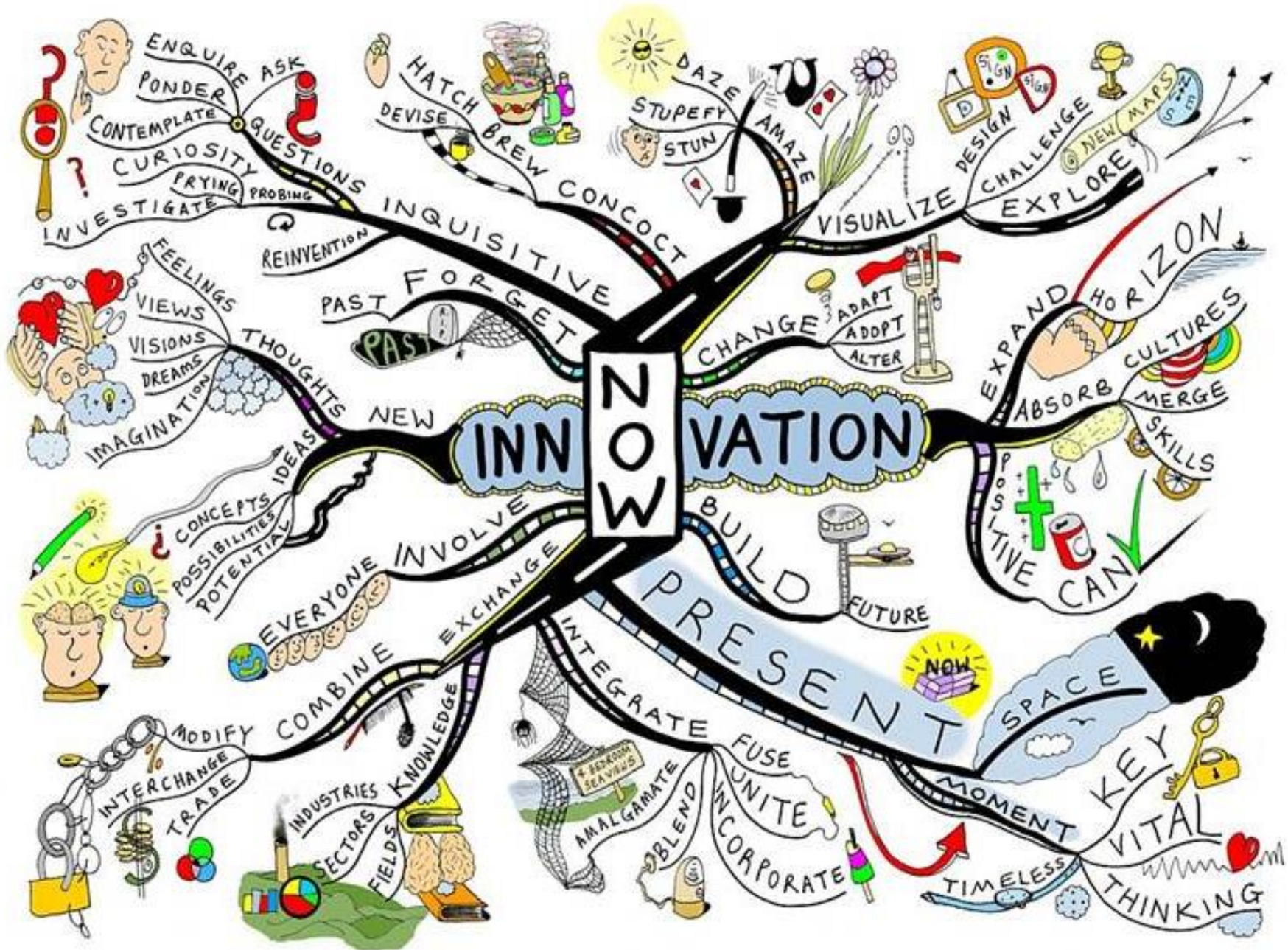


The Samsung logo, consisting of the word "SAMSUNG" in white, uppercase, sans-serif font, centered within a dark blue, horizontally-oriented oval shape.

