

I (diozia) O T (ecnologia)?

**L'INTERNET DELLE COSE: FACILITATORE O
OSTACOLO AL PROGRESSO SOSTENIBILE**

Consumer & Home



Smart Infrastructure



Security & Surveillance



Healthcare



Transportation



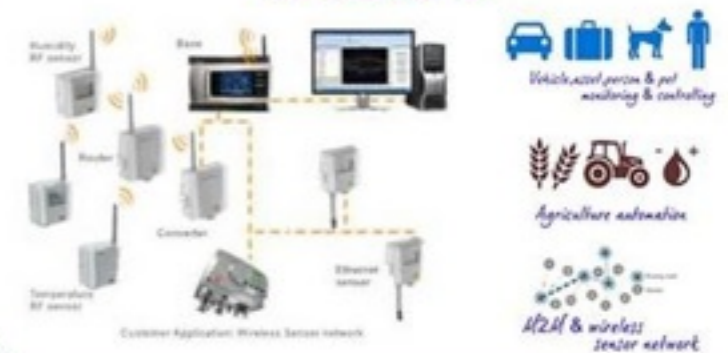
Retail



Industrial



Others



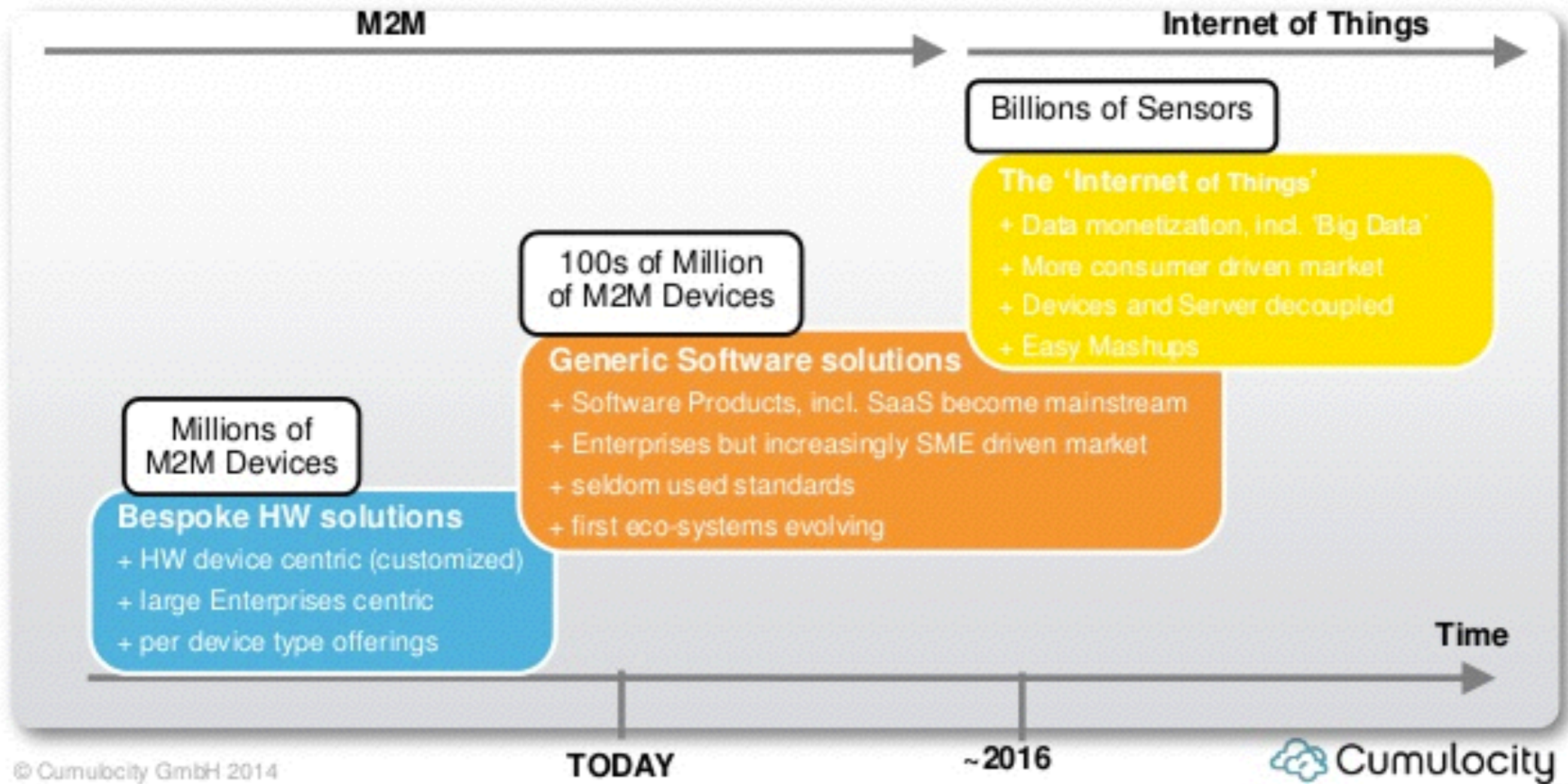
Network

**"A true Internet of Things is coordination
between multiple devices."**

PAUL WILLIAMSON CSR DIRECTOR



What is M2M and Internet of Things (IoT)?



