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CONSULTING > SOLUTIONS > OUTSOURCING

"Yet another enterprise driven vision of Internet of Things, a reality"

Ignacio Soler

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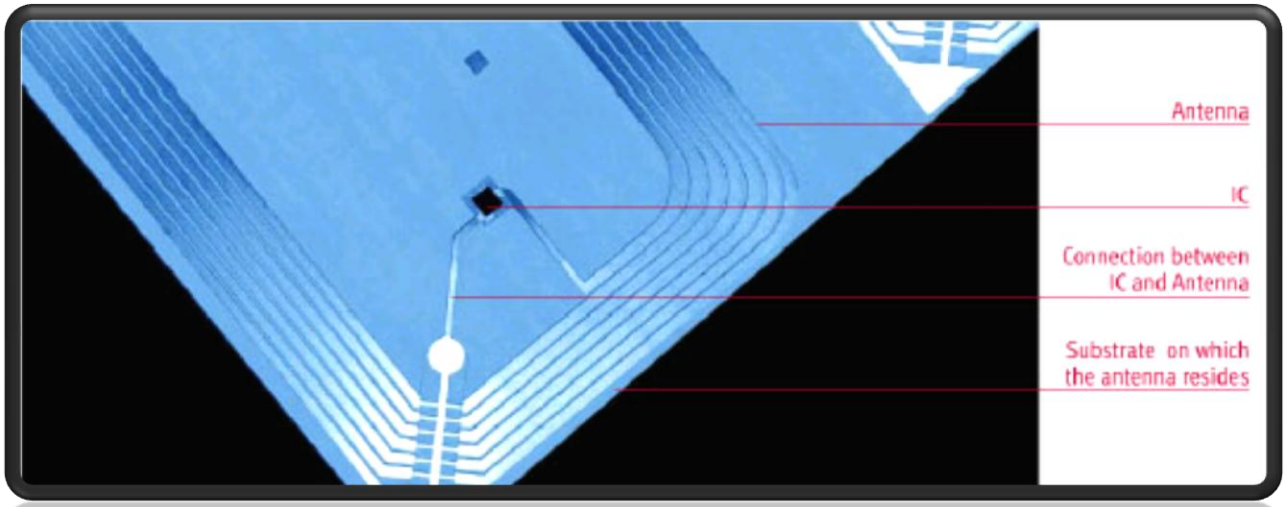
outline

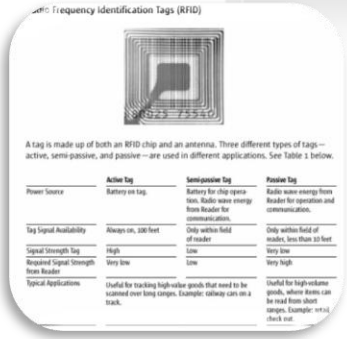
- Architectures & Technologies Radar
- A day in the life of Marta
- Socio-economics aspects

Abstract:

» ”The perception of the real world is different for every person, but the reality is just one. If we make the active subjects, so called things able to inform/interact among themselves and with every single person, we would be able to perceive the real world, and will led us to interact, not only with a big screen but changing our world on-demand through SMART spaces and brand new intelligent interfaces”