SAMSUNG

# Internet of Things

(Mobility: Infrastructure and Application)



# What is current situation?

In the last minutes...somehow...

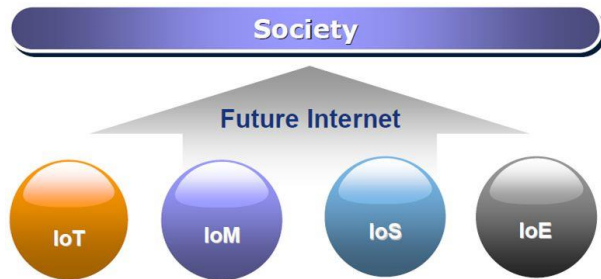
- 200+ million emails sent
- 70,000+ hours of music listened to on streaming radio
- 20+ million photo views
- 200,000+ tweets
- 6+ million views and 300,000+ Facebook Logins
- 2.7+ million Google searches

.... And bunch of people interested to explore more in here....

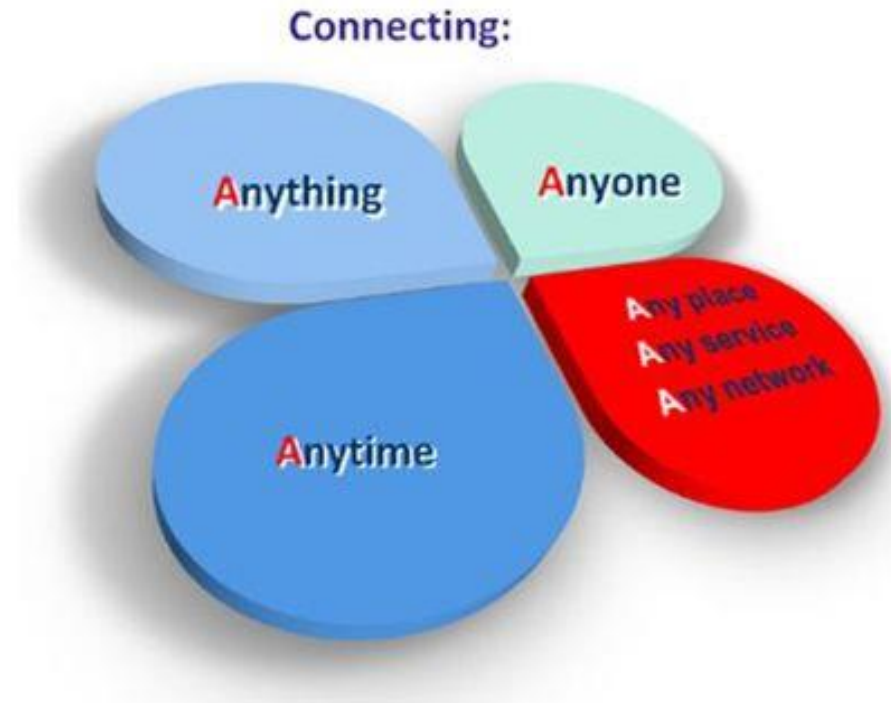
**Emerging technologies will change everything – how we work, how we live, how we communicate....**

# What is the main Context of IoT research and applications?

Internet of Things is an integrated part of the *Future Internet*, which includes IoT, IoM (media), IoS (services), and IoE (enterprises) and provides respective applications to society



Means of connecting  
“things” (smart objects)  
in IoT applications:  
things / data / semantic  
integration



