Industrial revolution by IT evolution

November 17, 2015

Japan OSS Promotion Forum
Chairman, Masatoshi YOSHIDA

(Fujitsu, Senior Vice President Software Technology Unit)
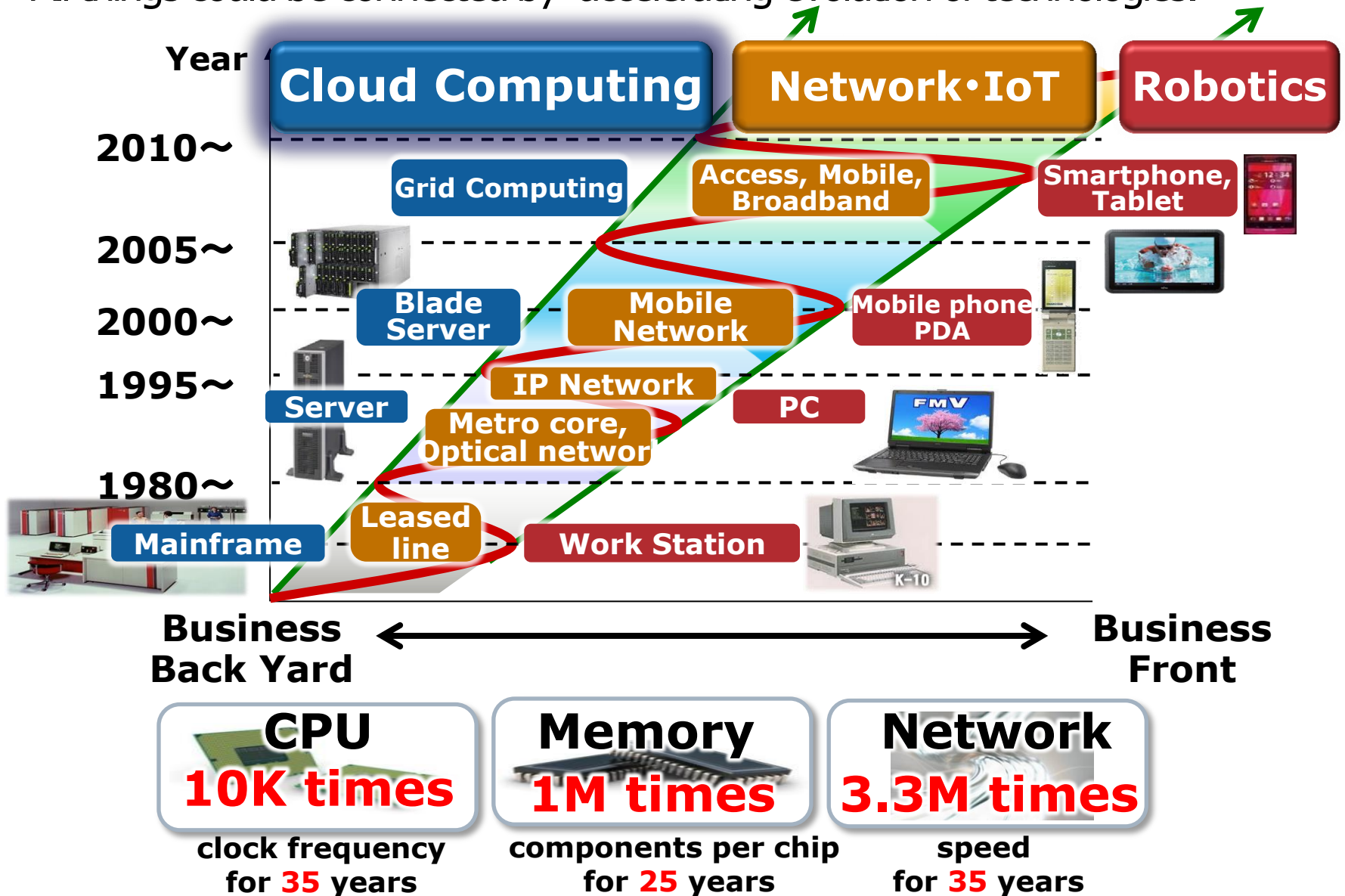
Japan OSS Promotion Forum

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IT evolution

Japan OSS Promotion Forum

■ All things could be connected by accelerating evolution of technologies.

