Hyperconnected Society and IOT

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I. 4th Industrial Revolution

http://www.dw.com/en/wef-2016-topics-and-top-players/a-18990254

Navigating the next industrial revolution

Revolution		Year	Information
	1	1784	Steam, water, mechanical production equipment
	2	1870	Division of labour, electricity, mass production
	3	1969	Electronics, IT, automated production
	4	?	Cyber-physical systems

https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/

6 Megatrends

- People and the internet
- Computing, communications and storage everywhere
- The Internet of Things
- Artificial intelligence (AI) and big data
- The sharing economy and distributed trust
- The digitization of matter

World Economic Forum (2015). Deep Shift Technology Tipping Points and Societal Impact

II. Internet of Things

☐ Historic Development

1. Computing Era (1960s and 1970s)

2. Internet Era (1980s and 1990s)

3. IoT Era (Now)

* Porter & Heppelmann (2014)

□ M2M → IoT
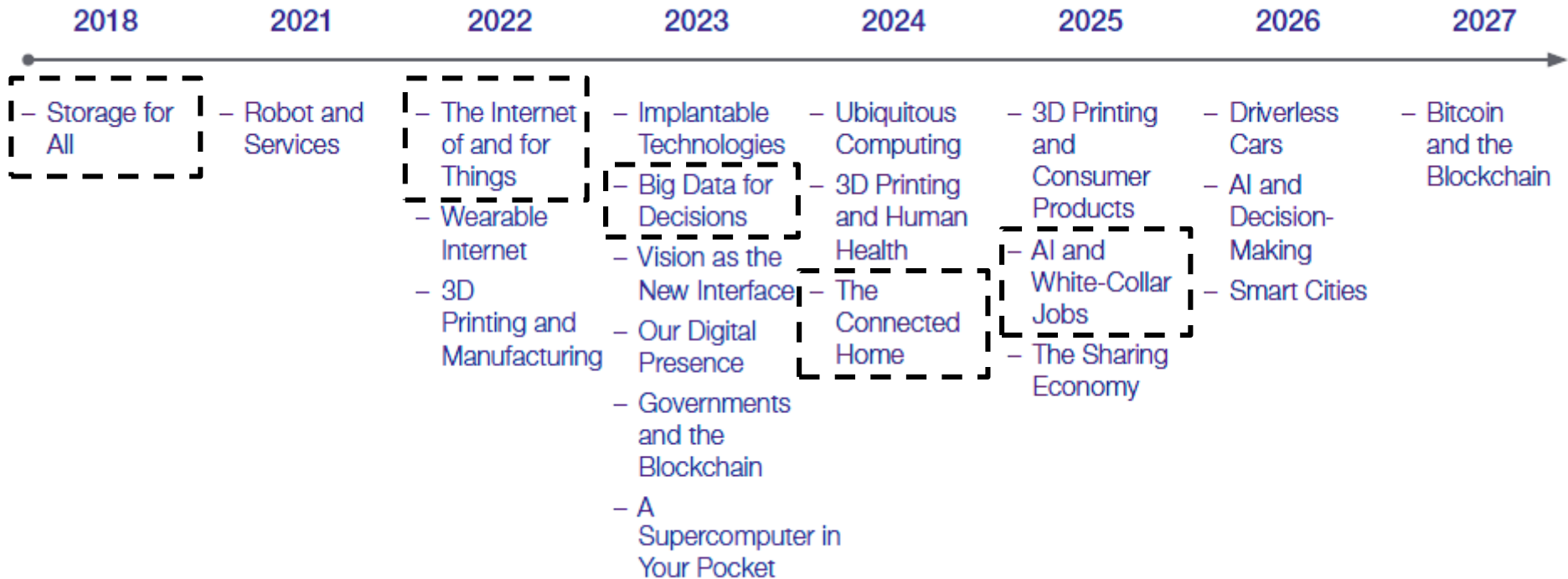
□ IoT: From "Human" to "Thing"
- Rapid Expansion of Mobile (Smart) Devices
- Decrease of Sensing cost
- Fast Network Speed