# Mega evolution...

- **Urbanization - “City as a Customer”** Mega Cities, Mega Regions, Mega Corridors and Mega Slums. Cities, and Not Countries, Will Drive Wealth Creation
- **Smart is the New Green** Smart Cities, Smart Technology, Smart Infrastructure, Smart Energy, Smart Mobility, Smart Buildings, Smart Clouds, Smart Materials etc
- **Social Trends** So many significant ones. Gen Y, Geo Socialization, “She-economy”, Ageing Population, Reverse Brain Drain etc
- **Economic Trends** Power Shift from West to East. Beyond BRIC - the next game changers based on GDP by 2025 = Indonesia \$4.8trn, Mexico \$2.8 trn, Turkey \$2.4trn, Poland \$1.2trn etc. Africa - major future source of the worlds resources
- **Connectivity & Convergence** 80 Billion Connected Devices By 2020. 5 connected devices for every user by 2020. 5 billion internet users by 2020 (over 60% of worlds population). Connectivity Will Accelerate Convergence.
- **Innovating to Zero** Mindset change in how to think/plan innovation ie Carbon neutral cities, zero email
- **New Business Models** “Value for Many” will replace “Value for money”. ie Free-mium, Group Buying, etc
- **Health, Wellness and Wellbeing** Power shifts to the patient. Patient Centric Connected Health. Connected Health Driving New Access to Care Solutions. New treatments and patterns of care ie E-Health/M-Health, Gene Therapy, Health Kiosks, Tissue Engineering, Healthcare Tourism, Cybernetics, Non-Invasive Surgery
- **Homecentering** In-sourcing jobs, the home as the centre for work not offices, home as distribution point, more services will be targeted for home delivery not centrally ie health care moving away from hospitals to be home focused
- **Tech Vision 2020** Expect dramatic advances in 9 technology areas, in priority order; Sustainable Energy, Clean & Green Environment, Health & Wellness, Information & Communication, Materials & Coatings, Medical Devices & Imaging Tech, Microelectronics, Sensors & Control, Advanced Manufacturing and Automation

# Challenges on application level

- ➔ • **Network management** – network technologies should be reliable, intelligent, self-managed, context aware and adaptable
  - Interfaces – to refine interaction between HW, SW, algorithms, devices, ...; smart human / machine interfaces, enabling mobile SW
- ➔ • **Embedded smart functionality** – further development of sensors, actuators, storage, energy sources, middleware, sensor networks, etc.
- ➔ • **Multi-domain communications** – to enhance information and signal processing, identification technology, discovery and search engine technologies
  - Security, privacy, business safety – improvements needed by developing novel security techniques and concepts
  - Standardisation, interoperability, validation and modularization of the IoT technologies needs enhancements
  - New governance principles should be defined – free access to knowledge for further technology and business development (while maintaining respect for privacy, security and safety)

# Challenges on technology enablers

- Energy – ultra low power devices needed
- ➔• **Intelligence** – capabilities of self-awareness, adaptability, inter-machine communication, knowledge discovery, etc.
- Communication – new smart antennas, protocols, APIs, together with network management and visualization techniques need to be developed
- Integration – wireless ID technologies (RFID) should be integrated to devices
- Dependability – individual authentication of billions of heterogeneous devices
- ➔• **Semantic technologies** – large scale distributed ontologies, semantic discovery of devices, semantic web services, rule engines, ...
- ➔• **Real world IoT scenarios** – to evaluate IoT solutions in real large-scale industrial applications; to illustrate business-based scenarios
- Modeling and design – innovative M-D frameworks needed for large scale IoT systems
- Interoperability, standards – ensure interoperability of devices by integrating different standardized architectures, protocols, etc.; define open standards and reference models
- Manufacturing – to lower costs of key technologies (e.g., RFID)