Year

| | Cloud Computing | Network・IoT | Robotics |

2010~

- Grid Computing
- Access, Mobile, Broadband
- Smartphone, Tablet

2005~

2000~
- Blade Server
- Mobile Network
- Mobile phone PDA

1995~
- Server
- IP Network
- PC
- Metro core, Optical network

1980~
- Mainframe
- Leased line
- Work Station

Business Back Yard ←——————→ **Business Front**

CPU	Memory	Network
10K times	**1M times**	**3.3M times**
clock frequency for **35** years	components per chip for **25** years	speed for **35** years

IT evolution

- The impossible becomes the possible with the power of ICT.

Life Log

Information Appliance

SNS, Twitter

Car Navigation
Vehicle Terminal

Smart Phone

PDA

Note PC

Digitization progress by the IT evolution
3.6B Smart Devices (-2018)
2B   M2M Devices   (-2018)
1T   Sensors   (-2023)

GPS

Tablet PC

2020

RFID Tag

U H F

1960 1980 1990   2000   2010

MF   Mini Con   PC   Desk Top Internet   Mobile Internet

Internet of Things

IP Phone

Digital Signage

1M 10M 100M   1B   10B

50B

ATM/MMK

Power

Disaster Management

Hand Held Terminal
Portable payment terminal

IC Card

Electronic paper   Vending Machine   Eco System   Biometric Authentication

3

IT evolution

☐ The dramatic changes in the IT environment moves the industry

- ✓ DELL Acquires EMC. HP turns into two companies.
- ✓ Different industries entry.

  (Ex. Google and Apple have entered the automotive industry)

☐ A new innovation, is achieved in open innovation

- ✓ Many companies entered the OpenStack development for Open Innovation.

  (Platinum=8,Gold=18,Corporate=126 at Nov. 4)

OpenStack Summit Tokyo 2015

OpenStack Foundation Board of Directors
Chairman Mr. Alan Clark in board meeting
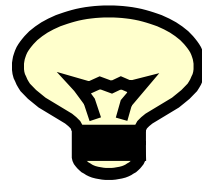
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Industrial Revolution

- **4th Industrial Revolution will come soon.**
- **Cyber-Physical Systems & IoT promote new revolution.**
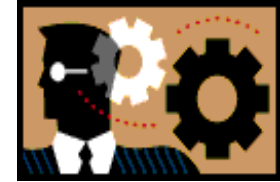
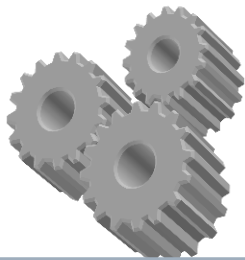**4th Industrial Revolution**
The autonomous
by IoT & AI
21 century ～

3rd Industrial Revolution
Automated by IT
20 century ～

2nd Industrial Revolution
The mass production
by electric power
19th century ～

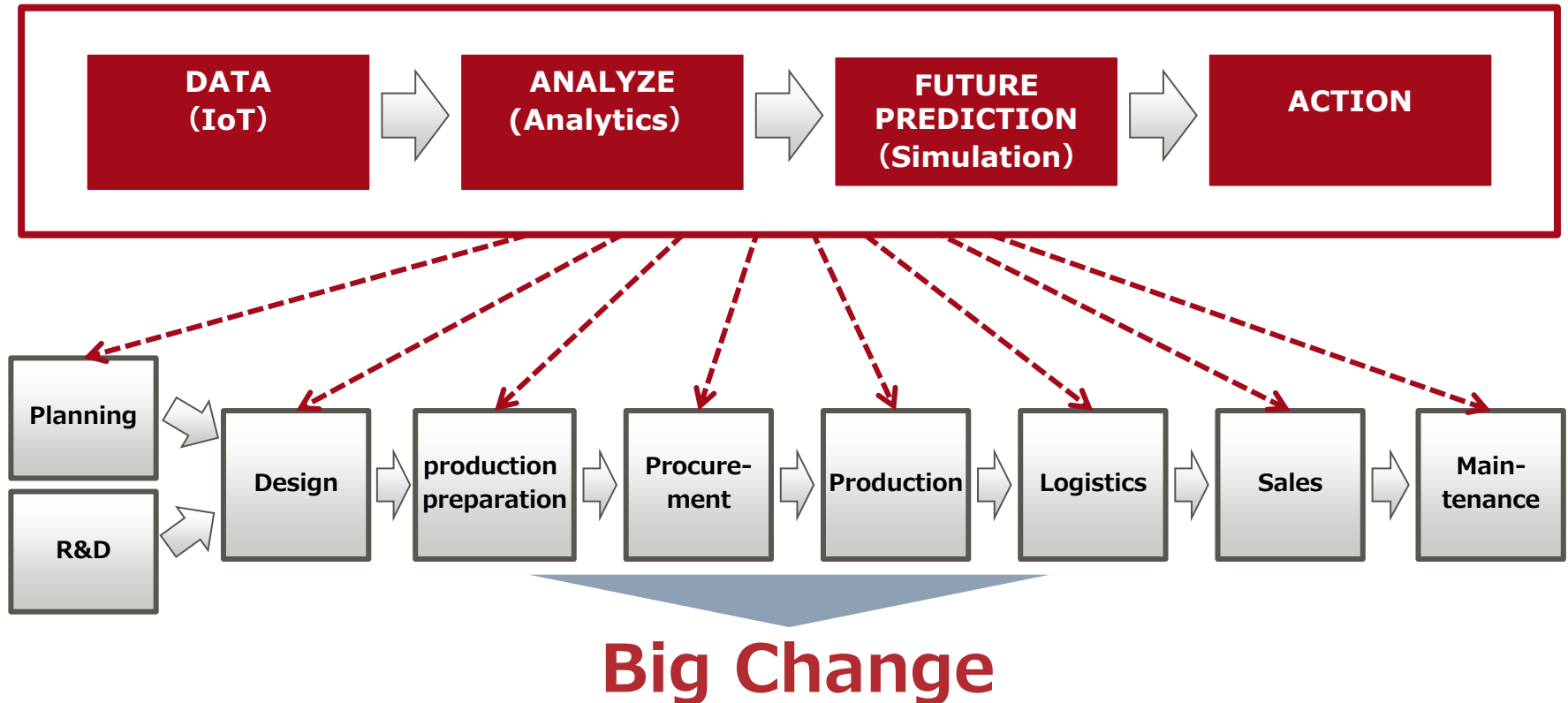**1ST Industrial Revolution**
The industrialization
by steam power
18 century ～