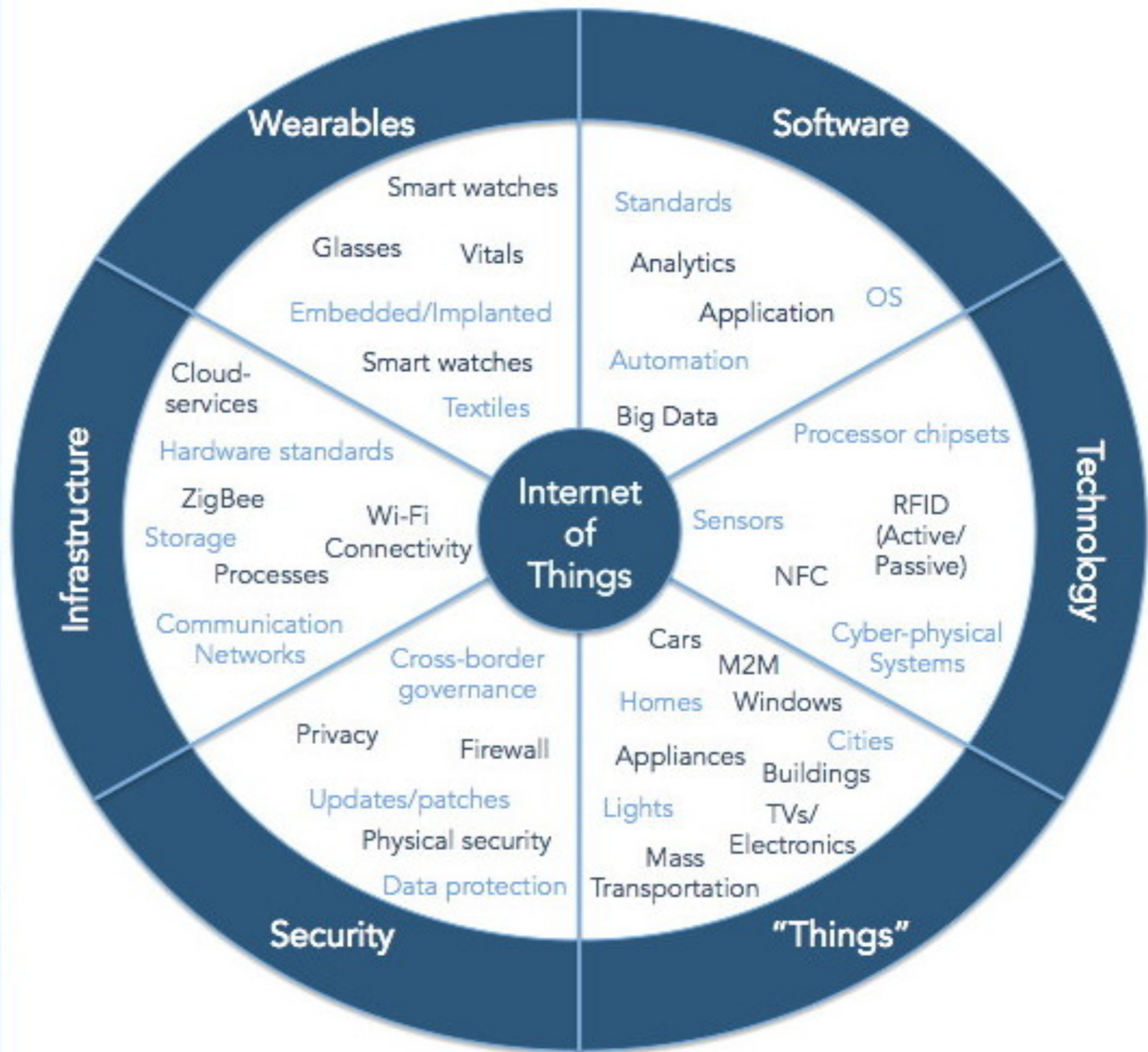
The IoT market by 2020

- The Internet of Things estimated market value: **\$8.89 trillion**

- Wearables estimated market value: **\$8.3 billion**

- If "Wearables" were removed from the estimated IoT value, the IoT overall value would **STILL** be **\$8.89 trillion**

The **sizeable** IoT market opportunity is in software, security and infrastructure



@mattceni

IOT: PERSONAL

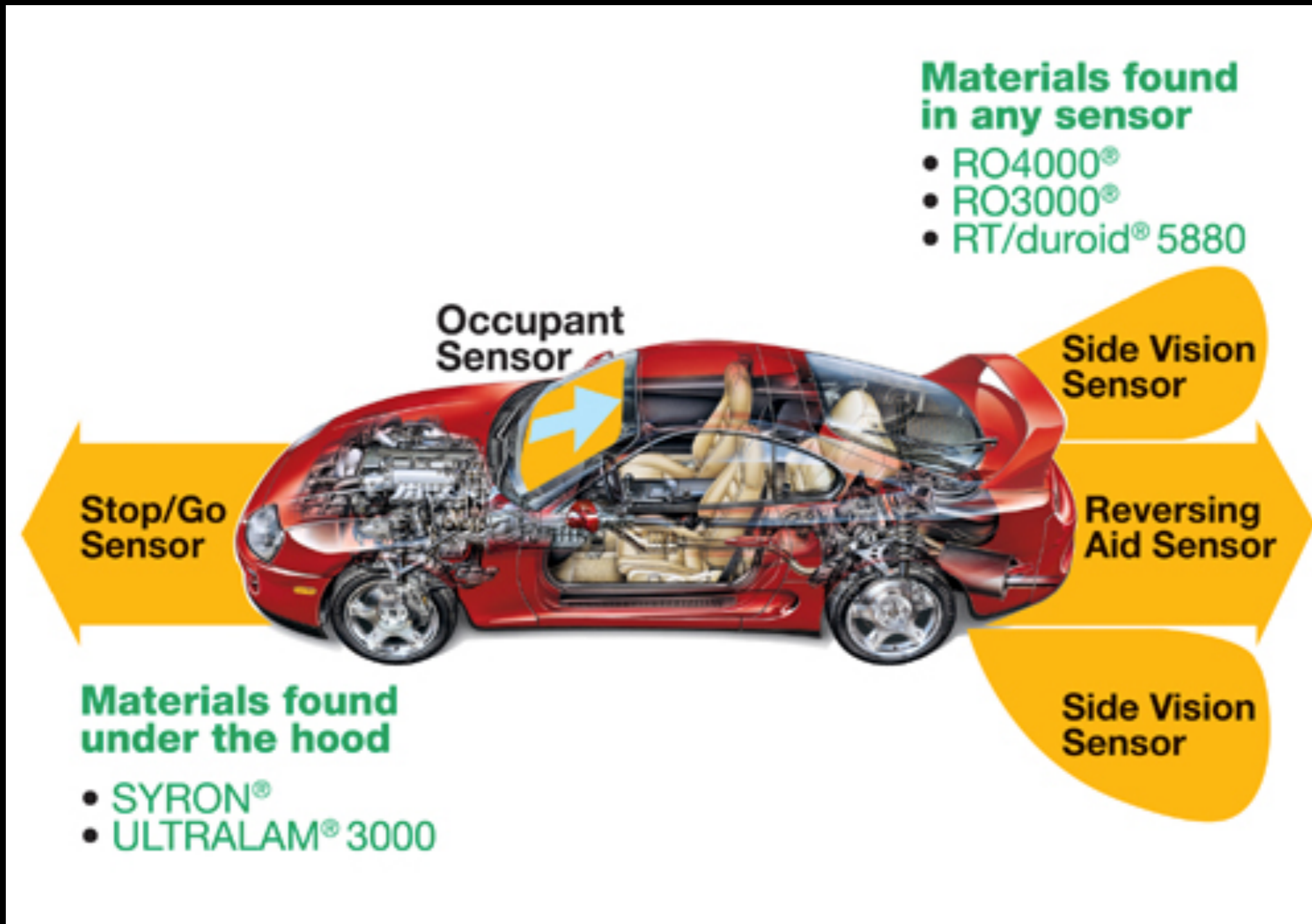
- Health and activity monitoring and wearable computing.