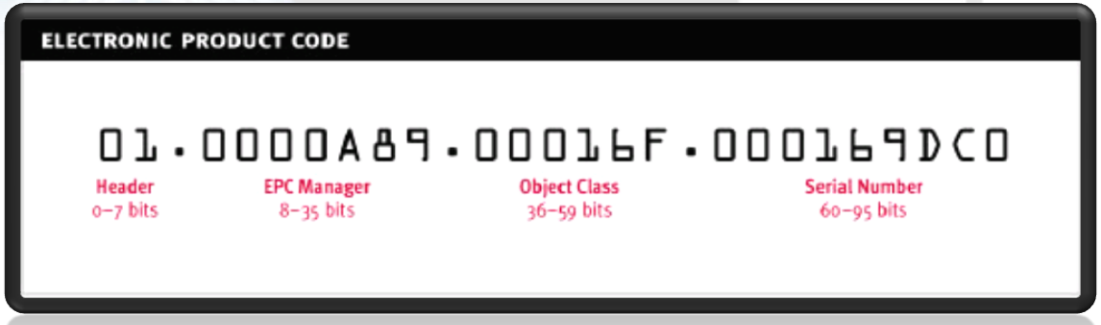
From RFID and WSAN to NEDs



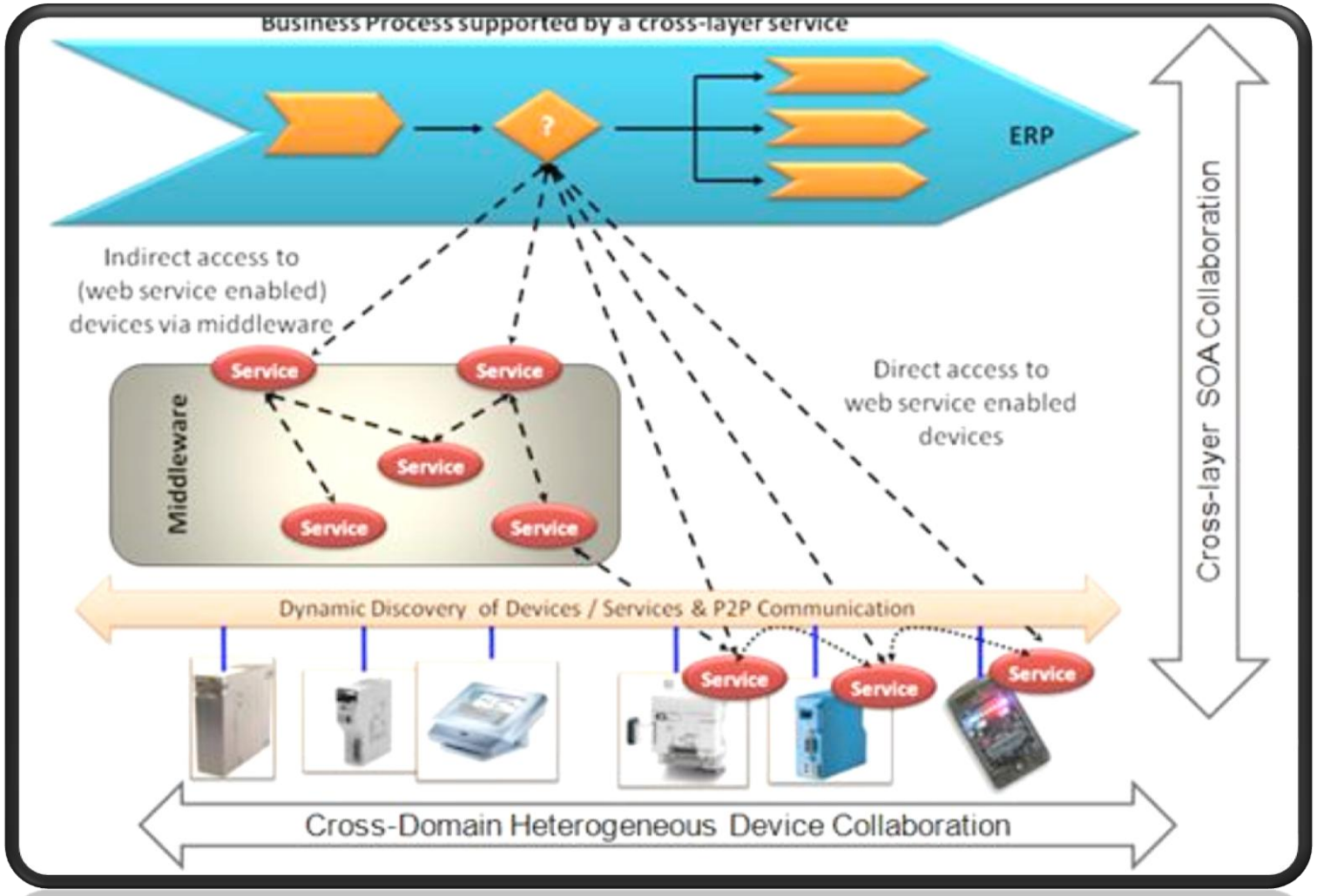

Frequency Identification Tags (RFID)

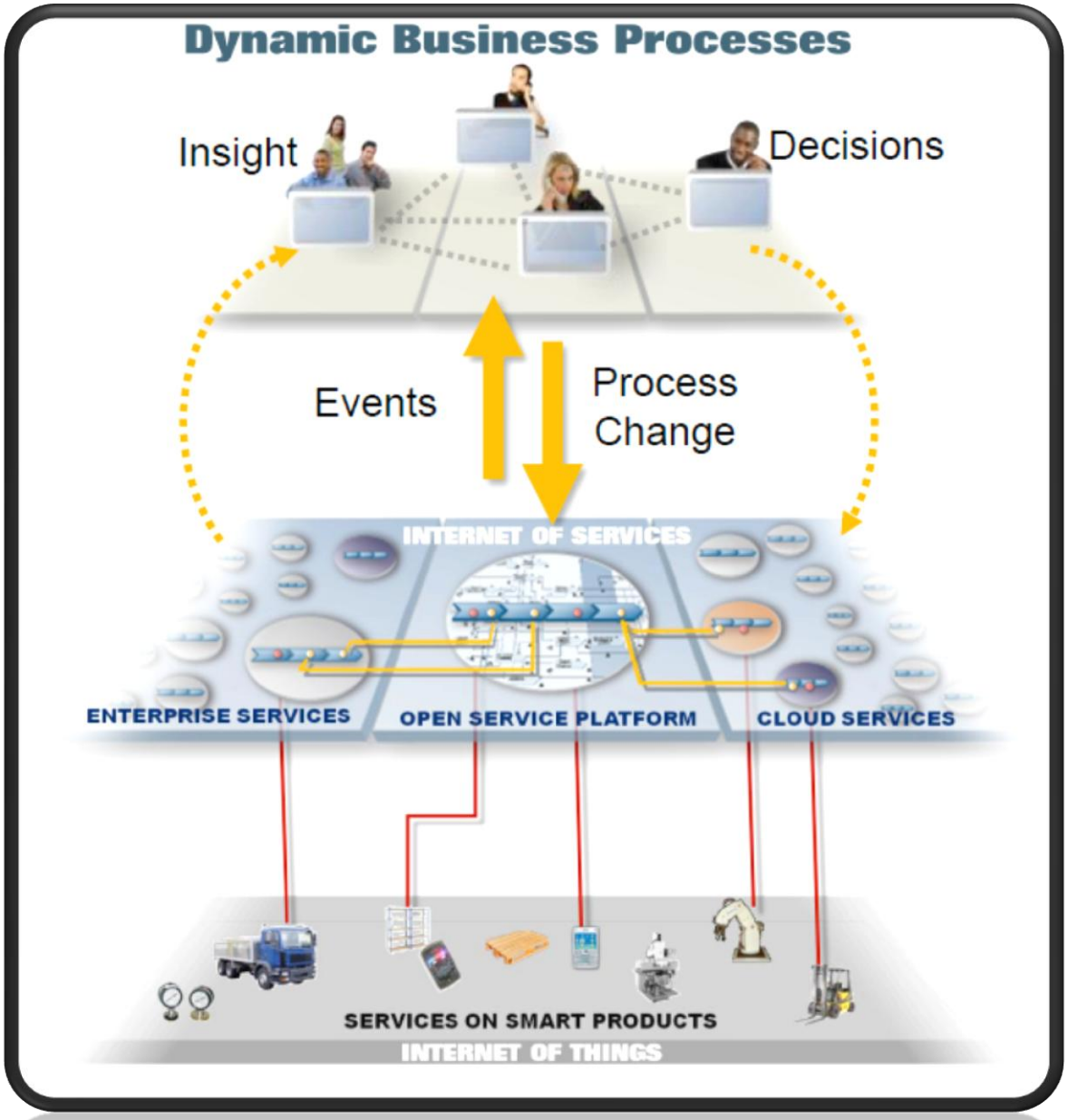
A tag is made up of both an RFID chip and an antenna. Three different types of tags—active, semi-passive, and passive—are used in different applications. See Table 1 below.