- Connecting people, machines, natural resources, production lines, logistics networks, consumption habits, recycling flows, and virtually every other aspect of economic and social life
- IoT to an era of nearly free goods and services, precipitating the meteoric rise of a global Collaborative Commons and the eclipse of capitalism

Jeremy Rifkin (2011)

Average Year Each Tipping Point is Expected to Occur

2018	2021	2022	2023	2024	2025	2026	2027
– Storage for All	– Robot and Services	– The Internet of and for Things – Wearable Internet – 3D Printing and Manufacturing	– Implantable Technologies – Big Data for Decisions – Vision as the New Interface – Our Digital Presence – Governments and the Blockchain – A Supercomputer in Your Pocket	– Ubiquitous Computing – 3D Printing and Human Health – The Connected Home	– 3D Printing and Consumer Products – AI and White-Collar Jobs – The Sharing Economy	– Driverless Cars – AI and Decision-Making – Smart Cities	– Bitcoin and the Blockchain

World Economic Forum (2015). Deep Shift Technology Tipping Points and Societal Impact
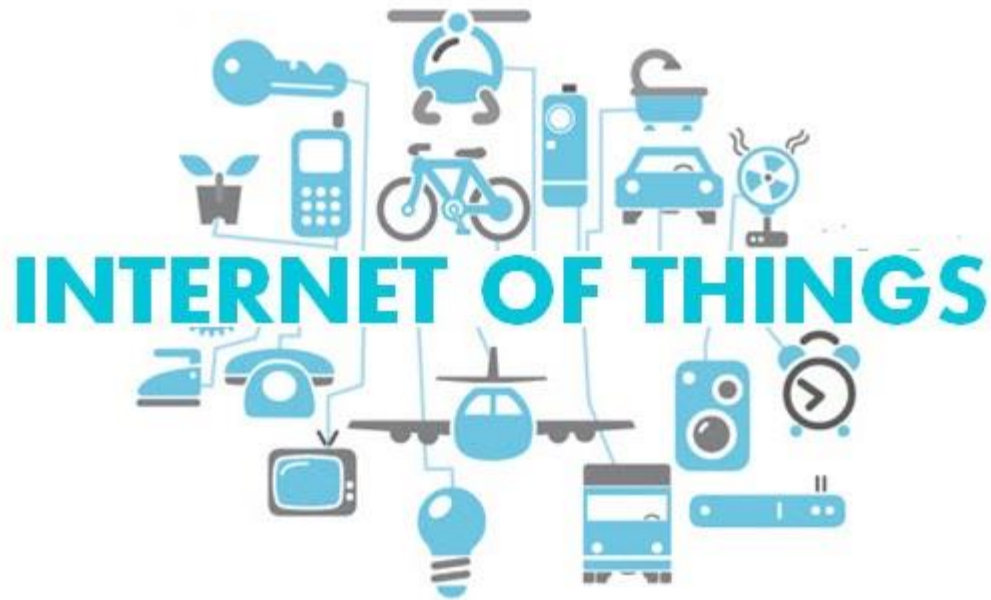
III. Hyper-connected Society