<http://graphics8.nytimes.com/images/2012/04/17/technology/bits-wearablereport/bits-wearablereport-tmagArticle.jpg>

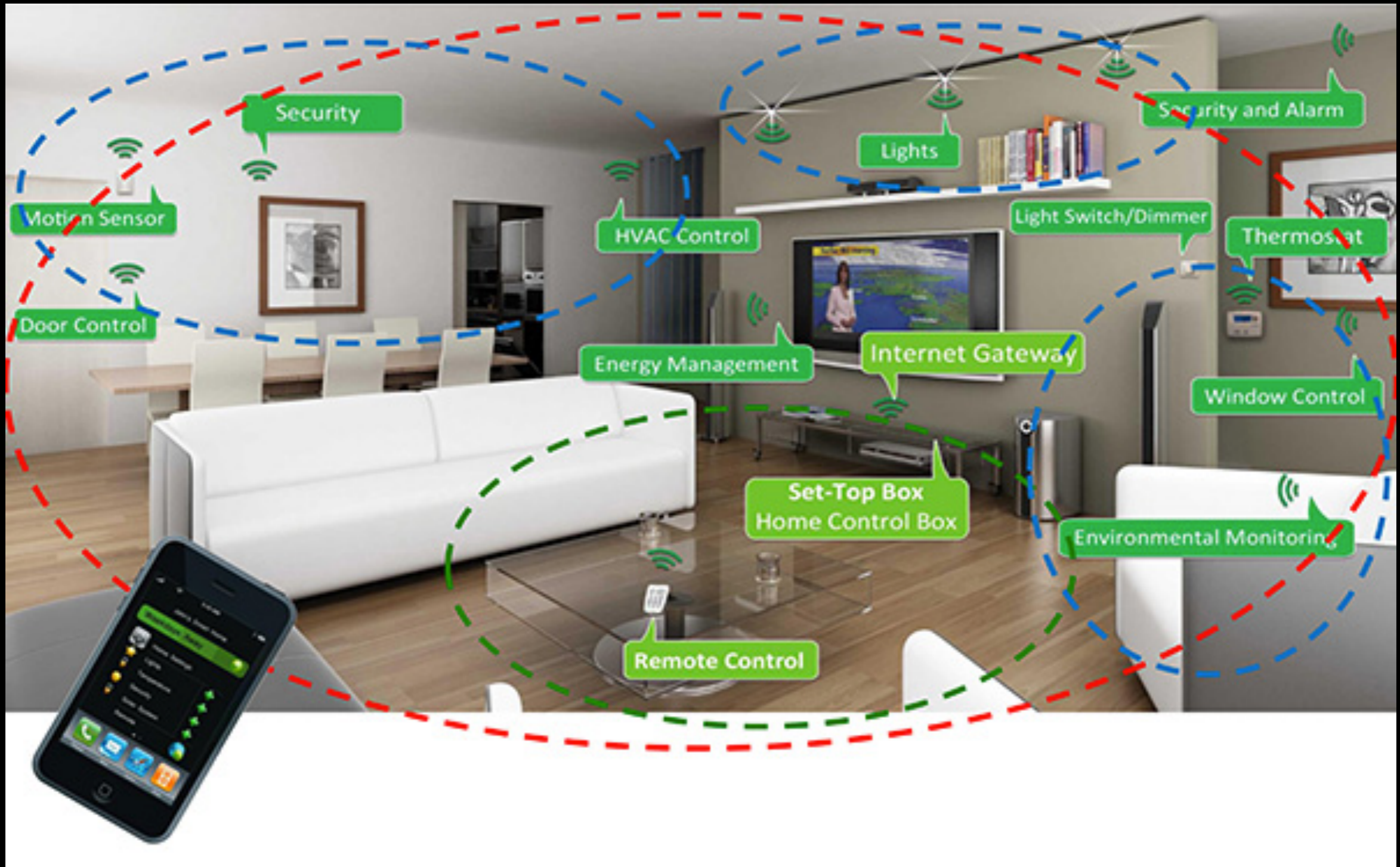
IoT: VEHICULAR

- Telematics, control systems, and other supporting systems for road, rail, maritime, and air transport.