	Active Tag	Semi-passive Tag	Passive Tag
Power Source	Battery on tag.	Battery for chip operation. Radio wave energy from Reader for communication.	Radio wave energy from Reader for operation and communication.
Tag Signal Availability	Always on, 100 feet	Only within field of reader	Only within field of reader, less than 10 feet
Signal Strength Tag	High	Low	Very low
Required Signal Strength from Reader	Very low	Low	Very high
Typical Applications	Useful for tracking high-value goods that need to be scanned over long ranges. Example: railway cars on a track.		Useful for high-volume goods, where items can be read from short ranges. Example: retail check out.



Where does IoT fit into the whole picture?
Cross-layer SOA based collaboration in the IoT





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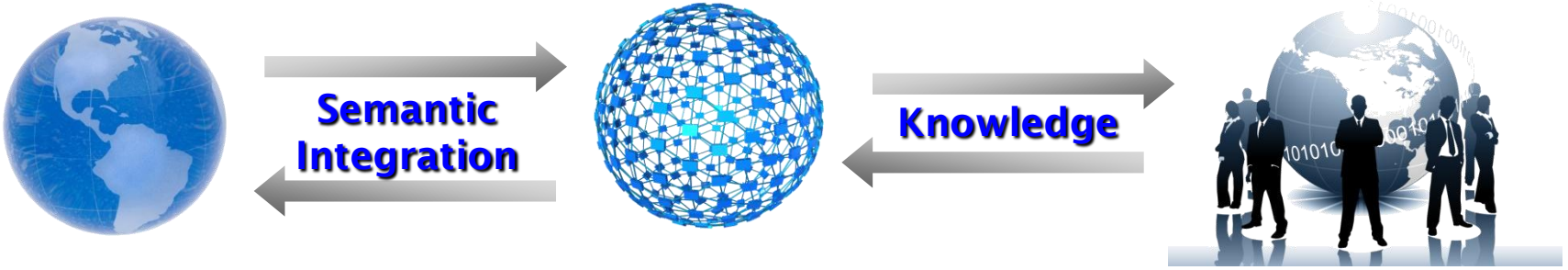
Exchanging information

Physical World

Cyberspace

Communities



Making sensor-generated information usable as a new and key source of knowledge will require their integration into the (existing) information space of Communities → Semantic Integration

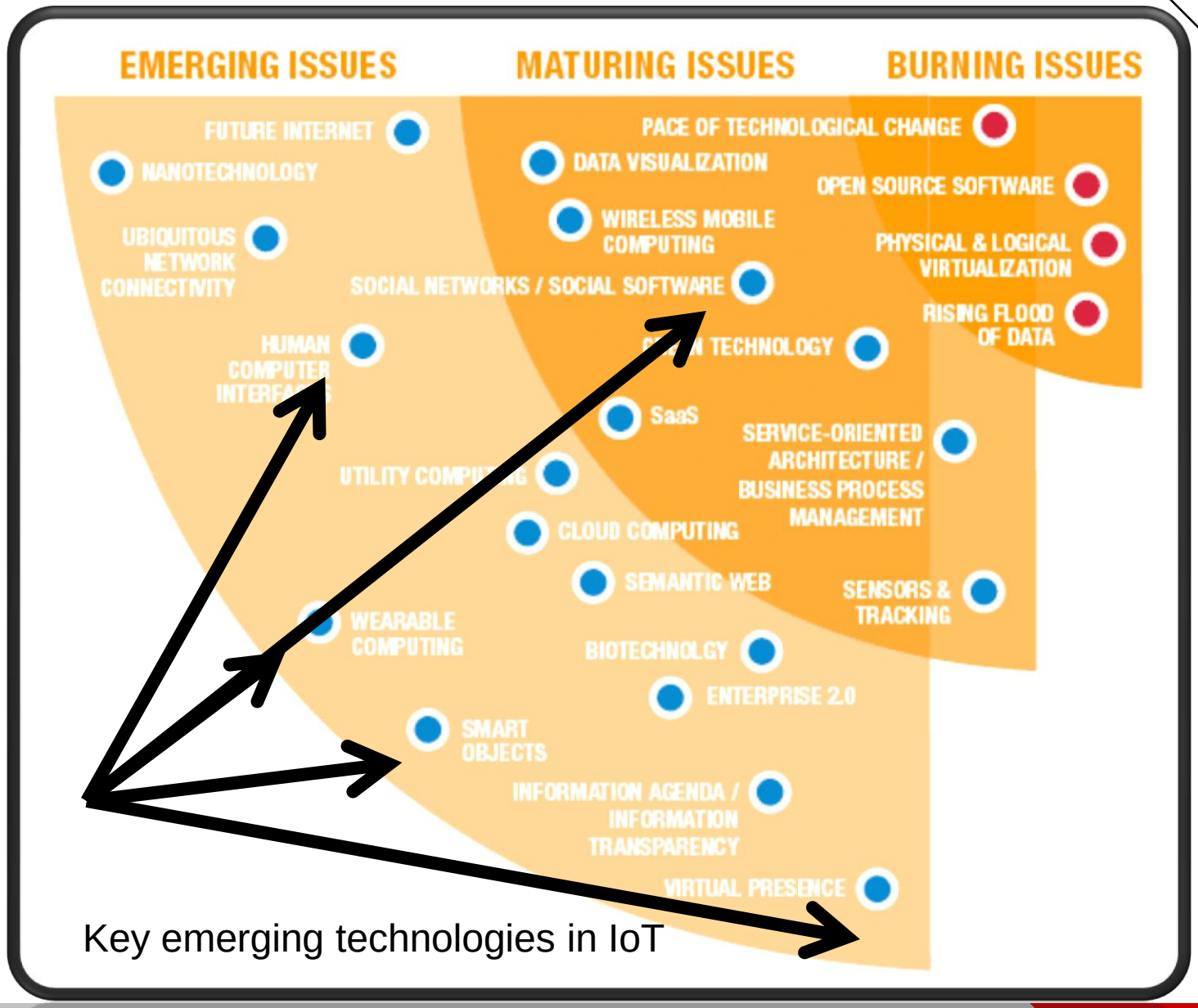
Key factor to IoT success

- Efficient internetworking of heterogeneous networked Embedded Devices with the internet.
- Unified Smart interfaces
- Standardized way of describing information about the world
- Integration of security and privacy protections at the NED.
- Availability of holistic object discovery services combined with sensors and actuators
- Secure, reliable real time network infrastructure.
- Identity Management
- Resilience in the sense of the ability to respond to failures.

