

Summary

Industrial Technology Vision 2020

Old and New Issues Call for Transformation

2020.5.29

Ministry of Economy, Trade and Industry

Directionality of Industrial Technology for 2025 and 2050

Global Mega-trend for 2050

- ① Population Peak-out ② SDGs, Circular Economy ③ Digital Economy ④ Geopolitical Risk ⑤ Resilience

True Nature of the Problem (Country approaches)

- US and China transform their economies to intellectual capitalism. Europe proposes a new value.
- Japan faces great difficulty in coping with the rapidity of global change and technological progress due to both inherent and self-constructed restraints.
- The Covid-19 crisis reveals what must be done: the extreme hardship should be used as an opportunity for positive change.

Directionality

Toward Society5.0 (for 2050)

Shift to Intellectual Capitalism Economy × Sustainable Global Commons + Digital Technology, Japanese Superiority

Basic Philosophy (for 2025) [Slide 2]

Layer 1 [Basis] Release of Individual

- ① Startup Ecosystem ② Human Resource Fluidity, Appointment of High-skill Foreign Human Resources ③ Revolution of Education

Layer 2 [Breakaway from Technocentrism] R&D, Business Strategy to Seek Competitiveness from Seed Technology

- ① R&D toward Layer Master ② Reinforcement of Global Niche Top ③ Risk Management, Portfolio to Uncertainty

Layer 3 [Resource Concentration] R&D Investment to Important Fields

(A) digital, (B) bio, (C) material, (D) energy, environment



Reinforcement of R&D on **next-generation computing technology (bases for all)** and **key technology for Intelligence of Things** [Slide 3]

Prevention of the infectious spread of Covid-19 is most important. It requires medium & long term prediction of world change and design of where Japan plays a roll. This vision will be revised as needed.

Layer 3

R&D Investment to Important Fields

(A) Digital [slide 3]

- (B) Bio
- (C) Material
- (D) Energy, Environment

Resource Concentration

Layer 2

R&D, Business Strategy to Seek Competitiveness from Seed Technology

- ① R&D toward Layer Master
- ② Reinforcement of Global Niche Top in Manufacturing, etc.
- ③ Risk Management, Portfolio to Uncertainty