IOT: SMART HOMES

- Home networks home automation, security, smart meters, entertainment, and domestic appliances.



IOT: SMART BUILDINGS



Video Conference Room

- Video Conference
- Integrated AV



Integrated Monitoring

- Facility, Electricity, and Lighting Control
- Lighting, Security and Access etc



BAS/BEMS

- Facility Management (electricity, air conditioning, water supply)
- FMS (building, work, drawing management)



Parking Control

- Location Awareness
- Electric Vehicles Charging



Building Information

- Reservation System
- Parking Information



Access Control

- Speed Gate
- Security Management



Media Facade

- Contents Design
- Digital Space



LED Lighting

- Emotional Lighting
- Landscape Lighting



Eco-media Wall

- Sustainable Media Wall
- Communication Board



Augmented Reality

- Korean Wave Cultural Space
- Building Apps



Smart Office

- Mobile Office
- Wired and Wireless Integration

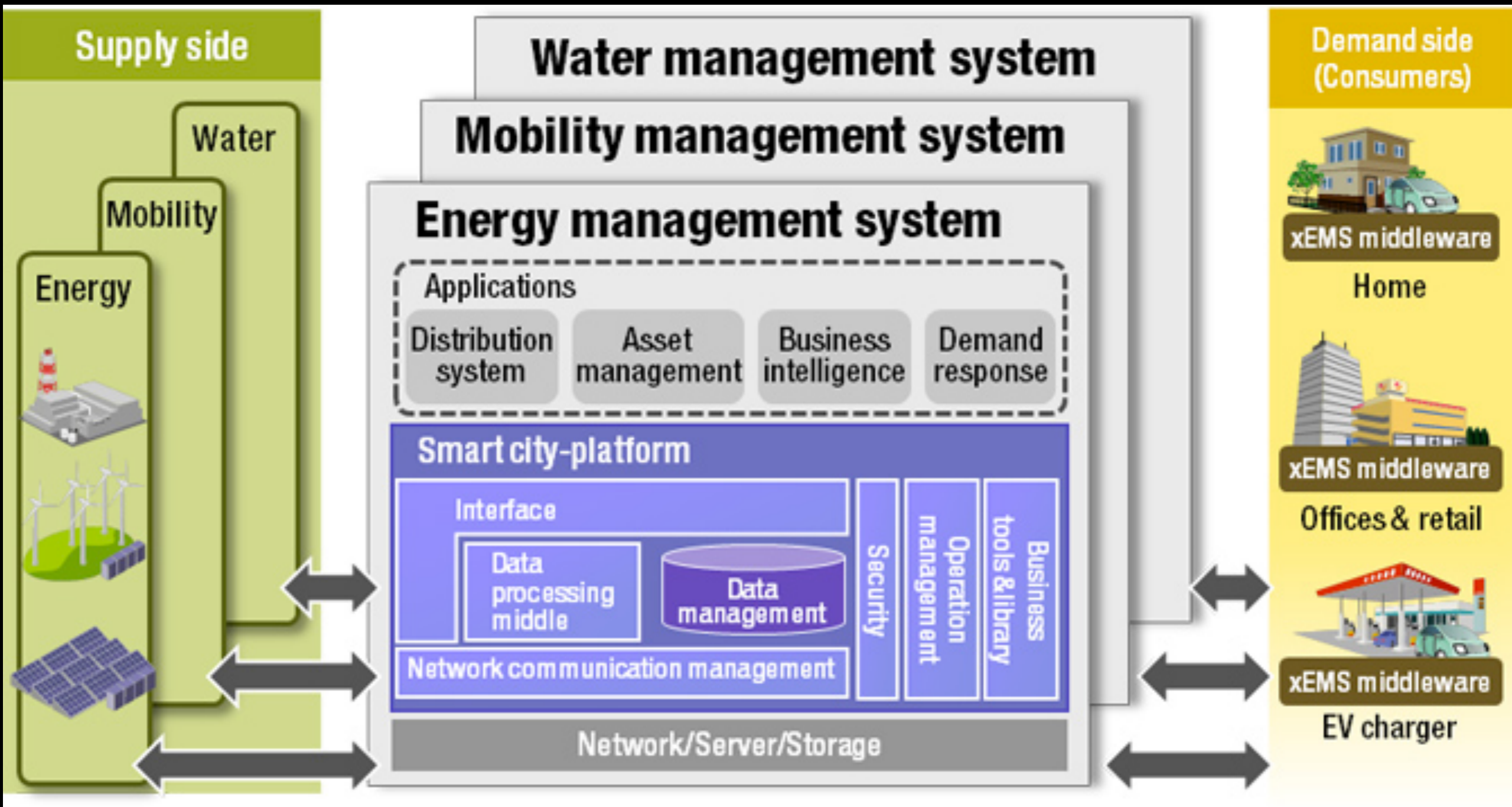


Digital Themes

- Theme Tunnel
- Smart Rest

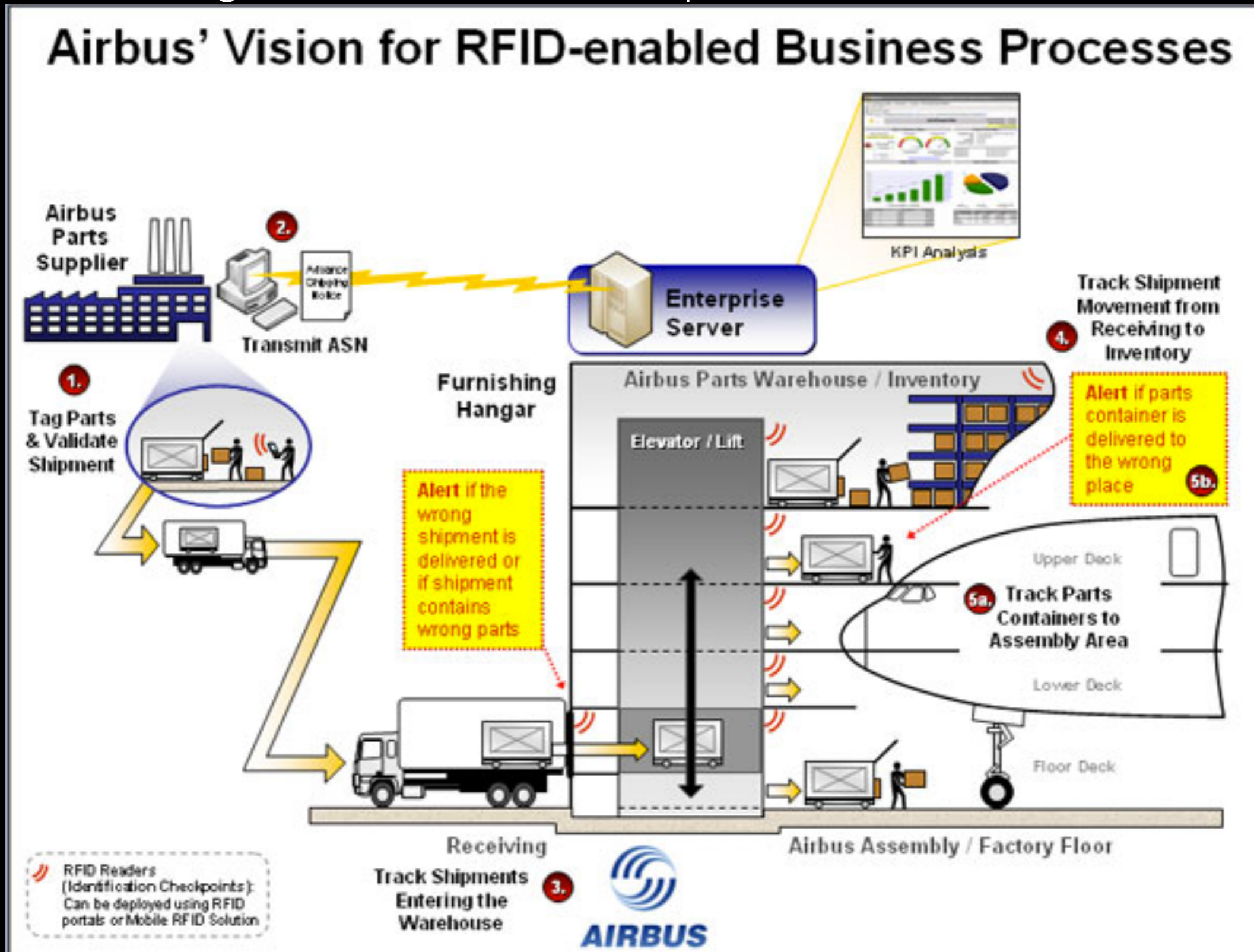
IOT: SMART CITIES

- Food safety, power generation and distribution, transit supporting systems and infrastructure, population (monitoring, management, and control), telecommunications, and emergency services supporting systems.