Areas of Application

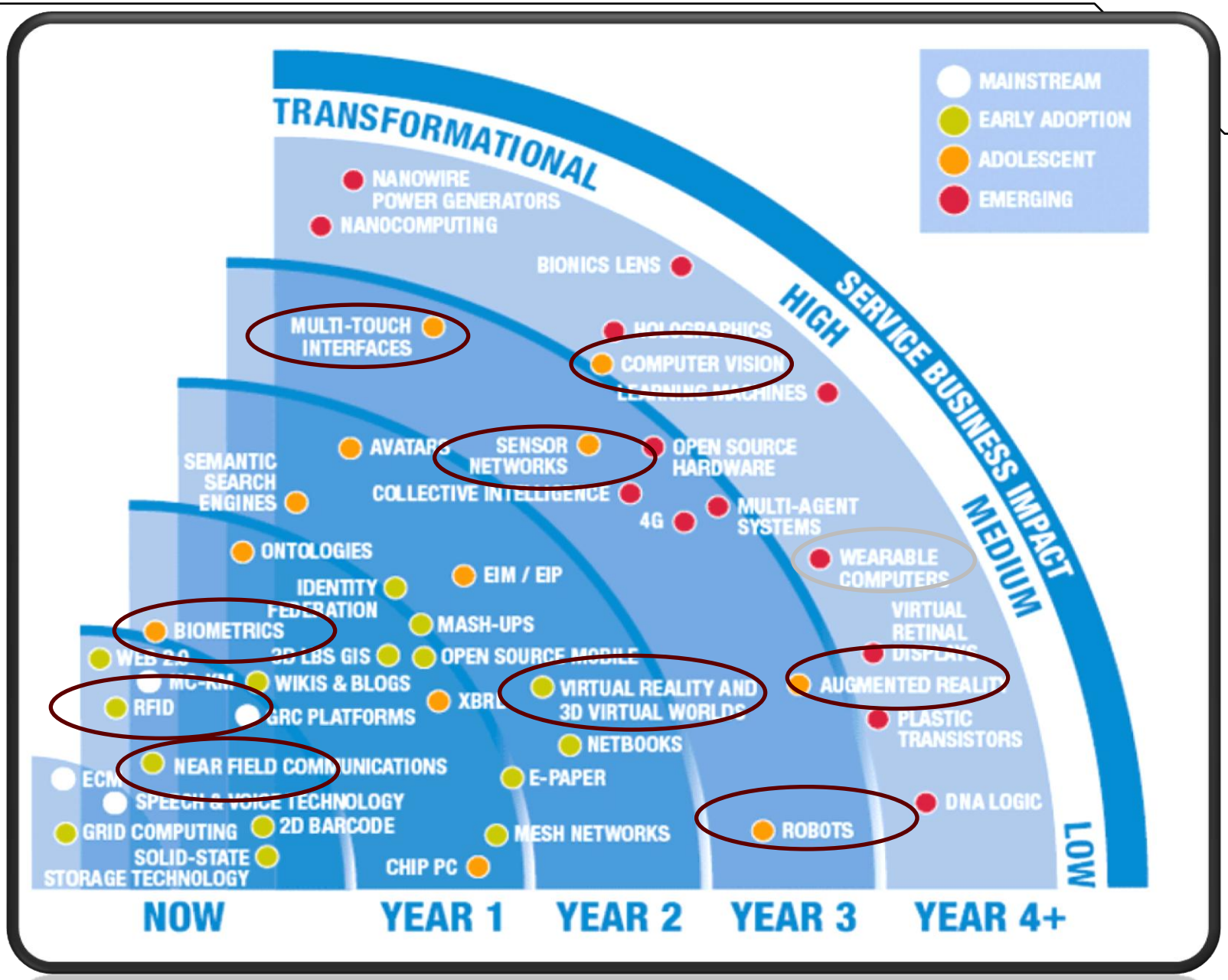
- The results of an unprecedented level of detailed information that can be composed and used by many different applications such as:
  - Ambient assisted living and health care
  - Supply chain monitoring and logistics – counterfeit, intelligent maintenance, customer care and efficiency throughout the lifecycle of products, including more efficient recycling
  - Efficiency for transport, energy and facility management
  - Improved Augmented Reality simulations – simultaneous visualization of virtual and real environments.
  - Social and leisure applications

