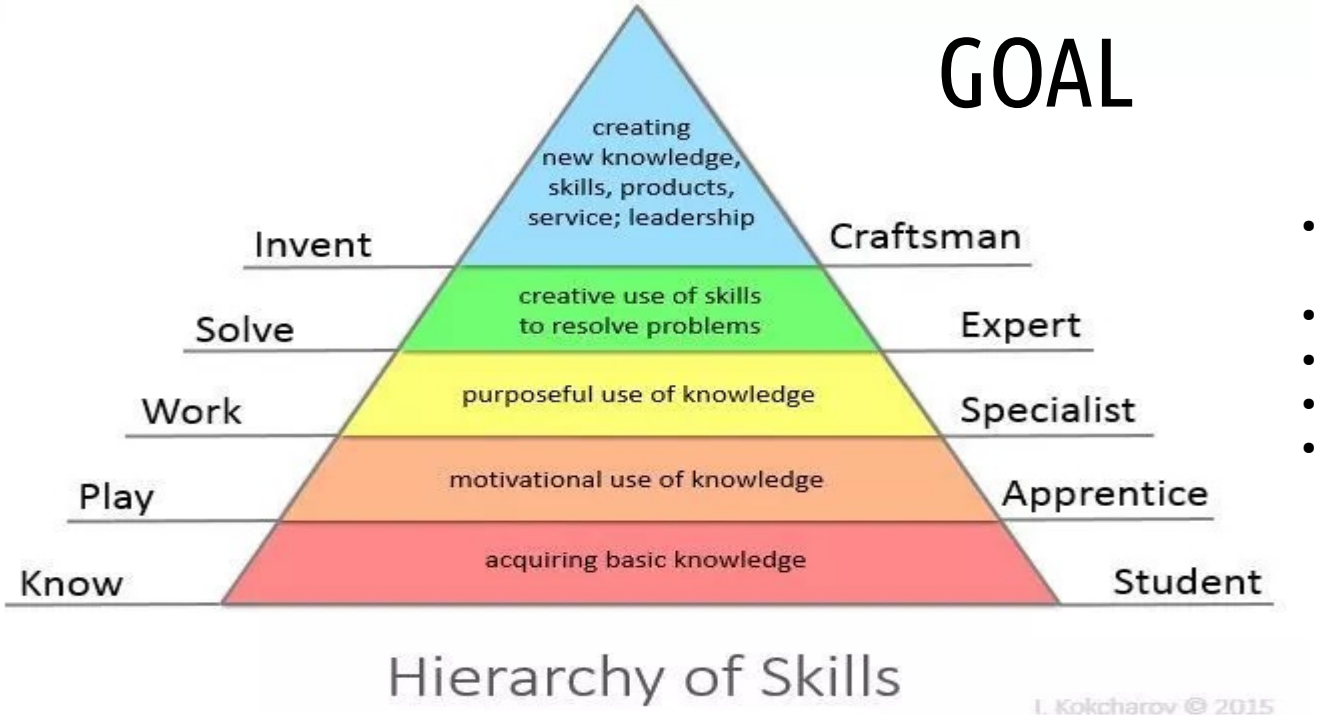


Source: https://www.smartsheet.com/product-life-cycle-management

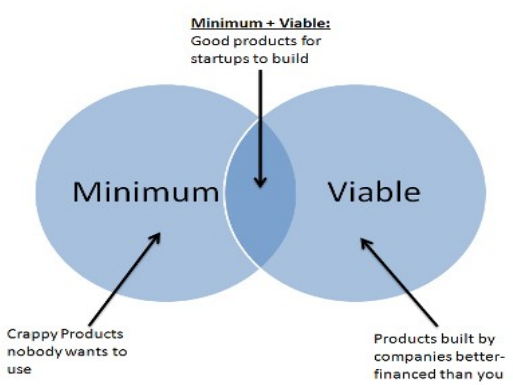
The real value is on data

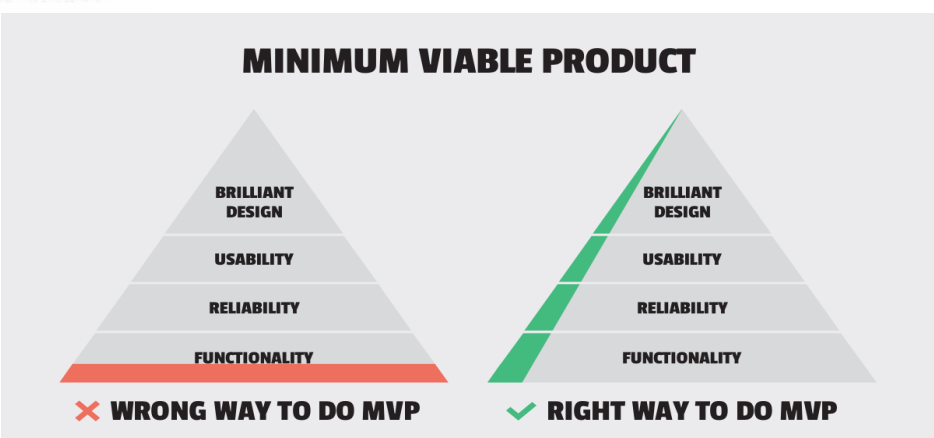


GOAL



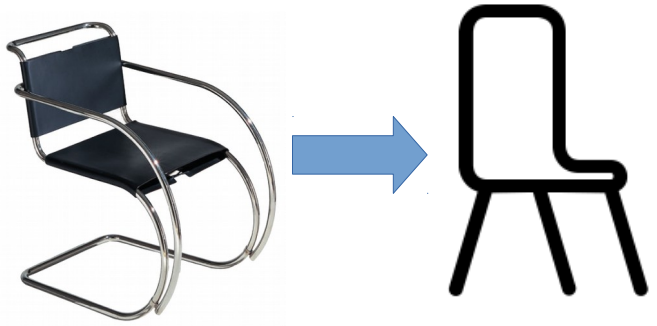
- Understand what IoT can do for you as a PD
- Know the constraints
- Deliver MVP
- Conceive the right questions
- Know who can help in answering





Source: https://commons.wikimedia.org/wiki/File:KokcharovSkillHierarchy2015.jpg
https://medium.com/anoda-mobile-development-agency/what-is-minimum-viable-product-and-how-to-make-it-right-8b885001c6f5
http://blogs.nature.com/tradesecrets/2011/12/20/minimum_viable_products_in_biotech

ASSIGNMENT



- Check whether your object class (e.g. chair, table etc) has been already enhanced with IoT functionalities
  - How?
  - For what purpose?
  - List down the references
  - If not, why in your opinion?
  - Think about possible improvements, in the whole Product Life Cycle, not only the use!

Don’t forget: a smart object is not necessarily part of the IoT. Here we are interested in IoT!!