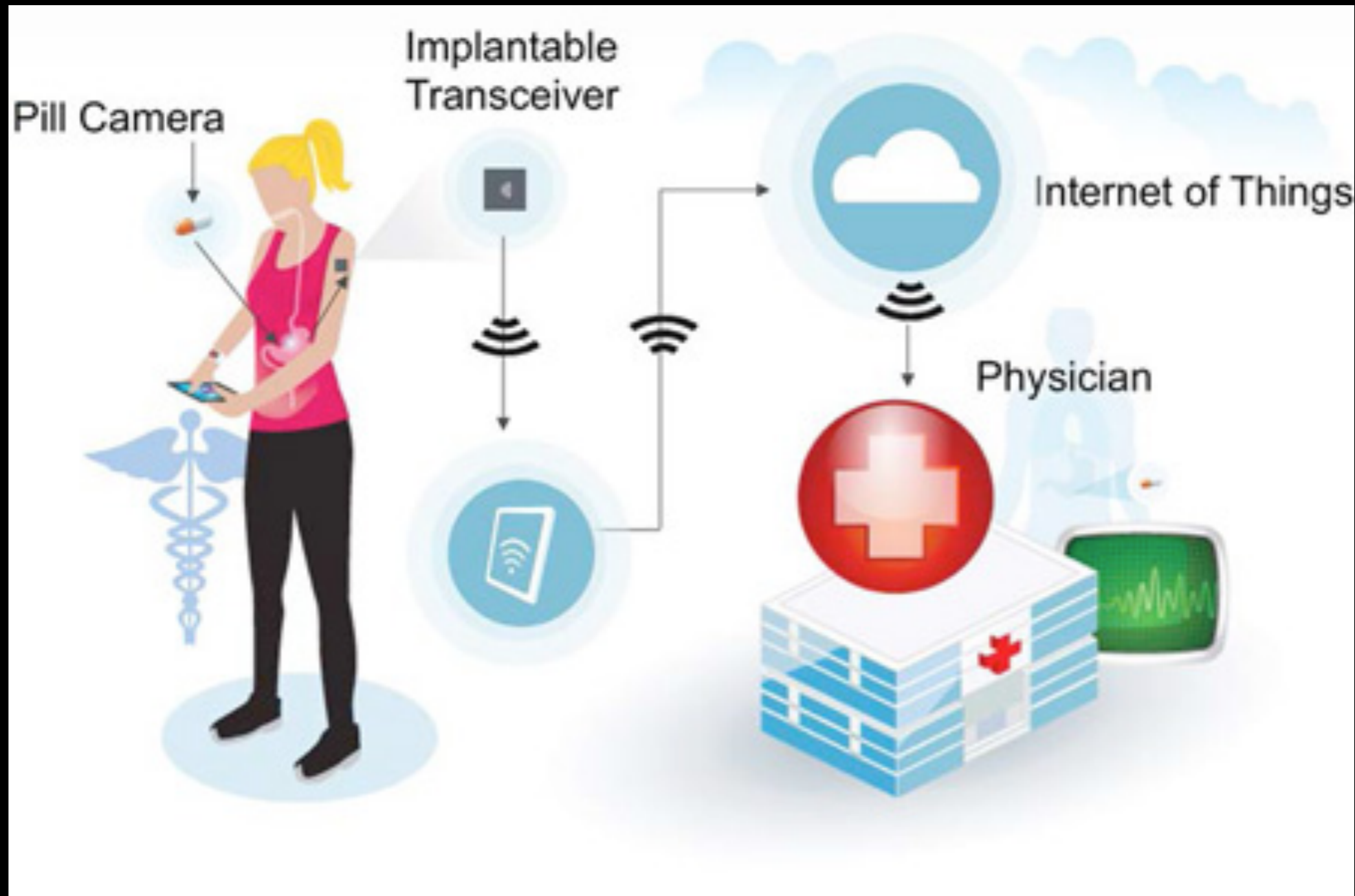
IoT: SMART BUSINESS

- Supply chain management, distribution, telepresence, and document management.



IOT: HEALTH CARE LIFE CRITICAL

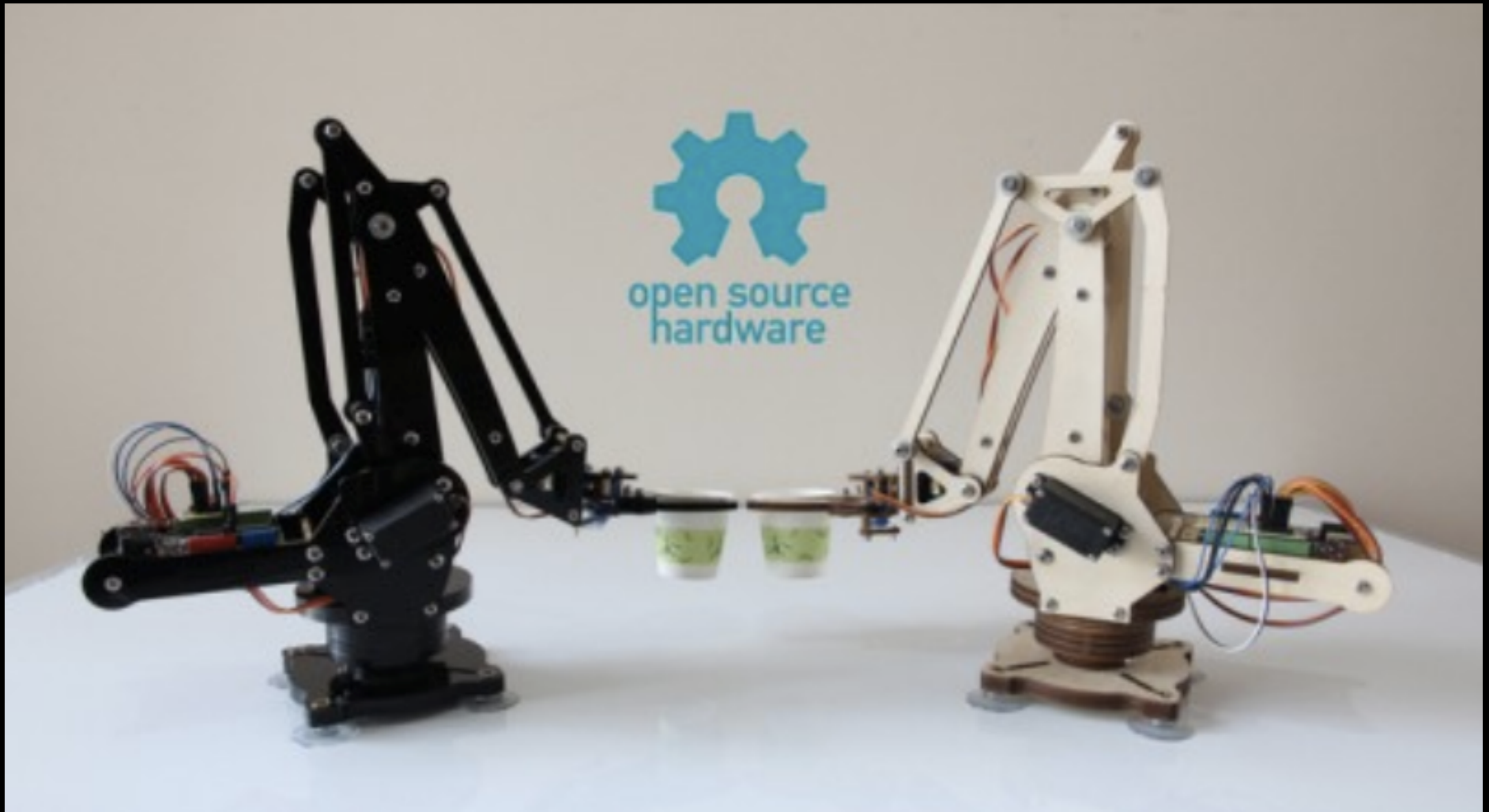
- Life supporting, monitoring, and diagnostics systems used within the health sector.



http://vertassets.blob.core.windows.net/image/4f1cdc06/4f1cdc06-a44f-4748-9de9-0a87208761b8/iot_healthcareimage.jpg