Industrial Revolution

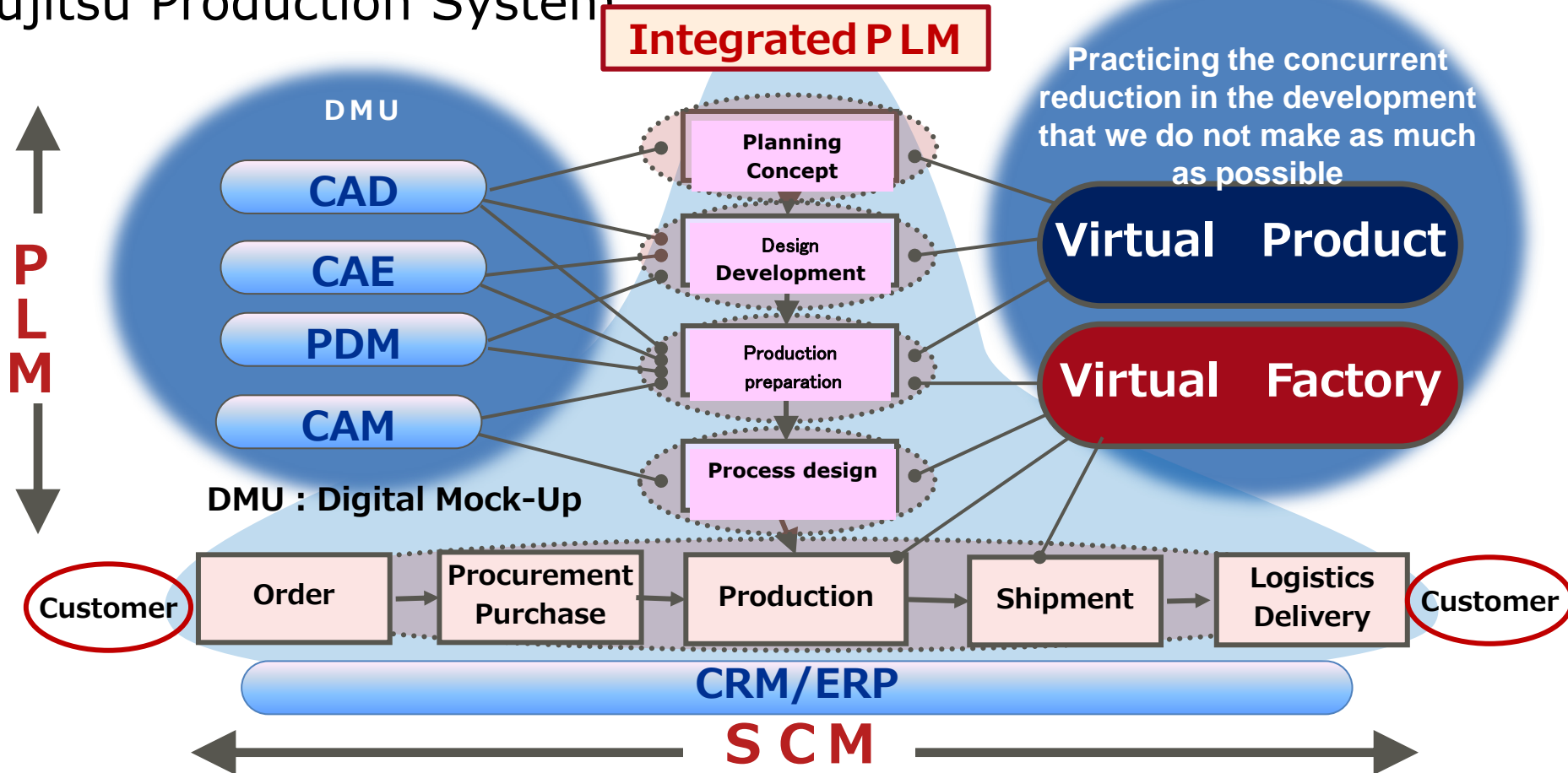Smart Factory   **Industry4.0 IIC**

- ☐ IoT accelerates the digitization of the factory.

- ☐ IoT collects the data and Analysis system analyzes the data and Simulation is to predict the future.

- ☐ Big changes began in all of the Manufacturing and SCM.

| DATA (IoT) | → | ANALYZE (Analytics) | → | FUTURE PREDICTION (Simulation) | → | ACTION |

Planning
R&D
→ Design → production preparation → Procure-ment → Production → Logistics → Sales → Main-tenance

Big Change

Industrial Revolution

☐ Integrated PLM is to strengthen the production cooperation and the planning capabilities and development capabilities.

