Investment for the Future

- Society 5.0 -

(Conference “Reinventing Europe’s Industrial Leadership” organized by Orgalim)

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Introduction: Megatrends that both the EU and Japan are facing

OECD Report “2016 An OECD Horizon Scan of Megatrends and Technology Trends in the Context of Future Research Policy” has identified:

- **First megatrend**
  Decline of Europe's share in population from current 10% (738 million) to 7% (707 million) by 2030, due to global population growth in less-developed countries
- **Second megatrend**
  Climate Change
- **Third megatrend**
  The center of gravity of the world economy is shifting east and south, away from the West.
- **Fourth megatrend**
  Continuing Globalization
- **Fifth megatrend**
  The impact of digital technologies on productivity, income distribution, well-being and environment; by 2030 firms will be predominantly digitalized.
- **Sixth megatrend**
  While disparities across countries are expected to narrow, inequalities within EU member states will pose major political, social and economic risks in the coming years.
- **My additional megatrend (the seventh)**
  Values: A space of democracy and freedom will become almost universal.

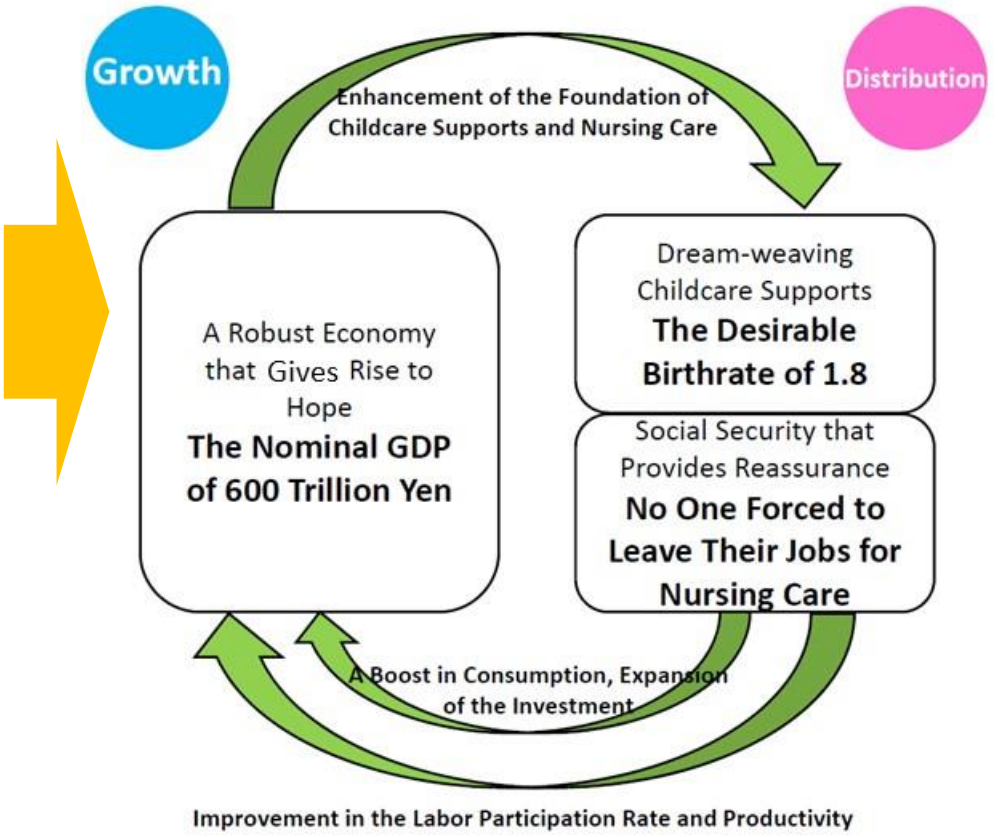
Dynamic Engagement of All Citizens

It is necessary to let all citizens dynamically engage in society to overcome the challenges posed by the megatrends.

Prime Minister Abe of Japan stated on 7 October 2015:

"This cabinet is a "**cabinet that strives for a better future**". We have to stop the declining birthrate and aging population, and maintain the population of 100 million after 50 years. We will create a society where everyone, including **elderly people**, **young people**, **women and men**, **those with intractable diseases and disabilities**, can take a step forward. The Abe Cabinet begins a new challenge to **open up a brilliant future of all 100 million citizens engaging in the society**."

"Japan's Plan for Dynamic Engagement of All Citizens" 2 June 2016



[source: Prime Minister's Office of Japan]

Society 5.0

Society 5.0 was first advocated for in "**the 5th Science and Technology Basic Plan**" (Cabinet Decision on 22 January 2016) as a future society to which Japan should aspire:

- ✓ To realize **the advanced fusion of cyberspace and physical space**,
- ✓ **To balance economic advancement with the resolution of societal problems**,
- ✓ To bring about a **human-centered society**.

