Roadmap for 4IR and IoT

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Start of another Industrial Revolution...

The Next Big thing is
A trillion Small things

1.0 Steam Engine
Industrial Age

2.0 Mass Production
Machine Age

3.0 Automation
Information Age

4.0 Intelligence Age
Unlimited Access to Knowledge

Printable Solar Cells
Anything to be a Power Generator

Unprecedented Processing power
Storage to go from 4 ZB to 44 ZB

Courtesy: www.wclarken.org 2016 - the fourth industrial revolution what it means and how to respond
ICBM
Startups use advances in technology and computing intelligence to create new kinds of businesses.
There are now more Connected Devices than People
Data at the edge creates a new computing ecosystem
On February 14, 2011, IBM Watson made history.

Result of IBM Research “Grand Challenge”
On February 14, 2011, IBM Watson made history.
Opportunity: Most data collected from devices is never turned into insights.

90% Volume of data created at the edge of IoT that is never captured, analyzed or acted upon.

60% Amount of that data that loses its value within milliseconds of being generated.

2X Rate of data creation compared to the expansion of bandwidth over the past decade.

By 2017 The collective computing and storage capacity of smartphones will surpass all worldwide servers.
Information is being captured from everywhere. But, turning information into insight is the key.

30 billion
RFID tags embedded into our world and across entire ecosystems

1 billion
Camera phones in existence able to document accidents, damage, and crimes

85%
Of new automobiles will contain event data recorders collecting travel information

15 petabytes
Of new information is generated every day and can now be managed

1 petaflop
Or one quadrillion operations per second can be calculated

1 square kilometer
Of granularity for weather prediction can be modeled and measured
The need for smart technology is everywhere

$48 \text{ billion}$ worth of food was thrown out last year

$70 \%$ of the world’s population will live in cities by 2050

$90 \%$ of the data in the world today has been created in the last two years

$1.5 \text{ million}$ people in the U.S. are harmed every year due to medical prescription errors

$93 \text{ billion}$ lost by retailers because the right products weren’t in stock
IoT offers a transformative business opportunity -- driving innovation and stimulating economic growth.
Inexpensive Open Hardware Platforms are Driving Innovation

An ARM-based computer running GNU/Linux is as little as $25. RasPod turns your Raspberry Pi into a music server. CHIP is $9.
Frontier Tech: Cyber-Physical Systems are the Fourth Industrial Revolution.

Artificial Intelligence

Autonomous vehicles

Genomics and Neuroscience

3D Printing or Additive Manufacturing

Virtual and Augmented Reality

Internet of Things

Robotics and Drones

Space
IoT solutions incorporate big data, analytics, machine learning, AI.
Global transformation on Industrial Revolution 4.0

Connected Mobility

Smart Production

Home Automation

Edutech

Physical

Digital

Fusion 4.0

Biological

Smart Retail

Smart Decision

Medtech

Smart Logistics

Courtesy: www.weforum.org/2015—the fourth industrial revolution: what it means and how to respond
Data is the Next Oil
Mukesh Ambani, 2017
Transformation to 4.0

Don’t innovate to stay competitive;
Innovate to change the rules of the game

Disruptive Technologies

Make electronics for Non-Electronics

Creating Intelligent Products

Design led mfg.

Factory Mgmt. & Operations

25% of tech workforce will be contingent

50% of business app will be in cloud

80% of all process will be eliminated

Courtesy: Ray Duggan | ex Chairman Convex/Sevcon
Technology Continues to Evolve...

... from Stethoscope to Augmented Reality

Intensive Manual labour to Robots and Cobots...

Manual to Smart Automation...
Road Map for Enhancing Value Addition

✓ Think Big, Think Scale
✓ Connecting to global Ecosystem
  ➤ Supply Chain
  ➤ Technology
  ➤ Mega trends
✓ Understand global transformation
  ➤ Focus on Smart products

Dual Challenge for KOREA
Grow the electronic business within the unprecedented Global transformation

Emerging scenario plays into Korea’s strength
Blue Origin
Step by Step Ferociously