Digital Presence
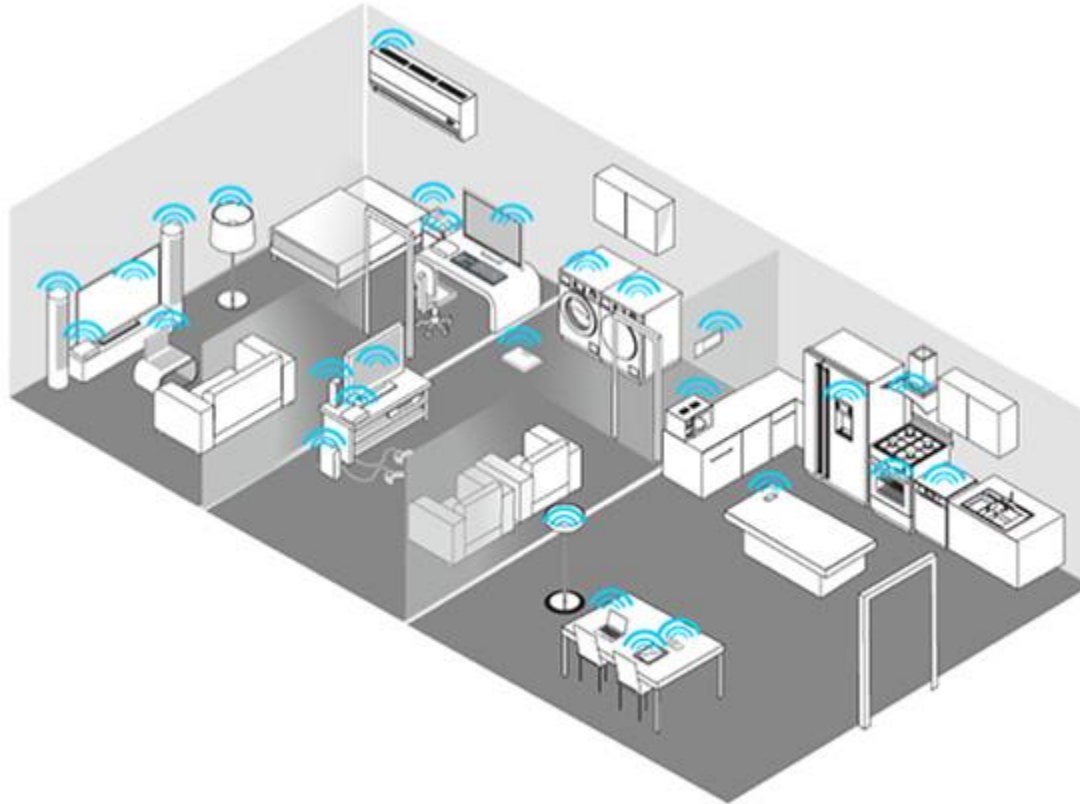
Ubiquitous Computing

Things

Services

People

Internet of Things

http://www.iotforindia.org/event/tie-iot-forum-smart-agriculture-smart-healthcare/
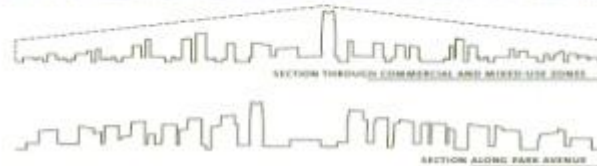
Connected Home

Smart Cities

Smart Songdo

- Parameters of the Songdo city
  - Smart transportation
  - Smart Energy
  - Smart building
  - Smart waste, water management

http://www.slideshare.net/JohnnyMRizk/smart-cities-parameters

Driverless Cars

http://www.connectedcar-news.com/news/2016/apr/06/hyundai-unveils-connected-car-roadmap/

The Sharing Economy

http://www.sigeneration.ca/sharing-economy/

☐ Positive Impacts
- Improved quality of life
- Increased access to education, healthcare, and other services
- Improved safety
- Expanded market size
- Increased efficiency
- Rise in productivity
- Better environment
- More transparency

☐ Negative Impacts
- Privacy
- Surveillance
- Cyberattacks, crime, vulnerability

IV. IoT for Hyper-connected Society
- Korea's approaches to IoT

V-1. Intelligent Network (Giga Internet)

- Not just dumb pipe.
- Advanced infra for 4th industrial revolution.
- Cybersecurity be protected at the stage of "network", not ex-post vaccine…
- VR, AR, UHD Contents

Is Vital for National Economy

- New service creation
- Service customization
- New job creation
- Growth engines