Fujitsu Production System

Integrated PLM

DMU

CAD
CAE
PDM
CAM

DMU : Digital Mock-Up

Planning Concept
Design Development
Production preparation
Process design

Practicing the concurrent reduction in the development that we do not make as much as possible

Virtual   Product

Virtual   Factory

P
L
M

Customer | Order | Procurement Purchase | Production | Shipment | Logistics Delivery | Customer

CRM/ERP

S C M

Embedding advanced ICT in the whole area of manufacturing

Collaborating and integrating PLM and SCM
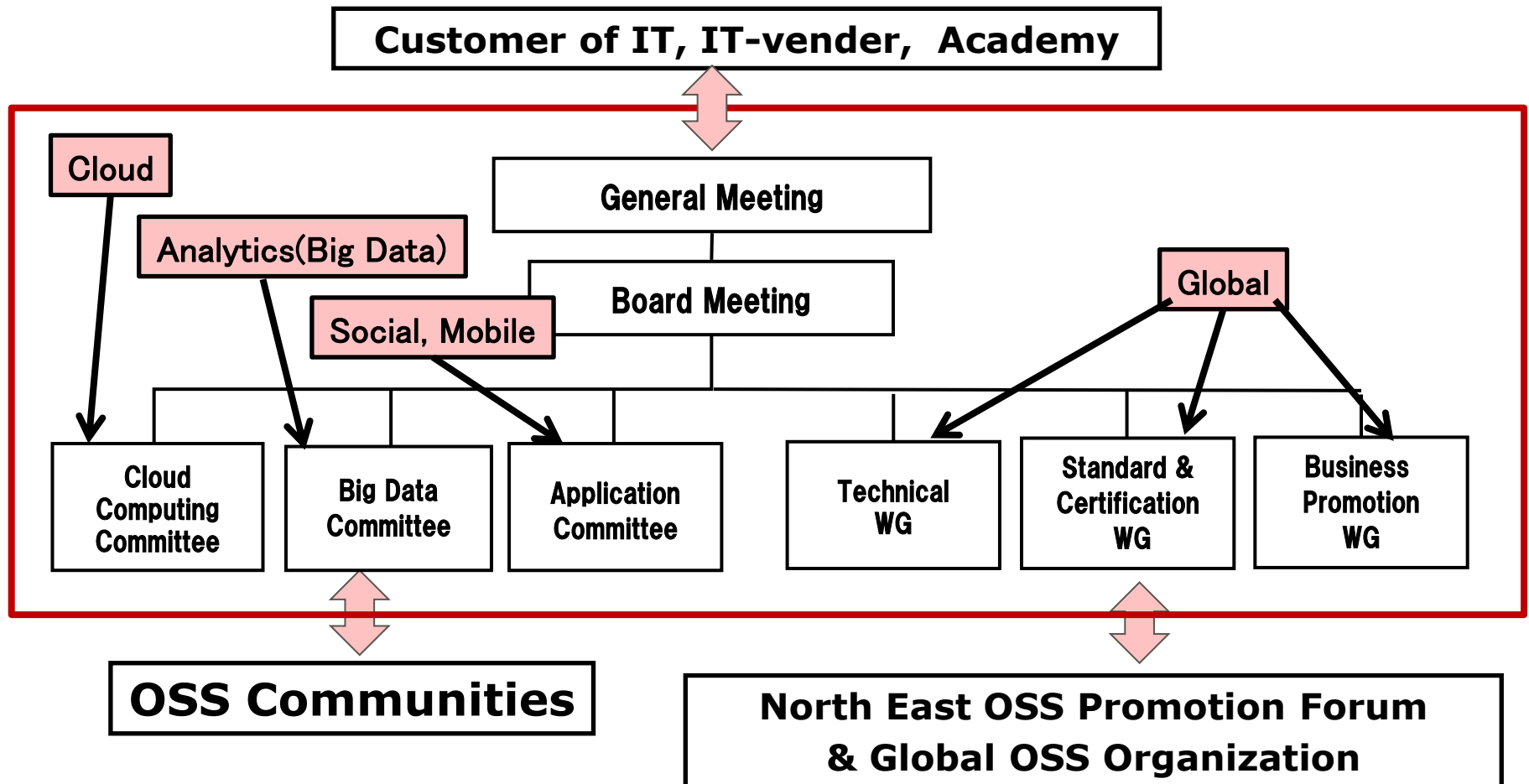
Aggregating the knowledge of the field in-house