IOT: **INDUSTRIAL**

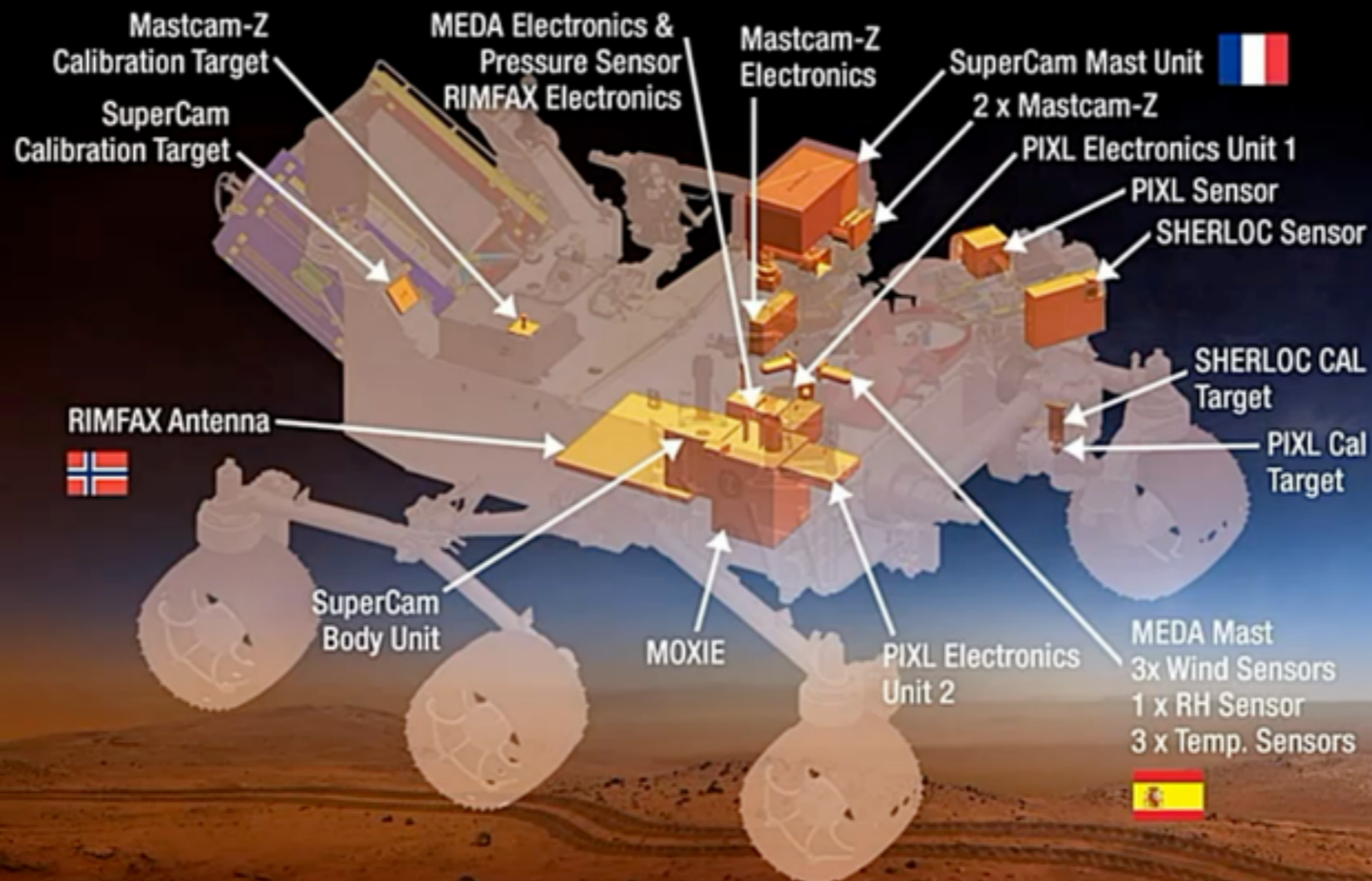
- Robotics, industrial automation.



IOT: SPACE

- Satellites, space vehicles, and associated supporting systems.

Mars 2020 Rover



Top Ten Connected Applications in 2020	Value to the Connected Life
Connected Car	US\$600 billion
Clinical Remote Monitoring	US\$350 billion
Assisted Living	US\$270 billion
Home and Building Security	US\$250 billion
Pay-As-You-Drive Car Insurance	US\$245 billion
New Business Models for Car Usage	US\$225 billion
Smart Meters	US\$105 billion
Traffic Management	US\$100 billion
Electric Vehicle Charging	US\$75 billion
Building Automation	US\$40 billion