… and Society

- Customization service for enhancing quality of life
- Transparency and Accountability
- Smart living (Home, Car, City…)
- Health Care

V-2. IoT Services

KT, LGU+	SKT
NB-IoT (2017)	LoRa (2016)
Home IoT	Industry IoT

Health Bike + mobile app + tv

http://smartblog.olleh.com/5376

☐ Health
- Giga IoT Health Bike, Giga IoT Health Golf Putting, Giga IoT Weight

☐ Safety
- IoT Car Safety
- Smart Parking
- Smart Metering

□ Home
- Home IoT (500K homes connected)
- Combination of Door Lock, Gas Valve, Energy Meter, Switch…
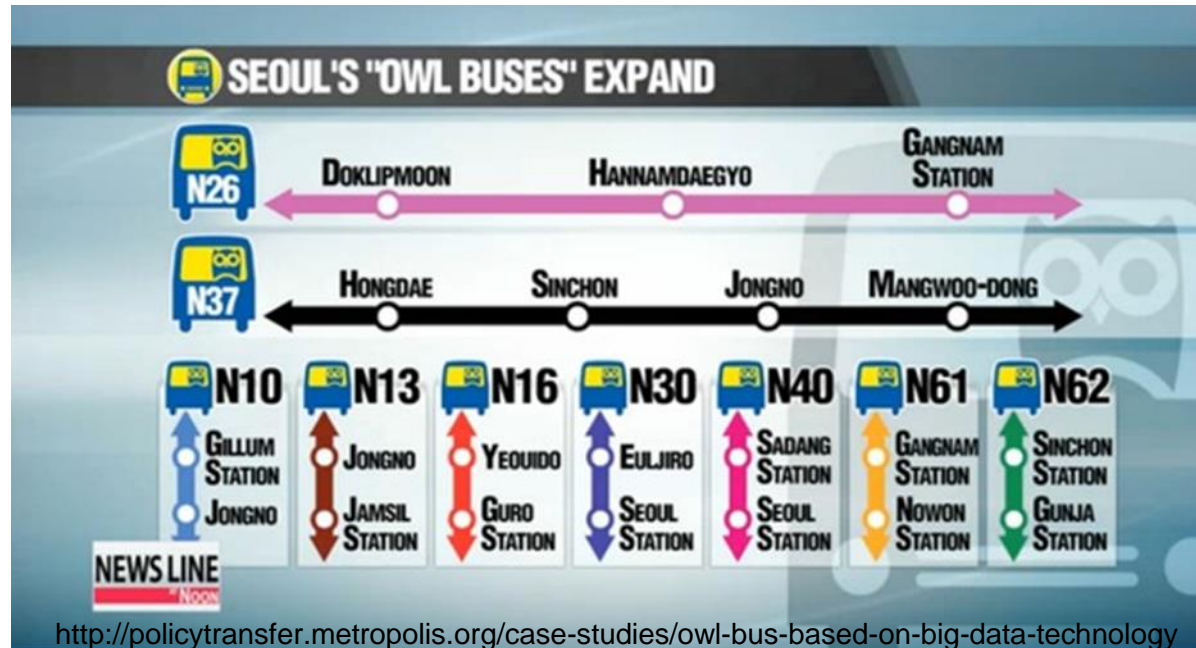
http://www.newstap.co.kr/news/articleView.html?idxno=39994

☐ Industry
- Industry IoT
- Smart Factory

☐ Lifestyle
- Safe and Convenient Lives
- Connected Car

IV-3. Public Service

SEOUL'S "OWL BUSES" EXPAND

http://policytransfer.metropolis.org/case-studies/owl-bus-based-on-big-data-technology