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2. Industrial Revolution

3. ***Japan OSS Promotion Forum(JOPF)***
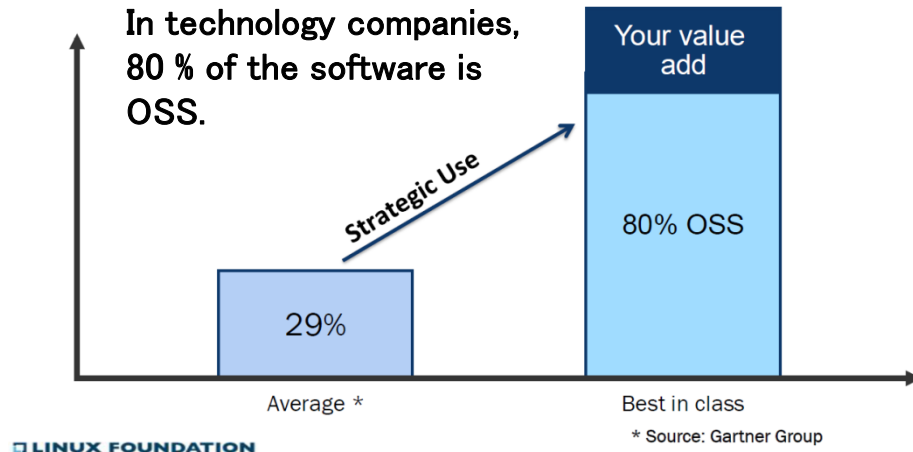
Policy and Structure of JOPF

■ Our current activities

✓ **3 committees are organized to study SMAC (Social, Mobile, Analytics, Cloud) and IoT.**

✓ **3 WG are organized to study global activities.**

Customer of IT, IT-vender, Academy

Cloud

Analytics(Big Data)

Social, Mobile

General Meeting

Board Meeting

Global

| Cloud Computing Committee | Big Data Committee | Application Committee | | Technical WG | Standard & Certification WG | Business Promotion WG |

OSS Communities

North East OSS Promotion Forum & Global OSS Organization

JOPF OSS Symposium 2015

☐ Japan OSS promotion Forum "OSS Symposium 2015" Keynote

"The role of open source in global competitiveness"

The Linux Foundation Executive Director　Mr．Jim Zemlin

✓ OSS is used in new technologic area.　(IoT, Auto Mobile)

80 percent of the software in any Tesla car is open source.

85 percent of the software in any GoPro Camera is open source.

✓ In the figure below, HW is commoditized and SW is also commoditized by OSS, so discrimination region is small.

For example, if 80% of the innovation is to use the results of external R & D, external R & D use strategy is important

✓ MS declared "Loves Linux" and now MS is one of the companies that actively contribute to the OSS.

In technology companies, 80 % of the software is OSS.

Your value add

Strategic Use

80% OSS

29%

Average *

Best in class

* Source: Gartner Group

☐ **LINUX FOUNDATION**

Microsoft Loves Linux says Satya Nadella

Thank you very much
谢谢
감사합니다
ありがとうございました