[source: Cabinet Office of Japan]

How Society 5.0 will affect the future of work

＜Changes in the working environment＞

No restrictions on place and time

Shift to the virtual workplace

Many jobs will become doable at any time and place

＜Changes in Work Style＞

Exploitation of untapped human resources

⇒Opportunities where women, the elderly, the disabled and foreigners can be dramatically expanded.

⇒Maximization of Individual productivity according to their lifestyle and life stage.

Expansion of new forms of employment that are different to conventional jobs

⇒Teleworking, side jobs, multiple jobs, increase in forms of work that are similar to employment.

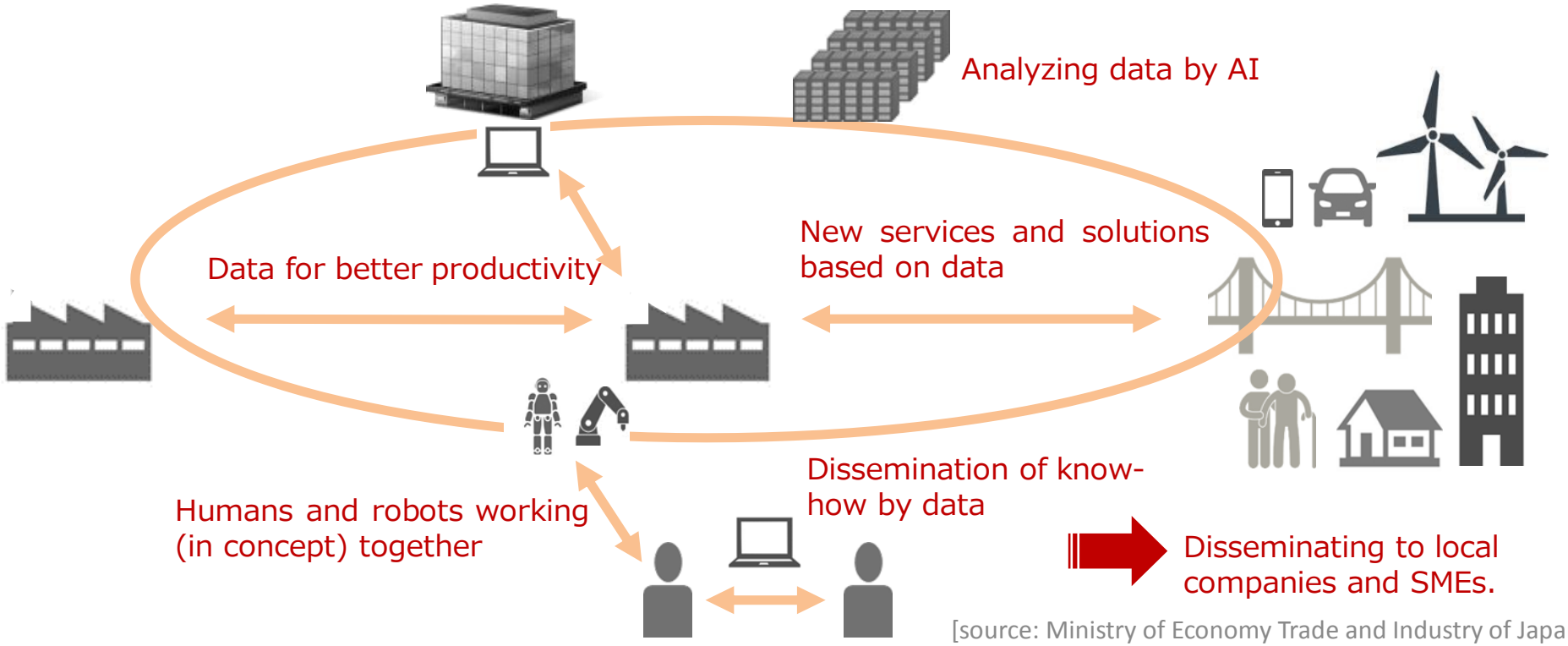
⇒Tailoring of work-life balance according to preferences and needs

（Note）Created by Mission of Japan based on “Growth Strategy 2018” and ”Future of Work 2035 -For Everyone to Shine-“ report

How Society 5.0 changes industries: “Connected Industries”