2009+ Technological macro trends

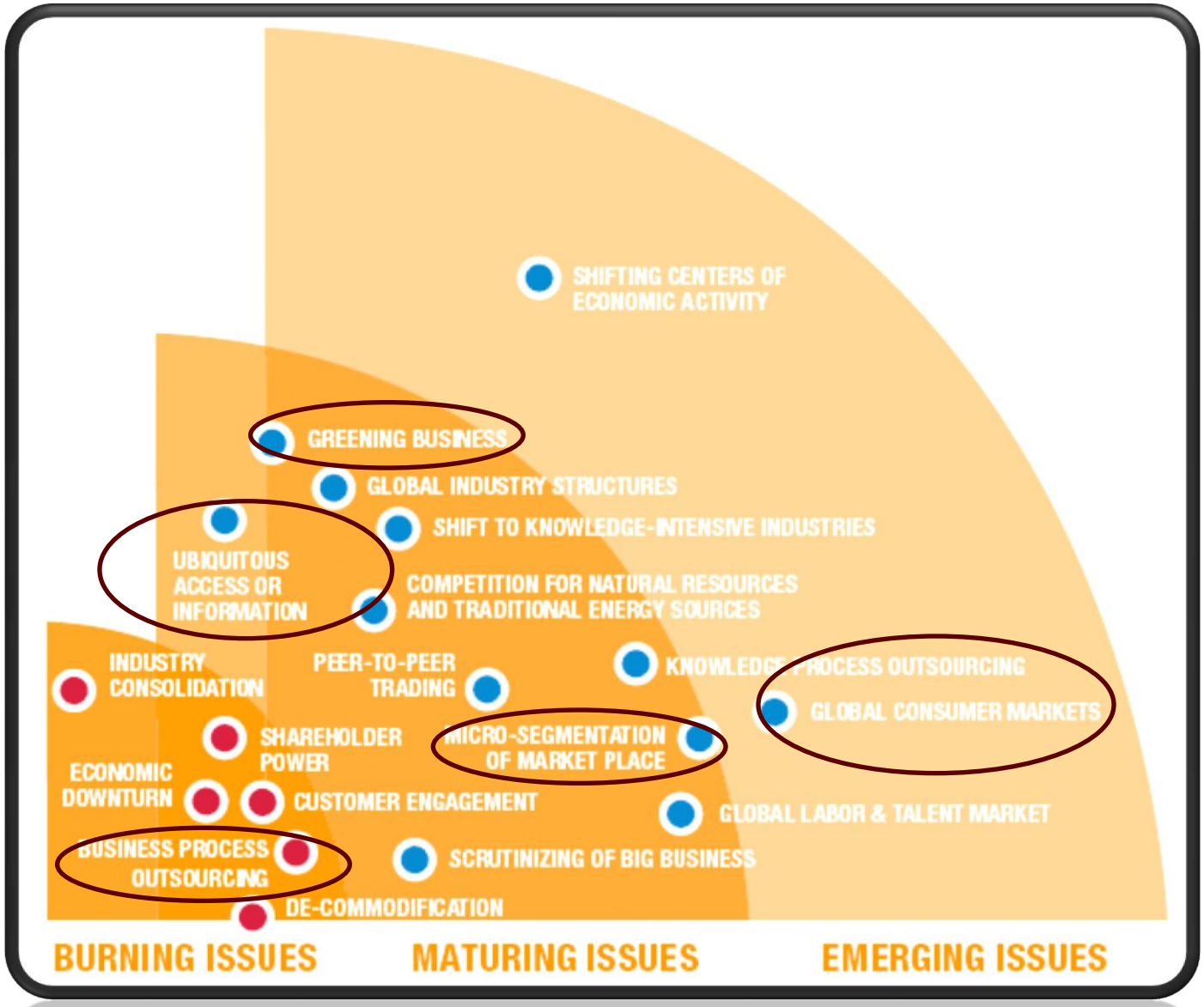


Key emerging technologies in IoT

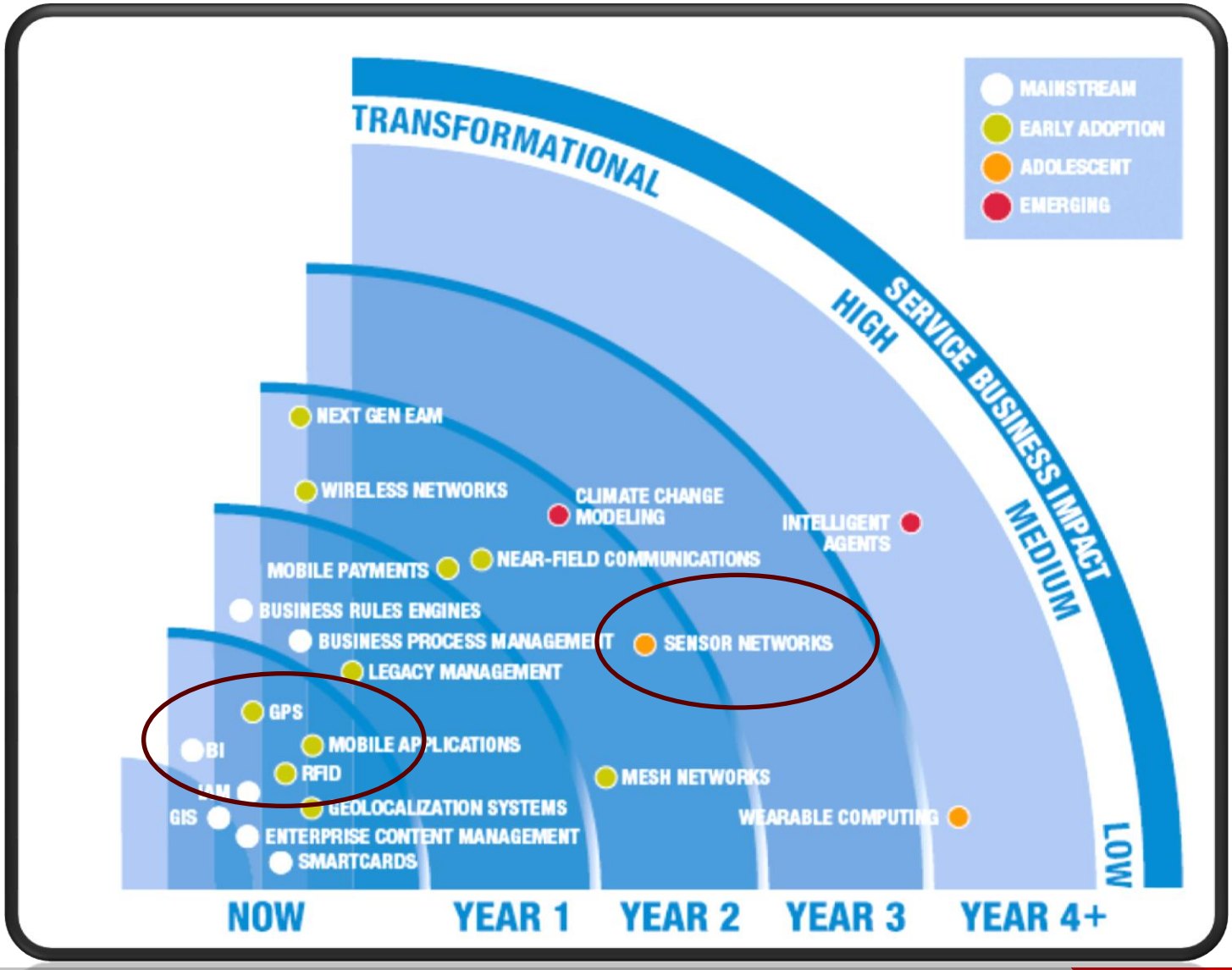
2009+ Enabling Information Technologies



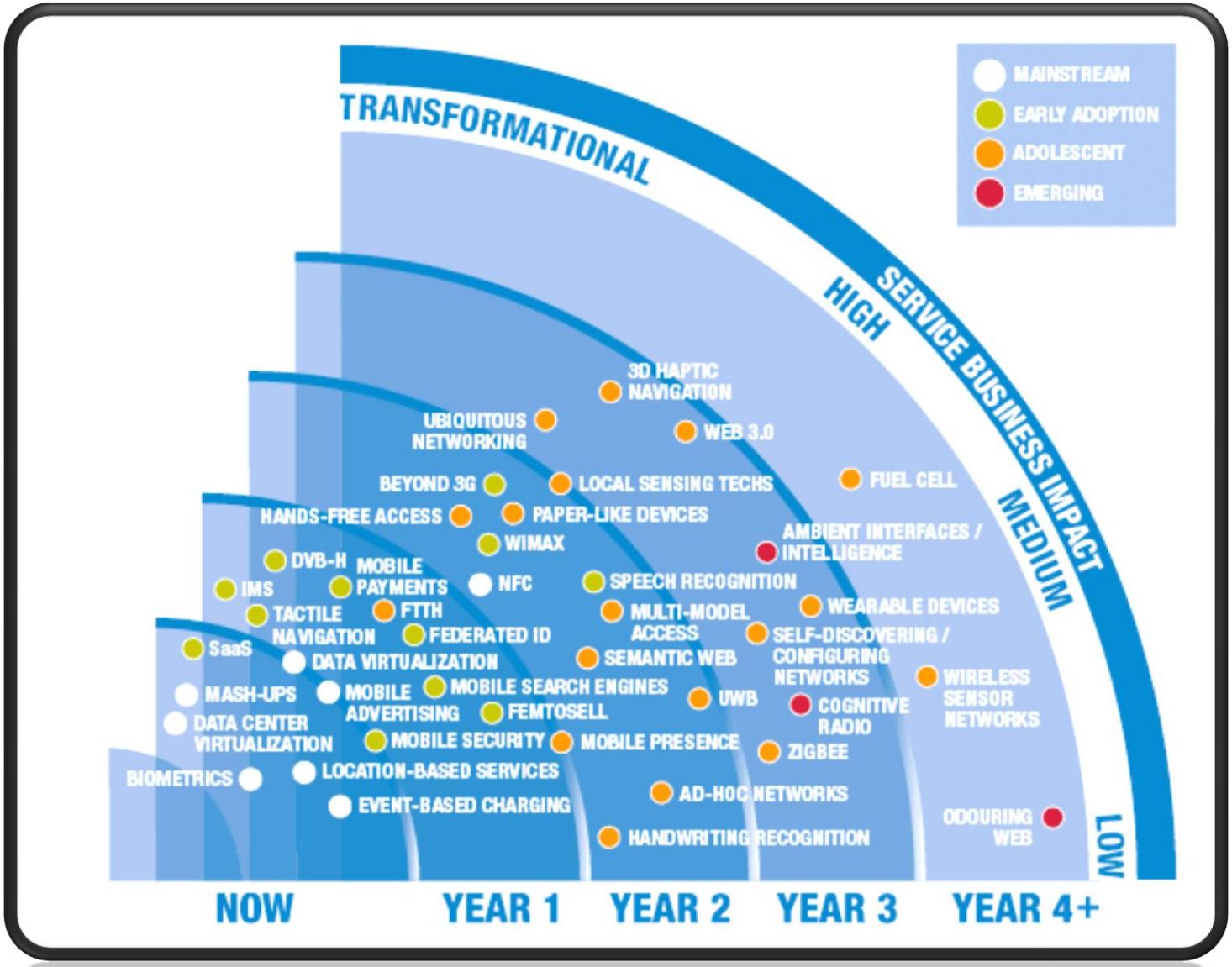
2009+ Economic macro trends radar



Logistics , distribution and tourism



Telecom

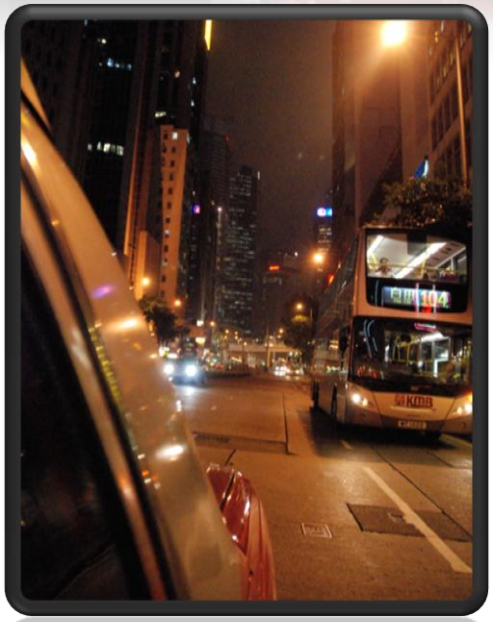

MAINSTREAM
EARLY ADOPTION
ADOLESCENT
EMERGING
TRANSFORMATIONAL
HIGH
MEDIUM
LOW
SERVICE BUSINESS IMPACT
3D HAPTIC NAVIGATION
UBIQUITOUS NETWORKING
WEB 3.0
BEYOND 3G
LOCAL SENSING TECHS
FUEL CELL
HANDS-FREE ACCESS
PAPER-LIKE DEVICES
WIMAX
AMBIENT INTERFACES / INTELLIGENCE
DVB-H
MOBILE PAYMENTS
IMS
NFC
SPEECH RECOGNITION
TACTILE NAVIGATION
FTTH
MULTI-MODEL ACCESS
WEARABLE DEVICES
FEDERATED ID
SELF-DISCOVERING / CONFIGURING NETWORKS
SaaS
DATA VIRTUALIZATION
SEMANTIC WEB
WIRELESS SENSOR NETWORKS
MASH-UPS
MOBILE ADVERTISING
MOBILE SEARCH ENGINES
UWB
COGNITIVE RADIO
DATA CENTER VIRTUALIZATION
FEMTOSELL
MOBILE SECURITY
MOBILE PRESENCE
ZIGBEE
BIOMETRICS
LOCATION-BASED SERVICES
AD-HOC NETWORKS
EVENT-BASED CHARGING
ODOURING WEB
HANDWRITING RECOGNITION
NOW
YEAR 1
YEAR 2
YEAR 3
YEAR 4+