- Decision midnight bus (Owl Bus) routes in Seoul by smartphone usage big data
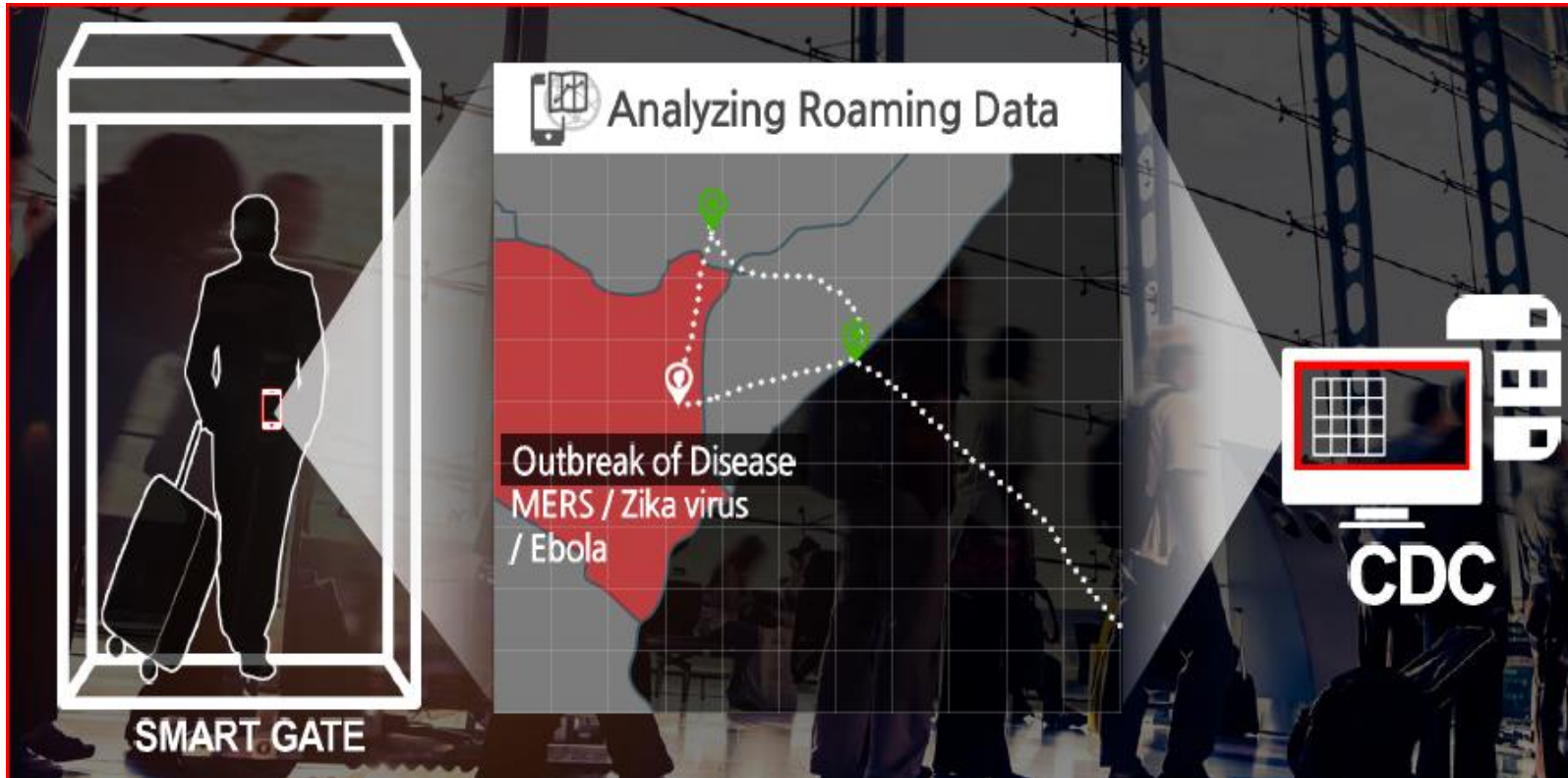
- Infectious disease prevention system

□ IoT for Public Service

- IoT is valuable in public service.
 (Transportation, Health, City life,
Education, ……)

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