Breakaway from Technicism

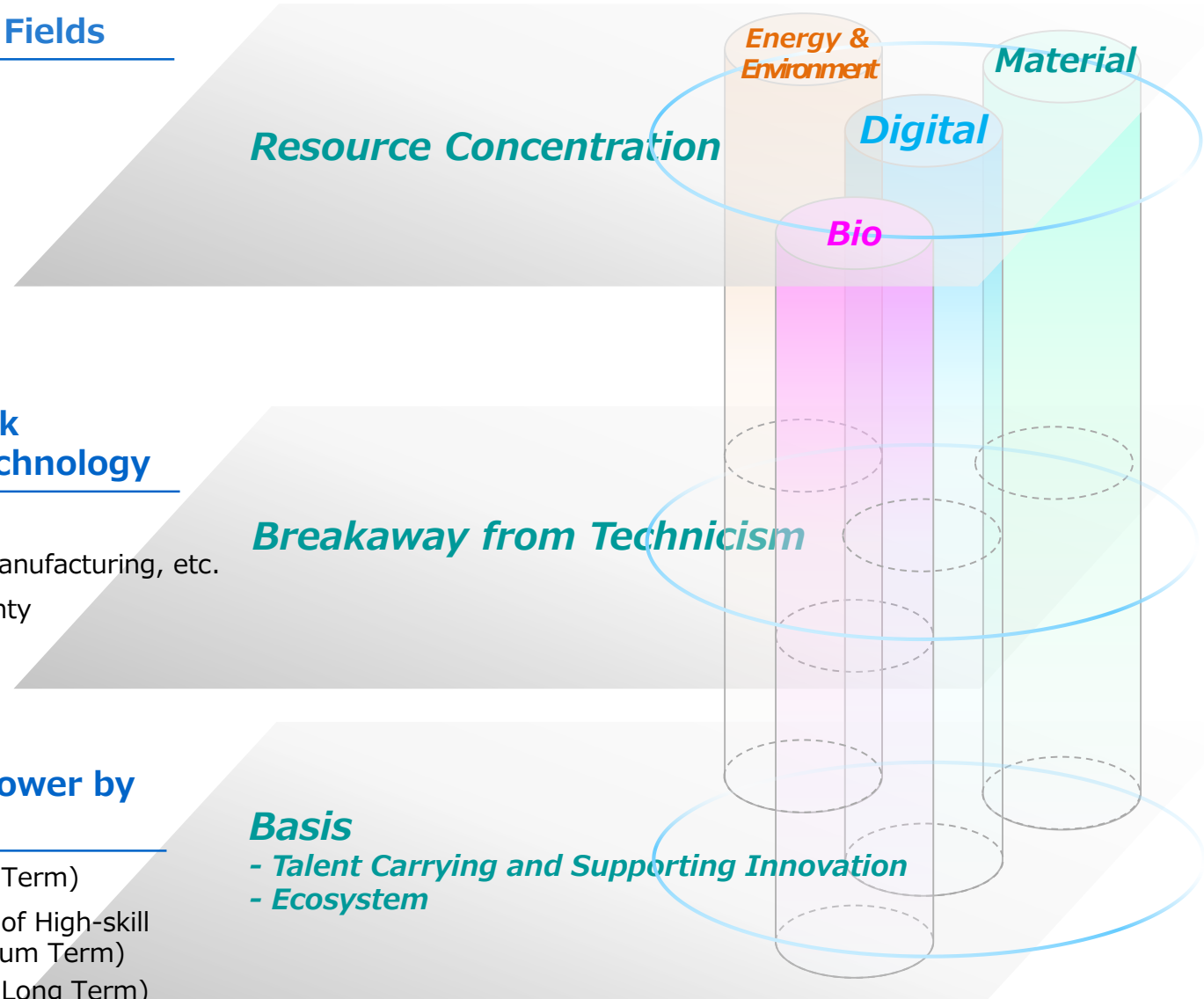
Layer 1

Reinforcement of Innovative Power by Release of the Individual

- ① Formation of Startup Ecosystem (Short Term)
- ② Human Resource Fluidity, Appointment of High-skill Foreign Human Resource (Short & Medium Term)
- ③ Revolution of the Education (Medium & Long Term)

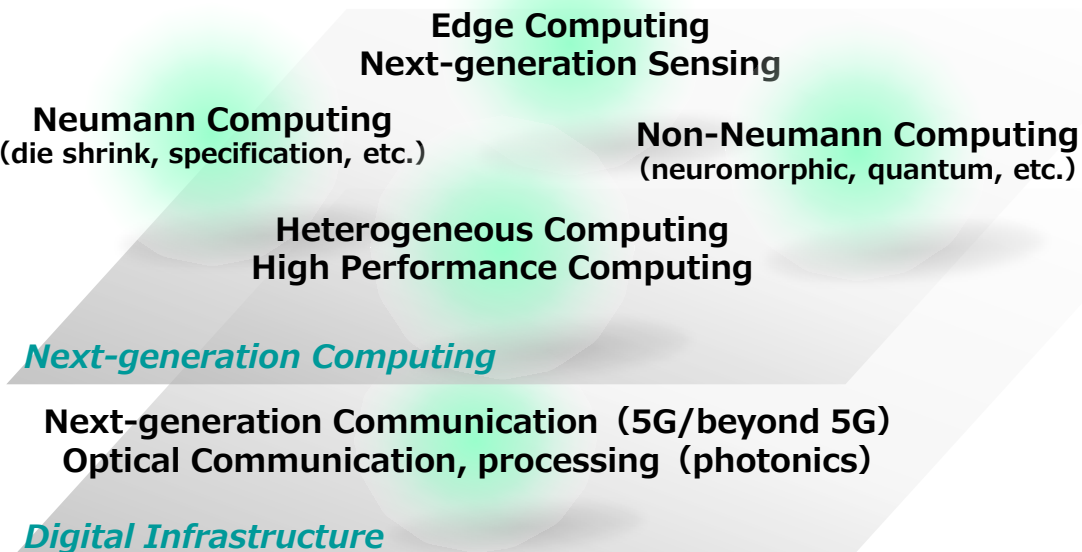
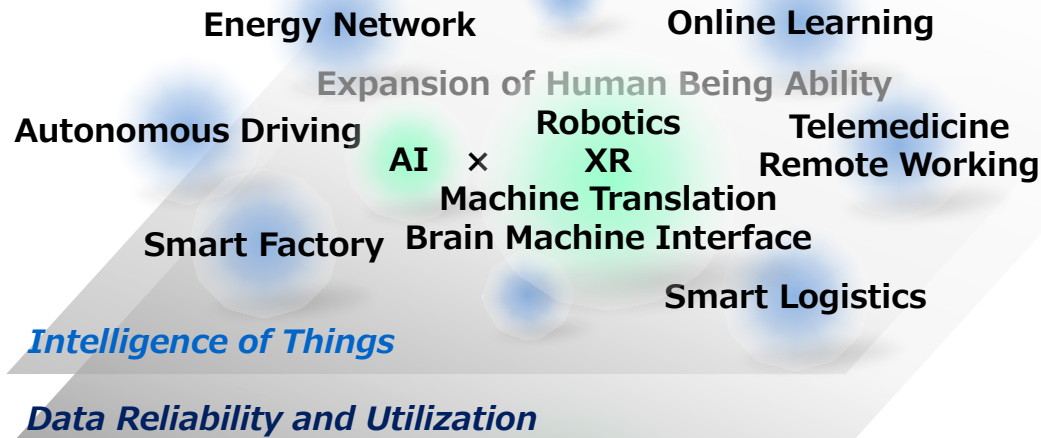
Basis

- Talent Carrying and Supporting Innovation
- Ecosystem



Next-generation Computing Tech. & Tech. for Intelligence of Things

Next-generation computing technology is the basis for all digital technologies. Computation speed, energy efficiency and miniaturization are important. R&D focused on the developing period & market size of future products should be promoted for 2025.



Mega-trend

- ① Increasing Demands for Digitalization
- ② Explosive Increase of Information Communication and Data Processing
- ③ Requirement to Save the Energy and Space
- ④ Globalization of Market and Supply Chain
- ⑤ Interest in Disaster Prevention and Security

Important Point of R&D

- Transformation from production or sales business to stock business or platform business with data acquisition & analysis, maintenance service, and version up service, etc.
- Reliability of Japanese companies on accuracy and handling of the data
- Superiority with a material, production and testing apparatus even if mass production in Japan is difficult
- New technology such as spintronics, silicon photonics, quantum computer working in normal temperature, bio sensor
- System design, software , architecture