A little story in Marta's daylife

» Marta in her home, getting ready to go to work. She is subscribed to a car pooling service to find a suitable lift to the city and is informed by her mobile that John is passing by near her house in 5 min to drive to his workplace close to the city centre.

- A combination of personal digital information
- +
- intelligent home system recognizes Marta's state
- +
- It makes a matching up with the agendas

A little story in Marta's daylife



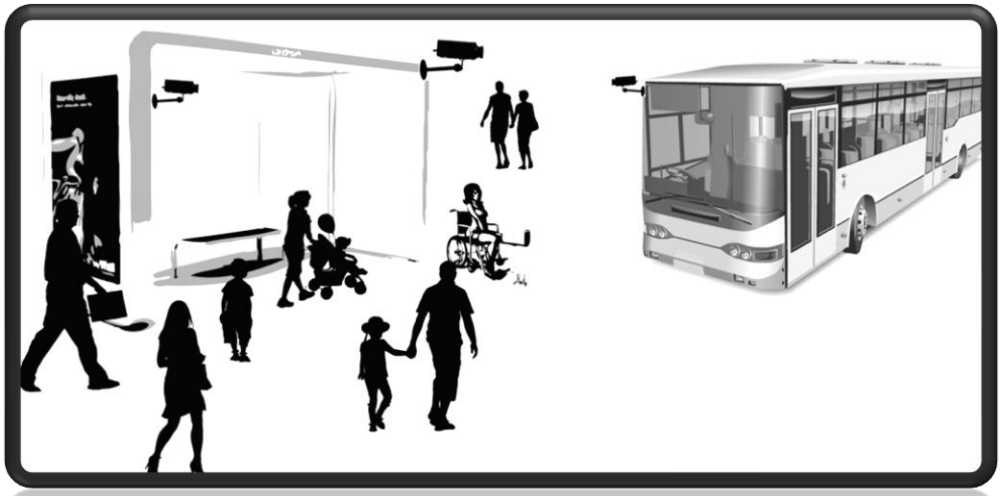
- Marta on the road, going to work. She steps outside her house as John pulls her up. And they start on their journey to the city

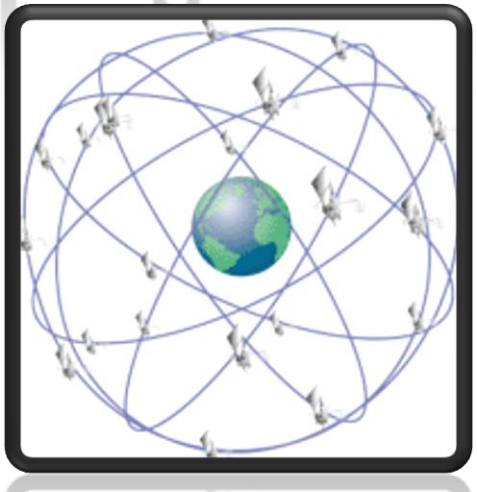
- Navigation systems are able to re-route using input from a variety of internet services, such as traffic and weather conditions and revising the route according to internet services

A little story in Marta's daylife

- John enables the Autopilot, to be able to talk to Marta.
- Autopilot gives John a break and more efficient congestion control for busy stretches of road is given to the car

A little story in Marta's daylife





- Their paths separate and John drops Marta off near a public transport spot
- Instead of rigid timetables that are inaccurate, availability is offered dynamically on user mobiles.

A little story in Marta's daylife

- Marta receives an offer to use one of the city's bike pods. It is only one block to walk and she will get some much needed exercise and also safe time.
- Location and agendas are updated and additional internet services can be offered to help the user fulfill their purpose

A little story in Marta's daylife

- Mobile payment. Marta uses her credit card to unlock a bike and cycles the last 5 km to work.
- NFC payment.

A little story in Marta's daylife

- Health monitoring while mobile. Based on the level of sweat and personal digital information, a shower at her office is booked for Marta.
- Marta's fitness instructor provides feedback on her fitness level and recommends new sets of exercises.
- (distance covered, elevation of the route, speed, number of revolutions, etc.)

A little story in Marta's daylife

- Her journey to work was particularly green today and she is rewarded with tax credits for her environmental awareness
- The system measures the carbon footprint of users and encourages users to find "greener" modes of transport

Socioeconomic challenges of the Future Internet

Eliminating the Digital Divide

Net Neutrality

Control of the Net

Multiple Internets?