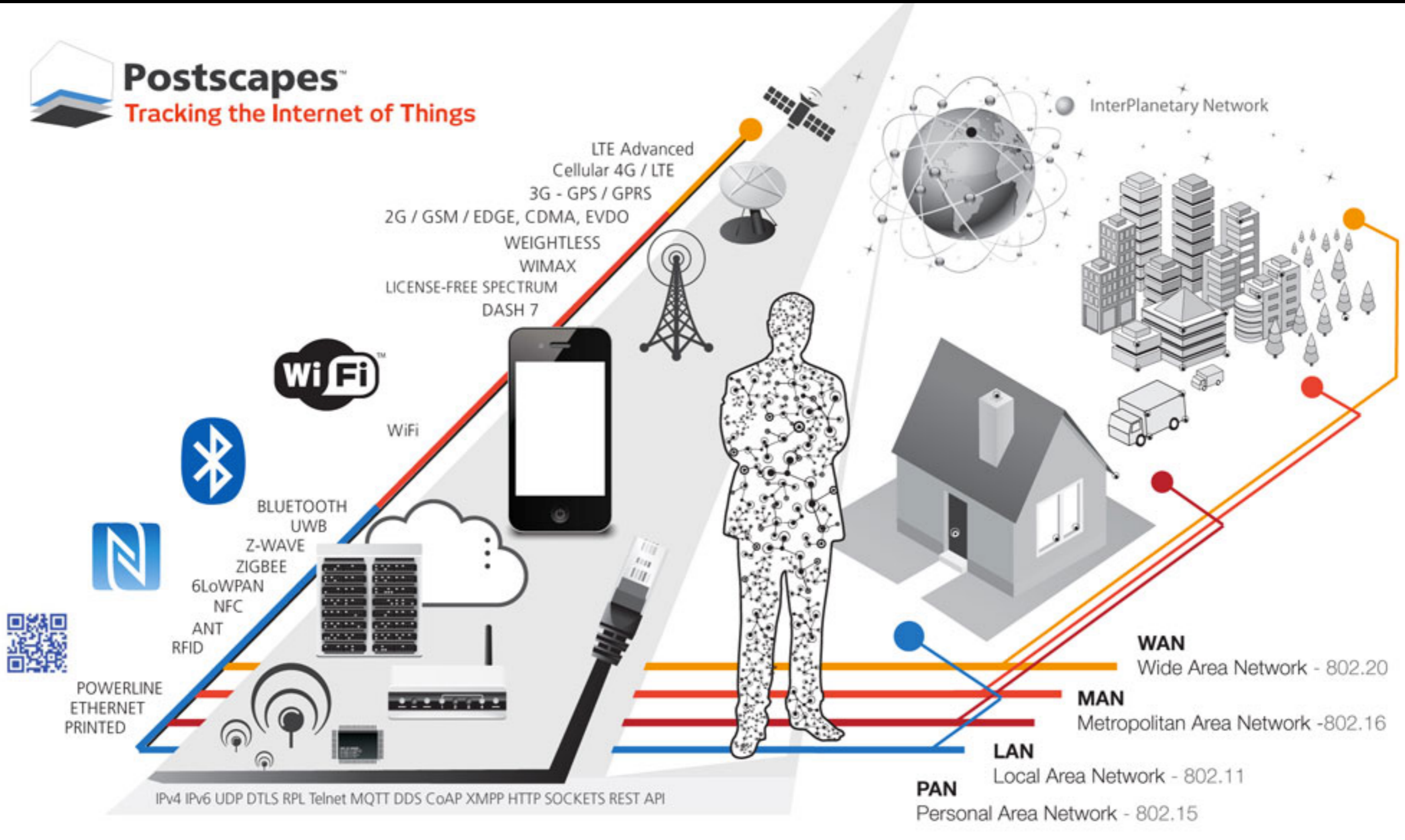
I 3 COMPONENTI BASE

- Hardware
- Infrastruttura (di comunicazione e di elaborazione dati)
- Software

SENSORI

- sensors: allow everyday objects to interact with computers over the Internet and harvest valuable information on their surroundings.
- sensors are getting smaller and smaller, which means that they can more easily be integrated into any object, under any circumstance.
- three different trends that are making this possible:
 - device miniaturisation (a widespread trend at present),
 - the development of new forms of computing (such as DNA computers and quantum computers) and
 - the creation of smart networks of simple elements.

STANDARDS & PROTOCOLS



STANDARDS

- situazione ancora fluida, caratterizzata da molte alternative possibili in competizione tra loro
- possibile sviluppo a breve termine: isole di dispositivi che comunicano tra loro e tra dispositivi di partner
- leader di mercato ed alleanze tra produttori
- scarsa interoperabilità

CRITICITÀ

- eterogeneità ed interoperabilità
- scalabilità
- gestibilità di grandi quantità di dispositivi
- mobilità
- **sicurezza e privacy**
- affidabilità
- sviluppo futuro

SICUREZZA DELL'IOT

Transport
Security

Storage
Security

Software
Platform
Security

Functionality
Security

Logging,
Auditability
and Forensic
Enablement

Sustainability
and
Upgradeability

Hardware
Security

Management
and
Monitoring

AREE DI RISCHIO

- Accessibilità
- Integrità
- Identità e non ripudiabilità
- Confidenzialità
- Disponibilità
- Ambiente
- Sicurezza fisica (safety)

ESEMPI?

- 28C3: Smart Hacking For Privacy [<http://events.ccc.de/congress/2011/Fahrplan/events/4754.en.html>]: problemi dei contatori intelligenti e delle applicazioni correlate (capire che programmi tv guarda qualcuno, conoscendo il suo profilo di consumo elettrico)
- 29C3: Privacy and the car of the future (EN) [<https://www.youtube.com/watch?v=DZv8aOXsM0Y>]: focus su vehicle to vehicle communication
- ... e molti altri, alcuni dei quali preoccupanti (medical devices)

“... The small, embedded computers at the centre of the internet of things do not have as much processing power or memory as, say, a smartphone, so security software on them tends to be rudimentary. There have already been instances of nefarious types taking control of webcams, televisions and even a fridge, which was roped into a network of computers pumping out e-mail spam. And security researchers have found ways of hacking into some kinds of medical devices and cars, though this still requires specialist knowledge and kit”

– CYBER-SECURITY THE INTERNET OF THINGS (TO BE HACKED) JUL12TH2014 THE ECONOMIST

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- <http://www.iot-i.eu/public/public-deliverables/>
- Security of Things: An Implementers' Guide to Cyber-Security for Internet of Things Devices and Beyond by NCC Group
- Enabling Things to Talk - Designing IoT solutions with the IoT Architectural Reference Model. Alessandro Bassi Martin Bauer Martin Fiedler Thorsten KrampRob van Kranenburg Sebastian Lange Stefan Meissner Springer ISBN 978-3-642-40402-3
- Cyber-security The internet of things (to be hacked) Jul12th2014 The Economist