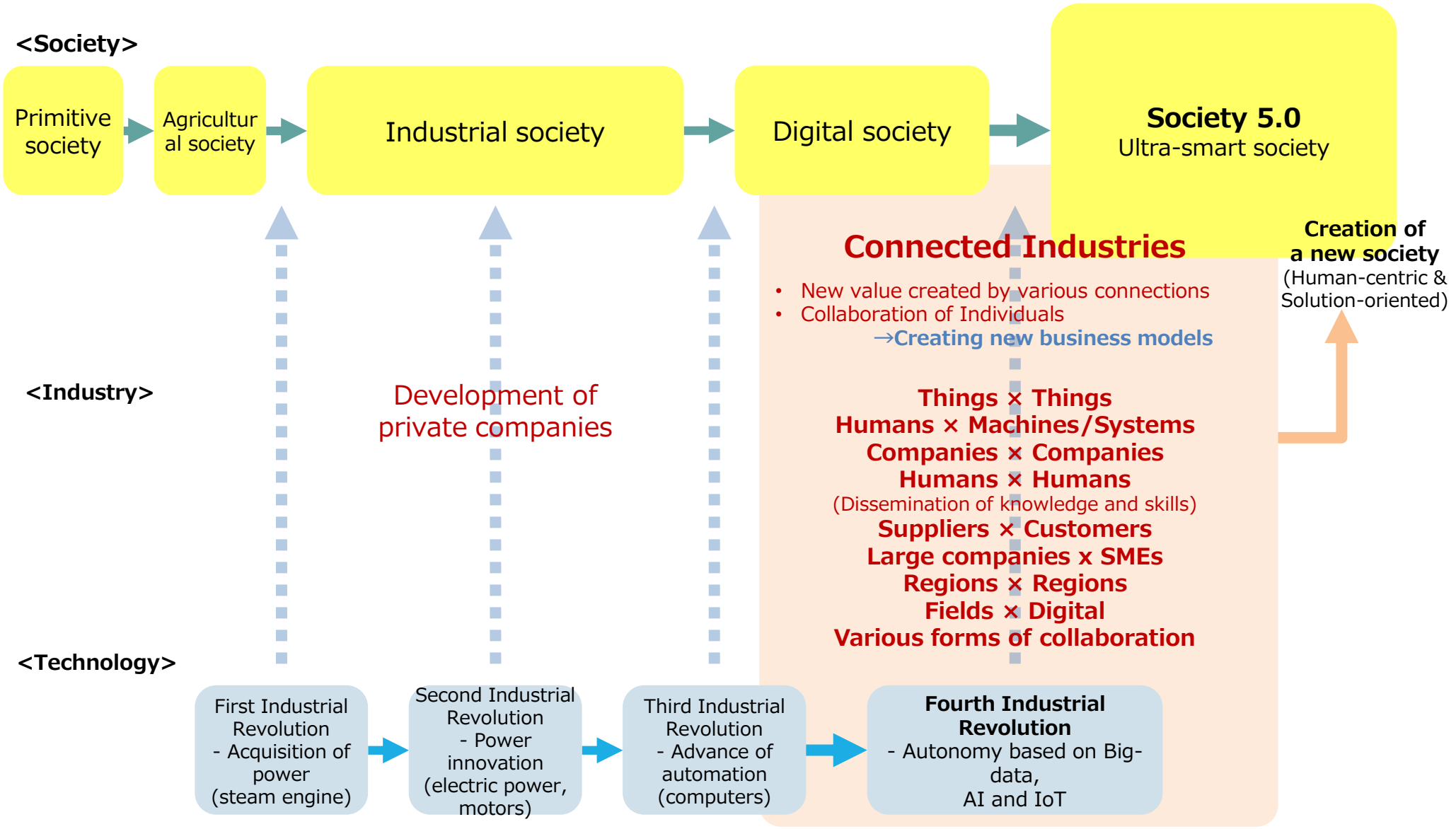
“**Connected Industries**” is a concept in which a variety of industries, companies, people, machines and other societal elements are connected via “**Real Data**”.

- ✓ To create new added value and products/services using AI, IoT and other technologies, and to improve productivity
- ✓ To solve societal challenges, such as “aging”, “labor shortages” and “environment and energy restrictions”.



[source: Ministry of Economy Trade and Industry of Japan]

“Society 5.0” and “Connected Industries”



[source: Ministry of Economy Trade and Industry of Japan]

The birth of “Connected Industries” at CeBIT

- Japan participated, as a partner country, in CeBIT 2017, a global event for digital business held in Germany in March 2017.
- Prime Minister Abe delivered a speech on **the “Connected Industries” policy concept,** promoting it as the ideal approach for Japanese industries.
- In addition, METI Minister Seko, MIC Minister Takaichi and Minister Zypries, Minister for Economic Affairs and Energy, Germany, concluded and released **the Hannover Declaration as a Japan-Germany joint statement** concerning the fourth industrial revolution.