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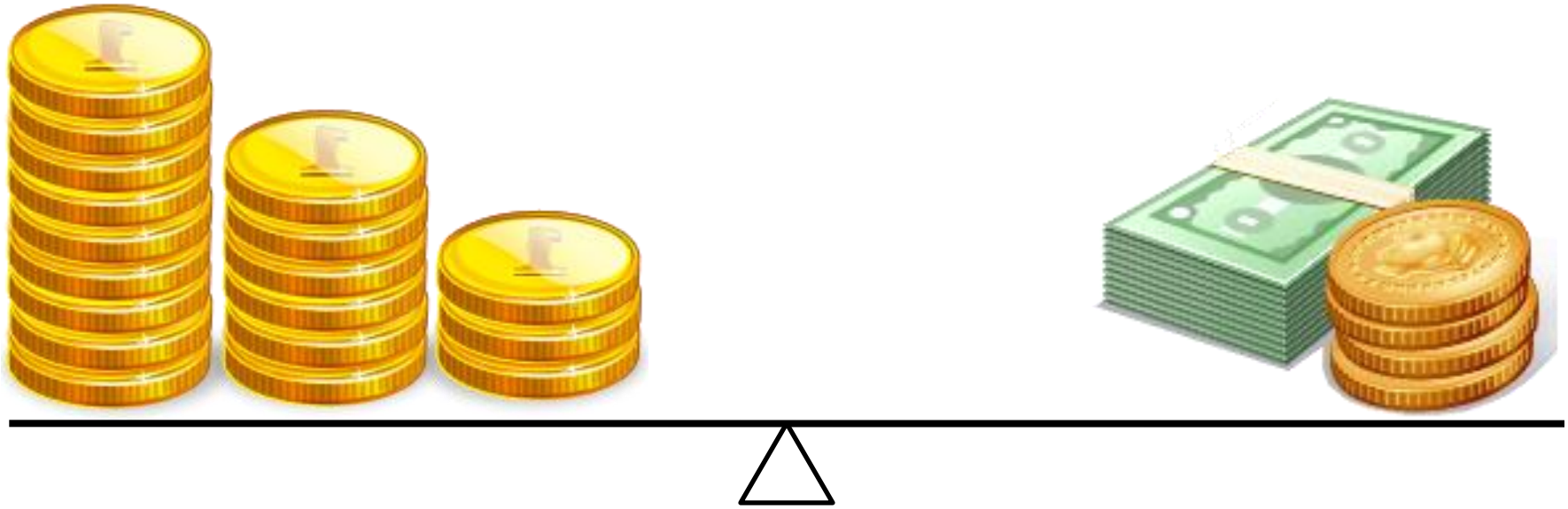
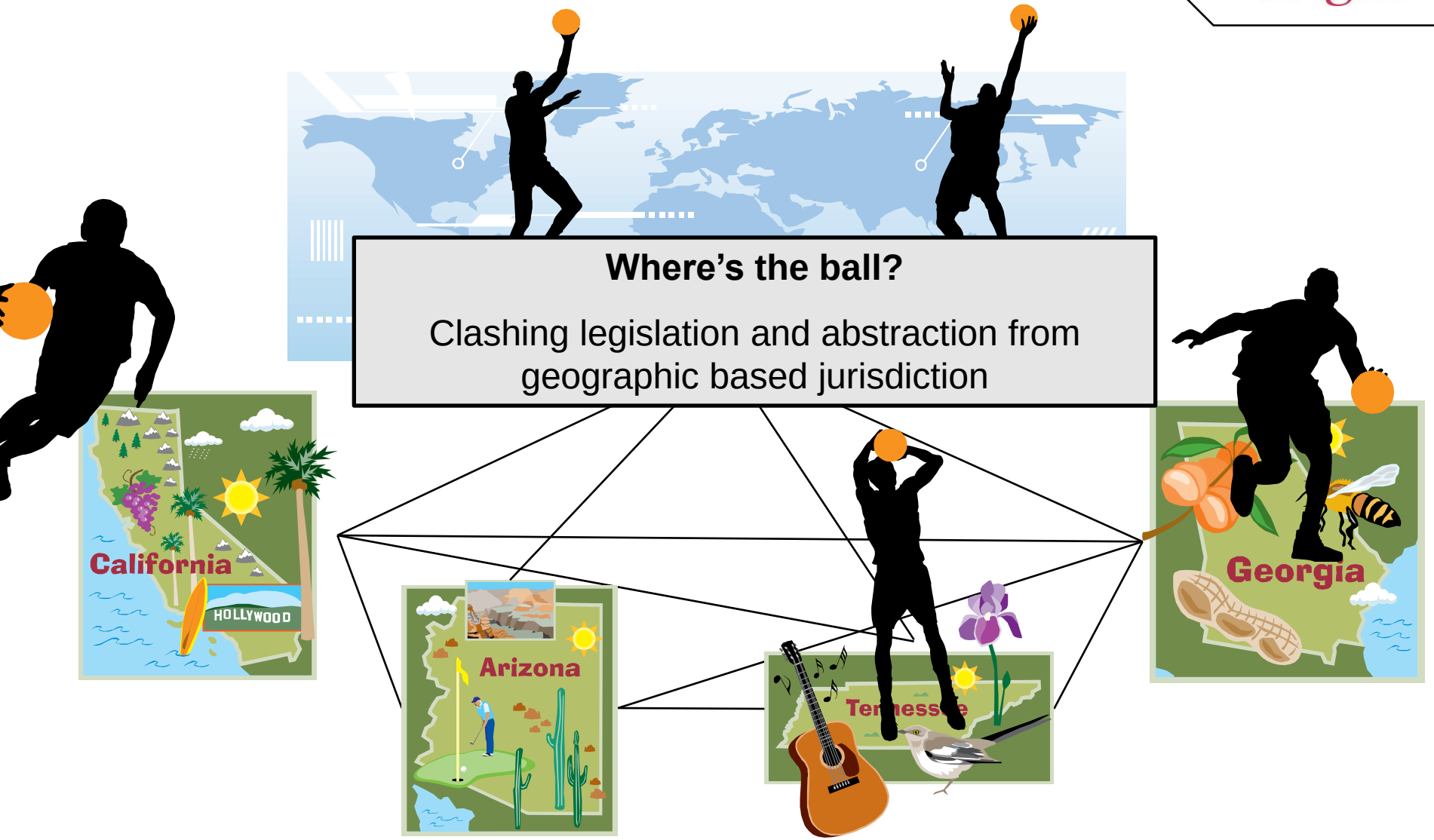
Unregulated competing online currencies stemming from virtual worlds



Socioeconomic challenges of the Future Internet



Gartner: *„By 2015, wirelessly networked sensors in everything we own will form a new Web. But it will only be of value if the 'terabyte torrent' of data it generates can be collected, analyzed and interpreted."*

Thank You

Moltes gràcies

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