# So what?

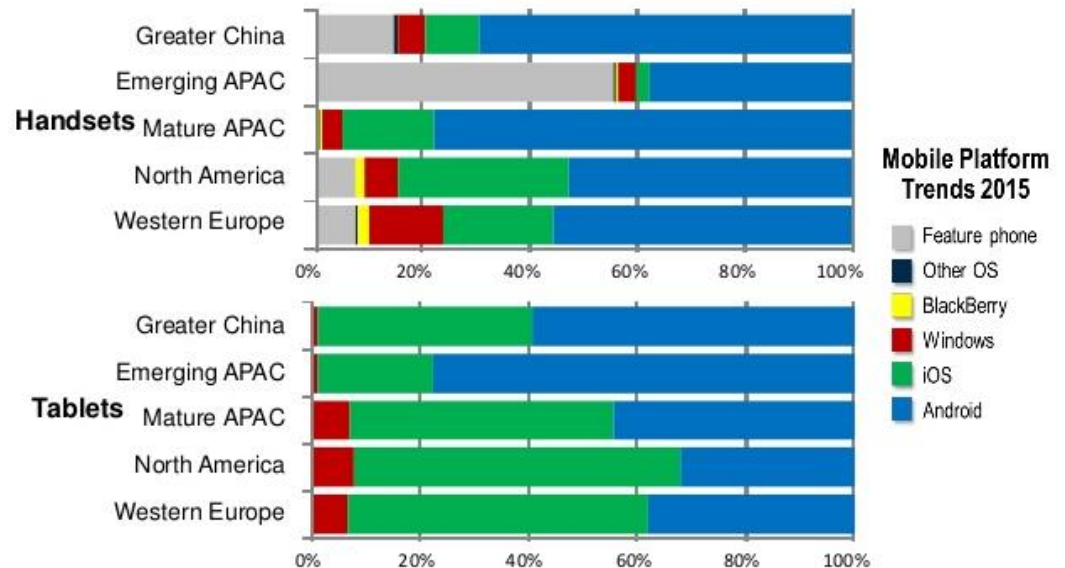
## Really?

- Emerging technologies will be the dominant driver of disruptive change for the foreseeable future, bringing significant opportunities and threats

- In the race to the future, organizations that back the right emerging technologies may survive and prosper – those that don't, won't

- Organizations face more uncertainty now than at any point in living memory
  - Which emerging technologies to back?
  - How to deliver the value and mitigate the risks of the emerging technologies they back?

### Mobile Devices - No Single Vendor or Platform Will Dominate





# Mobile in Emerging Business

## 2014 IoT Trend in Mobile Computing

- Mobile devices battles continue
- Mobile apps and ecosystem
- Cloud management – personal and hybrid
- Smart and convergence devices

	Mobile	Big Data/Analytics	Social Media
Mobile	17% Only Mobile	18% Both Mobile and Big Data	17% Both Mobile and Social Media
Big Data/Analytics		11% Only Big Data	8% Both Big Data and Social
Social Media	21% All Three Technologies		8% Only Social Media

**Mobile Trend somehow become a combination trend instead of isolation;**

*It becomes even more important to be able to deploy technology capabilities integrated across technologies*



# Bottom line of discussion...

Focus the usage to uncover values!

## Conclusions

- A **seismic shift** in technology is occurring
- Mobile-centric trend and technologies increasingly define **user experiences**
- Information and Social **(So-Lo-Mo)** becoming elements that deeply embedded into all strategic trends.
- Advanced technologies (e.g., semantics, Aml, web services, clouds, ...) could be applied, but a shift from research to real business is necessary
- Wider involvement of users, e.g by means of R&D Lab approach, is needed

**Manage**

Optimize utilization

**Monetize**

Pay-per-use

**Operate**

Remote operation

**Extend**

Provide digital services & content

# Samsung R&D Institute Indonesia

the Culture



# DISCOVERY STARTS HERE

**THE END  
IS NIGH**

THEREFORE DO YOUR  
IMPORTANT PAPERWORK  
NOW, THIS MORNING,  
BECAUSE IF YOU LEAVE IT  
UNTIL THIS AFTERNOON  
YOU MIGHT FIND THAT  
IT IS TOO LATE, THEREBY  
LEAVING YOU IN A BIT  
OF A PICKLE



```
if(funny)
{
  laugh(haha());
}
else if (unFunny || rlyFunny)
{
  end presentation();
}
```