Minister Abe delivering speech

Meeting between Minister Seko and Minister Zypries

[source: Ministry of Economy Trade and Industry of Japan]

Five Priority Fields under the “Connected Industries”

Automated Driving and Mobility Service

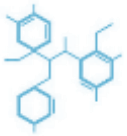
・Enhancing AI and related human resource development.
・Establishing future vision

Manufacturing and Robotics

・International standardization of data rules including formats
・Enhancing inter-company collaboration in harmonized fields

Plant/Infrastructure Safety Management

・Improving technological capability for safety through utilizing IoT
・Developing guidelines and other common rules for harmonizing data across companies



Biotechnologies and Materials

・Achieving joint utilization of data across companies in harmonized fields
・Establishing an AI technology platform for commercialization

Smart Life

・Discovering potential needs and materializing possible services
・Data collaboration through inter-company alliances

Cross-sectoral Policies under the “Connected Industries”

Sharing and Utilization of “Real-Data”
(e.g. Supporting measures for developing AI systems through collaboration between companies)

Environmental improvement for Data Utilization (R&D, HR development and cyber security)
(e.g. Enhancing efforts for human resource development in the field of data.)

Further expansion of initiatives (Global, venture and local companies and SMEs)
(e.g. Enhancing worldwide cooperation)

[source: Ministry of Economy Trade and Industry of Japan]

"Strategy on Investment for the Future" renewed in 2018

Japan's "**Strategy on Investment for the Future**", decided on 9 June 2017 and renewed on 15 June 2018 by the Cabinet, aims to facilitate **societal changes by innovation and structural reform** in order to realize Society 5.0.

1. 9 priority areas identified for the implementation of pilot projects:

Mobility System	Healthcare System	Energy Transitions and Decarburization
FinTech	Digital Government	Infrastructure
Smart City	SME Productivity Revolution	Agriculture, Forestry and Fisheries

(A conventional approach will not be taken to implement pilot projects in such areas)

2. Basis for economic structural reform to be developed:

1) Common infrastructure for a data-driven society

- ✓ Promotion of investment in basic systems and technologies (ex. AI chips, next generation computing, 5G)
- ✓ Development and optimal use of human resources in the field of AI
- ✓ University reform that creates innovation and industry-academia-government collaboration

2) Drastic regulation / system reform

- ✓ Utilization of regulatory sandbox system and shift from vertical regulation by Ministries
- ✓ Establishing rules to respond to the rise of platformer businesses

International discussions on AI principles

Japan has been engaged in international discussions on AI principles for a long time.

"**G20 AI Principles**" was adopted as the Annex of G20 Ministerial Statement on Trade and Digital Economy on 9 June 2019.

Proposal by Minister of Internal Affairs and Communications of Japan (Apr, 2016)

It is necessary to begin discussions and considerations toward an international guideline consisting of principles governing R&D of AI to be networked.

AI R&D Guideline (Draft)

G7 ICT AND INDUSTRY MINISTERS' DECLARATION (Sep, 2017)

We share the vision of human-centric A.I. which drives innovation and growth in the digital economy.

Conference on Artificial Intelligence - "AI: Intelligent Machines, Smart Policies" (Oct, 2017)

supported by the Ministry of Internal Affairs and Communications of Japan (MIC)

The Charlevoix G7 Summit Communique (Jun, 2018)

We recognize that a human-centric approach to AI has the potential to introduce new sources of economic growth, bring significant benefits to our societies and help address some of our most pressing challenges.

A Global Conference: Principles for AI: Towards a Humanistic Approach? (Mar, 2019)

supported by the Ministry of Foreign Affairs of Japan (MOFA)

Mar-May, 2019

- Social Principles of Human-centric AI
- Ethics Guidelines for Trustworthy AI
- Principles for Responsible Stewardship of Trustworthy AI

June, 2019

[source: Cabinet Office of Japan]

Summary

- ✓ Collective global response to such megatrends as rapidly aging societies, climate change and disruptive/transformative digitalization revolutions, requires both a sense of crisis and urgency with strong political leadership.
- ✓ Importantly, these challenges must be addressed by dynamic & inclusive engagement of all citizens.
- ✓ Transformation to Society 5.0 is the way forward for Japan, and will let all citizens dynamically engage in the society in order to overcome the challenges posed by the megatrends.
- ✓ Work style will be significantly changed as a consequence of Society 5.0.
- ✓ “Connected Industries” is one of the key policy concepts to solve societal challenges under Society 5.0.
- ✓ Not only ICT industries, but also industries that possess “real data” will be the main players under Society 5.0.

https://www.eu.emb-japan.go.jp/itprtop_en/index.html

End of presentation